William O'Donohue
Alexandros Maragakis *Editors*

Quality Improvement in Behavioral Health

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Chapter 1
Introduction: The Quality Agenda in Behavioral Health

William O'Donohue and Alexandros Maragakis

Introduction: The Quality Agenda in Behavioral Health

Behavioral health services have historically accounted for a small percentage of overall healthcare costs—usually around 5 %, with psychotropic medications accounting for the majority of this spending (Cummings, O'Donohue, & Cummings, 2011). While this historically low utilization of behavioral health services may be attributed to multiple factors (e.g., fragmented care, stigma, problematic accessibility), recent healthcare reform in the USA has placed behavioral health in a more central role. Thus, one would generally expect an increased demand for behavioral health services, provided that these are of the right kind and quality.

The passing of the Affordable Care Act (ACA) has changed the landscape of healthcare system in the USA, and as a result has created new avenues for behavioral health providers to play a more central role in this new delivery system (Rozensky, 2012). Behavioral health and behavioral health care is increasingly being viewed as an essential component to prevention and health maintenance, as well as managing healthcare costs. This has led to new systems of care, such as integrated care where behavioral and physical health are conjointly delivered and like the Patient-Centered Medical Home (PCMH; see O'Dononue & Maragakis, 2014), to require aspects of behavioral health care in the delivery of primary medical care. However, the ACA has also included quality improvement processes and measures in the delivery of all services. Thus, it is not "business as usual" but rather the behavioral health field faces new expectations and challenges.

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In order to meet the new demands of the ACA on field of behavioral health, some have written on potential issues with the current training of behavioral health providers (O'Dononue & Maragakis, 2014; Rozensky, 2012). There are significant workforce shortages in behavioral health both in overall numbers and in that the skill set being trained in traditional graduate school programs does not meet the needs of innovative delivery systems. It is not clear how the field will even begin to meet these. Without the proper number of professionals with the right skills, both meeting the requirements of the ACA and providing quality services will be impossible. However, beyond new training demands, the field of behavioral health must be ready and willing to make broad changes in the delivery of services in order to achieve the goals set by the ACA and consumer's needs in general. With a renewed emphasis on evidence-based care, continuity of care, consumer centric care, timely care, cost-effective care, and accountability with regard to all of these, the ACA requires providers to engage in practices that assess treatment outcomes, patient satisfactions, and cost, and provide patient-centered care which includes both prevention and treatment. This chapter is intended to provide an overview of some of the current problems that the field of behavioral health currently faces in regard to quality of care, and discuss how these problems can be overcome through the utilization of quality improvement (QI).

In a larger sense this is a critique and a proposed antidote to what we see as a new quality problem in behavioral health. The "old" quality problem is that very few practitioners delivered evidence-based care and very few practitioners evaluated the care they did provide with any sort of program evaluation or QI system. Instead Rorschachs were given, diagnostic practices were unreliable, therapies were delivered based on a wide array of other factors than evaluative evidence, and all sorts of problems with service delivery were ignored (timeliness of therapy, continuity of therapy, efficiency of therapy consumer literacy and informed choice, etc.).

The new quality crisis involves how the field is generally responding to the new opportunities provided by healthcare reforms such as the ACA, and integrated care. Here is a brief listing of the problems:

1. Few training programs are revising their curricula to teach these new skills. Graduate training is still very long and inefficient (see O'Donohue & Boland, 2012). It can take nearly a decade of graduate training before a clinical psychologist is licensed. Old problems still exist—e.g., there is still a lot of training in assessments and treatments that are not evidence based. Training models are producing too few graduates: for example a typical graduate program in clinical psychology produces fewer than ten—sometimes much fewer—graduates a year. The healthcare system will look to other degrees to fill the need.
2. There are now many dubious claims of expertise in these areas (e.g., integrated care). Professionals see opportunities and are claiming that based on their experience with behavioral medicine, or that they've worked in a medical setting, or that they took a brief workshop, that they are now experts in these areas. Behavioral health practitioner's claims of expertise and specialization need to be taken with a grain of salt—or many grains as the case may be. It is not clear what can be done about this as credentialing systems get bureaucratic and are of questionable validity. However, buyers need to be oriented toward the adage of caveat emptor.

3. Systems are innovating and developing revised delivery system with little concern with quality. These are all too often fine with the appearance of reform rather than the substance. Sometimes this is because to do this well is harder or initially more expensive. It takes longer and more barriers have to be overcome to find or train the right workforce. Developing efficient evidence-based clinical and administrative pathways to care can be difficult. There are many unanswered questions about what is evidence-based practice in these systems and little research is currently under way to answer these in the foreseeable future. However, the concern is the hypotheses associated with healthcare reform (e.g., integrating behavior and physical care will result in superior clinical and cost outcomes) will not be properly evaluated because of the lack of quality of the delivery system rather than the lack of truth of the hypothesis.
4. It seems fair to say that in 2015 behavioral health practitioners and managers still "don't get" the quality improvement philosophy and agenda. These are often not innovation minded, especially with regard to more radical, paradigmatic reforms. Some simply don't care; some are oriented toward antiquated evaluative models—"the workshop facilitator told many cases where this worked"; some are more sophisticated but are still oriented toward a static model, "we deliver evidence based care so we need not worry about anything else." But where are the data that show fidelity, similar outcomes, or even better—quality improvement cycles. Some still blame external factors—we are underfunded, or our clients are disturbed, so one does not need to care about their complaints. Some administrators are economically naïve—if asked what level of funding they require, all they can say is "more." There is no orientation toward substantive ways to increase productivity and hence value (see O'Donohue, Snipes, & Maragakis, 2014).
5. Finally, the new paradigm might be expressed more as constant radical reform. It is reasonable to believe that we need to become much more like the computer industry—always improving with some great leaps forward with radical new innovations and paradigms. Behavioral health is not very reform minded. We are slow, deliberative, and comfortable with doing this pretty much as we have always done them. This is a problem given the seriousness of the reforms in healthcare delivery. Physical medicine is not practicing at all like they did in the 1950s, behavioral health is. This needs to change and QI can be the major engine of the change. Quality needs to be seen as having multiple dimensions—cost, client satisfaction, efficiency, continuity, etc. rather than just clinical outcomes.

We turn now to a more intensive discussion of some of these critical issues.

Current Issues in Behavioral Health Service and Research

Engagement of Non-evidence-Based and Harmful Treatments

While there is a large body of evidence that behavioral health services are effective and generally have positive effects, the field also suffers from the dissemination and practice of treatments that do not have any evidence base or cause harm (Lilienfeld, 2007). The practice of these potentially harmful treatments (PHTs) exposes consumers to risk, and may further prolong suffering from current symptoms. Given the goal of behavioral health providers to help alleviate the suffering of their consumers, the use of these PHTs or non-evidence-based treatments is antithetical to the profession goals.

Some review of the literature indicates that PHTs come in various forms. For example, Lilienfeld (2007) discusses a number of individual- and population-based treatments where evidence would indicate that they are more likely to potentially cause harm than provide benefit. The notion of PHTs is also relevant with the prescription of psychotropic medications. For example, Antonunccio (2008) discusses the use of antidepressants with children, and the data indicating that it may cause more harm than benefit. These various studies point out that the current data, and what is practiced, may not necessarily be congruent, and that the practice of PHTs is widespread among various behavioral health providers.

It is safe to say that the use and dissemination of PHTs or non-evidence-based treatments are multifaceted. For example, providers' theoretical orientation may lead them to favor-providing treatments that do not have empirical support. However, a more problematic systemic issue may lie with what is ethically considered to be a valid form of treatment. Standard 2.04 of the American Psychological Association (APA)'s Ethical Principles and Code of Conduct, which is the Bases for Scientific and Professional Judgment, states that, "Psychologists' work is based upon established scientific and professional knowledge of the disciple (APA, 2010)." While this may seem as a reasonable statement that is designed to safeguard consumers of behavioral health services, a further analysis would indicate that it fails to be clear and does not necessarily meet the needs of the consumers it intends to serve, an essential function of meaningful ethical codes (Gaumnitz & Lere, 2004).

There are multiple concerns with Standard 2.04. First, it creates a potential dichotomy between "scientific knowledge" and "professional knowledge" which allows for professional to argue that one is inherently more important than the other, and that the other may be ignored. For example, a provider may argue that a particular therapy has worked for a similar client in the past; therefore this therapy works based on professional knowledge, regardless of what scientific data may indicate. Similarly, a provider may continue to use a therapy with a large body of evidence, regardless of whether or not the consumer is indicating any improvement. Second, what constitutes "scientific and professional knowledge" is not entirely clear. This ambiguity for what constitutes as "knowledge" allows for large variance between providers. Finally, the "knowledge" approach promotes a static understanding of behavioral health, by not establishing a system for when something becomes "knowledge" and for when something becomes "historical knowledge" when it is replaced by new theories or techniques. This may lead to providers engaging in techniques that are outdated or proven to be less effective than newer forms of therapy. These concerns listed about Standard 2.04 create large variance between behavioral health providers, and increase the probability that consumers are exposed to PHTs or non-evidence-based treatments. In addition, there is too little emphasis on the services delivered being data generating.

Beyond consumers receiving suboptimal or harmful care, the variation between behavioral health providers also negatively impacts providers themselves with what is known as the “lemon problem” (Cummings, O’Donohue, & Cummings, 2011). The lemon problem (Wendell, O’Donohue, & Seratt, 2014) dictates that the value and willingness of a consumer to pay for a certain product are directly linked to the quality of a product. We are willing to pay say $5 for the price of milk because there is greater than a 99 % chance that the milk will be of good quality. If half the milk we purchased was in fact bad, then we would be willing to pay only $2.50 a gallon as we have a 50 % chance of getting a good bottle. The practice of PHTs leads consumers to devalue behavior health products (i.e., therapy), due to the fact that there are many products that is “defective” and not easily identifiable. Guild organizations like the American Psychological Association often have the interest of driving up the price of their members’ professional services. This is problematic as it is inconsistent with the organization’s goal of increasing access to services as higher prices generally reduce demand. An important part of quality is driving down prices to increase the volume of demand—and perhaps becoming more profitable with this increased demand. Therefore, the practice of PHTs, coupled with a vague ethical standard around what is evidence-based practice, creates problems in the field of behavioral health that impact both the consumer and providers. These issues require a systematic change in order to be properly addressed across the field of behavioral health.

An additional problem is that the bar is set too low. A therapy can earn the honorific of “evidence-based practice” or a cognate by simply being associated with two randomly controlled trials in which showed statistically significant improved results over a control condition—not clinically significant results. More attention needs to be paid to effect sizes. And if the control condition improved only 20 % of patients or resulted in a minor decline of say three points on the Beck depression inventory, beating this does not mean that evidence-based practice produces large effects or that it produces positive effects for the majority of patients, or that these effects are durable. Or that these effects were a good value with the time and money spent to achieve these. Or that side effects or patient satisfaction was measured and this was high. Again, the bar is too low from a quality viewpoint with regard to the evidence-based practice standard.

Focus on Efficacy and Symptom Reduction

The assessment on the utility of behavioral health interventions in a scientific manner is an important component of ensuring that behavioral health services meet the needs and expectations of consumers, and reduce the use of PHTs. However, given that behavioral health’s role will be expanding its role in the healthcare system, new methods and forms of scientific inquiry may be necessary to assess its effectiveness in new settings.

The focus on symptom reduction and the use of controlled scientific trials on the part of behavioral health providers creates potential gaps in the type of care patients receive. While the goal to ensure that patients receive care that targets and alleviates symptoms is worthwhile, there are other factors that determine the utility of treatment. Therefore, the field of behavioral health must move beyond symptom reduction, and assess treatments on various factors.

The push for healthcare in general to move beyond symptom reduction is made clear with the ACA and its focus on "patient-centered care." While various definitions for patient-centered care exist, one definition describes the concept as "The experience (to the extent the informed, individual patient desires it) of transparency, individualization, recognition, respect, dignity, and choice in all matters, without exception, related to one's person, circumstance, and relationships in health care" (Berwick, 2009, pg. 7). Patient-centered care moves beyond symptom reduction, and calls for providers to allow for patients to become the "experts" of their own care, and for the creation of collaboration between provider and patient.

The QI Requirements of the ACA

A way that the ACA plans on improving healthcare systems and outcomes, while simultaneously reducing cost, is through the implementation of QI systems and measures. Under section 2701, the law "requires the development of a core set of health quality and performance measures for adults to determine the quality of care provided to enrollees" (Centers for Medicare and Medicaid Services, 2015). As a result, a list of 51 measures have been recommended as a "core" set of quality measures to be used for adult care measure prevention and health promotion, management of chronic condition, management of acute conditions, family experiences of care, and availability of services (see HHS, 2010). While created for the medical setting, the screening and follow-up for behavioral health issues are strongly represented within these measures. Of the 51 measures, 9 are related to behavioral health issues (e.g., screening for depression and alcohol abuse, assessment of weight/BMI, glycemic control, and lipids for patients with bipolar I or schizophrenia, mental health utilization). Furthermore, with the expanding subspecialty of health psychology, measures related to treatment compliance for health problems like diabetes become relevant for behavioral health providers.

Beyond providing these measures, there has been an increase in federal funding for healthcare systems that implement and successfully use these quality measures. The "successful use" of these measures within a healthcare setting varies on the intended goal of the measure. For example, the successful use of measures that focus on prevention and health promotion is measured by whether or not the measure was given to a patient within the given time frame (e.g., Was the screen for depression given within a 12-month frame). Other measures, like those that focus on a particular health outcomes, are intended to help drive care treatment decisions and to get patients within recommended levels (e.g., blood pressure below a certain level given the patient's age). Through the use of the various measures, it is hoped that the goal of providing better care at a reduced rate will be actualized.

Conclusion

Healthcare in the USA is changing, and has significant and wide-ranging plans for the field of behavioral health. However, for behavioral health providers to be engaged in the system in a productive and meaningful way, they must move away from historical ways of assessing and delivering care. We believe that engaging and utilizing QI provides a framework that will help behavioral health providers properly achieve their potential in this changing healthcare system, and provide high quality of services.

Given that the notion of QI is relatively new to the field of behavioral health, this book is designed to fulfill two goals. The first is to provide a foundation in QI tools and methods that will enable the reader to understand the theoretical underpinnings of QI. This foundation will hopefully allow readers to better understand potential issue that they may face in their practice, and which tools they could use to better examine the issue. The second is to provide examples of how QI is applied in various aspects of behavioral health. Through this, we hope that readers can learn from how experts in the field are tackling the problem of implementing QI, and how they might engage in these QI processes. After reading this book, we believe that readers will be able to engage in QI practices in a thoughtful and meaningful way, that will allow the field of behavioral health to keep up demands of the ACA, and help reform the current healthcare system in a meaningful way.

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Chapter 2
Behavioral Health Conditions: Direct Treatment Costs and Indirect Social Costs

Erin Grinshteyn and Jeanne Wendel

Key Terms

Absenteeism	A habitual pattern of absence from the workplace usually as a result of a medical or mental health condition.
Co-located Models of Care	Co-located models of care are mid-level models in the integration spectrum that locate behavioral health providers in the same location as primary care without system-wide integration.
Cost–Effectiveness Analysis	CEA is a method of economic evaluation that assesses the costs and health outcomes of a therapy, intervention, program, or policy. Costs are compared to the intervention's effectiveness, which is measured in terms of health outcomes (e.g., depression-free days or quality adjusted life years). Results are presented as a cost per health outcome, which is often referred to as a cost–effectiveness ratio. Programs can be compared using the same outcome or a single intervention can be examined and compared to a standard threshold (e.g., the cost per QALY threshold that is commonly accepted in

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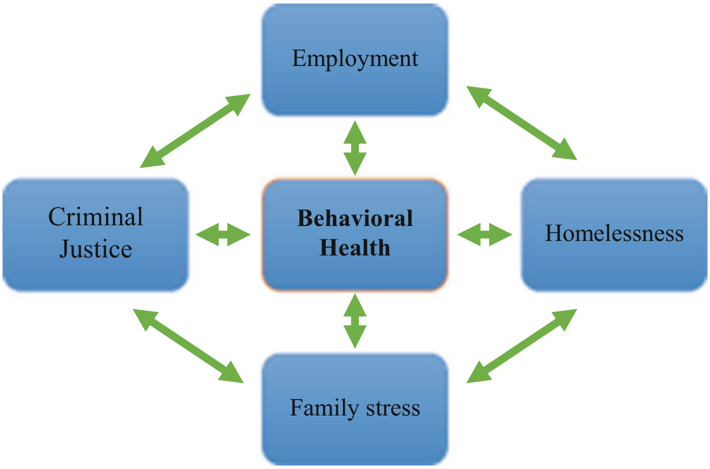
	the health care arena as acceptable is anything under \$50,000 per QALY).
Cost–Benefit Analysis	CBA is a method of economic evaluation whereby all the positive (beneficial) and negative (costly) consequences of a therapy, intervention, program, r policy are expressed in monetary terms. The valuation of the outcomes in monetary terms (e.g., dollars) allows for direct comparisons of health outcomes so that those who are making a decision, whether individuals, providers, or policy makers, can make decisions using an “apples to apples” technique.
Cost Offsets	Cost offsets occur when less medical care is provided as a result of behavioral health services that led to prevention of medical conditions.
Efficacy	The measure of how well a treatment works in a controlled atmosphere such as a clinical trial.
Effectiveness	The measure of how well a treatment works in a real world setting (e.g., as it is delivered in the health care system with users going about their lives outside of a controlled environment).
Incidence	Incidence is the number of new cases of a condition over a specified period of time. It is a rate as the time period is an important part of determining incidence.
Integrated Care Models	Integrated care models are models where the behavioral health providers are not only located in the same place but are also close to or fully integrated with respect to service delivery.
Leveraging	Savings that occur as a result of less time spent by the physician on behavioral health as a result of the behavioral health provider taking on treatment for those issues.
Prevalence	Prevalence is the proportion of a specific population that has a problem at a specific point in time. It is a proportion and is a cross-sectional metric of disease burden.
Transinstitutionalization	The shift from institutionalization of those with a mental health condition within the hospital system to the institutionalization within the prison system.

Introduction

Behavioral health conditions, including both mental health and substance use conditions, are prevalent and costly. Mental health conditions, which disrupt thoughts, mood, and behavior, include disorders such as anxiety disorders, bipolar disorder,



Schematic 2.1 Possible causal relationships among variables associated with behavioral health conditions

post-traumatic stress disorder (PTSD), and depression (Centers for Disease Control and Prevention, 2013). Substance use diagnoses cover a range of conditions, including dependence and use of substances that are detrimental to the individual's health or detrimental to others and addiction disorders (American Psychiatric Association, 2013). The CDC estimates that 17.8 % of the population experienced a mental illness during 2011, while 8.5 % experienced a substance use disorder. Expenditures on mental health and substance use treatment totaled $180.9 million in 2009, which accounted for 7.4 % of expenditures on all health conditions (Substance Abuse and Mental Health Services Administration, 2013a, 2013b, 2013c). Behavioral health conditions also impose substantial non-monetary costs: for example, ADHD is more likely to contribute to childhood disability in the USA than asthma (Currie & Kahn, 2012).

Full implementation of the Patient Protection and Affordable Care Act (PPACA) is expected to reduce financial barriers to behavioral health care through the Medicaid expansion, expansion of mental health parity provisions, elimination of preexisting condition exclusions for individuals purchasing insurance through exchanges, limits on out-of-pocket expenditures for prescription drugs, and implementation of organizational structures (e.g., Affordable Care Organizations (ACOs) and Patient Centered Medical Homes (PCMH)) with new incentives to provide coordinated comprehensive care. Increased utilization of behavioral health care is expected as individuals and providers respond to these changes. For example, Currie, Stabile, and Jones (2013) find that increased coverage of prescription drugs in Canada led to increasing use of medications for ADHD in children (Currie et al., 2013). This evidence does not indicate whether the increase in treatment utilization is appropriate: however, 37 % of US adults with serious mental illness did not receive mental health treatment during the year preceding the 2012 survey (Substance Abuse and Mental Health Services Administration, 2013a, 2013b, 2013c).

This increase in utilization will occur in the context of evolving patterns of care. Inpatient care declined in recent decades, while prescription drug utilization increased. In 2009, inpatient hospital stays accounted for 26 % of mental health care expenditures, and 31 % of substance use treatment expenditures (see Table 2.1). Pharmaceuticals accounted for 28 % of mental health treatment expenditures, but only 4 % of expenditures for substance use treatment. Office-based professional services accounted for 15–16 % of expenditures for treatment of both types of conditions. Within "office-based professional services" the roles of psychiatrists, non-psychiatrist physicians, and other professions (e.g., counselors, psychologists, and social workers) has shifted over the last two decades. Psychiatrists account for a shrinking proportion of office-based professional service expenditures: psychiatrists accounted for 35 % of these services for mental health conditions in 2009, down from 45 % in 1990, and psychiatrists accounted for 7 % of these services for substance use treatment in 2009, down from 12 % in 1990. While psychiatrists play a reduced role, the share of non-psychiatrist physicians grew from 23 % in 1990 to 32 % in 2009, and the role of other professionals (e.g., counselors, psychologists, and social workers) grew from 54 % to 71 % during those years (Substance Abuse and Mental Health Services Administration, 2013a, 2013b, 2013c). Treatment strategies and professional roles are expected to continue to evolve, as the health care industry continues to respond to fiscal pressure created by ongoing increases in health care expenditures, technological innovation, and the recent changes introduced by the PPACA.

As mental health treatment strategies evolve, it will be important to analyze the costs and benefits of specific strategies for treating behavioral health conditions. This chapter will provide information about the prevalence of mental health and substance use conditions, examine treatment costs and indirect social costs for those conditions, and consider evidence about the cost-effectiveness of the integrated care treatment strategy.

Table 2.1 Mental health and substance use expenditures in 2009, by type of provider

	Mental health (%)	Substance use (%)
Hospital	26	31
Pharmacy	28	4
Office-based professionals	16	15
Psychiatrists	6	1
Non-psychiatrist physicians	5	3
Other professions	5	11
Specialty center	15	35
Other	15	15

Source: Behavioral Health, United States, 2012. US Department Of Health And Human Services Substance Use and Mental Health Services Administration (SAMHSA). www.samhsa.gov. (Table 125)

Prevalence of Behavioral Health Disorders

Over a quarter of Americans adults (age 18 and older) have a diagnosable mental health or substance use disorder (Kessler, Chiu, Demler, & Walters, 2005). Anxiety disorders (e.g., panic disorder, generalized anxiety disorder) are the most prevalent followed by impulse disorder (e.g., oppositional defiance disorder, conduct disorder), mood disorders (e.g., major depressive disorder, bipolar disorder), and substance use disorders (see Table 2.2).

The severity of mental health conditions varies across disorder group. Serious severity is most prevalent among individuals with mood disorders and substance use (see Fig. 2.1).

Table 2.2 Prevalence of behavioral health disorder among US adults, by disorder group

Disorder group	12 month prevalence (%)
Anxiety disorder	19.0
Mood disorder	9.7
Impulse disorder	10.5
Substance disorder	3.8

Source: Mental Health, United States, 2010. Substance Use and Mental Health Services Administration (SAMHSA). http://www.samhsa.gov/data/2 k12/MHUS2010/MHUS-2010.pdf (Table 2.2)

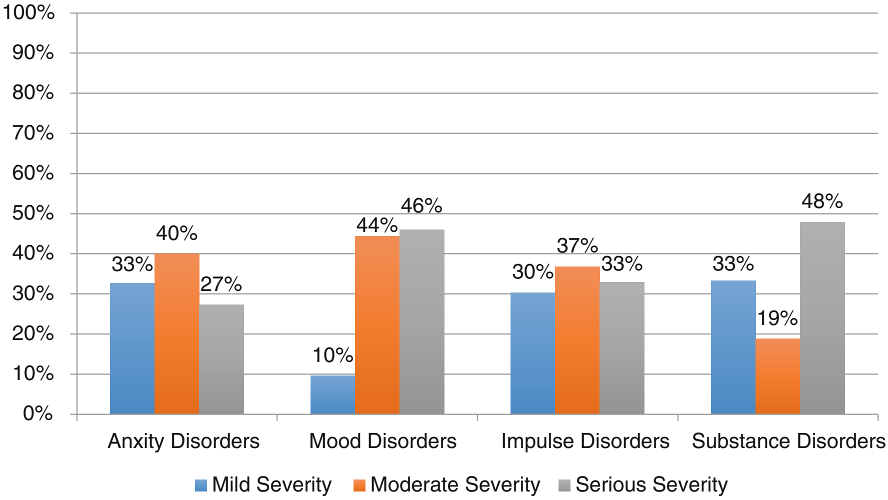


Fig. 2.1 Prevalence of behavioral health disorders among US adults, by severity within disorder group. *Source*: Mental Health, United States, 2010. Substance Use and Mental Health Services Administration (SAMHSA). http://www.samhsa.gov/data/2 k12/MHUS2010/MHUS-2010.pdf (Table 2.2)

Mental health conditions often occur in clusters (see Table 2.3): of those who had any disorders, approximately half had two or more disorders (Substance Abuse and Mental Health Services Administration, 2012). Co-occurring behavioral health conditions and co-occurring behavioral health and physical health conditions can exacerbate each other. For example, Gadermann (2012) found that individuals with depression or panic/agoraphobia have lower perceived health than individuals who have comparable physical diagnoses but do not have a co-occurring mental health diagnosis (Gadermann, Alonso, Vilagut, Zaslovsky, & Kessler, 2012).

Adolescents in the USA are also at risk of behavioral health conditions (see Table 2.4). A representative sample of over 6,500 adolescents in the USA was assessed for fear disorders (e.g., panic and phobias), distress disorders (e.g., depression, GAD, PTSD), behavior disorders (e.g., ADHD), substance disorders, and other disorders (e.g., bipolar) (Kessler et al., 2012). Co-occurrence of disorders is common among adolescents, with over a quarter this sample meeting criteria for two or more disorders (Kessler et al., 2012). Co-occurrence typically involves disorders in the same class (e.g., distress disorders more commonly occurred with other distress disorders than with a disorder in a different class) (Kessler et al., 2012).

The World Health Organization (WHO) recognizes mental health as an important issue worldwide. Across countries, the prevalence of mental health disorders increases as income increases. Alonso (2011) reports that the prevalence of any mental health condition ranges from 12 % in low- and lower-middle-income coun-

Table 2.3 Percentage with one, two, or three or more behavioral health disorders among US adults with any diagnosis of a mental health disorder

Number of disorders	12 month prevalence
One disorder	52.8
Two disorders	23.0
Three or more disorders	24.5

Source: Mental Health, United States, 2010. Substance Use and Mental Health Services Administration (SAMHSA). http://www.samhsa.gov/data/2 k12/MHUS2010/MHUS-2010.pdf (Table 2.2)

Table 2.4 Prevalence of behavioral health disorder among US adolescents, by disorder group

Disorder group	Prevalence (%)
Fear disorder	26.1
Distress disorder	25.4
Behavior disorder	22.7
Substance disorder	11.4
Other disorder	6.2

Source: Kessler RC, Avenevoli S, McLaughlin KA, Greif Green J, Lakoma MD, Petukhova M, Pine DS, Sampson NA, Zaslavsky AM, Merikangas KR. “Lifetime comorbidity of DSM-IV disorders in the NCS-R adolescent supplement (NCS-A).” *Psychol Med* 2012;42(9):1997–2010 tries, to 15 % in upper-middle-income countries and 17 % in high-income countries (Alonso et al., 2011). Major depression disorder (MDD) was the most common diagnosis in all income-tiers. This disorder is the fourth leading cause of disability across the world and the WHO estimates that it is likely to become the second leading cause of disability by 2020 (World Health Organization, 2001). Co-occurring disorders are common in this international data, with co-occurring mental health disorders being more prevalent than co-occurrence between mental and physical health conditions (Alonso et al., 2011).

Assessing Costs and Benefits of Behavioral Health Care

Treating mental health and substance use disorders imposes direct costs on health care payers and patients; however, lack of effective treatment imposes indirect costs on individuals, families, employers, and taxpayers.

Treatment Costs for Behavioral Health

Analyses of treatment costs for specific diagnoses provide insight into health care utilization associated with those disorders. Depression is the most common mental health condition. Over 17 million US adults received treatment for depression in 2009, which constituted a 74 % increase in numbers of adults being treated over the previous decade (Soni, 2012). Expenditures to treat this condition totaled $22.8 billion in 2008, with $16.7 billion spent on treatment of women and $6.1 billion on treatment for men (Soni, 2012). On average, individuals with expenditures for treating depression also incurred ambulatory care expenditures for depression treatment of nearly $1,000, and prescription drug costs of $700 in 2009 (Soni, 2012). Mental health services utilization increases with condition severity. For 539 US workers with Major Depressive Disorder, whose conditions were categorized as mild (13.8 %), moderate (38.5 %), or severe (47.7 %), average annual treatment costs for those with severe MDD were significantly higher than costs for individuals with moderate or mild MDD for both mental health services ($697 versus $388, respectively) and for antidepressant drugs ($256 versus $88, respectively) (Birnbaum et al., 2010).

Treatment for other mental health disorders is also costly. The estimated treatment cost for bipolar disorder exceeded $150 million in 2009 (Dilsaver, 2011), and the cost of treating PTSD among members of the military is estimated at $200 million per year (Harrison, Satterwhite, & Ruday, 2010). Analysis of health care utilization for patients with psychosis found that expenditures for individuals with a psychosis diagnosis averaged $62,500 per year. On average, these expenditures covered 6.4 annual inpatient days, 1.4 physician visits, one counselor visit, and six visits for testing and diagnostics (Hjortsberg, Helldin, Hjaerthag, & Loethgren, 2011). Health care costs following suicide attempts average $25,000 per year, with over a quarter of those costs occurring in the month after a suicide attempt to address injuries sustained in the attempt (Stensland, 2010). Average expenditures during the year following the suicide-attempt are double average expenditures during the preceding year, due to both treatment of the impact of suicide attempt and prolonged increases in treatment intensity following the attempt (Stensland, 2010).

Indirect medical costs associated with worse physical health also increase for individuals with mental health conditions. Older adults with a depression diagnosis incur annual Medicare claims of $23,000 while individuals without a depression diagnosis incur claims closer to $13,000 (Unützer et al., 2009). More specifically, co-occurring depression is associated with elevated costs for treating diabetes (Simon et al., 2007), and HIV (Rothbard, Metraux, & Blank, 2009). However, this association between depression and the cost of treating diabetes or HIV must be interpreted with caution. The direction of the causal pathway is not known. Individuals with depression may incur higher medical costs to treat specific medical conditions because the co-occurring behavioral health disorder interferes with health care utilization or treatment compliance. On the other hand, individuals with more severe medical conditions could suffer from more severe behavioral health conditions as a result of either depression stemming from the individual's physical health issues, or from self-medication that leads to substance use.

In the USA, Medicaid is the largest payer for behavioral health care, followed by private insurance, other state and local government services, and Medicare (Shirk, 2008). The prominent role of Medicaid as a payer for behavioral health care could reflect the associations between mental health diagnoses, poverty, and unemployment. The Medicaid expansions generated by the PPACA, are expected to increase the degree to which Medicaid payment policies impact behavioral health care providers and patients in many states.

Indirect Costs Associated with Behavioral Health Conditions

Behavioral health conditions are associated with an array of monetary and non-monetary costs. However, association does not imply causation. The direction of causality between behavioral health and associated negative outcomes (e.g., lower rates of employment, homelessness) is often bidirectional. These relationships may also be multidimensional, with causal mechanisms that include interactions among multiple behavioral health conditions and social issues. For example, correlations between mental health and substance use indicate that these disorders are linked, and both of these conditions are associated with unemployment, family stress, school performance issues, and homelessness. The causal mechanisms are not clearly specified, but it appears that interactions among multiple variables play important roles. Unemployment could lead to homelessness, while being homeless makes it more difficult to obtain employment. Homelessness and unemployment could contribute to incarceration, which would make it more difficult to find subsequent employment and housing (see Schematic 1). This complex web of interactions has implications for designing effective treatment programs to address behavioral health disorders, for designing effective programs to address key social issues, and for designing strategies to assess the impacts and cost-effectiveness of these programs.

Employment Mental health conditions are associated with a variety of employment-related costs. Employment rates are lower for individuals with mental health conditions. The presence of one mental health condition reduces the chances of labor market participation by a percentage point, and the impacts are additive for individuals with multiple mental health conditions (Cornwell, Forbes, Inder, & Meadows, 2009). These effects can persist over an individual's work-life. Diagnosis of ADHD or antisocial conduct at age 10 is associated with reduced rates of subsequent adult employment (Knapp, King, Healey, & Thomas, 2011). Cornwell (2009) posits that this could reflect reduced skill levels among those with mental health conditions. Among children diagnosed with ADHD or anxiety disorders who obtained subsequent employment as adults, wages were lower than wages for adults who did not have these previous diagnoses (Knapp et al., 2011).

Labor market impacts of mental health conditions are especially pronounced among women. Employment status is negatively associated with psychiatric disorders for women, but not for men (Cowell, Luo, & Masuda, 2009). Diagnosis of anxiety disorder reduces the odds of employment for both men and women; however the impact is significantly larger for women (Cowell et al., 2009). Mood disorders were associated with lower rates of employment for women but not for men (Cowell et al., 2009).

Employed individuals with mental health conditions face higher risk of voluntary and involuntary termination (Nelson & Kim, 2011). In particular, depression is associated with early exit from the job market (Falba, Sindelar, & Gallo, 2009), and unemployment (defined to include individuals who are looking for work and those who are disabled and unable to work for a period of at least 6 months) increases significantly as the severity of major depressive disorder increased (Birnbaum et al., 2010). This association could reflect a negatively reinforcing feedback loop. Employment is usually associated with improvements in mental health, and job loss is associated with reduced mental health. However, Cottini (2011) found that bad working conditions have adverse effects on mental health (Cottini, Kato, & Westergård-Nielsen, 2011). Individuals with mental health conditions (who could potentially benefit most from the positive mental health benefits of employment) are also at greater risk of termination (Nelson & Kim, 2011). The negative association between employment and mental health disorders may contribute to the observed correlation between poverty and severe mental health conditions. The odds of being poor are three-times higher for households that include an individual with a severe psychiatric disorder, compared to households that do not include individuals with such disorders (Vick, Jones, & Mitra, 2012).

Unemployment and underemployment impose costs on the individual, and they also impose costs on society. Untreated ADHD is associated with a substantial loss of tax revenue, compared with the taxes paid by a cohort of people who do not have ADHD (Kotsopoulous, Connelly, Sobanski, & Postma, 2013).

Absenteeism Mental health conditions are associated with reduced workplace productivity and elevated absenteeism, with depression being one of the leading causes of both (Donohue & Pincus, 2007). Individuals with severe or moderate depression miss significantly more days of work than non-depressed employees, and these employees incur statistically significant losses in salary as a result of this absenteeism (Birnbaum et al., 2010). Birnbaum estimates that the depression-related productivity losses totaled $2 billion per month for the US labor market (Birnbaum et al., 2010).

The World Health Organization (WHO) researched absenteeism associated with ten physical health and nine mental health conditions in 24 countries. Two of the three conditions associated with high absenteeism were mental health conditions (Alonso et al., 2011). Across all countries, bipolar disorder and PTSD were associated with the second and third highest absenteeism rates, after adjusting for individual and employment characteristics (Alonso et al., 2011). In low-income countries, the top four conditions associated with high absenteeism include generalized anxiety disorder (24.6 days missed per year), bipolar disorder (23.4 days missed per year), and panic disorders (17.6 days missed per year) (Alonso et al., 2011). PTSD is also associated with high absenteeism (16.2 days missed per year) in high-income countries (Alonso et al., 2011).

Homelessness The positive association between homelessness and behavioral health conditions also reflects bidirectional causality. Individuals with behavioral health conditions may be more likely to be homeless, while the difficult life conditions faced by homeless people may exacerbate mental health conditions. Fifteen percent of a large sample of people already in treatment for depression, bipolar disorder, and schizophrenia in a large, public mental health system were homeless (Folsom et al., 2005). Co-occurrence of behavioral health and substance use conditions may be prevalent among homeless individuals; Drake (1997) estimates that 50–70 % of homeless individuals with mental health conditions also use substances (Drake, Yovetich, Bebout, Harris, & McHugo, 1997). This co-occurrence of mental health and substance use conditions may contribute to increased utilization of inpatient and emergency department services (Folsom et al., 2005). The triad of homelessness, substance use, and mental health issues is also associated with other social issues. The relationship is well documented for women with a recent history of violence, low access to social support, and the presence of a chronic health issue (Chambers et al., 2014). Homeless youth have substantially higher rates of mental health issues and experiences with violence, compared with non-homeless youth (Cauce et al., 2000). In addition, children in foster care have higher rates of mental health conditions (Pecora et al., 2003), and individuals with this combination of experiences face elevated risk of future homelessness. Among a sample of young adults aged 19 through 25 years who had lived in foster care during their youth, the incidence of homelessness exceeds the incidence among young adults in the general population.

Criminal Justice While the numbers of inpatient behavioral health beds decreased in recent decades, the numbers individuals receiving behavioral health care in prisons and jails increased. The shift between these two institutional settings has been termed transinstitutionalization. From 1978 to 2000 the numbers of inmates with a mental health issue housed in all federal and state prisons and county jails tripled from 209 to 708 per 100,000 US population (Lamb & Weinberger, 2005), and the concurrent reduction in inpatient mental health treatment capacity is cited as a contributing factor (Prins, 2011). Currently, two million people with serious mental illness are incarcerated each year in the USA, and one in four people with a serious mental illness (schizophrenia or bipolar disorders) were incarcerated over the course of 2 years (Swanson et al., 2013). Adolescents in the juvenile justice system have high rates of mental health conditions (Trupin, Walker, Burden, & Roberts, 2013). However, incarceration may not be an effective or efficient strategy for addressing behavioral health issues. Direct costs of incarceration for individuals with a mental health condition are double the costs of individuals with mental health conditions who are not incarcerated (Swanson et al., 2013). In addition, incarcerating individuals with mental health conditions generates indirect costs. Care-giving burdens are placed on family members, to care for children or parents of the incarcerated individual (Travis, 2005), the incarcerated individual is not contributing to the household's financial needs, and treatment of the mental health issue may be suboptimal if appropriate care is not available in the jail or prison.

Family Family circumstances can exacerbate mental health conditions, and mental health conditions may place stress on families. Children of mothers with untreated mental health issues have more behavioral issues (Coiro, Riley, Broitman, & Miranda, 2012) and higher rates of mental health issues, including non-depressive disorders (i.e., disruptive behavior disorder, attention deficit disorder, substance use disorder, anxiety, and eating disorders) than children of non-depressed mothers (Hammen, 2003). Children of mothers who are depressed also have worse psychosocial outcomes (e.g., competence in school and extracurricular activities, relationships with family and friends) and a higher risk of depression than those who do not have a depressed mother (Feder et al., 2009). When compared to depression in children of non-depressed parents, depression in children of depressed parents occurs earlier, persists for a longer duration, is associated with greater impairment, and is more likely to recur (Hammen, 2003; Warner, Weissman, Fendrich, Wickramaratne, & Moreau, 1992). The presence of alcohol dependence or serious mental illness among caregivers is associated with internalizing behaviors among the children receiving care from these individuals and serious mental illness of a caregiver is associated with externalizing behaviors among children (Miller, Orellana, Briggs, & Quinn, 2014). Gender interacts with these variables. The mental health of children with depressed mothers is worse than corresponding children with depressed fathers; children of depressed mothers are more likely to have both internalizing and externalizing issues than children of depressed fathers (Connell & Goodman, 2002; Goodman, 2007). Daughters of depressed mothers experience more chronic interpersonal and school behavior stress than daughters of mothers who are not depressed (Gershon et al., 2011).

Spousal relationships are also correlated with mental health issues. Separated and divorced people have higher rates of depression, though it is unclear whether the divorce led to the depression or whether mental health disorders led to divorce

(Weissman et al., 1996). Depression (and likely other mental health conditions) may lead to disruptions in the stability of the family unit, which often leads to marital dissatisfaction and separation (Lépine & Briley, 2011).

Residential instability among children is also linked with negative mental health outcomes though the direction of causality is not clear. For example, depression rates among alumni of foster care were higher than among the general public in the year after leaving care (White et al., 2009). Because the causal pathway is not understood, it is not clear whether increased residential stability would help to prevent this mental health disorder.

Assessing Cost-Effectiveness of Treatment Strategies

Public agencies, payers, providers, and patients make resource allocation decisions that impact the quantity and quality of services available to treat behavioral health disorders. These decisions require assessment of the costs and benefits of treatment strategies. Evaluating interventions requires resolution of two controversial questions:

- Should clinical guidelines incorporate comparison of costs and benefits of alternate treatments?
- What method should be used to compare monetary and non-monetary costs and benefits?

First, analysis of clinical effectiveness does not imply conclusions about cost-effectiveness. While many health care providers and analysts prefer to focus on clinical effectiveness, growing concerns about the magnitude of health care expenditures highlight the importance of the second issue of cost-effectiveness. However, combining analyses of clinical effectiveness with analyses of cost-effectiveness raises controversial issues. The British National Institute for Health and Care Excellence, which posts clinical guidelines for British health care providers, explicitly includes comparison of costs and benefits in the guideline determination process. In contrast, the US Patient Centered Outcomes Research Institute (PCORI) eschews comparison of costs and benefits: cost-effectiveness research is specifically prohibited and ineligible for funding (Patient-Centered Outcomes Research Institute, 2014). In the US system, clinical guidelines focus on clinical effectiveness (suspicion that the 2009 mammogram guidelines reflected implicit comparison of costs and benefits generated a significant negative political reaction). In this system, the issue of cost-effectiveness is addressed at the payer and provider level. Payment incentives encourage health care providers to develop efficient strategies for delivering health care to panels of patients. For example, Patient Centered Medical Homes (PCMH) are designed to provide access to coordinated comprehensive care (Katon & Unützer, 2013). Similarly, the PPACA created Accountable Care Organizations (ACOs) that focus on coordination of care across the full spectrum of providers to enhance patient outcomes while reducing the cost of delivering care.

This two-level strategy recognizes the value of payer, provider and patient innovation to strengthen coordination of care, continuity of care, and patient engagement in the process of care. Providing opportunity for innovation is essential given the rapid pace of change in the health care industry, the current lack of knowledge about optimal strategies for helping patients with diverse characteristics strengthen their health status, and the diverse entities currently experimenting with new approaches. Currie et al. (2013) provide an example of the potential value of the two-level strategy (Currie et al., 2013). After noting that the National Institute of Mental Health recommends that children with ADHD receive treatment with stimulants, these authors analyze data from the National Longitudinal Survey of Canadian Youth (NLSCY) to estimate the real-world impacts of implementation of this recommendation. This type of analysis addresses the problem that effectiveness of treatments implemented for large populations of patients may differ from the efficacy determined in controlled experimental settings. The NLSCY provides longitudinal data on a large panel of children from 1994 to 2008. All children included in the survey were assessed for ADHD symptoms, and the survey data includes self-reported information about the use of ADHD medications, along with data on school performance, family issues, depression, and self-reported happiness. Analysis of this large dataset does not find evidence that use of the ADHD medications is associated with long-term positive impacts. The authors suggest three possible explanations for the disconnect between the evidence of clinical efficacy produced by short-term clinical studies, and the lack of evidence of positive impacts on school performance, family relationships or self-reported happiness: (1) use of the ADHD medications may have generated a non-clinical "stigma" effect that produced unobserved negative side effects, (2) increased use of the ADHD medications substituted for cognitive or behavioral interventions (and discontinuation of these interventions produced negative impacts that offset the positive effects of the medications), or (3) individual children did not take optimal dosages for optimal periods of time (Currie et al., 2013). While clinical researchers would prefer to rely on carefully designed clinical studies, this large dataset analysis of the impact of a clinical intervention on non-clinical outcomes suggests that detailed study is also needed, beyond the level of the clinical trial, to develop implementation strategies that ensure that the potential clinical benefits are realized in real-world populations of children. As the use of electronic medical records (EMR) systems proliferates, new types of population-level data are emerging, and innovators are exploring strategies for utilizing that data to analyze population health issues. The two-level strategy provides flexibility for experimentation with implementation strategies. Post-implementation analysis can provide information that is essential for adjusting implementation strategies to ensure that clinical benefits are achieved.

Second, comparison of costs and benefits is challenging because mental health and substance use treatments generate monetary costs, but the benefits of effective treatment enjoyed by individuals, employers, families, and society can be difficult to measure in dollar terms. Analysts typically use *cost–benefit analysis* or *cost–effectiveness analysis* to resolve this issue. In addition, providers working in a specific health care setting may analyze *cost-offset* (to assess whether implementation of a new strategy generates sufficient reduction in the costs of existing services to generate a net monetary benefit) or *leveraging* (to assess whether addition of a "physician-extender" allows the physician to generate a net monetary benefit by working more efficiently). (See Box 2.1 for more information about these strategies.)

Researchers use cost–effectiveness analysis (CEA) to compare the ratio of the cost of an intervention to the benefit of an outcome of interest (e.g., quality adjusted life year (QALY)). Cost–effectiveness analysis can be used to analyze the impact of a single intervention, or this strategy can be used to compare interventions using the same outcome to see which is *more* cost-effective. While originally applied to medical interventions, cost-effectiveness models have also been used to analyze behavioral interventions. This strategy is useful for analyzing whether resources are effectively allocated across alternate programs. A single cost–effectiveness study can answer the question: "does this program produce results?" Comparison of cost-effectiveness across a set of programs allows researchers, practitioners, and policy makers to ensure that they obtain maximum results for the money they have to spend.

Researchers use cost–benefit analysis (CBA) when both the costs and the benefits are expressed in monetary terms. Expressing all inputs and outcomes in dollar terms allows the researcher to assess whether the intervention was cost saving, cost

Box 2.1 Strategies to analyze economic effectiveness

Cost–Benefit Analysis:	A method of economic evaluation whereby all the positive (beneficial) and negative (costly) consequences of a therapy, intervention, program, or policy are expressed in monetary terms. The valuation of the outcomes in monetary terms allows for direct comparisons of health outcomes so that individuals, providers, or policy makers, can make decisions using an "apples to apples" technique.
Cost–Effectiveness Analysis:	A method of economic evaluation that assesses the costs and health outcomes of a therapy, intervention, program, or policy. Costs are compared to the intervention's effectiveness, which is measured in terms of health outcomes (e.g., quality adjusted life years). Results are presented as a cost per health outcome, which is often referred to as a cost–effectiveness ratio.
Cost Offset:	Cost offsets occur when less medical care is provided as a result of behavioral health services that led to prevention of medical conditions
Leveraging:	Savings that occur as a result of less time spent by the physician on behavioral health as a result of the behavioral health provider taking on treatment for those issues.

Box 2.2 Key differences between cost–effectiveness and cost–benefit analysis

	Cost–effectiveness analysis	Cost–benefit analysis
Benefit Quantification:	Expressed in clinically meaningful units (e.g., QALY)	Expressed in monetary units
Basic Outcome Assessment:	CE Ratio = (Total Cost)/(Units of Effectiveness)	Net Benefits = (Total Benefits) — (Total Costs)
Decision Making Threshold:	(a) If evaluating two programs than implement the one with the lowest CE ratio within reason (b) If evaluating one program, the standard in health care for approval is ≤ $50,000 per QALY	If the present value benefits are greater than costs (a positive net benefit) then the program or policy should be accepted

neutral, or just costly (see Box 2.2 for a comparison of key differences between CBA and CEA). While a cost–effectiveness study is useful or analyzing an intervention designed to increase depression-free days, cost–benefit analysis is logical for examining the labor market outcomes that attach dollar values to the outcomes "days of work missed" or "hours of productivity lost".

Both strategies raise the question: which costs will be included in the analysis? Payers and providers responding to incentives to reduce health care costs are likely to focus on degree to which investment in behavioral health care strengthens physical health while reducing physical health care costs. However, states may address a wider set of issues. States provide funding for Medicaid programs, criminal justice programs, and social services/public health programs that address the needs of homeless individuals and families. Impacts of mental health care on social issues are therefore relevant to states, as they set Medicaid reimbursement policies. Because Medicaid is typically a major payer for behavioral health services, Medicaid reimbursement policies are important to behavioral health care providers.

Evidence: Is Integrated Care an Efficient Strategy?

Interventions for behavioral health conditions include pharmacologic interventions and psychosocial interventions. Single-drug treatments and co-administered pharmaceuticals have been assessed and determined to be cost-effective methods of treatment. There are cost-effective pharmacologic methods of treating depression (Kaplan & Zhang, 2012; Snedecor et al., 2010), bipolar disorder (Sawyer et al., 2014), and a variety of other mental health conditions (Andrews, Sanderson, Corry,

& Lapsley, 2004) for both adolescents and adults in all age groups. Studies also demonstrate effectiveness for psychosocial interventions. This section focuses on the implementation issue of coordination between primary care and any type of behavioral health care.

Integrated Care Integrated care is designed to strengthen coordination of primary care and behavioral health care to provide a cost-effective strategy for improving patients' behavioral health conditions and physical health conditions (Collins, Hewson, Munger, & Wade, 2010). There are three broad types of integrated care:

- Coordination may occur through collaboration between primary care and behavioral health care providers who are not co-located,
- Onsite collaboration may occur between co-located care providers without integration of systems, or
- Collaboration of co-located professional may occur with some level of practice integration (Substance Abuse and Mental Health Services Administration, 2013a, 2013b, 2013c)

Integrating behavioral health care into primary care where patients are already being seen helps reduce fragmentation and allows for a "soft" entry into care for individuals who cannot manage additional appointments and for those who are concerned that accessing behavioral health care may lead to stigma. Integration also addresses the issue that primary care providers may be reluctant to treat mental health issues due to undertraining in this area, lack of knowledge about community resources, lack of availability of community resources, or lack of reimbursement for these services (Agency for Healthcare Research and Quality, 2012). Models of integrated care were developed to address these issues. Kaiser Permanente pioneered some of this work, the Veterans Health Administration system utilizes integrated care, and the WHO recommends implementation of integrated care models as an effective care delivery strategy (World Health Organization, 2008). Finally, integration helps address behavioral health and physical health in an efficient manner; integrated treatment of the two sets of conditions can reduce cost while strengthening health outcomes (Blount et al., 2007).

Behavioral health conditions can result in physical health conditions if untreated: 14 % of physical health conditions worldwide have been attributed to behavioral health conditions (Prince et al., 2007). Integrating care can help address the combination of mental health and physical health conditions more effectively and efficiently than treating the two sets of issues separately. Integrated care has been shown to be both clinically effective and cost-effective for treating pain (Boscarino et al., 2012), diabetes mellitus (Bogner, Morales, de Vries, & Cappola, 2012), coronary heart disease (VonKorff et al., 2011), and HIV/AIDS (Kaaya et al., 2013). While coordinated practice models generate some cost savings, co-located and integrated models enhance opportunities to leverage physician time and reduce physical health care costs enough to offset the cost of providing the behavioral health care (Collins et al., 2010). Care models that are co-located and/or integrated also show improved health outcomes, reduced utilization, and fewer problems with continuity of care compared to treatment-as-usual in primary care, thereby improving the experience with the health care system (Collins et al., 2010).

Integrating treatment for substance use into primary care settings reduces costs incurred by patients with medical conditions related to substance use (Hilton et al., 2003). Patients treated in integrated care settings incurred fewer hospital inpatient stays and fewer emergency department visits than patients treated in traditional settings (Parthasarathy & Weisner, 2005). Those with depression receiving integrated care had almost 17 additional depression free days over a 6 month follow-up with an incremental cost-effectiveness per depression free day of $22 (Simon et al., 2001). Integrated care also generated improved outcomes for patients with co-occurring diabetes and depression (Bogner et al., 2012). Integrated care in which specialized nurses delivered a 1 year stepped-care depression treatment intervention within a primary care clinic generated 61 additional depression-free days and lower outpatient costs than usual care over 2 years of follow-up (Simon et al., 2007). Depressive symptoms decreased and remission rates increased among a population of veterans with depression treated in an integrated mental health intervention (Engel, Malta, Davies, & Baker, 2011).

While most research has focused on adult populations (usually aged 18–64 years) in typical primary care settings, integrated care management is also cost-effective among older and younger populations and in other care settings. Among older populations, integrated care is clinically beneficial and cost-effective in a variety of settings and countries (MacAdam, 2008). Care management that integrates social and medical care for older adults in Italy reduced hospitalization and home visits, though there was little change in community health services (e.g., home support and nursing care) over a 1-year follow-up (Bernabei et al., 1998). Savings were approximately $1,800 per year in the intervention group, physical functioning was improved, and cognitive decline was reduced (Bernabei et al., 1998). Integrated care has been shown to be cost-effective over a 6-month period, for older veterans with depression who were treated at the Department of Veterans Affairs (VA) (Wiley-Exley, Domino, Maxwell, & Levkoff, 2009). Integrated care interventions have also proven cost-effective among populations of children. Integrated care for children with mental health conditions reduced emergency department and inpatient psychiatric visits, and the children were more likely to remain in the least restrictive setting possible than children who received usual, non-integrated care (Grimes et al., 2011).

For individuals who are homeless and suffer from behavioral health issues, full service partnerships that integrate housing and treatment have been shown to reduce the numbers of homeless days per year, and reduce the likelihood of receiving inpatient treatment, emergency services, and contact with the justice system. There was no statistically significant effect on employment rates; however employment impacts could take longer to actualize than the year of follow-up in this study (Gilmer, Stefanic, Ettner, Manning, & Tsemberis, 2010). Full service partnerships led to better quality of life and higher outpatient and housing costs. However, costs for inpatient, emergency departments, and mental health services in jails decreased enough to offset 82 % of the cost of program (Gilmer et al., 2010). Finally, preliminary results indicate that a large-scale model of integrated care in Washington is reducing both homelessness and arrests (Unützer et al., 2009).

Integrated care is not unique to the USA; this care delivery strategy has been shown to be cost-effective in both developing and developed countries. In India and Pakistan, integrated care systems achieved improvements in symptoms, disability, and quality of life while reducing costs in three out of four study sites (Chisolm et al., 2000). In South Africa, hiring lower level mental health workers in integrated care settings generated cost offsets by reducing utilization of more costly specialty care (Peterson, Lund, Bhana, & Flisher, 2012). In Italy, integrated care reduced hospitalizations, improved physical functioning, reduced declines in cognitive functioning, and generated cost savings for older adults followed for 1 year (Bernabei et al., 1998). In Australia, integrated care for older adults reduced emergency department utilization, inpatient admissions, and lengths of stay, while exhibiting cost-effectiveness over the usual care (Bird, Kurowski, Dickman, & Kronborg, 2007).

Other Treatment Options Innovators are demonstrating clinical effectiveness and cost-effectiveness for a range of additional treatment strategies. Evidence for two of these strategies, computer-delivered cognitive behavioral therapy (CBT) and enhanced depression treatment (which usually involves some combination of screening, telephone outreach, care management, and therapy) are discussed here, because these strategies could potentially complement integrated care strategies.

Computer-delivered cognitive behavioral therapy (CCBT) generates clinically effective and cost-effective results. CCBT, which can be valuable in medically underserved areas, relies on computer-based lessons and exercises done by the user at home or at medical facility. Compared to usual care, the direct costs of CCBT service delivery in the primary care setting (including the cost to license the software plus overhead and capital costs of delivering this service in primary care offices) were higher than those in usual care, which consisted of talking to primary care providers, referrals, and treatment of physical health. However the indirect costs of lost employment were lower for the CCBT group and, thus, the intervention group did end up being cost-effective when compared with the group randomized to receive treatment as usual (McCrone et al., 2004). This type of cost–benefit comparison, which includes up-front setup expenditures, is sensitive to the volume of users. A program of this type could potentially be cost-effective in a high-volume setting, but the reverse could be true in a low-volume setting.

Enhanced depression care has also been shown to generate benefits that exceed costs. An enhanced depression treatment designed to reduce absenteeism and increase productivity generated a small net benefit for the employer program during the first year, and a much larger net benefit in the second year of the intervention (Lo Sasso, Rost, & Beck, 2006). Wang (2006) assessed enhanced depression care, which consisted of depression screening and care management for those who qualified as depressed, versus usual care (Wang et al., 2006). Reduced absenteeism generated a net benefit of almost $3,000 after 5 years for the employer, which provides further support for the hypothesis that productivity and absenteeism outcomes are generated over multiyear periods. Bhui's (2012) review of workplace interventions found that individual interventions improve mental health but organizational interventions have a bigger impact on absenteeism (Bhui, Dinos, Stansfeld, & White, 2012).

These interventions are shown to be economically efficient and can be delivered through integrated care. Additional research is needed to assess whether integrated care offers a treatment setting that can enhance the value of these strategies over the value they provide as stand-alone treatments.

Conclusion

Behavioral health conditions are prevalent and costly (Alonso et al., 2011; Soni, 2012). They also have far reaching consequences, beyond the direct health consequences to the individual. Behavioral health disorders may exacerbate the consequences of physical health conditions. They are also correlated with social issues such as homelessness, incarceration, unemployment, and family stress. Developing effective treatment strategies is important, to strengthen behavioral and physical health, to address relevant social issues, and to reduce the costs of providing behavioral and physical health care.

However, links between behavioral health and social issues include a complex web of interactions. While research documents strong correlations, the causal mechanisms underlying these correlations are not fully understood. In many cases, causality is probably bidirectional. For example, behavioral health disorders may lead to homelessness or incarceration, and the stress of homelessness or incarceration may exacerbate behavioral health issues. Researchers, practitioners and policymakers cannot simply assume that treating behavioral health disorders will generate social benefits; instead the benefits must be measured as programs are implemented. Examining the complex web of interactions can help practitioners address combinations of these issues with clients. Considering feedback loops embedded in these relationships can help practitioners design effective implementation strategies and design valid assessment studies.

As full implementation of the PPACA generates increased utilization of behavioral health care services, it is important to develop cost-effective strategies to ensure that patients gain maximum benefits from the resources invested to provide behavioral health care services. Projections of ballooning health care budgets indicate that it is imperative to know that an intervention does not just work well but that it will also generate the maximum possible benefit from the money that is spent (Keiling et al., 2011). Similarly, Beecham (2014) advocates additional investment in economic analyses of mental health conditions among children and adolescents (Beecham, 2014), to address both pieces of the puzzle: clinical effectiveness and economic efficiency. The results will allow individuals, providers, and policy makers to optimize patient and social outcomes that can be achieved with our health care dollars.

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Chapter 3
The Need for Quality Improvement in Behavioral Health

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Psychiatric disorders are prevalent conditions that affect hundreds of millions of people worldwide (World Health Organization, 2004). Although rates vary depending on the definition used, epidemiological research suggests that nearly 50 % of individuals will at some point in their lives meet diagnostic criteria for a psychiatric condition from among anxiety, mood, substance use, and impulse control disorders (Kessler, Berglund, et al., 2005). Each year, an estimated 26.2 % of adults (Kessler, Chiu, Demler, & Walters, 2005) and between 6.1 % and 40.3 % of children and adolescents (Kessler et al., 2012; Roberts, Attkisson, & Rosenblatt, 1998) experience at least one psychiatric disorder, with more than 40 % of these individuals also suffering from other comorbid conditions.

Psychiatric disorders are not only prevalent, but also highly disabling and costly. People suffering from psychiatric disorders report marital, occupational, academic, and social impairment that is often comparable to or greater than that associated with many chronic medical conditions (Druss et al., 2009). Indeed, psychiatric disorders currently represent the leading cause of disability in the USA, accounting for more years lost due to illness than cardiovascular diseases, musculoskeletal disorders, and endocrine diseases (WHO, 2004). This impairment as a result of mental health problems notably impacts people's ability to function approximately 31 days each year (Alonso et al., 2011) and places a substantial economic burden on individuals and their families. In 2003, the estimated annual per capita cost of mood disorders was approximately $5000, slightly higher than the cost of anxiety disorders ($3500) and

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alcohol-related disorders ($1500; Smit et al., 2006). Psychiatric illnesses also increase the risk of developing other behavioral health problems (e.g., smoking, alcohol use, obesity, treatment nonadherence), further increasing health care utilization and associated costs (De Hert, Cohen, et al., 2011; De Hert, Correll, et al., 2011).

Current Problems in Behavioral Health Care

Because psychiatric conditions represent such a clear and pressing public health concern, demand has continued to increase for improving the quality, availability, and cost-effectiveness of interventions for these disorders. Although advancements have been made in the area of mental health treatment, ongoing efforts appear to have had a relatively limited impact on reducing the burden associated with psychiatric disorders. After all, while 58 % of individuals suffering from chronic medical conditions undergo treatment, only 21 % of those struggling with psychiatric disorders receive any form of care (Druss et al., 2009) and many of these individuals do not receive the most evidence-based interventions available. This inadequate utilization of services for psychiatric disorders can be attributed to multiple problems in mental health care.

Overuse of Psychotropic Medications

The last three decades have seen a drastic increase in the number of individuals who are being prescribed psychotropic medications while rates of psychiatric disorders and the impairment associated with these disorders have continued to increase. Data from the National Ambulatory Medical Care Survey demonstrated that visits to a medical professional during which a psychotropic was prescribed increased from 32 million in 1985 to 45 million in 1994 (Pincus et al., 1998). This trend persisted during the following decade when the rate of treatment with antidepressants in the USA increased from 5.8 % in 1996 to 10 % in 2005 when 27 million individuals reported use of such medications (Olfson & Marcus, 2009). Notable increases have been documented in the prescription rates of other classes of medications including stimulants and benzodiazepines (Wu, Wang, Katz, & Farley, 2014). In addition, antipsychotic use has also increased (Verdoux, Tournier, & Begaud, 2010), a particularly noteworthy finding given the often worrisome side-effect profiles of these psychotropic medications, which in theory should be reserved to the very small percentage of the population who suffers from severe mental illness such as schizophrenia. Equally concerning is the fact that nearly one half of prescriptions are for individuals who do not meet diagnostic criteria for any psychiatric disorder (Kessler, Demler, et al., 2005), and that increased use of pharmacotherapy has been documented among understudied or vulnerable populations. For example, the concomitant use of multiple classes of medications (e.g., antidepressants, antipsychotics, stimulants) among children and adolescents rose significantly between 1996 and 2007 despite that minimal research has been conducted to elucidate the safety and efficacy of such approaches (Comer, Olfson, & Mojtabai, 2010). Similar trends have also been documented among geriatric samples, where prescription rates of psychotropic medications soared from 57 % to 70 % between 1997 and 2009 (Ruths et al., 2013). Further still, atypical antipsychotic prescriptions increased during pregnancy, raising concerns about the safety of these medications for not just the mothers but also the developing fetuses (Toh et al., 2013). The costs of overmedication are also staggering. In 2011, antipsychotics were fifth and antidepressants were seventh in overall drug spending, totaling $18.2 and $11 billion dollars, respectively (IMS, 2012). Given the potential adverse effects associated with commonly prescribed psychiatric medications (e.g., weight gain, suicidality, oversedation, renal impairment, dependence/abuse, withdrawal/discontinuation effects) (Haddad, Dursun, & Deakin, 2004), the cost-benefit analysis of employing these treatments compared with other non-medication options requires careful consideration.

Underutilization of Evidence-Based Psychosocial Interventions

Another notable problem facing the mental health care field is the diminishing utilization of psychotherapy in the treatment of psychiatric disorders, even though they often have similar or superior efficacy compared with psychotropic medications for many common conditions. Overall rates of psychotherapy have remained relatively stable between 1998 and 2007, with approximately 3 % of the US population seeking such services (Olfson & Marcus, 2010). However, in light of the aforementioned increase in the prescription of psychotropic medications, the percentage of the population receiving mental health treatment that used psychotherapy alone, or in combination with medications, has not increased overall. Most importantly, Olfson and Marcus report that psychotherapy utilization has decreased between 1998 and 2007 in typical outpatient mental health settings. This decrease in psychotherapy utilization in the patient populations who most need such treatment is unfortunate for at least two reasons. First, although many people embrace the biomedical model of mental illness, patients generally express a greater preference for receiving psychotherapy or counseling to treat mental health problems when surveyed rather than for being prescribed psychotropic medications (McHugh, Whitton, Peckham, Welge, & Otto, 2013). For example, depressed outpatients (Lowe, Schulz, Grafe, & Wilke, 2006) consistently report a treatment preference for psychotherapy, as do pregnant women who are struggling with anxiety (Arch, 2014). Second, the decrease in psychotherapy utilization coincides with a time when the best available scientific evidence frequently warrants the use of psychotherapy to alleviate psychological difficulties. An abundance of research has been conducted over the past three decades that has consistently attested to the benefits of various forms of psychotherapy (e.g., interpersonal psychotherapy), as well as its increased safety compared with pharmacological interventions. Cognitive-behavioral therapy (CBT) represents the psychosocial intervention that has received the most research scrutiny to date. Research has demonstrated the superior efficacy of CBT to some other forms of psychotherapy, particularly in the treatment of anxiety and mood disorders (Tolin, 2010), and outcomes associated with CBT also rival or exceed those of pharmacotherapeutic approaches (Butler, Chapman, Forman, & Beck, 2006; Roshanaei-Moghaddam et al., 2011; Spielmans, Berman, & Usitalo, 2011). Evidence-based psychotherapy is often found to be more cost-effective than medications for major mental disorders including anxiety and depressive disorders, and when used as adjunctive treatments for severe mental illnesses such as schizophrenia (Haby, Tonge, Littlefield, Carter, & Vos, 2004; Heuzenroede et al., 2004; Vos et al., 2005; Vos, Corry, Haby, Carter, & Andrews, 2005).

The Efficacy–Effectiveness Gap

Another important problem is the so-called efficacy–effectiveness gap for psychiatric disorders, or the observation that results obtained in clinical trials frequently do not translate into the same magnitude of improvements achieved in routine practice (Weiss, Guidi, & Fava, 2009). Recent large-scale studies have highlighted the disappointing effectiveness of many psychotropic medications when employed outside of tightly controlled pharmaceutical trials. For example, the Sequenced Treatment Alternatives to Relieve Depression (STAR*D; Trivedi et al., 2006) study is the largest antidepressant effectiveness trial to date starting with 2876 patients enrolled. However, results were generally disappointing and showed that dropout rates were high and increased over time, the majority of patients did not remit after initial antidepressant treatment, only 46 % remitted after receiving up to four sequential antidepressant trials, and many of those patients failed to sustain remission until the final assessment (Pigott, Leventhal, Alter, & Boren, 2010). The largest effectiveness trial of antipsychotic medications for schizophrenia ($n=1493$), called the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study, demonstrated that newer atypical antipsychotic agents generally were not more effective than first-generation antipsychotics (with perhaps the exception of olanzapine), the side effect burden was high for atypical antipsychotics such as olanzapine (e.g., weight gain and metabolic effects), and 74 % of patients discontinued study medication by 18 months for a variety of reasons (Lieberman et al., 2005). Furthermore, antipsychotic treatment during the CATIE trial showed little positive effect on patient functioning and quality of life (Fervaha, Agid, Takeuchi, Foussias, & Remington, 2014). A similar large-scale effectiveness trial conducted in bipolar disorder ($n=366$) was called the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) study. Again results were largely discouraging and showed that even though continued depression is one of the most frequent and impairing problems in bipolar disorder, antidepressants added to mood stabilizers did not improve recovery rates compared to mood stabilizers plus placebo, with further indications that antidepressants worsened mania in a subgroup of patients (Sachs et al., 2007). However, STEP-BD patients who received intensive psychosocial interventions (e.g., CBT, family therapy) in addition to mood stabilizers did show improved recovery from illness compared with medication management alone (Miklowitz et al., 2007).

Although efficacy data suggest that CBT should be considered a leading option in the treatment of many psychiatric conditions, some have called into question whether the results from tightly controlled randomized clinical trials can be applied to real-world settings. Thus far, results on this topic have been mixed. A large meta-analysis documented that CBT is effective for adults with anxiety disorders in clinical settings (Stewart & Chambless, 2009), with effect sizes being comparable to those obtained by studies evaluating the efficacy of CBT in this population. A similar meta-analysis of effectiveness studies of CBT for unipolar depression suggested that CBT can be successfully delivered in routine clinical practice, albeit with somewhat smaller effect sizes than documented by randomized clinical trials (Hans & Hiller, 2013). In contrast, preliminary studies revealed no significant differences between CBT and usual care when delivered in community clinics to youth suffering from mood (Weisz et al., 2009) and anxiety-related difficulties (Southam-Gerow et al., 2010), suggesting that additional research is needed to improve the generalizability of this intervention particularly in younger populations. Thus, quality improvement is urgently needed in routine behavioral health settings to improve and maximize the effects of both pharmacological and psychosocial treatment for various psychiatric conditions.

Reasons for the Problems in Behavioral Health Care

As discussed, psychotropic medications are frequently over utilized even when there are more effective and safer evidence-based alternatives that could help reduce costs and better promote longer-term recovery. Compounding this problem, evidence-based psychosocial interventions are often not being utilized to their full potential and are simply unavailable in many areas. There are myriad reasons why behavioral treatment often fails to exemplify the principles of evidence-based mental health care (Spring, 2007). Below, we describe several important factors, including (1) the unhelpful medicalization of behavioral health problems, (2) inappropriate marketing of nonevidence-based pharmacological and psychosocial interventions, (3) failure by therapists in the community to adopt evidence-based psychotherapies when available, (4) over emphasis on achieving short-term symptom reduction sometimes at the cost of long-term recovery, (5) and underuse of evidence-based assessment and outcome monitoring practices in routine settings.

Over Medicalization of Behavioral Health Problems

As mentioned, both overtreatment and undertreatment are significant problems in behavioral health care. One of these problems may stem from the field's increasing tendency to define psychiatric disorders from a biomedical perspective that overemphasizes the role of genetic and neurobiological factors, while deemphasizing the importance of potentially modifiable environmental variables in explaining the etiology, maintenance, and treatment of psychopathology (see Deacon, 2013, for a comprehensive review). Such a biological reductionist model for psychiatric disorders has been promoted for decades by the pharmaceutical industry, consumer groups (e.g., National Alliance on Mental Illness), grant-funding agencies (e.g., National Institute of Mental Health), and various professional organizations (e.g., American Psychiatric Association) in the hopes that providing the public with a legitimate disease-like medical explanation for mental illness would reduce associated stigma and increase the palatability of psychotropic interventions.

Unfortunately, explanations that attribute psychiatric disorders to a “faulty” biological mechanism can actually promote, rather than reduce, stigma associated with these conditions. Indeed, a recent meta-analytic review suggested that while biomedical explanations have helped decrease the blame that is often placed on those suffering from psychiatric disorders, they have also increased the perceived dangerousness of these individuals in the eyes of the general population (Kvaale, Gottdiener, & Haslam, 2013). Rusch, Kanter, and Brondino (2009) found that stigma did not improve after the presentation of a biomedical model but did improve after an environmental explanation. Furthermore, participants with a psychological view of depression at baseline and received the biomedical model actually showed higher levels of stigma post-intervention. In a population study of 5025 Germans, Dietrich, Matschinger, and Angermeyer (2006) found that biological explanations for depression were associated with increased rates of stigma. Other studies have found similar inverse relationships between the increasing adoption of the biomedical model for mental illness in the public and factors associated with stigma (Angermeyer, Holzinger, & Matschinger, 2009; Angermeyer & Matschinger, 2005; Dietrich et al., 2004). For example, Pescosolido et al. (2010) recently reported in a US sample that biological explanations for mental illness increased over recent years and have not reduced public stigma over the same time period. However, biological explanations have led to the increased desire for social distancing and the perceived need for psychotropic medications.

Promotion of Nonevidence-Based Pharmacotherapy and Psychotherapy

A second major factor is the inappropriate promotion of mental health treatments which exceed their evidence-base. When it comes to the promotion of psychotropic medications, the practice of direct-to-consumer advertising (DTCA) has been a major factor. DTCA involves the aggressive promotion of prescription medications directly to consumers by the pharmaceutical industry to increase their use. In 2010, it was estimated that the pharmaceutical industry spend $5 billion on DTCA (Frosch & Grande, 2010). Most countries have determined that such practices are potentially dangerous to the public health, leading DTCA to be banned in every Western country currently except the USA and New Zealand. Evidence suggests that banning DTCA may be wise, because the practice is known to lead to the increased use of advertised drugs and contributes to patients receiving medications even when they are not indicated or needed for their clinical condition (Gilbody, Wilson, & Watt, 2004; Mintzes et al., 2002). For example, Kravitz et al. (2005) showed that patient-confederate requests for medications directly increased the prescribing of these medications by physicians during actual treatment sessions. Unfortunately, there is no way for nonmedication treatments to match the types of resources and money spent by the pharmaceutical industry to alternately educate the public and promote evidence-based psychosocial interventions (Lacasse & Leo, 2005).

A related issue is the advertising and marketing of nonempirically supported therapies. Surveys indicate that community therapists frequently use nonevidence-based treatments and fail to use therapies indicated by research to be most effective for the condition because they do not primarily base their clinical decisions on the latest scientific knowledge (Gaudiano, Brown, & Miller, 2011a, 2011b, Gaudiano, Brown, & Miller, 2012; Pignotti & Thyer, 2009; Sharp, Herbert, & Redding, 2008). As a case example, Herbert et al. (2000) illustrated the inappropriate and aggressive marketing of a psychotherapy called eye movement desensitization and reprocessing (EMDR). Although EMDR has evidence of efficacy from clinical trials, the novel features of EMDR (i.e., eye movements) do not appear to produce the treatment effects, leading many to conclude that EMDR instead works based on its similarity to other cognitive-behavioral therapies already known to be effective (Devilly, 2005). Nevertheless, eye movements and other forms of so-called “bilateral stimulation” (alternating sounds) continue to be emphasized in the dissemination and implementation of the treatment. Herbert et al. outlined how the history of EMDR has been characterized by numerous pseudoscientific practices, including inaccurate advertising directed toward clinicians and consumers, appeals to authority, use of vivid testimonials, and rejection of disconfirming evidence. Other treatments, such as so-called “energy therapies,” involve tapping on different parts of the body to putatively “cure” psychological and even medical disorders (Gaudiano & Herbert, 2000). The efforts of proponents of energy therapies have focused mainly on marketing and dissemination of such interventions even though independent randomized controlled trials indicate that the effects of tapping are based on the placebo effect and do not produce “cures” as advertised (Gaudiano et al., 2012).

Lack of Adoption of Evidence-Based Psychotherapies by Community Therapists

Yet a third problem is that, despite the preferences of some patients and the strong empirical support that exists for CBT and other evidence-based psychotherapies (Chambless & Ollendick, 2001), such treatments remain poorly disseminated and are highly underutilized by individuals in need (McHugh & Barlow, 2010). Many mental health professionals endorse concerns about relying on scientific research, rather than clinical experience or intuition, to guide their approach to treatment (see Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2013 for a review). Indeed, in a recent study of more than 2600 psychotherapists, researchers found that clinical practice was very minimally impacted by empirical evidence, with most practitioners being more strongly influenced by their role models and discussions with their colleagues (Cook, Schnurr, Biyanova, & Coyne, 2009). A recent national survey of nearly 800 practicing clinicians also evaluated the use of treatment manuals in clinical practice, a particularly important topic given that such manuals represent the primary vehicle via which evidence-based interventions are disseminated to practicing clinicians. Results from this study suggested that while 51 % of professionals employed treatment manuals to some degree, only 8 % of individuals did so on a regular basis (Becker, Smith, & Jensen-Doss, 2013). A similar percentage of mental health professionals reported using treatment manuals while conducting CBT for eating disorders (Waller, Stringer, & Meyer, 2012). This study also reported on the specific techniques used by clinicians and results indicated that less than 50 % of the sample employed core CBT techniques viewed as essential in the treatment of eating disorders. Equally concerning results come from a recent investigation examining the use of imaginal exposure, an essential treatment component of CBT for posttraumatic stress disorder (PTSD), by 852 licensed psychologists. Despite being somewhat familiar with the usefulness of this technique, only 17 % of psychologists endorsed using imaginal exposure during their work with individuals with PTSD (Becker, Zayfert, & Anderson, 2004). It also is important to note that these figures are based on therapists' self-reported use of the techniques, and therefore may even be inflated in some cases.

Overemphasis on Short-Term Treatment Effects at the Expense of Long-Term Recovery

A fourth significant problem involves the emphasis in the behavioral health care system on short-term outcomes even when they come at the expense of long-term ones. This often results from a focus in clinical trials on short-term symptom reduction, which is then assumed to translate into long-term functional improvement and recovery. However, research suggests that such assumptions are not always tenable. A clear example can be seen in the treatment of depression. National surveys indicate that consumers tend to prefer psychotherapy over medications in the treatment of depression at a ratio of three to one (McHugh et al., 2013). Nevertheless, consumers are less likely to receive psychotherapy for depression in most settings (Marcus & Olfson, 2010). This disparity may be justifiable if antidepressant medications were safer, cheaper, or more effective than psychotherapy. However, the preponderance of the evidence suggests that they actually fit none of these criteria. Randomized controlled trials indicate that medications and psychotherapies are about equally effective at reducing symptoms in the short term (Spielmans et al., 2011). However, medication treatment must be maintained even after depression remission if its benefits are to be maintained, and this form of treatment can be associated with serious side effects (Andrews, Kornstein, Halberstadt, Gardner, & Neale, 2011). In contrast, a course of psychotherapy can prevent depression recurrence even years after treatment has been completed better than antidepressant medication (Hollon et al., 2005). Furthermore, although psychotherapy may be more costly in the short-term, its aforementioned long-term benefits mean that psychosocial interventions for depression are more cost-effective over time (Vos, Corry, et al., 2005, Vos, Haby, et al., 2005; Sava, Yates, Lupu, Szentagotai, & David, 2009). Given that depression is often a recurrent illness, psychotherapy has clear advantages over medications in an evidence-based health care system. Research on the treatment course of depression has highlighted the increasing importance of studying the long-term effects of our psychiatric treatments, especially relating to their ability (or inability) to improve functioning and promote recovery from illness to prevent sustained disability.

Failure to Utilize Evidence-Based Assessment and Monitoring Practices

Unfortunately, some problems associated with the quality of behavioral health care begin before treatment is even implemented, such as during the initial assessment process in which problems are either under-recognized or misdiagnosed/overdiagnosed. In the case of underdiagnosis, studies have demonstrated that mental health conditions are more likely to be under-recognized when unstructured clinical interviews are used compared to semi-structured diagnostic interviews. For example, Zimmerman and Mattia (1999) compared the frequency of diagnoses between unstructured clinical interviews and a semi-structured diagnostic interview in 500 individuals presenting for treatment at a routine outpatient psychiatry practice. Patients who were administered the diagnostic interview received significantly more diagnoses compared to patients who received an unstructured interview, particularly for anxiety and somatoform disorders (with odds ratios as high as 12.9 for anxiety disorders, and as high as 32.0 for somatoform disorders). A follow-up study on the under-recognition of anxiety disorders in patients with depression replicated these findings, and also showed that the majority of these patients desired treatment to address anxiety as well (Zimmerman & Chelminski, 2003). In addition to unmet need, under-recognition of these problems may have other important consequences because patients with multiple problems tend to have poorer outcomes (Belzer & Schneier, 2004; Fava et al., 2004) and the presence of comorbidity impacts treatment planning (e.g., Petersen, Andreotti, Chelminski, Young, & Zimmerman, 2009).

On the other hand, lack of evidence-based assessment upon presentation to treatment also may result in overdiagnosis, which in turn could result in the initiation of unnecessary or costly treatments. With respect to overdiagnosis, bipolar disorder serves as a good example. Previously, it has been argued that bipolar disorder largely is under-recognized (e.g., Hirschfeld & Vornik, 2004; Yatham, 2005); however, more recent research suggests that bipolar disorder may also be overdiagnosed at times when evidence-based assessment is not used. In a sample of depressed patients treated in a primary care practice with antidepressants, Hirschfeld, Cass, Holt, and Carlson (2005) interviewed patients with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Williams, & Gibbon, 1997). Approximately one third of patients who reported having been previously diagnosed with bipolar disorder did not receive the diagnosis based on the SCID interview. These findings were replicated in an outpatient psychiatry practice, in which half of the patients who reported having previously been diagnosed with bipolar disorder did not have their diagnosis confirmed by the SCID (Zimmerman, Ruggero, Chelminski, & Young, 2008).

Due to the discrepancy between treatment outcomes in efficacy trials and routine clinical practice, practice guidelines also emphasize the importance of routinely measuring symptoms throughout the course of treatment. For example, depression treatment guidelines from the American Psychiatric Association state: "Systematic assessment of symptoms, side effects, adherence, and functional status is essential and may be facilitated through the use of clinician- and/or patient-administered rating scales" (p. 19, American Psychiatric Association, 2010). The Policy Statement on Evidence-Based Practice in Psychology put forth by the American Psychological Association (APA) also describes "making clinical decisions, implementing treatments, and monitoring patient progress" as core competencies that promote positive therapeutic outcomes (p. 284, APA Presidential Task Force on Evidence-Based Practice, 2006). Despite these recommendations, many treatment providers in practice settings do not routinely measure outcomes using standardized, empirically validated rating scales. A survey of psychiatrists in the USA indicated that 60 % reported never or rarely using rating scales to monitor treatment progress, with an additional 21 % only sometimes using such scales (Zimmerman & McGlinchey, 2008). The most common reasons cited by psychiatrists for not using rating scales included beliefs that rating scales took too much time, and beliefs that they lacked the training to use such rating scales. Similar results were found in a survey of psychiatrists in the UK (Gilbody, House, & Sheldon, 2002), and a study surveying clinicians from a range of mental health disciplines found that most (over 90 %) never used scores provided to them, even when collection of outcomes was mandated in their clinical practice (Garland, Kruse, & Aarons, 2003).

How Quality Improvement Can Improve Behavioral Health Care

In the past three decades, the importance of quality improvement (QI) in behavioral health has quickly garnered the attention of researchers and policymakers as numerous concerns with the current state of mental health care have been identified. In the current managed care environment and against the backdrop of recent changes to health care law in the USA (i.e., Affordable Care Act; see Rozensky, 2011), there is a strong demand for more effective and efficient treatment which minimizes costs.

Ineffective treatment results in a substantial burden on patients and their families, contributing to prolonged suffering and poorer quality of life. QI has the potential to improve the effectiveness of mental health treatment and reduce the human burden of psychiatric disorders, while also cutting costs in the longer-term. The targets of QI initiatives are diverse and include improving access to the most recent advances and best practices in treatment, improving treatment outcomes, reducing iatrogenic effects and errors resulting in harm, addressing disparities in access to treatment and in treatment outcomes among minorities, improving the efficiency of treatment, and improving the durability of treatment gains (Garland, Bickman, & Chorpita, 2010; World Health Organization, 2003). We will next review current evidence for the effectiveness of QI initiatives, as well as key mechanisms through which QI may lead to improved outcomes and reduced costs.

Improving Dissemination and Implementation of Evidence-Based Treatments

A significant focus of research on QI has been on disseminating evidence-based treatments (EBTs), particularly in integrating evidence-based practices into routine clinical settings in which such treatments are infrequently used. Contrary to the often cited "Dodo Bird" verdict, which holds that all psychotherapies are equally effective (Luborsky et al., 1975), recent meta-analyses have indicated that some interventions differ significantly in their efficacy in treating particular conditions (Lilienfeld, 2014; Tolin, 2010). For example, cognitive-behavioral therapies incorporating exposure produce superior outcomes to other approaches in the treatment of certain anxiety disorders, including obsessive-compulsive disorder and posttraumatic stress disorder (Foa, 2010; Institute of Medicine, 2007). Yet a minority receives these interventions. Consequently, many individuals do not respond adequately to treatment, often enduring multiple attempts at unsuccessful treatment. In turn, this erodes the public's belief in the mental health care system, serving as an additional barrier to access to treatment and further contributing to the stigmatization and marginalization of these individuals. QI initiatives that can address the numerous obstacles to the adoption of these interventions by clinicians in routine care settings are therefore critical to undertake.

Several recent studies have documented the success of QI initiatives in integrating EBTs into routine practice settings, thereby closing the gap in response and remission rates between those seen in randomized controlled trials versus in routine practice. Moreover, such interventions have been shown to be feasible and well-accepted by clinicians and patients in these settings. These efforts are important in that they have identified ways to circumvent the many obstacles to integrating EBTs in order to deliver best practices discovered through research to a greater number of individuals. For example, there has been a growing focus on disseminating EBTs into primary care and medical settings (Sherbourne et al., 2001), where a majority of individuals present for treatment of psychiatric conditions yet are rarely referred for psychotherapy (let alone evidence-based psychotherapies). This may lead to poorer treatment outcomes in cases where psychotherapy is a gold-standard treatment (e.g., obsessive compulsive disorder; National Institute for Health and Clinical Excellence, 2005), or in which combined psychotherapy and medication is optimal compared to medication alone (e.g., bipolar disorder; Miklowitz, 2008).

In addition, as mental health treatment continues to become more integrated into medical care consistent with the collaborative care model (Katon et al., 2010), QI has produced novel ways of delivering EBTs which fit the work flow of these settings. One such example is the Coordinated Anxiety Learning and Management (CALM) intervention, a QI project designed to disseminate evidence-based treatments for a range of anxiety disorders into primary care settings (Roy-Byrne et al., 2010). In a large multi-site randomized controlled trial, CALM resulted in greater anxiety symptom reduction and improvements in functioning in patients compared to treatment as usual. Similar projects are underway which have shown success in improving outcomes in the treatment of depression and a broad range of other presenting concerns (Chang et al., 2015). QI studies have also been successful in broadening the reach of EBTs to individuals of ethnic minority and low socioeconomic status backgrounds, who have the most limited access to high quality mental health care. Recent studies have shown promising results that QI can alleviate disparities in access and outcome, demonstrating treatment outcomes using evidence-based approaches for minorities that are comparable to, or in some cases superior to, non-minority groups (Sullivan et al., 2013; Wells et al., 2013).

Importantly, QI can serve to bridge the scientist-practitioner gap by shifting the field's emphasis on evidence-based treatment manuals to evidence-based principles of change. A number of obstacles have hindered the adoption of EBTs in routine clinical settings which have lead experts to question recent efforts to categorize particular treatment packages as empirically supported or not, and to develop lists of empirically supported treatments (Rosen & Davidson, 2003). Barriers include inadequate resources, time and costs required to implement the manuals, lack of access to adequate training in manualized treatments, and characteristics of patient populations in community-based settings that differ from those in randomized controlled trials and may be incompatible with manualized approaches (e.g., treatment interruptions and irregular attendance due to financial stressors, a need to switch focus periodically to crisis-oriented counseling). In contrast to a top-down approach in which researchers independently develop interventions and attempt to insert them into routine settings prior to examining feasibility and reception by staff in these settings, QI involves a collaborative approach between researchers and clinicians early in the process of intervention development. The QI model relies on a continual exchange between researchers, who share their expertise in best practices discovered through research, and clinicians, whose professional expertise and knowledge of the needs of the setting guide intervention development. The end result is that QI interventions have tended to be more flexible and transportable into real-world clinical settings.

In addition, QI's emphasis on transdiagnostic approaches addresses a major concern that has been raised about the irrelevance of EBTs to routine settings, in which clients present with multiple comorbid conditions and it is not feasible for clinicians to receive training in and select among the plethora of manualized treatment options available. Recent studies have attempted to make QI yet more flexible and transportable into a range of settings, for instance through the use of advanced technology, including internet-based treatment outcome monitoring packages and computerized decision-aid tools (e.g., Roy-Byrne et al., 2010; Epstein, Langberg, Lichtenstein, Kolb, & Simon, 2013). Evidence from these studies demonstrated that such approaches have the potential to produce similar favorable treatment outcomes, with the additional advantage of greater feasibility and long-term sustainability of practice changes. Other examples of evidence-based practices which have been the focus of QI studies include screening for suicide risk in settings in which this is not occurring (Horowitz et al., 2013), as well as interventions to improve multidisciplinary team cohesion and communication in order to reduce sentinel events (e.g., Mahoney, Ellis, Garland, Palyo, & Greene, 2012).

Such QI interventions not only broaden the reach of empirically supported interventions and best-practices to individuals who are in need, but they also have the potential to significantly lower health care costs (Katon et al., 2012). Reduction of health care costs is likely to occur by preventing inappropriate interventions and improving the efficiency of intervention delivery. This may be accomplished through several avenues. First, by expanding access to the most effective intervention approaches and best practices established through research, QI interventions ensure that individuals gain access to the most effective intervention approaches, preventing wasted costs from less effective or inappropriate treatment. Second, QI interventions which improve the accuracy of diagnosis at the initial intake may prevent delays in receiving appropriate treatment. For example, prior studies have documented high rates of misdiagnosis and delays as long as 12 years in individuals with bipolar disorder between their first contact with a mental health provider and receiving an accurate diagnosis (Ghaemi et al., 2000). Inaccurate diagnosis results in wasted costs of inappropriate treatments, which may result in yet additional costs, such as repeated hospitalizations due to deterioration, or the need for additional intervention to address iatrogenic effects (O'Donahue & Engle, 2014; Sharma, 2006).

One example is the increased risk of triggering manic episodes from prescribing an antidepressant without a mood stabilizer in an individual with undetected bipolar disorder (Sharma, 2006). The overdiagnosis of psychiatric disorders is also costly. For example, the overdiagnosis of bipolar disorder among individuals with borderline personality disorder often leads to the inappropriate prescription of a mood stabilizer (Binks et al., 2006), and the underuse of psychotherapy approaches which have been found to be efficacious (e.g., dialectical behavior therapy). Likewise, QI interventions improving the quality of routine diagnosis of conditions such as attention deficit hyperactivity disorder have the potential to reduce the overdiagnosis of the disorder and prevent unnecessary costs and side-effects of medications.

Employing Measurement-Based Care

One key QI initiative is to integrate improved assessment practices into routine mental health care and medical settings, which includes both initial assessment of mental health problems and continued monitoring of outcomes during the course of treatment. This process of empirically based assessment and measurement has been given various names in the literature, including (but not limited to) evidence-based assessment (EBA), routine outcomes monitoring (ROM), progress monitoring, and measurement-based care (MBC). Regardless of the particular name given, this process consists of conducting reliable and valid assessments with empirically validated measures at both the onset and throughout treatment, with the ultimate aim of improving the quality of care (Borntrager & Lyon, 2015; Mash & Hunsley, 2005).

Recent studies have investigated the efficacy of routine outcomes monitoring in a variety of settings, including psychiatric/mental health practices and primary care practices. For instance, the Clinical Outcomes in MEasurement-Based Treatment Trial (COMET; Yeung et al., 2012) examined the impact of monthly depression symptom monitoring (with feedback provided to physicians) on response and remission rates for patients being treated in a primary care setting. Compared to patients in primary care practices without the monthly monitoring, patients in the practices with the monthly monitoring and feedback demonstrated higher odds of response and remission. Similar results have been found in mental health specialty settings with respect to both pharmacotherapy and psychotherapy outcomes (e.g., Byrne, Hooke, Newnham, & Page, 2012; Bickman, Douglas Kelley, Breda, Regina de Andrade, & Riemer, 2011; Duffy et al., 2008). A meta-analysis recently conducted by Carlier et al. (2012) of routine outcomes monitoring in medical and mental health settings showed that 65 % of the studies overall indicated a positive impact of routine monitoring on mental health symptoms; this increased to 78 % when considering only studies conducted in mental health treatment settings.

QI interventions to introduce routine outcome monitoring into practices where this is not previously being done may reduce costs by improving the efficiency of treatment. Specifically, routine outcome monitoring may facilitate earlier detection of treatment non-response or inadequate response, leading to earlier and improved treatment response. Recent studies suggest, for example, that routine outcome monitoring may result in higher rates of medication adjustment (e.g., Trivedi et al., 2007), and in turn lower rates of individuals receiving insufficient doses to achieve an adequate response. Conversely, routine monitoring may improve the efficiency of treatment by reducing the likelihood of switching or augmenting medications prematurely (Trivedi et al., 2007). One trial in a psychiatric practice showed that 93 % of psychiatrists reported that routine outcomes monitoring influenced their clinical decision making, including changing the dosage or type of medication prescribed, initiating medication, continuing with the treatment plan, conducting additional suicide risk assessment, and reassessing the depression diagnosis (Duffy et al., 2008). However, the COMET trial found that physician prescribing behavior did not differ between the routine monitoring and control groups despite different response/remission rates (Chang et al., 2012). In the context of psychotherapeutic treatment, providing feedback to therapists appears to be particularly useful for patients who are identified as not progressing as expected (i.e., "signal cases"), perhaps by prompting clinicians to change their case conceptualization and/or the course of treatment (Lambert, Hansen, & Finch, 2001; Lambert et al., 2003).

Other potential reasons for improvement associated with routine monitoring of outcomes may include increased patient engagement in treatment (Trivedi et al., 2007; Unützer et al., 2002), increased patient satisfaction with their care and greater patient self-efficacy in managing their mood (Hunkeler et al., 2012; Unützer et al., 2002), and improved patient-physician communication and working alliance (Carlier et al., 2012). Routine assessment also may be therapeutic in and of itself due to increased contact with mental health professionals. A meta-analysis showed that follow-up assessments as part of antidepressant efficacy trials have a cumulative and proportional therapeutic effect, accounting for 40 % of the placebo response in patients receiving placebo and a decrease of approximately one point on the Hamilton Rating Scale for Depression with each additional follow-up visit in patients receiving active medication (Posternak & Zimmerman, 2007). However, studies specifically examining outcomes monitoring and feedback systems to monitoring alone generally indicate that outcomes are improved when feedback is provided, particularly for patients with complicated treatment regimens (Carlier et al., 2012). Although many potential reasons for improvement in outcomes when conducting routine measurement and feedback have been hypothesized, studies are needed to examine them systematically.

Conclusion

Behavioral health care faces many challenges and the problems are significant but not insurmountable. We provide several examples of how QI can help bridge the current gap between the best practices developed and recommended by research and the assessment and treatment practices actually used in routine settings. There are many obstacles to improving the safety, effectiveness, efficiency, and the cost of psychiatric treatment in the community that will require careful consideration. We outlined how both instances of underdiagnosis as well as overdiagnosis and treatment have contributed to the problem, leading to the commonly observed efficacy–effectiveness gap for many psychiatric treatments. Solutions include: (1) reducing the unwise medicalization of behavioral health problems to decrease stigma, (2) combating inaccurate promotion and advertising of psychotropic medications and nonevidence-based psychotherapies, (3) decreasing individual barriers (e.g., reliance on intuition over evidence) to the adoption of evidence-based practices by clinicians, (4) researching the long-term impact of treatments in terms of their ability to produce functional recovery from illness and not just short-term (and sometimes transient) symptom reduction effects, and (5) increasing the use of evidence-based diagnostic and outcome monitoring for patients in the community. QI offers a wide variety of helpful strategies to enhance the dissemination and implementation of evidence-based behavioral health treatments and the routine use of measure-based care to improve clinical outcomes.

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Chapter 4
Total Quality Improvement: Increase Quality and Efficiency

Jeanne Wendel

"If you don't have time to do it right, when will you have time to do it over?"

John Wooden.
The Wizard's wisdom: 'Woodenisms' Originally Published: June 4, 2010
By ESPN.com staff http://sports.espn.go.com/ncb/news/story?Id=5249709

Total quality management (TQM) was developed to strengthen quality and productivity in manufacturing firms prior to World War II. After successful—and visible—application of these methods in large US firms during the 1980s, some healthcare providers began to explore the potential for using TQM principles and strategies to increase quality and reduce cost in the healthcare industry. Substantial progress occurred by the late 1990s:

- Early adopters (including the Henry Ford Health System, Hospital Corporation of America, the Harvard Community Health Plan, Rush Presbyterian St. Luke's in Chicago, and Alliant Health System (Sahney & Warden, 1991)) demonstrated the value of TQM for healthcare providers.
- The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) incorporated TQM principles into its 1989 Agenda for Change and introduced performance-based measures in alignment with TQM principles.
- Dr. Brent James and Dr. Donald Berwick established institutes to advance the study and implementation of TQM in healthcare (The Institute for Health Care Delivery Research and The Institute for Healthcare Improvement).

TQM admonishes us to "Work smarter, not harder." Ever wonder where the term "Work Smarter … Not Harder" originated? Allan F. Mogensen, the creator of Work Simplification, coined the phrase in the 1930s. A more modern equivalent term for the current era is probably "Business Process Reengineering." *http://www.protech-ie.com/trivia.htm*

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- The Baldrige Performance Excellence Program (run by the National Institute of Standards and Technology (NIST)) established performance criteria for healthcare.

What problems were these early adopters working to solve? The early adopters articulated two goals: increase healthcare quality and reduce the cost of delivering care. Concerns about quality encompassed medical errors, patient satisfaction issues, and variation in physician practice patterns that could not be explained by variations in patient characteristics. TQM tackles these issues by focusing on strengthening processes of care. While some commentators expressed doubt that strategies developed for manufacturing firms would prove to be useful in healthcare, early adopters noted that healthcare organizations frequently produce three types of services: support services (e.g., administrative and housekeeping services), medical infrastructure services (e.g., radiology and clinical lab), and clinical products (e.g., patient visits, surgeries, and other healthcare services). Some early adopters began implementing TQM by focusing on improving the quality of support services, because these services have features that are similar to comparable units in most large firms. However, Dr. Brent James noted that TQM's data-driven focus is also directly relevant for clinical products because it aligns with the medical profession's traditional reliance on the scientific method. *("The roots of continuous quality improvement are the same quality principles that medical practice has taught since its inception."* (James, 1991)).

Despite the early progress, much work remains. Toussaint and Berry (2013) write *"An urgent need in American health care is improving quality and efficiency while controlling costs."*

Overview of TQM

TQM was initially developed by Walter Deming. As these ideas were implemented by manufacturing companies, additional innovators, such as Juran (1992) and Crosby (1995), continued the development of these concepts. The ideas, which were initially known as TQM, include quality management principles, two types of implementation strategies that target quality improvement for the organization as a whole, and quality improvement efforts designed to address a specific quality issue. New buzzwords describe variations on the core set of ideas, including Continuous Quality Improvement (CQI), "6-Sigma," and "Lean." All of these terms describe a common set of core ideas. We will simply refer to the ideas as "TQM."

TQM Principles

Deming summarized the TQM principles in his now-famous 14 points. In this overview we focus on four key principles within this larger set.

1. *Focus on your customers' definition of "quality."*

   TQM focuses on producing high-quality goods or services, recognizing that the concept of quality is multidimensional. Delivering a high-quality product or service requires delivering the "right" product or service in the "right" way at the "right" time, where customers provide the definition of "right." This concept, that quality should be defined from the customer perspective, can appear to pose a challenge in the healthcare industry because healthcare providers have expertise that is not typically shared by their patients. This raises the following question: If patients essentially hire healthcare providers to make decisions on the patients' behalf, how can those patients provide meaningful assessment of the quality of that healthcare? The TQM framework addresses these concerns by emphasizing the broad definition of a customer: your customers include all the people who are impacted by your work. Thus every worker has two types of customers. "External" customers are the individuals who utilize or receive the goods or services we produce. These individuals are the people we typically envision when we visualize "customers." However, the TQM framework extends the concept of "customer" to also include all of our colleagues whose work is impacted by our outputs. In this framework, the set of customers is diverse. The healthcare provider's colleagues' will define the quality of the provider's work by rating work characteristics that produce good health outcomes, good financial outcomes, and/or good coordination with other providers. Patients, on the other hand, are qualified to judge the customer-service aspects of patient care. The distinction between service quality as perceived by external customers and production quality (as measured by compliance with standards) does not reduce the importance of customer feedback; instead it implies that we must be thoughtful about the types of feedback we solicit from each type of customer.

   A single group of customers may have diverse views on each aspect of quality. Eschewing the collection of customer viewpoint information does not reduce these differences. Instead, understanding the range of views equips the healthcare provider to balance these diverse interests.

   Finally, healthcare providers may realistically expect that some consumer expectations will be unrealistic. Developing detailed understanding of these expectations can help the service providers build strategies to educate customers about realistic options.

2. *Produce high-quality outcomes by developing efficient and effective processes.*

   High quality is achieved by focusing on the process that coordinates the work of diverse individuals and departments. This observation has three important implications.

   - First, healthcare providers must study the entire process for delivering the healthcare service, to understand individual components of the process and the interactions among these components. For some healthcare providers, this requires a substantial paradigm shift. Traditionally, many providers focused on the unique aspects of each patient's situation, and defined high-quality care as care that formulated individualized treatment plan for each patient. The

TQM framework focuses, instead, on the common requirements of a group of patients, and defines "high-quality care" as delivery of care consistent with treatment guidelines for patients with a given set of characteristics. Instead of designing an individualized treatment plan for each patient, the provider's key responsibility in this framework is to identify patients who do—and do not—meet the criteria for application of specific treatment guidelines, and fashioning individualized treatment plans for complex patients who do not meet the criteria for applying any standard guideline.

- Second, quality improvement efforts should not focus on replacing low-quality workers with high-quality workers. The TQM paradigm posits that low-quality work frequently reflects inadequate coordination, rather than low productivity of individual workers. Asking workers who appear to have low productivity, "let me understand why you work the way you do," is more likely to lead to quality improvement than replacing that individual.

3. *Use negative customer feedback to guide quality improvement.*

Customer orientation that includes emphasis on serving internal customers can be a powerful force for strengthening coordination across units within a healthcare organization. Individuals and departments are charged with responsibility for identifying colleagues whose work is impacted by their work outputs, and asking:

- In what ways does the work we do affect your work?
- How can we change the way we work, to allow you to work more efficiently?

This framework posits that all organizations should expect to work on continuous improvement, to stay abreast of changes in customer preferences and requirements, and consider technological innovations. Once "needs improvement" is stripped of the typical pejorative tone, negative customer feedback can be viewed as data that provides essential information to guide improvement.

A recent project to improve a specific service in a public school provides an interesting example. At the first meeting, teachers complained about the counselors. Counselors complained about the teachers. Teachers described the significant amount of time they invest (after hours) communicating with parents of special-needs children. To their surprise, one parent stood up to complain that the frequent suppertime phone calls from the teacher disrupted the family dinners and the phone calls did not provide useful information. Analysis of the content of the complaints indicated that diligent professionals invested substantial time in providing information to other professionals and to parents, but the recipients of this information did not feel that they were receiving the precise information they were seeking. This insight led to detailed discussion of the types of information that each party viewed as useful, and development of a streamlined system for communicating these details in a useful format.

Deming's warning "Drive out fear" highlights an essential first step in this process. It is difficult for workers and departments to collect and analyze complaints as "information" if the complaints are also used to evaluate these individuals and departments to assign promotions, raises, or penalties.

4. *Use "rework" as a signal of opportunity for improvement.*

   TQM admonishes us to "Work smarter, not harder." In this framework, situations that involve rework, delays, or defects signal opportunities for improvement. Eliminating the rework, delays and defects can increase both quality and productivity. The value of viewing rework and delays as inefficiencies that can be "fixed" is not limited to large organizations. Think about time spent at home sorting laundry, to separate delicate clothes that must be washed in cold water from clothes that can be washed in hot water. This activity represents "rework": clothes were put into a basket to be washed and the sorting process repeats the activity of putting the clothes into baskets for washing. Noticing this "rework" raises the following question: Could the task be eliminated by putting the clothes directly into separate baskets when we finish wearing them? Similarly, efficient people avoid multiple steps for handling incoming mail and incomplete communications that require repeat phone calls to verify information. TQM strategies help teams expand this concept to improve processes for delivering healthcare.

TQM Strategies

The TQM framework provides organization-level strategies to help organizations develop a quality-first culture and implement procedures for identifying, tracking, and improving key quality measures. While building quality may be costly, the TQM innovators noted that failing to produce quality also creates costs such as expenditures for malpractice insurance and legal defense.

TQM also provides project-level strategies, to guide the process of implementing a targeted quality improvement project. The project-level strategies highlight the importance of teams, data, and analytical tools that are designed to help a group implement logical problem-solving procedures.

In this chapter, we consider one organization-level strategy, and then we examine project-level strategies in more detail. The TQM toolkit offers numerous additional strategies that are not discussed here. Useful starting points for locating additional information include the websites provided by the W. Edwards Deming Institute (https://www.deming.org/), the Institute for Healthcare Delivery Research (http://intermountainhealthcare.org/qualityandresearch/institute/Pages/home.aspx), and the Institute for Healthcare Improvement (http://www.ihi.org/).

Organization-Level Strategy: Control Charts

The TQM framework emphasizes the importance of identifying quality indicators that are important to customers, and then tracking and monitoring these indicators. Suppose, for example, that a hospital identifies ED wait times as an important quality measure. A control chart provides a useful tool for tracking the wait times, and assessing changes that occur over time.

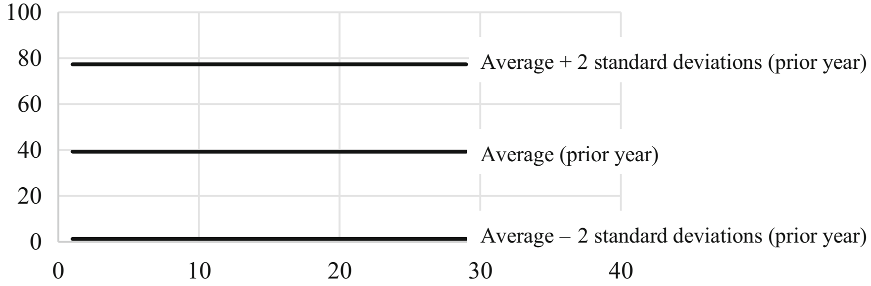

Fig. 4.1 Control chart framework

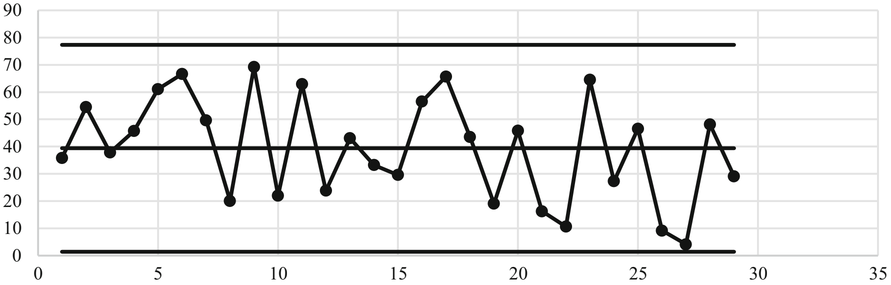

Fig. 4.2 Control chart: Average daily ED wait time (minutes); *horizontal lines*: mean and control limits from historic data; *connected dots*: actual data from most recent month

- A control chart typically starts with three to five horizontal lines. (See Fig. 4.1 for a simple version of a control chart framework that shows three horizontal lines.) The center line shows the average wait time recorded in the prior year. The upper and lower horizontal lines are two standard deviations above and below the mean. If the ED admission and treatment processes have not changed, and if patient utilization of the ED has not changed, then the historical mean provides a good estimate of the current expected wait time on any given day, and range between the upper and lower horizontal lines provides a good estimate of the range of average daily wait times we can expect to see this year. If the process continues unchanged, approximately 95 % of the daily average wait times will lie between the upper and lower horizontal lines.
- Average daily wait times recorded in the most recent month are plotted on the control chart in Fig. 4.2. As expected, all of the recorded times lie between the upper and lower limits. The recent month's experience (illustrated by the jagged line) is consistent with the experience of the prior year (illustrated by the three horizontal lines). This process is, therefore, "in control." This conclusion, that the process is "in control," implies that there is no evidence that anything has changed since the prior year.
- In contrast, Fig. 4.3 illustrates a process that is not "in control." Seven of the 30 daily averages lie above the upper horizontal line. From a statistical perspective,

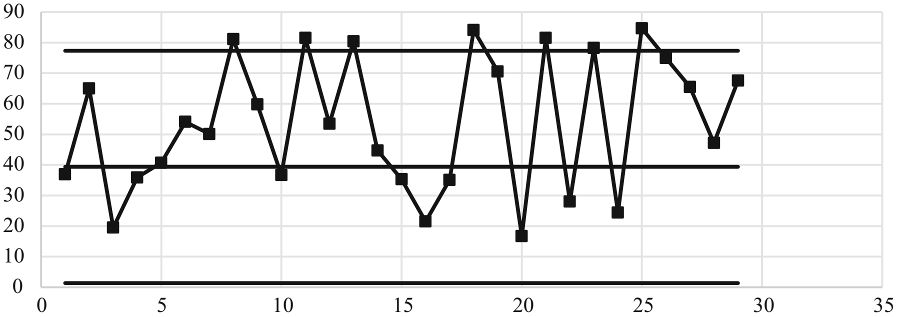

Fig. 4.3 Control chart: Average daily ED wait time (minutes); *horizontal lines*: mean and control limits from historic data; *connected dots*: actual data from most recent month

this implies that we should reject the hypothesis that the recent month's experience is consistent with the prior year's experience. Something has changed. Average daily wait times observed this year are longer than typical wait times during the prior year.

The control chart format provides a straightforward visual representation of the statistical concepts of confidence intervals and hypothesis tests (despite the fact that the control chart representation of these ideas differs slightly from illustrations typically provided in introductory statistics textbook explanations of these concepts). As long as the daily averages remain between the upper and lower "control limits," the unit manager can conclude that this quality characteristic has remained stable. In contrast, repeated daily averages outside these limits signal that some part of the ED process has changed. Average quality has deteriorated; hence the manager should investigate and take action.

Project Level

This manager can use the project-level strategies to investigate the causes of this problem and then design a solution, implement the solution, and track the results. The manager will form a quality improvement team, which will collect and analyze data about the ED process, using a variety of specific TQM tools.

- While teams can be cumbersome and slow, they can also form the nucleus of a productive problem-solving strategy. First, the team members from all aspects of the ED process will bring boots-on-the-ground process knowledge to the group. Second, these team members will discuss team ideas with their co-workers, and bring this wider input back to the team.
- Team members will not be permitted to advocate long-held ideas about solutions at the beginning of the team process. Instead, the team will focus on collection

and analysis of data. The importance of data-driven decision making is encapsulated in the TQM catchphrase:

> *"In God we trust; all others bring data."*
>
> (Trevor Hastie, Robert Tibshirani, and Jerome Friedman, co-authors of *The Elements of Statistical Learning* in their Preface to the Second Edition state that: "On the Web, this quote has been widely attributed to both Deming and Robert W. Hayden; however Professor Hayden told us that he can claim no credit for this quote, and ironically we could find no 'data' confirming Deming actually said this.").]

- The team will develop a shared evidence-based understanding of the care delivery process. The TQM toolbox offers an array of strategies for organizing, visualizing, and sharing information.

The manager, and the quality improvement team, will implement the same basic problem-solving steps that are utilized to solve math problems. The acronym, FOCUS, will help them conceptualize and implement these steps. Specifically, the manager and the team will:

- **F**ind an opportunity to improve
- **O**rganize a team with frontline process knowledge
- **C**larify existing knowledge
- **U**ncover sources of variation
- **S**ynthesize information to design a solution

F*ind an Opportunity to Improve*

The manager will specify a specific problem to be solved. In our example, the manager will specify that the quality metric, ED wait times, provides an opportunity for improvement. This step appears simple, but it actually requires careful thought. Numerous employees may be delighted to join the team "to improve ED wait times," but there may be wide variation in their definitions of the concept "improve ED wait times." (The term "ED wait time" could mean reducing the average time for triage, for inputting patient information, for clinical processes, or the average time that patients sit without doing any activity. It could focus on reducing the total time for emergency cases, routine cases, or all cases.) It is important to ensure that team members have a shared understanding of the team's specific goal at the outset.

O*rganize a Team with Frontline Process Knowledge*

Team members should bring first-hand knowledge of all components of the relevant ED processes. While the ED manager is likely to be the team leader, many of the team members will not be managers. The appropriate balance of managers/administrators and frontline workers will be determined by the level of solution that is envisioned.

If the hospital envisions reducing wait times by streamlining the admission information component of the process, then it will be important to have team members who actually do this work and team members whose work is directly affected by this task. If the hospital envisions a larger solution such as triaging individuals to the ED or to a next-door urgent care clinic, then it will be important to add team members who work in triage and team members who work in the admissions and clinical components of the urgent care clinic as well as the manager of that clinic. If the hospital envisions reducing wait times by lobbying the state legislature to take steps to increase access for Medicaid patients to primary care facilities, then team composition would be adjusted to include individuals with first-hand knowledge of the state-level issues, lobbying processes, and alternate primary care facilities. This team would include top administrators with first-hand knowledge of the hospital's public relations strategy (Paterson & Wendel, 1994).

Clarify Existing Knowledge

The team will gather, organize, and share baseline information about the ED process. The TQM toolkit offers several concrete strategies to help a team develop a substantive shared understanding of the process components and the interactions among those components. One useful step is to ask each team member to create and share a detailed flow chart of his component of the ED process.

- *Creating a flow chart*

A flow chart illustrates each step of one component of a work process. The chart essentially provides step-by-step instructions on how to do the job. TQM trainers might explain flow charts to the team members by asking each individual to create a flow chart of a simple process such as making toast (Fig. 4.4).

This flow chart illustrates the symbols that are used to denote decisions and sources of uncertainty. This person has more than one loaf of bread in the kitchen. His first step is to select a slice of bread. This step is indicated in a rectangle, to denote that the individual completes an action. The next step is to assess whether the slice will fit into the toaster. This step is indicated in a diamond, because the individual must obtain information at this point. Once the individual has determined the answer to this question, he will either put the slice directly into the toaster, or cut the slice in half before inserting the bread into the toaster.

At the first Advanced Training Program organized by Dr. Brent James, the instructor for the flow chart training asked the seminar participants to form groups to flow chart the process of robbing a bank. Most groups created flow charts similar to the chart illustrated in Fig. 4.5, while a more creative group in the class produced a flow chart similar to the chart illustrated in Fig. 4.6.

Comparison of Figs. 4.5 and 4.6 illustrates the importance of showing events in chronological order. In Fig. 4.5, the traditional bank robbers started by taking the money. If they were subsequently arrested, they hired an attorney to assess the case.

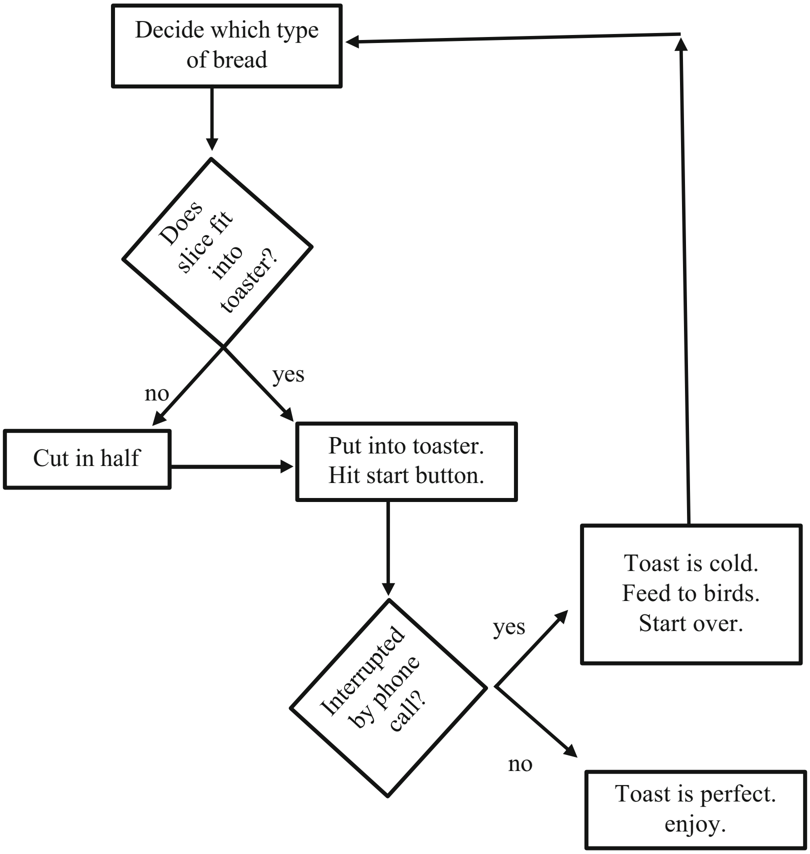

Fig. 4.4 Flow chart: how to make toast

If the attorney predicted that they would lose the case, they bribed the prosecutor. The more creative group developed a streamlined process for bank robbery. They started by bribing the prosecutor. This enabled them to simply take the money and enjoy it.

- *The value of creating and sharing flow charts*

Creating and sharing detailed flow charts is a time-consuming (and—at times—dull) process. However, the process can be invaluable.

- As each individual creates a flow chart of his own work process, he is thinking about his work—and the ways his work intersects with the work of other individuals and departments—from a process perspective.
- When the team listens to each individual explain his flow chart, team members are likely to gain insight about factors that affect their colleagues' workflows, ways that the individual's work impacts his colleagues, and points at which coordination

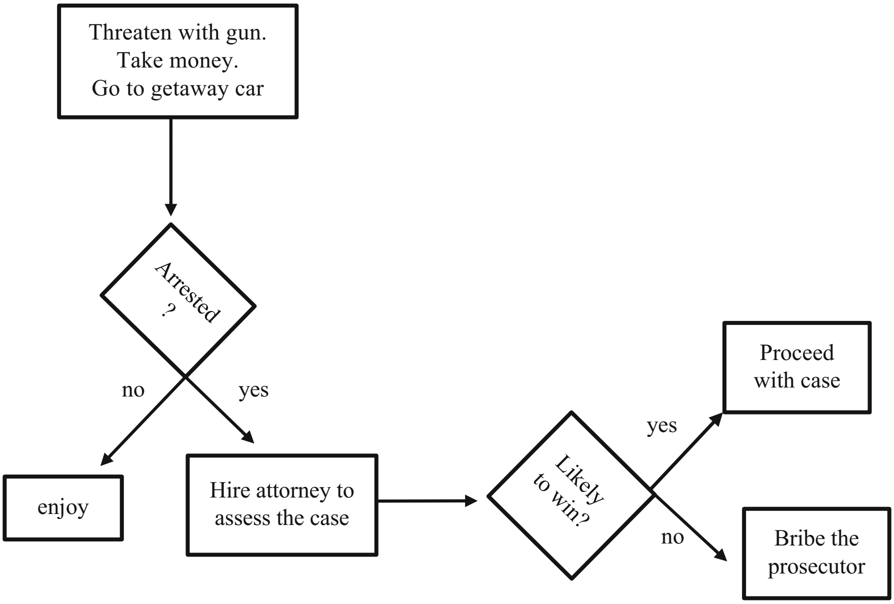

Fig. 4.5 Flow chart: how to rob a bank using routine thinking

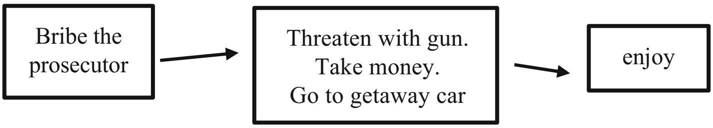

Fig. 4.6 Flow chart: how to rob a bank using streamlined process

is inadequate. The explanation of flow charts in a team working to decrease delays in putting radiology results onto charts for ED patients provides an example of such an "aha!" moment. The "runner" explained that he picks up completed radiology reports from the "outbox," and goes across the hall to the ED. If report is for Mrs. Smith in room 106, he goes to room 106. He checks the chart folder in the wall pocket by the door. If it says "Mrs. Smith," he puts the report in the folder. If the chart folder has a different patient name, then he doesn't know which room Mrs. Smith is in—so he takes it back to the radiology department and sets it on the counter. The ED nurse was stunned: *"When we move Mrs. Smith, it never occurred to us that we should put a sign on the door of room 106 to indicate Mrs. Smith's new location!"*

- The flow chart can help teams pinpoint instances of rework. If the individual making toast in Fig. 4.4 is interrupted by a phone call, the toast will get cold (and the now-defective toast will be fed to the birds). The individual will repeat the toast-making process with a new slice of bread. Efforts to increase the efficiency of the toast-making process will seek to eliminate this situation.

Uncover Sources of Variation

Both TQM innovators and the Institute of Medicine (IOM) reports on reducing medical errors emphasize the importance of consistent implementation of work processes (Institute of Medicine, 2001; 2006). IOM reports document that a high proportion of medical errors stem from process failures, such as a failure to communicate lab results to physicians and patients, or failure to administer the correct dose of a prescribed drug. In these cases, the first step to strengthen quality is to identify the cause of deviation from the appropriate process (described in the TQM framework as "variation" from the process). It is then useful to categorize the variations as either *systematic variation* or *random variation*. A *systematic variation* occurs when the variation reflects imperfections in the work process. For example, a manager may notice that facilities' maintenance response times are typically longer on weekends. The longer average response time on weekends may signal a problem with scheduling of maintenance personnel shifts. In contrast *random variation* reflects random variations associated with patient arrival times, patient comorbidities, the need for unscheduled equipment maintenance, weather events, flu epidemics, or any of the myriad of events that may impact healthcare organizations. A random variation occurred in the toast-making process illustrated in Fig. 4.4, when the telephone call interrupted the toast-making process. Identifying and analyzing systematic and random sources of variation may require significant data collection and analysis. This analysis is essential, however. Efforts to reduce systematic variations focus on redesigning the work process to improve coordination and communication. Efforts to reduce random variation focus on making the process more resilient. A hands-free telephone headset, for example, would not prevent the interrupting phone call, but it could prevent the toast from burning.

Strengthening quality by strengthening process coordination and reducing variation requires dedicated and persistent effort, attention, and resources. Because care delivery processes are unique to each specific healthcare provider, it is important for each healthcare provider to implement TQM strategies to ensure quality outcomes.

Synthesize Information to Design a Solution

Once the systematic and random sources of variation have been analyzed, the team will design solutions to accomplish two goals:

- Eliminate sources of systematic variation: This requires addressing problems such as variation in maintenance response times due to uneven scheduling of maintenance personnel.
- Reduce the impact of random events on the process: If flu epidemics exert significant negative impacts of the quality of care, the team would develop strategies to minimize these impacts. If flu epidemics lead to staff shortages (as staff members become ill), the team might develop backup plans that include cross-training of staff members or access to additional sources of temporary staff.

The team will also be aware of the fact that it cannot achieve its quality improvement goal if opposition from other groups blocks implementation of the solution. Therefore, the solution design process will include collection of formal and informal feedback from all groups that will be impacted by the innovation. The fact that the team includes representatives from these groups will facilitate the feedback collection process. Negative feedback from other groups will be treated as important information that is essential for designing a workable solution that improves performance along the entire service- production process.

After the team completes the FOCUS steps, it is ready to guide implementation of the solution using the PDCA cycle. The team will:

Plan to implement the solution
Do the steps detailed in the plan
Check the impact of the implementation
Act on the tracking results

This cycle highlights three points:

1. TQM teams do not simply recommend that other groups should solve problems. Instead, the TQM team is responsible for designing a solution that can be implemented, implementing the recommended solution, and collecting data to verify that the problem has been solved.
2. TQM teams do not simply assume that the solution will be effective. Instead, the team will design and implement a strategy for checking the impact of the implementation on the key quality metrics.
3. The solution implementation may require several iterations. If the data indicates that there is an opportunity to improve the solution implementation, the team will act on this information. The PDCA steps are referred to as the "PDCA cycle" because implementation of the first solution could generate information that leads to a new quality improvement effort.

Conclusion

TQM is not intrinsically useful or useless. Superficial or half-hearted application of TQM tools is not likely to achieve strong results. However, full utilization of the TQM framework requires a paradigm shift for many individuals, and substantive culture change for many organizations. In writing about an early TQM innovator, Don Berwick addressed the question of why the innovative health system invested substantial resources to implement the TQM framework:

> *"… [the authors]… never tell us why they chose to take the risk of change, but two reasons, at least, must be at work. First, they must believe that "business as usual" in the classic management strategies of healthcare will not succeed. These top-level managers must be deeply worried about what will happen if they do not change. Second, they must believe that TQM, as they understand it, offers a plausible route to greater organizational change." (Berwick, 1991)*

It is clear, today, that "business as usual" is not sustainable in our healthcare industry. Projected cost increases are not financially sustainable and medical error rates continue to raise concerns. Increased efficiency, coordination, and quality are important goals for health policy makers, payers, providers, and patients. TQM methods (also known as CQI, "6-Sigma," or "Lean" strategies) offer pragmatic steps for moving forward.

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Chapter 5
Quality Improvement and Clinical Psychological Science

Michael E. Levin and Sarah A. Potts

Clinical psychological science (CPS) faces significant challenges in the twenty-first century. Empirically supported treatments (ESTs) have relatively low adoption rates among clinicians (Foa, Gillihan, & Bryant, 2013). For example, a survey of psychologists specializing in treating PTSD found only 10 % routinely used exposure methods (Rosen et al., 2004). Many who would benefit from therapy do not seek treatment (e.g., only one-third of those with a psychological disorder reported receiving treatment in Kessler et al., 2005). Those who do seek treatment are increasingly likely to receive only pharmacotherapy, with rates of outpatients only receiving medication increasing from 44 to 57 % from 1998 to 2007, while those receiving only psychotherapy decreased from 16 to 11 % (Olfson & Marcus, 2010). Effect sizes from ESTs have plateaued, with treatment response rates ranging between 38 and 82 % depending on the disorder (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012), to the point that meta-analyses sometimes even fail to show greater efficacy relative to any "bona fide" treatment (e.g., Baardseth et al., 2013). Compared to the wealth of efficacy data, there is relatively little knowledge regarding the active components and mechanisms of change for many ESTs (Longmore & Worrell, 2007). In combination with these challenges, research support from federal agencies for psychosocial treatment development is in a decline (Gaudiano & Miller, 2013). This combination of poor uptake, slow progress, and diminishing research support highlights the need for strategic, progressive approaches to CPS.

One promising way forward in addressing these challenges is through quality improvement (QI) approaches. The QI approach within healthcare emphasizes ongoing examination of the systemic processes through which services are developed and implemented as a means to continuously improve efficacy, efficiency, patient satisfaction, and error rates, among other aspects of quality. As this chapter demonstrates, QI fits well with CPS' focus on using scientific methods to improve

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the treatment of mental and behavioral health problems while further highlighting areas needing more attention, such as systemic processes, continuous evaluation, and aspects of quality, besides symptom reduction.

This chapter discusses how key QI themes are exemplified in promising research directions within CPS and how these efforts can be further clarified and enhanced. Explicating QI's relationship to CPS may further support progressive changes in CPS and its ability to address current limitations and challenges.

Theme 1: Quality as a Multifaceted Construct

From a QI perspective, quality in mental healthcare can be viewed in terms of efficacy, efficiency, cost-effectiveness, safety, respect for and responsiveness to patient needs and satisfaction, consistency, and lack of errors. Although all these facets are implicitly important to CPS, quality is often narrowly defined in research as efficacy of symptom remission. In the past several decades, CPS has sought to improve quality in large part by developing ESTs, defined by their demonstrated impact on psychological symptoms in clinical trials.

This narrow view on quality has arguably hampered progress in CPS. For example, poor uptake of ESTs by practitioners (Foa et al., 2013), low treatment seeking rates (Kessler et al., 2005), and the diminishing market share for psychotherapy services (Olfson & Marcus, 2010) are partially to blame on a lack of attention to quality factors such as patient needs and satisfaction, cost-effectiveness, and efficiency (although there are significant systemic contributors as well which will be discussed later). A greater research emphasis on developing and demonstrating efficient, low-cost therapies that yield high utility and satisfaction to both patients and providers could significantly improve these issues. Another brief example, compared to the knowledge base of EST efficacy, is that there is relatively little information regarding the therapies that are harmful to patients despite their clear importance for patient safety (Lilienfield, 2007).

Approaching CPS from a QI perspective clarifies the importance for research on other facets of quality. More research is needed on patient needs, expectations, and satisfaction such as by examining the role of patient choice in treatment outcomes (Swift & Callahan, 2009), testing strategies to improve treatment credibility (Arch, Deacon, Twohig, Bluett, & Landy, 2013), and addressing barriers to accessing care (Kazdin & Blase, 2011). More research is needed on how to reduce errors and increase consistency in psychological practice such as through improving the adoption and competent use of ESTs (Foa et al., 2013; Weisz, Ng, & Bearman, 2014). More research is needed on how to maximize efficiency and cost-effectiveness of treatment such as through the use of stepped care models (O'Donohue & Draper, 2011) and self-help technologies (Kazdin & Blase, 2011). Researchers have become increasingly attentive to these other facets of quality within CPS and the sections that follow touch on a variety of these examples.

Theme 2: Focusing on Systems for Improvement

QI focuses on understanding and changing the systems and processes by which mental health services are implemented. A key point is that improvement is not analogous to eliminating "bad apples," (Berwick & Nolan, 1998) or, in the case of CPS, specific individuals from the field who lack skill and/or provide poor quality of care. Problems in quality are better conceptualized as a result of system-level processes rather than individual-level issues.

In contrast, much of CPS research has emphasized the behavior of individual patients and practitioners with little attention to how these interact with systemic processes. For example, the focus on EST development in CPS represents a narrow emphasis on improving the set of therapeutic techniques clinicians use to reduce symptom clusters. This emphasis makes sense considering that the clinician's application of psychological skills/techniques is a key component of the "product" delivered. Although the development of such ESTs has led to efficacious treatments, the degree to which adding these specific techniques/components improves effect sizes in component studies is not always clear (Longmore & Worrell, 2007) and is relative to other evidence-based therapies (Baardseth et al., 2013). Arguably, the distinctions in newer evidence-based therapies may be further decreasing with the rise of treatments focusing on mindfulness, emotion regulation, and value processes (Hayes, Villatte, Levin, & Hildebrandt, 2011). Given this, it seems unlikely that CPS' continued focus on changing the therapeutic "product" is the most important factor for improving the quality of mental health services.

When considering overall mental health burden, the difference in impact from choosing "evidence-based technique a" over "evidence-based technique b" pales in comparison to systemic variables. For example, improving the reach of psychological services to more people in need, even if at a somewhat lower level of efficacy, can have a much greater impact on overall public health (Kazdin & Blase, 2011). More research is needed to address the systemic barriers to receiving mental health services rather than in "tinkering" with a product only provided to a relatively small proportion of those in need.

Recently CPS has focused more on understanding and targeting barriers to accessing mental health care. For example, research has found that poor mental health literacy (e.g., difficulty identifying symptoms, beliefs that therapy is not helpful and/or not needed) is a common barrier to seeking treatment (Gulliver, Griffiths, & Christensen, 2010), inspiring research on systemic solutions such as marketing directly to consumers (Gallo, Comer, & Barlow, 2013). Other barriers, including financial costs, lack of available providers, and stigma (Gulliver et al., 2010), have led to a rapid growth in alternative treatment delivery modalities for accessing treatment such as through web/mobile self-help technologies (Kazdin & Blase, 2011). This represents a more QI-consistent approach to improving quality, examining the processes by which patients learn of, seek, and receive therapy, and targeting these processes as needed to improve access.

Research on models of care is another important example of a system-level approach in CPS. For example, stepped care models, in which individuals receive the least invasive level of care likely to be effective and are "stepped" up or down depending on responsiveness, have been gaining increasing attention in CPS (O'Donohue & Draper, 2011). Unnecessary healthcare costs are incurred when clients are triaged to higher than needed levels of care (e.g., hospitalization when outpatient therapy is sufficient) and the costs to patients (e.g., time, effort, discomfort) can contribute to poor treatment satisfaction and dropout, among other problems. Stepped care provides a systemic, data-driven approach for deciding how patients are matched to level/type of treatment. This can address key quality factors including cost-effectiveness (by matching to the least costly treatment), responsiveness to patient needs (by matching to what would be most helpful/preferred for clients), and safety (by matching to the least invasive level of care).

Research on stepped care has been growing in CPS, but more research is needed that is informed by QI. For example, a systematic review of stepped care for depression in adults identified 14 controlled/uncontrolled clinical trials (Firth, Barkham, & Kellett, 2015). Of note, this review focused on quality primarily defined in terms of symptom reduction, despite it arguably being one of the least central quality indicators to be improved by stepped care, and excluded the five available studies on cost-effectiveness. In contrast, only 3 of 14 depression studies reported data on acceptability and satisfaction with experimental stepped care programs being tested. More CPS research is needed testing stepped care on quality indicators such as provider/patient satisfaction and cost-effectiveness. As an example, two studies found that the most treatment dropouts occurred at low-intensity steps, suggesting the potential for poor patient satisfaction and dropout if incorrectly matched to too low of a step (Firth et al., 2015).

Currently, there is notable heterogeneity across stepped care approaches for depression, including the number, type, and sequencing of steps as well as the decision rules for assigning and transitioning between steps (Firth et al., 2015). There is a clear need for CPS in validating specific stepped care protocols that could be implemented in systems of care. CPS has much to offer in improving stepped care, providing a data-driven approach to inform what steps are provided, how clients are matched to steps, and the decision rules for moving across treatment steps.

Theme 3: Identifying and Targeting Sources of Variability in Quality

Understanding and targeting variability in quality is a key goal for quality management and is also relevant to QI. Within mental healthcare, this means ensuring that consumers consistently receive services that are in line with practice guidelines for evidence-based, effective, and ethical care from clinicians. In contrast, the current state of clinical practice is notably inconsistent in areas including providing ESTs

(Foa et al., 2013) and even with agreement on clinical diagnoses (Regier et al., 2013). It is likely that a patient who saw multiple clinicians would receive different diagnoses, treatment plans, and competency in treatment provided from each, a significant concern for managing as well as improving quality. Refining the most effective therapies for specific problems in CPS is unlikely to impact the quality of mental healthcare writ large if such treatments have poor uptake and are inconsistently applied.

A common mistake made when addressing variability and errors in healthcare is to directly target those who are not following guidelines (a “bad apples” approach; O’Donohue & Engle, 2013). These methods emphasize external mechanisms for deterring and punishing drift from quality guidelines such as through licensure requirements and disciplinary mechanisms (O’Donohue & Engle, 2013). This is akin to removing defective products, but when the “units” are people, it carries the same problems as any program that excessively relies on punishment contingencies (e.g., anxiety, avoidance, reoccurrence of behavior outside of monitoring). Furthermore, these methods are likely to help ensure minimal quality standards, but are unlikely to drive ongoing improvements. Although CPS has much to offer to this area, such as by defining minimal quality standards and identifying harmful treatments to be hopefully prevented by governing groups, a QI approach is much more effective for both reducing variability in quality care and continuing to improve services.

Putting aside the tendency to blame “the bad apples,” QI-inspired research orients CPS to the underlying systemic causes that lead to poor quality of care. For example, a recent article outlined a number of potential barriers to adopting evidence-based methods that could be further elucidated and targeted in CPS research, such as therapist-specific attitudes as well as pragmatic and educational barriers (Lilienfield, Ritschel, Lynn, Cautin, & Latzman, 2013). Although some solutions are likely to fall out of the direct purview of CPS, such as making changes to training programs and curriculum, others, such as finding how to overcome attitudinal barriers, are a laudable target for CPS and one in which there is a wealth of research on attitude change already available to draw from.

Understanding and targeting barriers to using evidence-based methods is gaining much more attention in CPS with the rise of dissemination and implementation science (Foa et al., 2013; Weisz et al., 2014) and large-scale dissemination efforts such as in the VA (Karlin & Cross, 2014). This work has begun to highlight the challenges faced, including not only how to increase adoption of ESTs, but also how to effectively train practitioners and maintain fidelity/competency over time (Foa et al., 2013; Weisz et al., 2014). More and less successful implementation programs have been identified, highlighting a variety of features that may contribute to outcomes, including many system-level solutions (Foa et al., 2013). A common problem found in earlier implementation efforts was that focusing on just didactic training of practitioners and with little attention to systemic variables led to poorer adoption, fidelity, and competence with ESTs (Beidas & Kendall, 2010). Available research suggests that systemic strategies, such as ongoing supervision, fidelity monitoring, and targeting of organizational climate, improve implementation outcomes (Novins, Green, Legha, & Aarons, 2013). Although these findings are a promising start, few implementation programs are designed and conducted to systematically test specific hypotheses that could critically evaluate theories, models, and methods for best implementation practices (Novins et al., 2013; Weisz et al., 2014). Implementation efforts have been increasingly better at measuring training and even efficacy outcomes to determine whether programs are effective (e.g., Karlin & Cross, 2014). However, systematic research is needed to identify the necessary components and processes that are key to successful programs. This is especially critical given the costliness of some methods currently used and the common barriers of cost and practitioner time that impede broader dissemination.

A means to grow CPS research on dissemination and implementation that is consistent with a QI perspective is through developing useful measures to better understand the processes, components, and outcomes in implementation projects. For example, the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004), which assesses practitioner attitudes in terms of appeal, adoption likelihood, openness, and perceived change on usual practice, has been found to improve understanding of implementation barriers in various settings (Melas, Zampetakis, Dimopoulou, & Moustakis, 2012). A systematic review of the healthcare literature more broadly identified 62 measures related to implementation such as provider and organizational factors (Chaudoir, Dugan, & Barr, 2013). Yet, the review identified relatively few measures assessing structural variables such as policy and resource factors. Although such measures have begun to be available, CPS research has been slow to adopt their use in implementation projects.

CPS researchers have begun to develop training methods that can address at least the initial time and resource barriers for clinicians in effectively learning ESTs. For example, computer-assisted therapy programs allow behavioral health providers with limited knowledge in ESTs to simultaneously use and receive training in ESTs with the support of a computerized intervention (Craske et al., 2009). These programs are designed to be used in the room with a patient, providing prompts for the practitioner on what to do next and intermittently covering sections of intervention material directly in the program itself. This reduces the initial burden of time and effort in learning ESTs for anxiety disorders, instead providing more opportunities to learn methods “on the job” with support from the program. Another example of such innovations in CPS is a criterion-based stepwise training method in which practitioners receive increasingly intensive training methods, starting with Web-based training, based on their performance on assessments of competency (Martino, Canning-Ball, Carroll, & Rounsaville, 2011). CPS has much to offer not only in developing and validating innovative methods to address known barriers, but also in continuing to study and refine how best to maximize their quality (e.g., what are the criteria for competency in stepwise training, can computer-assisted therapies be used by paraprofessionals with minimal training).

Although CPS has focused on dissemination and implementation of ESTs as a means of improving consistency and quality of care, a QI perspective raises a number of other important factors to be addressed. Variations in quality and errors, such as incorrect or missed diagnoses, triaging to inappropriate care, failure to provide beneficial adjunctive or relapse prevention services, lack of outcome monitoring, ruptures in therapeutic alliance, and so on, are critical and yet receive little attention in CPS research efforts. Many of these issues are likely to be both caused and addressed at a systemic level, but more CPS research is needed.

Theme 4: Focusing on Consumers

QI takes a patient-centered approach within healthcare. This includes emphasizing patient expectations and needs for treatment as well as measuring satisfaction with and perspective on their care. High-quality mental health services should be not only efficacious in reducing symptoms, but also satisfying to patients, meeting or exceeding their perceived needs and expectations. Failing to do so despite improving symptoms raises key questions regarding whether the measures and outcomes specified by researchers really represent what is most valued by consumers. A treatment that is costly, unsatisfying, disrespectful to patient needs, or does not meet expectations is likely to lead to dropouts and few "word-of-mouth" referrals.

Despite the importance of patient-centered outcomes, there has been little emphasis on these topics in CPS. For example, research is lacking on what various patient groups expect and need from mental healthcare. An exception is in the area of technology-based interventions, which has increasingly taken a user-centered design approach that emphasizes understanding and addressing user characteristics, expectations, and needs in the design of treatment programs. It is common for technology-based treatment developers to conduct multiple stages of focus groups and usability testing with the target population prior to full-scale program development (e.g., Danaher et al., 2012). Similarly, surveys are often conducted on what patient populations are looking for and would want in technology-based interventions (e.g., Whiteside et al., 2014). A greater focus on such variables and methods in mental health treatment more broadly could help inform more satisfying treatments that patients are more likely to seek out and complete.

A related area that has received more attention in CPS is the impact of patient choice of treatment on outcomes. A meta-analysis of 26 studies found a small, but significant, effect for greater outcomes among clients who received their chosen treatment (Swift & Callahan, 2009). Furthermore, the meta-analysis found that patients who received preferred treatment were half as likely to drop out. More CPS research is needed now on how to support the positive impact of patient choice in clinical work where possible (while ensuring receipt of evidence-based methods). One means to do so is to gain a better understanding of what patients prefer and expect in treatment and why they might prefer some methods over others.

This issue is reflected in the area of exposure for anxiety disorders, which is highly effective when clients are willing to complete it, but also includes notable refusal and dropout from those who find it unacceptable. A promising area of research in CPS is in systematically testing how evidence-based methods, such as exposure, are framed to potential patients and what might lead to higher acceptability.

For example, one study tested different ways of framing exposure (e.g., fear reduction vs. valued living as the goal of exposure; fear control vs. acceptance as the main therapeutic strategy) to see which would be perceived as more credible by a large sample of online participants (Arch et al., 2013).

A more basic approach is to simply measure and report patient satisfaction in clinical trials. Besides initial feasibility studies, patient satisfaction is rarely reported. There is a relative lack of well-validated satisfaction measures and of benchmarks with which to compare findings to in order to determine how satisfying the service really was. Initial steps in CPS could include developing psychometrically validated patient satisfaction measures with empirically derived cutoff scores representing higher vs. lower quality programs. Examining predictors of patient satisfaction in clinical trials could then begin to inform methods for improving satisfaction.

Typically the concept of consumers in healthcare focuses on patients, but practitioners are also consumers of CPS research products. CPS similarly needs to understand practitioner expectations and needs in order to develop the kinds of research products that are likely to be used and helpful. One strategy to meet this need is through practice research networks in which there is intense collaboration between scientists and practitioners at each step of the research process, from identifying research questions to disseminating findings. For example, the center for collegiate mental health represents a practice research network between researchers and practitioners in college counseling centers (Castonguay, Locke, & Hayes, 2011). This network led to the empirical validation and standardization of a mental health assessment instrument for counseling centers as well as large-scale clinical epidemiological research on counseling center client characteristics, symptom profiles, and predictors of mental health problems (Castonguay et al., 2011). Practice research networks help ensure that the questions that are most important to practitioners are addressed and the most needed tools are developed, thus increasing the potential for practitioner use. Simultaneously, such collaborations provide scientists with a network in which research can be effectively conducted and disseminated.

Even using simple methods, such as surveying practitioners, would be an improvement for many initiatives in CPS. For example, creating and disseminating ehealth applications have increased; yet the evaluation of practitioner acceptance and overall feasibility of implementation in routine care has received little focus. Survey studies have examined therapists' views and intentions to use technologies in clinical practice (e.g., Carper, McHugh, & Barlow, 2011). However, larger questions need to be addressed, such as what practitioners would want from such programs and how these programs could be set up in a way that supported clinicians, rather than adding more non-billable time spent messaging and monitoring clients' use of adjunctive technologies.

Taking the concept of consumer one step further, the institutional stakeholders and healthcare systems as a whole are also consumers. CPS similarly needs to focus on the problems and needs of the healthcare system, enhancing the value of psychological services and science to healthcare administrators and policy makers. Failing to do so might contribute to the observable decline in therapy services and increase in pharmacotherapy for mental health problems (Olfson & Marcus, 2010). As discussed in the next section, a key strategy is to focus on improving and demonstrating cost-effectiveness of psychological services. CPS research on behavioral targets related to major healthcare costs, such as health behavior change, treatment adherence, and prevention of relapse and rehospitalization, represents another strong research area in CPS that addresses healthcare system needs. Continuing to assess and address the needs of such systems can strengthen the role of CPS and psychological services. Finding ways to reduce healthcare costs is also an important target for patient satisfaction, providing similar or even better quality services while reducing the costs placed on consumers.

Theme 5: Reducing Costs While Improving Quality

Cost-effectiveness and efficiency are central facets of quality that receive too little attention in CPS. Using scientific methods to minimize costs for effective mental health care is critical to ensuring continued use of psychological services by providers and systems. Producing positive outcomes with less time in treatment may also improve patient satisfaction and engagement in treatment. Consumers, both practitioners and providers, are generally interested in giving and receiving the best available quality at the most efficient, cost-effective route.

QI as a whole provides a framework for reducing cost while improving the quality of care. For example, Intermountain Health Care successfully used a QI approach through a series of steps including identifying sources of variation and key processes to target for change, developing specific protocols/guidelines, increasing dialogue between clinical and financial management, increasing accountability through data collection and analysis, and managing financial incentives (James & Savitz, 2011). The efforts decreased guideline variances from 59 to 6 % and increased seriously ill patient survival rates from 9.5 to 44 %, all while cutting cost of care by 25 %, and reducing operating costs by $41 million (James & Savitz, 2011). Rooted in an empirical approach, such cases highlight how CPS might better integrate with clinical practice to collaboratively improve the cost-effectiveness and the quality of services (O'Donohue, Snipes, & Maragakis, 2014).

The use of technology-based interventions, a strong and growing area in CPS, again seems relevant when discussing cost-effectiveness research. Providing mental health services through self-guided web/mobile technologies uses minimal to no practitioner time, thus affording the opportunity to receive similar or additional treatment dosage while reducing direct care hours. While increasing access to and amount of services, these technologies incur minimal cost per patient once the technology is developed. Further, these technologies are particularly efficient by providing consistent, targeted delivery of EST components and potentially at critical times when implemented through mobile phones (e.g., ecological momentary interventions, skill generalization tools, crisis management tools). These tools can reduce cost in numerous ways including improving outcomes and reducing relapse, providing low-cost treatment options for aftercare and less severe cases, and providing methods for reducing the number of direct face-to-face sessions.

However, despite the promise of web/mobile technology, there has been minimal research demonstrating the cost-effectiveness and return on investment of using these programs. For example, a systematic review of 31 randomized control trials (RCTs) of self-help for anxiety disorders did not find a single study that included a cost-effectiveness analysis (Lewis, Pearce, & Bisson, 2012). This might simply reflect a lack of attention to an often overlooked quality metric, which can be addressed by beginning to include cost-effectiveness assessments in studies. Yet, a lack of attention to cost-effectiveness may also be reflected in some of the programs developed thus far in CPS. Without attending to how intervention technologies reduce costs and improve efficiency, some areas have been largely missed for program development. For example, there is a relative lack of adjunctive therapist tools targeting skill generalization, homework completion, and relapse prevention that can be seamlessly integrated into therapy. Similarly, there is a lack of web/mobile self-guided treatments that parallel and can be used in conjunction with clinician protocols to increase efficiency. Rather, the majority of programs have focused on stand-alone treatments and prevention programs that might largely replace face-to-face sessions.

These issues are particularly notable in the area of *guided* self-help. Research has clearly demonstrated that providing some guidance and support with self-help programs improves adherence and efficacy outcomes (Cuijpers, Donker, van Straten, Li, & Andersson, 2010), with many clinical trials now including this feature. Research personnel in clinical trials are trained in how to conduct guided self-help and provide systems to monitor and contact clients. Yet, such training and monitoring systems are rarely made readily available when interventions are disseminated to practitioners writ large. This begs the question of how clinicians will be able to effectively conduct the guidance that CPS has highlighted as critical when using self-help technologies. Recent research has sought to begin addressing this issue by providing clinician tools for training in and monitoring/guiding clients' use of programs (e.g., Levin, Pistorello, Hayes, Seeley, & Levin, 2015), but more emphasis on this gap is needed. Implementing guided self-help also raises the question of how technologies will actually save therapist time if they now have to begin monitoring and supporting clients using the program, likely without any way to receive reimbursement for these efforts. Thus, it is not entirely clear how these technology-based interventions will be integrated into systems of care. A QI perspective is needed, increasing research on these broader issues and the processes that can support successful implementation and improvements in efficiency and costs of service.

Another research area previously mentioned that is quite relevant to cost-effectiveness is stepped care (O'Donohue et al., 2014). Given the relatively high rates of spontaneous remission with some common clinical concerns, such as major depressive episodes, it is striking that minimal cost treatment options, like watchful waiting and self-help, are rarely offered in routine care. Further striking is the relative lack of research on stepped care models and their impact on efficiency and cost outcomes (Firth et al., 2015). This model also fits well with web/mobile interventions (O'Donohue & Draper, 2011), providing a system for how such technologies might be incorporated into systems of care and highlighting a clear gap in the literature.

Targeting treatment delivery and care models have significant promise for reducing costs of treatment and eliminating important inefficiencies. However, CPS also needs to continue to focus on how to improve the efficiency of treatment protocols themselves, eliminating inert treatment components while targeting known mechanisms of change. Knowledge regarding mechanisms of change and the necessary and sufficient components of treatment is generally lacking for cognitive behavioral therapy (Longmore & Worrell, 2007). This gap in the literature has hindered the ability to refine ESTs to be more efficient and has often led to multicomponent treatment packages that can be more difficult to train practitioners in (Hayes, Long, Levin, & Follette, 2013).

One contributor to the slow progress in understanding treatment components is that the gold standard method is dismantling research, in which treatment is compared with and without specific components to determine their relative impact on efficacy. The features that make dismantling studies a strong method also require large sample sizes and ample resources in order to power studies to detect for noninferiority between conditions with and without components. This often requires significant research funding and time spans, which naturally lead to a slow rate of such studies in CPS. A greater emphasis on alternative component testing methods is needed such as through strategic use of laboratory-based component studies (see Levin, Hildebrandt, Lillis, & Hayes, 2012 for a review of such studies in relation to Acceptance and Commitment Therapy).

Behavioral activation represents a strong example of how component research can lead to more efficient treatments. Based in large part on the results of key dismantling studies indicating the efficacy of the behavioral component of cognitive therapy alone (e.g., Dimidjian et al., 2006), this treatment was refined and disseminated to practitioners. The simplicity of this component-derived treatment may serve to reduce training barriers, increase adoption and fidelity with practitioners, and even expand its use to paraprofessionals (Ekers, Richards, McMilan, Bland, & Gilbody, 2011).

Although research on technology, stepped care, and active components/mechanisms of change is central for improving cost-effectiveness, a broader emphasis is needed in CPS on finding new ways to reduce therapist time while maintaining quality care. Possible examples include identifying the conditions under which group therapy can replace/reduce individual therapy, developing evidence-based decision rules to help therapists recognize when to terminate with clients, testing the efficacy of adjunctive tools such as mutual help groups and self-guided behavior change methods, and evaluating how/when paraprofessionals can provide services (O'Donohue et al., 2014). A broader focus on improving productivity while minimizing costs is likely to improve a range of other quality indicators including patient satisfaction and access to services.

Theme 6: Using Iterative Improvement Cycles and Continuous Evaluation

QI is an ongoing approach, emphasizing iterative strategies that continue to assess and modify processes to improve quality more and more. An example is the plan, do, check, act cycle (see chapter 16 in this book), which illustrates a repeated sequence for designing, implementing, assessing, and revising QI initiatives. This iterative, assessment-driven approach is a critical insight from QI, clarifying the importance of assessing the results of what is implemented and continuing to address issues found until a quality product is reached.

As repeatedly mentioned throughout this book, the focus on RCTs in CPS steers researchers away from a more rapidly iterative approach. RCTs allow for strong inferences about whether effects were caused by treatment, but at the expense of being able to conduct rapid testing and revising. A well-designed RCT typically takes 5.5 years to complete (Ioannidis, 1998), leading one to infer that four to five iterative cycles based on results might take upwards of 20 years provided that ongoing research funding is available to support such resource-intensive efforts. The slow pace of RCTs has recently been highlighted by the National Institute of Mental Health, leading to a shift to "fast-fail" pilot trials that can quickly test whether interventions are promising by whether they impact targeted mechanisms of change (Gogtay & Insel, 2014).

One area this issue has become particularly apparent is in web/mobile technology research (Mohr, Cheung, Schueller, Hendricks, Brown, & Duan, 2013). Web/mobile technology is well known for being fast paced, with quick-moving markets and rapidly improving technologies. The estimated 5.5-year RCT period would mark a time span with numerous changes in hardware, supported browsers/software, and industry standards for design. Restricting dissemination of technologies until RCTs are finished is clearly problematic; an available niche is very likely to be filled by less "research-conscious" developers over that time period and the technology will very likely be outdated by the time it is ready to be deployed. Yet, implementing a technology without testing leads to not knowing whether it is effective, and most relevant to QI, not having a mechanism to identify and improve any issues that may be present.

A proposed CPS solution is to conduct Continuous Evaluation of Evolving Behavioral Intervention Technologies (CEEBIT) with actively deployed programs (Mohr et al., 2013). CEEBIT harnesses the ease of ongoing data collection with technologies to allow for continuous, large-scale evaluations of programs actively being used by consumers. This provides early and ongoing information regarding the acceptability, safety, and efficacy of a program as it is used. Beyond that, CEEBIT proposes deployment of multiple versions of a program as updates are made, with comparative analyses conducted to identify when older versions begin to demonstrate inferiority to newer revisions, at which point they are dropped. Although this does not provide the same degree of causal inference regarding whether outcomes are caused by using these technologies, it does allow for continuous monitoring and improvement in technologies without waiting for longer and more resource-intensive RCTs to be completed.

CPS includes a whole host of other methods that support ongoing, iterative cycles, but they all tend to be underutilized. For example, single case designs have a long history of use in behavior analysis, but are rarely used in therapy research despite their clear relevance and benefits (Hayes, Barlow, & Nelson-Grey, 1999). These methods are rooted in principles of repeated, ongoing assessment and evaluation of therapeutic strategies implemented. Even relatively simple designs, such as a sequence of phase shifts from baseline (A) to an intervention strategy (B) and then the addition of another therapeutic strategy (B+C), can begin to provide ongoing information regarding the quality of care for a patient and impact of revisions made. More sophisticated methods, such as a multiple baseline approach in which clients begin treatment after varying lengths of baseline periods to rule out confounds such as maturation as well as test for generalization, can provide stronger data regarding causal inferences. Such time series designs can be implemented, revised, and re-implemented much quicker than RCTs, providing a feasible mechanism for continuous QI.

A more recently developed set of methods highlight alternative ways for CPS to test a host of iterations systematically, yet efficiently. Multiphase Optimization Strategy (MOST; Collins, Murphy, & Strecher, 2007) is a method in which theoretically derived treatment components are tested and refined through a sequence of factorial designs with participants randomized to various combinations of treatment components or components in isolation. This method can systematically identify which components of a treatment are active and the optimal way to implement them through just a couple of RCTs. In addition, Sequential Multiple Assignment Randomized Trial (SMART; Collins et al., 2007) can be used in a single study to examine more specific adaptive intervention strategies, decision rules, and similar features that might be provided throughout the course of treatment. This involves a series of points in which participants are repeatedly randomly assigned to various treatment features being examined (e.g., receiving tailored messages or generic messages from a website, e-mail or text messages plus e-mails, starting treatment with motivational strategies or not). The SMART design allows researchers to examine a variety of different experimental manipulations within a single intervention study in order to determine how best to implement treatment. These methods are best with a high level of experimental control and with large sample sizes, yet again highlighting the role of web/mobile treatment studies in CPS and QI efforts.

In addition to continuous, iterative research methods, it is important for CPS to engage clinicians in this process such as through routine outcome monitoring. Regularly assessing and reviewing patient outcomes, particularly with tools that have algorithms for identifying positive and negative patterns of change, provides an ongoing feedback system for identifying patient issues and examining the effects of altering treatment. Research has found that implementing such systems leads to greater identification of patients who are deteriorating, greater treatment improvements, and lower rates of patients who deteriorate in treatment (Whipple & Lambert, 2011). Routine outcome monitoring engages clinicians directly into QI methods, but CPS research efforts are clearly needed in developing and validating the measurement tools and systems that practitioners can and want to use.

Taking this a step further, CPS needs to engage clinicians in the very process of contributing to the research literature. Practice-based research efforts are essential for creating a larger scale feedback system in which ongoing input is provided by practitioners on issues, such as treatment efficacy and problems identified in locally conducted research, which could inform additional CPS research to be evaluated again in practice. Strategies to help make these efforts feasible in the context of clinical practice are important such as through collaborations in practice research networks (Castonguay et al., 2011). Methods are also needed that fit well with practice contexts, such as single-subject designs (Hayes et al., 1999) and the use of brief, practical measures that are feasible to implement.

Conclusions

QI offers a number of valuable insights that can help guide a progressive approach to CPS. Research efforts are needed that seek to address a broader range of quality outcomes through systemic approaches and the use of more continuous cycles of research, implementation, and evaluation. A continuous theme throughout this chapter is that cases of such research are fortunately already being conducted in CPS, but these areas need greater emphasis and a broader research agenda explicitly oriented to QI principles. Thus, this chapter is not proposing a reworking of CPS as much as more intentional focus on thoughtful innovations and directions already being taken that are consistent with a QI approach.

One of the key challenges in making such changes in CPS is the traditional emphasis over the past several decades on RCTs testing largely outpatient, face-to-face treatment manuals for symptom reduction. This narrow focus on symptom reduction, on methods for evaluating quality through RCTs, and on methods for improving quality through developing new sets of treatment techniques has arguably slowed progress in the long term for CPS (Hayes et al., 2013). Greater adoption of a broad set of methods besides RCTs, particularly those that support iterative evaluation of treatments and systems processes, is needed (e.g., single-case designs, CEEBIT, SMART, and MOST methods). Greater consideration of quality indicators besides symptom reduction in treatment is needed (e.g., patient satisfaction, cost-effectiveness, and consistency). Greater attention to the systemic barriers and processes that influence treatment quality is needed. A more intentional adoption of the QI perspective and methods provides vast opportunities for CPS to better address practice research gaps, low rates of treatment seeking and psychotherapy use, and plateaus in treatment effect sizes, among many other challenges to quality in clinical practice.

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Chapter 6
The Toyota Way

Hiroto Ito

Introduction

Quality is the dominant theme in health care today. A key policy concern is measurement and improvement of the quality of care in healthcare organizations. Numerous strategies and tools have been developed and used in quality improvement efforts. The Japanese word "Kaizen" is commonly used in such efforts. It comprises two Japanese *kanji* characters—"kai" (change) and "zen" (good or for the better)—and means "continuous improvement." This quality management approach is the hallmark of Toyota Motor Corporation.

Ever since 1991, when Womack et al. described the Toyota production system as "lean management" (it was more recently referred to as the "Toyota Way" by Liker), this model has been widely adopted not only in the automotive industry but also in health care. Furthermore, it has increasingly become an essential element of national-level medical service management policy. In 2008 in the USA, Joint Commission Resources, Inc. (JCR) published a book titled "Advanced Lean Thinking," a collection of case studies on lean activities. The Institute for Healthcare Improvement (IHI) has systematically promoted the dissemination of lean principles in health care. In the UK, lean management techniques have been employed in National Health Service hospitals since the early 2000s.

In contrast, there are surprisingly few books and articles from Japan on the Toyota Way in the context of health care. This can seem strange to people outside Japan. Guimarães wondered whether this was because of a lack of a publishing culture, or because the Toyota Way concepts are seen as just a matter of course in Japan. The philosophy of quality control was introduced to the medical community in Japan in the 1990s. Although universal coverage and free access to health care

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had already been ensured, with the help of the government's strong financing regulations, care quality issues had been left up to medical professionals. After the foundation of the Japan Council for Quality Health Care (JCQHC) in 1995, the accreditation of hospitals commenced, and quality improvement activities using quality indicators became more prevalent. The healthcare community in Japan has reimported the concept of quality improvement, which is influenced by the Japanese industry, from the West.

In the industrial arena, however, there is a plethora of books written in Japanese on the Toyota Way. These books are very popular in Japan, and people are striving to emulate Japan's leading manufacturer in pursuing success for themselves. Although Toyota is very open about its methods and philosophy, its results are hard to copy. The Toyota Way is not just about total quality control (TQC), but is a human system aimed at developing people and building a culture. The philosophy has remained unchanged since the company's inception, but the processes and tools are constantly evolving. This chapter reviews the Toyota Way and aims to provide insights that can be used for quality improvement in health care.

What Is the Toyota Way?

In 2001, as businesses around the world were becoming increasingly globalized, the beliefs, values, and behavioral guidelines that had been passed on from generation to generation as implicit knowledge at Toyota since its foundation began to be described as the Toyota Way. Since then, the Toyota Way has been a key term for the 350,000 people working for Toyota around the world. All Toyota employees recognize a set of guiding principles aimed at improving their work, and their corporate DNA is continuously inherited by succeeding generations.

The Toyota Way philosophy is often illustrated with a drawing of a house (Fig. 6.1). The house has two pillars—"continuous improvement" and "respect for people"—and the concepts of "challenge," "Kaizen," "*genchi genbutsu*" (go and see), "respect," and "teamwork" lie at its foundation. In health care, these concepts can be translated to better care for patients as a long-term vision (challenge); visualization of problems and continuous improvement (Kaizen); finding the root cause of each problem (*genchi genbutsu*); respecting and trusting patients, peers, and partners (respect for people); and the importance of team care that reaches beyond boundaries of disciplines and collaboration with patients (teamwork).

The original Japanese term of "continuous improvement" also signifies "*chie*" (wisdom) and "*kaikaku*" (reform), meaning that organization members are never satisfied with where they are and always work for improvement, increasing value by using new ideas and the best of their abilities. Methods and techniques are developed from this first pillar. The second pillar, "respect for people," strengthens the foundation. All Toyota stakeholders should be respected, and success is created through teamwork. The employees are the corporation's most valuable resource, and their personal as well as professional growth is stimulated so that

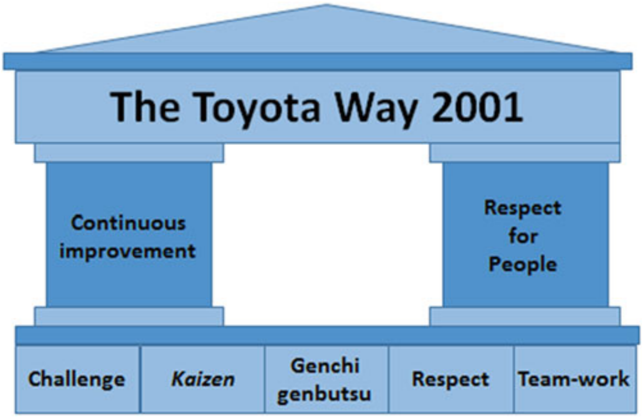


Fig. 6.1 The Toyota Way

they can give the best of their talents and skills for the benefit of the organization. In addition, Japanese management thinking in general is characterized by an emphasis on harmony and group loyalty, consensus in decision making, and lifetime employment, and all of these are linked to the concept of respect for people. Although the name of the second pillar is translated as “respect for people,” the original Japanese word literally means “respect for humanity.” Toyota values the prosperity of all of its stakeholders: customers, partners, and employees. Its goals go beyond profit making. Serving the prosperity of humankind has been a commitment of Toyota since its inception.

Service to humankind is a central value of health care, although commercialization is placing increasing pressure on the healthcare industry. Treatment and care are now not a matter between just a patient and a clinician; instead, many other people are involved in a patient’s care, including family members, other healthcare providers, administrative staff, and communities. They are all partners with common goals and should be equally respected. As patients are increasingly discharged quicker and sicker, and more interactions occur among a wider range of partners, respect and trust among the various partners become all the more important to health and health care.

“Building Quality into the Process”

One of the roots of Toyota’s quality control system is an emphasis on automation, part of the company’s philosophy ever since Sakichi Toyoda, the founder of the Toyota group, invented the automatic loom. Machines automatically detect abnormalities at Toyota, and operators stop the production line to examine the abnormality and correct the problem. Visualization is important so that everyone can understand the status of the system at a glance.

While intentionally incorporating people into the process of automation seems contradictory to the philosophy of automation, which is about having as little human intervention as possible, Toyota employees do not rely solely on machinery. The company emphasizes having automation within human hands. At Toyota, the Japanese *Kanji* characters generally used to represent automation are specially coined characters unique to Toyota. The correct Japanese characters for automation contain the *Kanji* character for "move," but at Toyota, the "person" radical is added on the left of the character for "move," which means that the *Kanji* character for "work" is used instead. The concept of "automation with a human touch" represented by this character greatly supports improved productivity and quality.

The first automobile production line commenced operation at not Toyota but the Ford Motor Company, in 1913. This production line methodwas subsequently adopted in plants around the world and became the prototype for factory automation. However, automation with a human touch, where machines stop automatically and immediately call attention to problems, has become a central feature of operations at Toyota. This approach has led to the development of TQC procedures aimed at resolving quality issues early and preventing any recurrences at the Toyota Motor Corporation (which was founded by Kihachiro Toyoda, the son of Sakichi Toyoda). Individual employees are taught that they should be aware that the processes that they are responsible for within the overall process are important parts of the completed product. Thus, they are required to take responsibility for the quality of the process they perform and for sending only conforming items on to the next stage of the process. Their focus should not be on "finding defects" but on "not creating defective products." This means that Toyota has mechanisms that allow near misses that do not eventuate in serious mistakes or accidents to be reported on a non-punitive basis. The desirable state of the workplace is one in which employees recognize a problem at an early stage, before a defective product is created, and before a serious mistake or accident occurs, and make timely improvements.

Many elements of the philosophy of Toyota's production system can be applied to clinical practice such as the emphases on (1) adhering to standards; (2) immediately reporting any problem that occurs; (3) checking the problem and investigating its cause; (4) making improvements to procedures; (5) not sending wrong information to those performing subsequent processes; and (6) never, ever harming patients. There are hundreds of near misses behind one serious accident. These near misses might have resulted in harm if good luck had not saved the patients. The stopping of the production line at Toyota reminds us of the need to report errors and near misses in health care. Transparency and empathy, rather than hiding and blaming, are recommended in the Berwick report, which offers recommendations for improving patient safety in the NHS in England. Because all humans make mistakes and an error can happen to anyone, a non-punitive and empathic reporting system is required to ensure patient safety. Creating such a culture is a challenge for individual institutions.

Eliminating Non-Value-Added Activities

In the 1960s, Toyota's resources were limited and the company did not have the necessary finances for multi-car production. This situation motivated Toyota to establish a production system that was efficient and waste free to safely produce quality products. The Toyota production system is referred to as the "lean management system"; it is characterized by continuous improvement of processes through eliminating *muda* (waste or non-value-added activities), *mura* (fluctuation), and *muri* (overburden). There are seven types of *muda* that can occur in health care (Table 6.1). There is potential waste in any process. The first step is to classify process steps as either value added or non-value added from the patient's perspective.

Five S (5S), a list of five related terms beginning with an S sound, is a process to ensure that the workplace is organized (Table 6.2). 5S is important for visualization management, preventing stagnation, and eliminating the motion and defect types of waste. A well-organized place is important for safe, efficient, and productive operations.

Table 6.1 Seven types of waste

Types of waste	Example in health care
1. Overproduction	Unnecessary services Costly tests Frequent visits/hospitalizations (overuse) Long-term stays by patients who could live in the community
2. Waiting	Clinicians waiting for patients (e.g., no-shows) Patients waiting due to schedules exceeding the capacity of the institution Delays in tests, treatments, or admission
3. Transportation	Unnecessary moving of patients Unnecessary moving of samples
4. Excess processing	Unnecessary procedures High-intensity care for patients requiring low-intensity care Repetitive work
5. Inventory	More inventory than required
6. Motion	Excess movement of people, equipment, and paper information Searching for patients, charts, and medicines
7. Defects	Near misses Adverse events Misdiagnoses Wrong procedures Premature patient discharge

Table 6.2 5S

5S	Examples
Seiri (sort)	Separating needed items from unneeded ones and discarding the unneeded
Seiton (set-in-order)	Placing only needed items in their correct places, where they are easily accessible
Seisou (shine)	Cleaning the workplace and keeping it safe
Seiketsu (standardize)	Maintaining cleanliness and order in the workplace
Shitsuke (self-discipline)	A well-maintained and orderly workplace

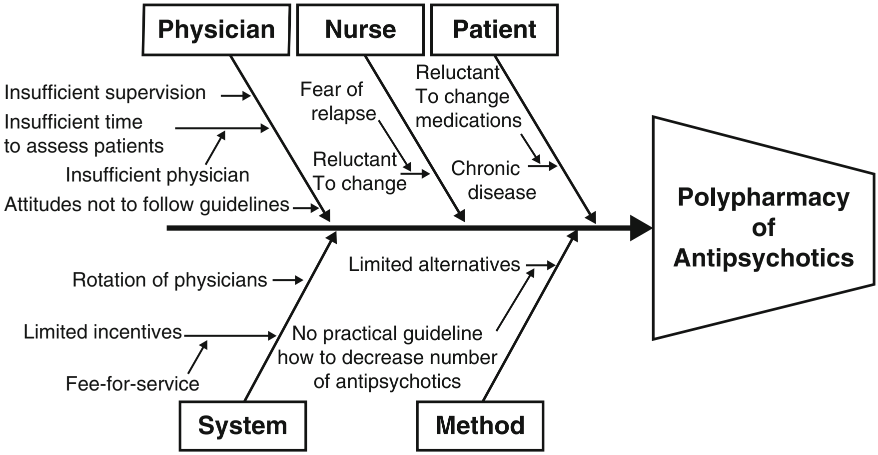
Incorporate the Uniqueness of Being Human into Routine Systems

Taiichi Ohno, the inventor of the Toyota Production System, saw each problem as a Kaizen opportunity. Humans are unique in their ability to think. Ohno believed that this unique trait had to be incorporated in the system: “think deeply.” Ohno encouraged his staff to go to the source and to see the problem with their own eyes, to identify the root cause of the problem, and to keep asking why. “Ask ‘why’ five times about every matter,” he said. This may be time consuming initially, but in the long-term perspective, if the root cause is identified and corrected, the problem will never arise again. Kaizen cannot be applied if the problem is not recognized. It focuses attention and energy toward making simple, achievable improvements instead of big, dramatic changes. When these small changes are achieved, individual skills and creativity are focused, and every employee is motivated to strive for the next incremental change.

Employee problem-solving ability is essential for ensuring quality. A cause and effect diagram (fishbone diagram) is used as a method to delve deeply to identify root causes. This method was created by Kaoru Ishikawa, the father of quality control in Japan. Figure 6.2 shows an example of using the fishbone diagram to find root causes of antipsychotic polypharmacy. Since psychiatrists prescribe drugs, there is a physician factor in polypharmacy. Examining its causes, however, reveals other factors, including nurse-, family-, and system-related factors, and improvement methods.

Origin of Quality Control

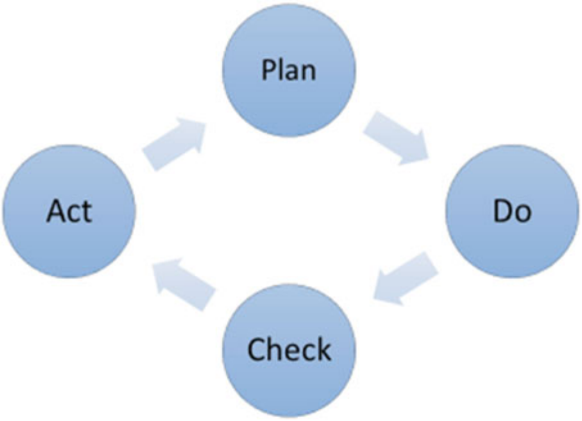
Japanese people learned the concept of “quality” from the USA. The US Department of War conducted a Training Within Industry (TWI) program in Japan, as a military consulting service, for 5 years starting in 1940. The program mainly consisted of the “three Js”: job instruction (training), job methods (quality improvement), and job relations (effective and fair supervision). The TWI program ended in 1945 with the end of



Ito H, Koyama A, Higuchi T. Br J Psychiatry 2005.
Goh YL, Seng KH, Su A, et al. Permanente Journal 15:52-56,2011.

Fig. 6.2 Fishbone diagram

Fig. 6.3 PDCA cycle



the war. This TWI program was introduced into the Japanese industry after World War II as part of Japan's postwar reconstruction policy. When W. Edward Deming was invited to Japan in 1947, Japanese business leaders were inspired by the Deming wheel concept. It is currently known as the plan-do-check-act (PDCA) cycle, a continuous quality improvement model (Fig. 6.3). At Toyota, small groups were formed and ran their own PDCA cycles. It was the beginning of quality control.

PDCA cycles are often used in health care. For example, to reduce seclusions and restraints, their cause is identified and a solution is planned and implemented. Then, changes are monitored for further improvement. PDCA is a continuous process.

Learning Organization

Today, the Kaizen spirit is deeply embedded in Toyota's corporate DNA. Through continuous improvement, the organization learns from the past. All employees are trained not just to do their jobs but also to think deeply about problems, so they constantly review and improve their work. A single star player does not make the Toyota Way. Kihachiro Toyoda stated, "Each person fulfilling his or her duties to the utmost can generate great power when gathered together, and a chain of such power can generate a ring of power."

Continuous improvement plans can be devised more easily in a team than by individuals. Teamwork increases the chances for success. The processes performed within teams are (1) discovering points that require continuous improvement, (2) analyzing the current methodology, (3) coming up with ideas regarding new methodology, (4) creating continuous improvement plans, (5) implementing continuous improvement plans, (6) checking the outcomes of these implemented improvements, and (7) celebrating success collectively. Toyota believes that a diversity of viewpoints helps to solve problems and that a common goal maintains the strength of the links among employees.

People development is central at Toyota, which emphasizes on-the-job training and mutual development by seniors and juniors. Toyota employees say, "repay the debt of being taught by teaching your juniors." Managers challenge their staff by asking questions like "What is the true nature of the problem?" and "How do you know whether the problem is solved?" They ask tough questions because they trust that their staff can solve problems.

Toyota's human resource development includes specific steps for how managers educate line employees: (1) prepare for teaching, (2) ready employees for learning, (3) explain the task, (4) let the employees try the task, and (5) observe the results of the teaching (Table 6.3). These educational programs are easy to understand, specific, sustained, and collaborative. The words of Kaoru Ishikawa, who contributed

Table 6.3 Staff education steps in the Toyota Way

	Step	Procedures
1	Prepare for teaching	(1) Create a training schedule, (2) break down the task, (3) prepare all items required for the training
2	Ready the employees for learning	(1) Make the employees feel at ease, (2) talk about what the task will be, (3) check their level of knowledge, (4) motivate the employees to "want to learn"
3	Explain the task	(1) Explain each main step one at a time, (2) emphasize the vital points, (3) be clear, cautious, and patient, (4) do not push people beyond their capabilities
4	Let the employees try the task	(1) Let the employees give it a try and correct mistakes, (2) explain the task to them as they try it, (3) get them to keep at it until you feel they have it right
5	Look at the situation post-teaching	(1) Incorporate the new task into the employees' existing work (try allowing them to work on their own), (2) check their results repeatedly, (3) encourage the employees to ask questions

to the development of quality control management, encapsulate the essence of the Toyota Way: "Quality control begins and ends with education." A true learning organization supports an open culture in which all employees are encouraged to offer suggestions for improvement, and work for improvement at every possible opportunity. Thus, such an organization is well positioned to respond to the rapidly changing needs of society.

Healthcare institutions can be learning organizations, and learn from Toyota. Given the complexity of healthcare systems, team-based care is already mainstream. The incorporation of diverse knowledge and experiences into interdisciplinary care offers benefits for patients. Team members should recognize their differences and be aware of their own roles in team care. Open and effective communication requires transparency based on mutual trust. A team has much potential for solving problems and achieving goals, if it performs effectively.

Staff shortages and high turnover rates are serious problems in most mental health services. Recruitment is usually the first challenge and retaining quality staff is the next challenge. Mental healthcare staff often have rapid turnover due to stress and burnout. Mentorship may help to reduce turnover and provide opportunities for advancement. The concept of mutual development based on respect and trust can stimulate both seniors and juniors. An employee development program that focuses on employees' abilities motivates them for continuous improvement.

Quality Assessment in Mental Health Care

Standards form the basis of visual management. In general, measuring the quality of care is essential in quality improvement. In mental health care, however, what needs to be measured has been debated for decades. It was argued that the nature of mental disorders would make it difficult to standardize care in mental health. In recent years, international frameworks of measures for mental health care have been proposed and worked on. These indicators are not established yet, but a general framework is shown in Table 6.4.

Conclusions

The principles of the Toyota Way and Lean tools are being adapted in health care today. Interventions have taken place in settings such as emergency care units, inpatient units, hospital laboratories, and overall hospital systems. Some of the positive outcomes reported include improved productivity, cost reductions, improved inventory, and reductions in waiting lists and times and in inefficient hospital discharges. There have been very few applications of these concepts at the system level, but one such application helped to develop a patient safety system which has had high success and sustainability. The more narrowly focused

Table 6.4 Examples of quality indicators for mental health care

	Examples
Process	Screening Involuntary admission Seclusion and restraint Polypharmacy Discharge plan Patient involvement Coordination with other services Follow-up of discharged patients
Outcome	Symptom reduction Medication adherence Medication errors Length of stay in an institution/in the community Functioning/employment Death rates

applications last for a relatively short time. Adoption of multiple new tools can sometimes cause confusion in practice settings. While practical tools are widely available, the Toyota Way provides inspiration. Before adopting the lean model or tools in individual healthcare institutions, managers should clarify their purpose, value, and visions for the future of the institution.

With the "Customer First" philosophy, quiet everyday dedication develops people and makes the organization more closer toward a learning organization. As long as the real Toyota spirit continues to evolve in health care, it will drive continuous improvement in the quality of care.

Chapter 7
The Business Case for Quality Improvement in Behavioral Healthcare

Robert L. Dyer

While to behavioral health professionals the reason for proving that our work makes a difference may seem inherently obvious, there really is a fundamental question very close to the surface when it comes to efforts to explore quality improvement in healthcare, "when is the juice worth the squeeze?" More directly stated, is the cost of an improved practice really offset by reduced costs of future care?

Our world involves a wide range of human personalities, varying from our behavioral health perspective way past "normal" and "abnormal." People also skew from those who work diligently to emulate their elders … "if it was good enough for my parents, it is good enough for me," adopting a world view of disinterest in learning new ways—to those individuals who are on the cutting edge of every techno-innovation possible and will change with the slightest awareness of emerging trends. Healthcare seems to accommodate this complete range of personalities.

We know that in our field simple curiosity is likely to keep moving the bar for new methods of behavior change and healthy adaptation. But is there a dimension we should attend to as we seek more effective ways of affecting change? This chapter seeks to explain and posit some basis and guidelines for a focus on cost–benefit, or the "business case" for quality improvement.

How much can we spend to improve care or make it more efficient? In 2011 the per capita income in the USA was $28,130. However, that year, per capita, we spent $8508 dollars on healthcare, that is, 30 % of our average income (U.S. Census, 2011). So healthcare demands a really big chunk of our money.

The Commonwealth Fund sponsored an investigation into the business case for quality in healthcare in 2004. The authors, David Blumenthal and Timothy Ferris, defined the position:

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"*A business case for health care improvement exists if the entity that invests in the intervention realizes the financial return on investment in a reasonable time frame using a reasonable rate of discounting*."

Since we are behavioral health professionals and not economists we may ask what is "return on investment" and why do we care? Greene et al. conducted research on return on investment from the perspective of the investing entity, in their case, the taxpayer. They used Leatherman's definition of a business case (above) and they then defined "return on investment." The return may be "realized in bankable dollars, a reduction in losses for a given program or population or avoided costs (Leatherman et al., 2003, p. 18)."

Our current healthcare system has been largely built without regard to return on investment or cost–benefit. At the insurance level, the primary focus is on the cost per member per month for the system (organizing the network, selling the plans, processing and paying the claims). This has led value from the insurers' perspective to be accomplished by selling the plan to generate gross revenues and then maintaining a profit by minimizing services to their clients and corporations, and minimizing claims paid to their plan members. For the insurer, return on investment is unrelated to the impact of the services received; it is simply money left over for the insurance company after the costs are counted. At the provider level we have largely operated on the premise that if legitimate people (i.e., licensed professionals) do regular things (procedures that are widely utilized and therefore approved) we will pay a fixed fee for their time doing those procedures. Do those things matter? Not of particular concern. Return on investment at the provider level is did the provider make more money per procedure than before?

Healthcare is the largest single sector of our economy in the USA and it consumes over 17 cents of every dollar exchanged in the economy and unfortunately also has the fastest growing costs of any sector of our economy. So the answer to how do we know that a guideline or research finding is truly cost effective seems to something we would really like to know? Every day we receive health news from the popular media of the tip of the iceberg findings from medical research such as "coffee is good for you …"or "coffee is bad for you …"or "release your tensions for these health benefits …" or "suppress your feelings for those benefits." It is all so confusing, how do we know what is "true"?

Leatherman and colleagues (2003) published the most classic examination of the business case for quality in healthcare. Their investigation, titled "The Business Case for Quality: Case Studies and an Analysis," informed a great deal about the edges of cost–benefit. The first issue attends to whose benefit are we framing the question from. Who inures of any benefit in cost-effectiveness: the service user, the purchaser (since in healthcare the majority of cost is not borne directly by the service user but rather by a managing third party, usually an insurance company), the provider, or the purchaser group to which the service user belongs, be that the employer insurance group or taxpayer (since over half of all medical costs are born by government).

To pull apart these distinctions: The service user may make the ultimate cost–benefit equation about deciding to seek or comply with medical advice on a condition. Their pocket book is open to all activities for at least their co-pay, but in truth they are usually paying a fraction of the total costs. The insurer or managed care company often seeks less expensive solutions without regard to the nuanced differences such cost cutting may impact (i.e., generic or outdated pharmaceuticals to replace more recent, brand-named solutions). Their often short-term benefit focus reflects the fact that people change plans. The provider is concerned about their revenues and may automatically suggest services that keep the plan member in their revenue center, especially if they are paid by procedure as in fee-for-service payment models. The insurance group or taxpayer (in behavioral health the taxpayer pays for care over 60 % of the time) seldom has a direct look at cost–benefit and if effort is given most often just wants the rate of medical inflation to abate.

Beaulieu et al. (2006) looked directly from the perspective of the insurer or managed care organization at the impact a disease management program might have on a system. The authors noted four factors that needed to be addressed in evaluating cost–benefit:

1. Adverse selection: The plan does not want to be the first choice plan members seek if they have a costly, chronic problem.
2. Plan turnover: Plans do not want to invest in programs that take years to create plan member behavior that "pays off" as often people shift plans.
3. Contracting difficulties: It is difficult to contact providers to share and often what is needed is improved care coordination to move plan members between levels of care.
4. Network externalities: The author's term for the fact providers shift their behavior slowly and seldom are willing to change behavior for one plan, so if change occurs it often benefits everyone served by a provider as the provider has changed how they address the issue always.

Clearly, the interests of the insurer do not align with the service user, the provider, or the group to whom the service user belongs.

Societal Perspective on Quality Improvement

So healthcare costs a lot (an understatement) and we really want to encourage cost-effectiveness. How do we do that? The method of delivering healthcare in a capitalistic country has over time brought the costs in the USA to the most costly per capita in the world. We spend more per person in the USA than in any other country. Are we receiving value then for this extraordinary expense?

Famously, the World Health Organization (2000) ranked national healthcare systems on five factors: *health*, *health equality*, *responsiveness*, *responsiveness equality*, *and fair financial contribution*. The USA ranked 37th. There was much debate about the ranking, but several other ranking systems seem to point out the lack of outcome-based results of our system. In the response by the Institute of Medicine and the National Academy of Sciences (2001) noted:

"*The American health care delivery system is in need of fundamental change… Health care today harms too frequently and routinely fails to deliver its potential* *benefits … Quality problems are everywhere, affecting many patients. Between the health care we have and the health care we could have lies not just a gap but a chasm* (Crossing the Quality Chasm, 2001)."

In 2013, the Institute of Medicine and National Research Council sponsored research to evaluate at the national healthcare systems of 17 countries. The USA ranked seventeenth of 17. Among the most striking of the report's findings were that, among the countries studied, the USA has:

- The highest rate of death by violence, by a stunning margin
- The highest rate of death by car accident, also dramatically so
- The highest chance that a child will die before age 5
- The second highest rate of death by coronary heart disease
- The second highest rate of death by lung disease
- The highest teen pregnancy rate
- The highest rate of women dying due to complications of pregnancy and childbirth

(The report does reveal bright spots: Americans are more likely to survive cancer or stroke, and if we live to age 75 we're likely to keep on living longer than others—but these advances are dwarfed by the grave shortcomings.)

On a cost basis alone, the government—the biggest single payer—has attempted many reforms at both the state and national level to create incentives for improved cost-effectiveness. Healthcare reforms have sought to move more toward purchasing outcomes rather than inputs. The traditional approach of paying fee for service is paying for inputs (i.e., procedures), not outcomes.

The most recent and single largest national effort since the creation of Medicare and Medicaid resulted in the Affordable Care Act (ACA), passed in 2010. Like its predecessor (and politically unsuccessful) federal effort in 1993, the ACA sought more creativity for providers to organize vertically coordinated delivery systems to receive payments for achieving certain symptom abatements or decreased annual costs of care, and therefore to move away from paying for inputs.

Buried in the law are several specific initiatives to align incentives between purchasers and providers. The entire bill was developed around a framework that addressed what was called the "Triple Aim." The concept of the "Triple Aim" was developed at the Institute for Healthcare Improvement (2014). The "Triple Aim" is:

- Improve the health of the population
- Enhance the patient experience, including quality, access, and reliability
- Reduce, or at least control, the per capita cost of total healthcare

The Affordable Care Act created several aligned incentive plans, changing how payments occur designed, to "bend" the healthcare cost continuum at the insurer and provider levels. Shared savings plans encourage the creation of Accountable Care Organizations and Group Health Cooperatives; hospitals are also given incentive payments for improved outcomes and reduced readmission rates. The creation of Patient Centered Medical Homes (and in behavioral health, Health Homes) creates incentives for care coordination organized at the site of most frequent care.

The Centers for Medicare and Medicaid Services (CMS) require states to evaluate their Medicaid programs at least every 2 years. Since 2003, states are required to conduct an independent assessment by an approved External Quality Review Organization to assess the quality of care for Medicaid beneficiaries in managed care plans. States must adopt standardized methods for quality review activities and specify minimum mandatory quality review activities, as well as provide specific protocols for conducting quality reviews. In order to become an External Quality Review Organization, companies must pledge specific resources and conform to a set of guidelines about assessing actions required for managed Medicare or Medicaid services. The vast majority of the guidance is about quality assurance (please see EQRO protocols at http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/Quality-of-Care-External-Quality-Review.html).

In regard to behavioral health, the government has tried to align incentives to create "smart" work with value for the taxpayer (and therefore indirectly insurance groups) as far back as the 1960s. When the community mental health centers were created in the Community Mental Health Act of 1963 it required federally funded centers to offer 12 essential services. One of those core services was "Research and Evaluation." Centers were required to spend at least 2 % of their federal funds to organize an annual evaluation system addressing accessibility, acceptability, impact, and value. The outcome algorithm of accessibility, acceptability, and impact has been embraced and codified by the major accreditation bodies credentialing health plans, URAC and NCQA.

Organizing How We Measure Benefit

Bailit and Dyer (2004) in a report for the Commonwealth Fund built the arguments that investigators might use to prove the business case for improving healthcare. Their ten arguments, organized in three basic purposes, are as follows:

Financial Considerations

1. Return on investment: Evidence is a financial return to the organization implementing the intervention. This is not as simple as it sounds. Returns are predicated on how insurers or providers are paid and time horizons. Similarly this case is largely irrelevant and maybe moot to the service user.
2. Reduced expenditures or cost avoidance: Interventions reduce or avoid future cost. This argument plays out in situations like a prevention program avoids future costs.
3. Cost: Interventions in this instance substitute least costly equivalents as in generic medications.

Strategic Considerations

4. Conditions of participation: This is the example where the federal government required community mental health centers to invest 2 % of their revenues in research and evaluation efforts.
5. Alignment with explicit performance incentives: We see this model in the ACA. Accountable Care Organizations will receive incentive payments for meeting specific performance outcomes. Instances of pay for performance fit this means of building the case.
6. Image, reputation, and product differentiation: Organizations invest in proof of performance as a means of bolstering their business reputation and thereby hopefully attracting business.
7. Relationship development with key stakeholders: Third-party administrators seek direction from health plan Trustee groups and Medicaid executives seek guidance and answer to advocacy and legislative groups. Hospitals and practitioner networks create professional staff organizations to sample providers and assure investment in future improvements for those groups.
8. Strategic positioning: Interventions based on influencing future behavior. An example is Medicaid initiatives for smoking cessation or early diabetes testing.

Internal Organization Considerations

9. Relevance to organization mission: County health organizations often support initiatives and seek measurement of improving financial independence or reducing homelessness even though they are not directly tied to core services.
10. Impact on internal culture: As in sports teams, organizations can make quality improvement a visible part of their corporate culture.

A Brief Look at Why We Should Study the Business Case More

A great deal of research has been conducted addressing the cost–benefit of medical procedures. A serious look at the wealth of this body of work is beyond the scope of this chapter, but some highlights relative to our niche may help cement the point that what we do can be measured in terms meaningful to “bean-counters” and that our utility when appropriately applied has real value.

Applying the aforementioned practical cost–benefit measures leads us to look for results of care methods presented in direct benefit terms. An early organized research effort was published in the Goetzel, Ozminkowski, Sederer, and Mark (2002) study of impact of mental health care on employers. The authors report research showing that treating depression with psychotherapy added 21 days at work over 2 years. (From the employee perspective they reported 47 fewer days of depression.)

In the Greene et al. (2008) study on Medicaid Managed Care they found complex care management of people with comorbid chronic illness and a psychiatric condition provided a return on expense in excess of 12 to 1 (12:1)! Similarly, treating children with asthma with a history of emergency room use yielded a return over costs greater than 6 to 1.

Mauer and Jarvis (2010) reported the case of the SouthCentral Foundation in Alaska (a project this author participated in) in which behavioral health professionals saw targeted risk markered individuals as they experienced care in an emergency room. Future emergency room care decreased 19 % for that group compared to individuals not seeing BH professionals. The Kaiser Northern California system investigated the impact of substance abuse care over 5 years and found that treatment reduced inpatient care costs 35 %, emergency room costs 39 %, and overall outpatient costs 26 % compared to a matched group.

In Silow-Carroll's report (2004) for the Commonwealth Funds, the authors summarize initiatives in nine states to impact costs by care management programs. While status reports found results in all programs reporting, most measured comparative dollars saved, a relatively noncomparable metric. In North Carolina they found 37 % reduction in asthmatic children going to emergency rooms and a 21 % reduction in hospital admissions per 1000 children in the group. Colorado found a reduction of 28 % in inpatient bed days per thousand in those folks with multiple chronic conditions and a psychiatric disorder who were in care management.

Blount et al.'s (2007) review of the economics of behavioral health in medicine revealed the following:

- In a review of 91 studies it was found that "active behavioral health treatment in patients diagnosed with mental health disorders reduced their overall medical costs by 17 %, whereas controls who did not get behavioral health care increased costs an average of 12.3 %."
- Screening for mental disorders and providing needed treatment in a population with risky health conditions such as chest pain and hip fracture can return the cost of care by a factor of 4.
- In Blount, he reports Kate Lorig's work at Stanford, which found that chronic disease self-management programs in the form of seven to eight small group sessions focusing on building coping skills can lead to cost savings of $10 for every dollar spent. It appears that the better targeted the behavioral health intervention is to the needs of patients with specific medical conditions (by means of behavioral medicine, care management, or behavioral health-integrated care), the more medical cost savings are realized.
- Employees availing themselves of work site services for substance-abuse services showed over 30 % reductions in absenteeism and over 60 % lower attrition rates as employees. The cost savings was a return of $4 for every dollar spent in care.

Cummings and colleagues (2009) cited research supporting integrated care that stated that medical savings were 20–30 % reduced above the cost of behavioral care in multi-year, large-scale studies.

The Times They Are a Changing

In behavioral health, the last two decades' efforts in moving toward result-based payments have great import. We have often told people that improved mental status results in improved physical status—but what is our proof? Historically payments have been "silo-ed" into "carved-out" categories of payments separating behavioral health from the impact it has on physical health. (In a bit or irony, if a procedure doesn't work, very often the follow-up procedures to fix the problem created pay better than the original.) In commercial insurance all of behavioral health costs total to less than a nickel of the total health care dollar and insurers often sought companies who would take the total risk of all behavioral healthcare for a fixed price, thereby incentivizing separation of cost centers in a way assuring no ability to measure behavioral health's impact on total health. Fortunately, since the widespread release of the Druss report (Druss & Walker, 2011) on the impact and cost of comorbid psychiatric conditions, there have been many changes. Blue Cross/Blue Shield plans are routinely seeking behavioral health integration in provider networks. Patient Centered Medical Homes require behavioral health and Medicaid has sent four letters to state Medicaid Directors over the past 24 months extolling and demanding increased care coordination with behavioral health. There has never been a time period so rich in seeking new, creative integrated care coordination solutions that impact the total healthcare dollar while trying to figure out how to incentivize provider alignment.

What Behavioral Health Professionals Can Do?

How does Behavioral Health participate in proving cost impact? Following the publication of the World Health Organization findings and the publication of *Crossing the Quality Chasm*, a working conference was convened. This conference included senior health plan executives, medical school administrators, and medical trade association executives working to address how providers could support an investment in proving cost-effective quality care. The focus was at the medical practice level but the findings and process fit our system as well. These findings were made available via the Institute for Healthcare Improvement and published by Gosfield and Reinertsen (2003) under the inspired title "Doing Well by Doing Good: Improving the Business Case for Quality." Five categories of efforts were addressed and they provide a nice framework for this section:

1. *Standardize*. Behavioral health practices, required documentation, and billing standards have emerged from a path too often separate from overall healthcare. One of our major tasks is to re-engage basic healthcare communication. Adopting common performance measures might be one of our highest professional priorities. Harkening back to the accreditation algorithm of accessibility, acceptability, impact, and adding value may provide the balance we need.

   Healthcare, especially the public sector through the Center for Medicare and Medicaid Services, has adopted standards for accessibility and acceptability that address all we need. The Consumer Assessment of Health Plans administered by the Agency for Healthcare Research and Quality provides one widely accepted standard measurement system for both commercial and public work. There are several forms, for commercial populations, public populations, and children. As an example, the CAHPs Medicaid Adult 5.0 provides answers to accessibility questions. The core Medicaid Adult questionnaire has 39 questions. It slices and dices access (who did you see, how often, etc.) and defines responders (age, education, etc.). Annually millions of responses are added to the database (find at https://cahps.ahrq.gov/).

   In a similar way, we have at least initial guidance on how we might measure impact in a way compatible with our brothers and sisters in physical medicine. The Experience of Care and Health Outcome (ECHO) Managed Behavioral Healthcare organization Version 3.0 questions get at the experience of the services received (find at https://cahps.ahrq.gov/surveys-guidance/echo/index.html). Much of ECHO is useful for understanding what people perceive about the care they received.

   In this version there are 51 questions addressing all aspects of care received, helpfulness of responses, demographics of responders, etc. Some impact questions are:

Compared to 12 months ago, how would you rate your ability to accomplish the things you want to do now?

1☐ Much better
2☐ A little better
3☐ About the same
4☐ A little worse
5☐ Much worse

Compared to 12 months ago, how would you rate your problems or symptoms now?

1☐ Much better
2☐ A little better
3☐ About the same
4☐ A little worse
5☐ Much worse

A rating of the service received is typified in:
Using any number from 0 to 10, where 0 is the worst counseling or treatment possible and 10 is the best counseling or treatment possible, what number would you use to rate all your counseling or treatment in the last 12 months?

☐ 0 Worst counseling or treatment possible to
☐10 Best counseling or treatment possible

In the last 12 months, were you given as much information as you wanted about what you could do to manage your condition?
In the last 12 months, were you told about self-help or support groups, such as consumer-run groups or 12-step programs?
Lastly, the National Committee for Quality Assurance maintains an ongoing initiative to capture those most telling markers of improved healthcare. This system has been widely accepted by commercial insurers. It is the Healthcare Effectiveness Data and Information Set (HEDIS) Measures. HEDIS was designed to allow consumers to compare health plan performance to other plans and to national or regional benchmarks. Although not originally intended for trending, HEDIS results are increasingly used to track year-to-year performance. The installed system is very large, as it is required by all health plans experiencing NCQA accreditation.

HEDIS measures cover all of healthcare and only a few today address behavioral health. Specifically relevant ones from the 2014 data set include:

- Follow-Up After Hospitalization for Mental Illness
- Diabetes Screening for People With Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications
- Diabetes Monitoring for People With Diabetes and Schizophrenia
- Cardiovascular Monitoring for People With Cardiovascular Disease and Schizophrenia
- Adherence to Antipsychotic Medications for Individuals With Schizophrenia
- Annual Monitoring for Patients on Persistent Medications
- Mental Health Utilization

2. *Simplify*. The basic assessment and intervention systems need to be streamlined for communication. As we join the practitioners of evidence-based care, we need to find ways to communicate the interventions we offer in a way to assure replicable, reliably administered interventions. This starts with clear, transferable service interventions that can be "prescribed" and assures that how we conduct our business captures the essence of consistency to the point that one practitioner of, for instance, cognitive behavior therapy for depression does "a, b, and c" just like any other practitioner. (No, this does not do away with the "art" we practice—just don't call that cognitive behavior therapy for depression. It does allow us to build a set of reliable routines that fit within our "toolbox" that travel between us.)

3. *Make clinically relevant*. As we look at how we spend our time, it is appropriate to question routine time commitments that do not advance our accessibility, acceptability, impact, or value with the interventions we offer. What could be jettisoned from our routine with no loss of quality impact?
4. *Engage patients*. Behavioral health serves much more than healthcare as a purpose. Often we serve as an alternative to social convention supports, probation, or social skill training. Often our patients are not aligned in their motivations for change toward "their" goals. We need to embrace simple assessments for determining readiness for change and attempt to offer the appropriate response to their readiness for change. We are likely to continue to see a rapid development of more peer-to-peer services and self-management opportunities; these have a role of increasing importance in our tool kit.
5. *Fix public accountability at the locus of control*. Care coordination, cross system info/data. Create a method for addressing the total healthcare dollar impact we make. Demand proof of performance. Do not accept simplistic measurements like consumer satisfaction. Test proof of performance in every offering. In the past, the author has seen behavioral health organizations "adopt" SAMHSA-cited evidence-based practices, send staff for training, and implement the services—but without any sampling of effectiveness after implementation. Are they then evidence based?

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Chapter 8
Process Mapping to Improve Quality in Behavioural Health Service Delivery

Julie K. Johnson and Deborah Debono

> *"If people do not see the process, they cannot improve it."*
>
> —W.E. Deming (1900–1993)

Process mapping is a simple, yet powerful tool that can form the basis of quality improvement work. This chapter starts with a case study that describes the experience of "Bob", a 42-year-old male, living with mental illness and an intellectual disability. Bob's story highlights how system issues can be surfaced and explored using process mapping. Following the case study, we will delve more deeply into background and fundamentals of process mapping as a tool for quality improvement.

Bob's Story

<u>The Setting</u> : *Nightingale Hospital,*[1] *a major metropolitan teaching hospital associated with a large university, offers inpatient and community services including mental health and community-based services. The Mental Health Unit is comprised of inpatient and outpatient units. The inpatient units are divided into voluntary and involuntary (locked) units.*

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Bob's History: *While living in Papua and New Guinea, Bob suffered brain injury from measles encephalitis aged 15 months and cerebral malaria aged 3 years resulting in intellectual disability (ID). Bob's ID was particularly manifest by difficulty verbalising (similar to speech difficulties related to stroke). When Bob was 4 years old he returned to Australia with his family. He was assessed at the local public hospital community health centre and a speech therapist was assigned to his case. The speech therapist arranged for Bob to start at a private preschool 5 days per week. During that time, Bob suffered bouts of malaria leading to his admission to the Children's Hospital for treatment of the malaria. When he turned 7, Bob enrolled in a school for children with special needs and attended school full time until he was 14 years old. At 14 years of age, Bob joined a program that supported people with disabilities in work placement. He lived at home with his parents. At the age of 21 Bob accepted a full-time position in a "sheltered workshop" (a facility that provided work for people with disabilities), moved out of home and in with a co-worker. Over the years, Bob learned to drive a car, and worked in various positions, moved interstate and then back home, and had several relationships. Bob is currently able to live independently supported by his parents and social security services. Bob's communication difficulties continued to lead to frustration and anger. Bob has a history of mental health issues including anxiety which is exacerbated in situations when he was not able to communicate clearly (or be understood). He also had some behavioural issues associated with his ID.*

Bob's parents are retired and living on a fixed income. Bob's father has been diagnosed with post-polio syndrome, chronic fatigue and post-traumatic stress disorder (PTSD). Bob's parents live very close to where Bob shares a unit with his girlfriend who also has an ID and MH. Bob's father acts as an interpreter for Bob and is able to reassure and calm him when he is particularly anxious and frustrated.

The Event: *A psychologist and social worker, both members of the mental health team at Nightingale Hospital, have previously seen Bob for mental health issues including depression and anxiety. Bob had six counselling sessions with the psychologist over a period of 2 months. Bob's father, who has Power of Attorney and guardianship for Bob, was present during the counselling sessions. This was important because his father acted as Bob's interpreter. Bob found it difficult and frustrating to convey even simple ideas and thoughts to the psychologist. Bob's father assisted as much as possible and noted to the psychologist that perhaps a focus on Bob's abilities rather than his disabilities might be helpful. Bob's father informed the psychologist that he was not allowing for Bob's ID, and he was not allowing sufficient time for Bob to formulate a response—instead the psychologist assumed that Bob had no answer or was unable to answer. Despite Bob's father's suggestions, that he accommodate Bob's ID, the psychologist frequently offered an answer for Bob without clarifying or confirming that Bob agreed that the answer was correct. He would then move to the next question. This caused Bob to become visibly frustrated.*

Bob became progressively agitated, frustrated and angry during and following the sessions. Over time, Bob became increasingly agitated and anxious in *anticipation of the sessions telling his father that the psychologist did not understand. By the fourth session, Bob refused to speak at all. After six sessions, Bob refused to go to the counselling sessions.*

Some time later, on a Sunday evening at 10:30 pm, Bob's father took him to Nightingale Hospital Emergency Department (ED) because he was concerned about Bob's well-being. Bob was acutely agitated and anxious and had been playing 'chicken' with cars—running in the middle of the road, or in front of cars causing them to swerve. At the ED, Bob was triaged and directed to the waiting room. At midnight a resident doctor assessed Bob and informed Bob and his father that Bob needed to be seen by the psychiatrist on call. They were asked to return to the ED waiting room. There were around ten people in the waiting room (approximately half capacity). The room was brightly lit, and the television was blaring. Bob, a smoker, became increasingly agitated due to his presenting illness, the noise and being unable to have a cigarette (there was a non-smoking policy in the hospital grounds).

At around 1:00 am, Bob's father asked the triage nurse if given Bob's increasing agitation and anxiety (Bob was visibly shaking and obviously more anxious), he could see the doctor and if he might be able to sit somewhere away from the public waiting room. The nurse apologised and offered to put a stretcher bed into a consultation room so that Bob could get some rest. Bob and his father gratefully accepted the offer and waited in the waiting room while she organised the room. A short while later, the resident doctor saw Bob and prescribed Valium. Bob was administered Valium and moved to a quiet room where he settled and rested. Bob's father sat with him while they waited to see a staff member from the mental health unit.

At around 5:30 am, a nurse from the mental health unit came to the ED to transfer Bob to the mental health unit. His father commented to the nurse, as they passed the Mental Health Outpatient Unit, that Bob had previously been there (for the counselling sessions described previously). The nurse responded that they could not access the outpatient record until a request had been processed. Bob was settled into the unit, supplied with a nicotine replacement inhaler, and his father returned home.

At 9:30 am a psychiatrist saw Bob, but his parents were not called or advised when the consultation would occur. When they visited Bob later in the morning, they asked to speak to the psychiatrist but were unable to do so until the following day.

Two and a half days following admission, the nurses expressed concern to Bob's sister that he had not eaten much since admission. They had not mentioned this to his parents although they visited each day. His sister discussed this with Bob asking if he liked the food. Bob explained that he had not eaten anything because he did not want his parents to have to pay for the food [he was unsure how much it cost and he did not have money with him]. His sister explained that there was no charge for the food in the hospital and Bob immediately began eating.

When Bob's parents became aware that the nurses interpreted Bob's banging on the wall as anger directed at the nurses, they explained that this was how Bob expressed his extreme frustration when he could not make himself understood. They suggested that it would be helpful if rather than raise their voices (a tendency people *have when they do not understand Bob), the nurses spoke calmly, without raising their voices, and waited for him to respond. The nurses were very helpful and Bob was less frustrated when they understood how to better communicate with him.*

An Opportunity for Improvement

Bob's experience isn't an unusual one and similar scenarios are played out daily across our care system. Given the chance to change this scenario, or improve the situation for future patients, how might the staff respond? As the opening quote from Deming suggests, the first step would be to "see" the process. One method for "making the process visible" is process mapping.

Fundamentals of Process Mapping

Frank Gilbreth introduced the first structured method of documenting process flow to the American Society of Mechanical Engineers (ASME) in 1921 (Gilbreth & Gilbreth, 1921) in a presentation entitled "Process Charts—First Steps in Finding the One Best Way". Gilbreth's flow-charting tools quickly became part of the industrial engineering curricula. Process flow charts were later modified and used to simplify and improve business processes before being adapted for use with information processing.

Mr. Gilbreth was concerned with, and supposedly consumed with, discovering time-saving motions in everything from his early work in brick laying to his later work in designing operating theatres (Baumgart & Neuhauser, 2009; Gilbreth & Carey, 2013). During World War I, Gilbreth used the principles he had developed studying industrial processes and machinery, to improve surgical procedures to treat wounded soldiers and to assist with their rehabilitation. Gilbreth offered the idea of a scrub nurse assisting during a surgical procedure by handing instruments to the surgeon. The use of motion picture in the operating room for educational purposes was also introduced by Gilbreth (Ricci, 2012).

What Is a Process Map?

All activities (processes) are comprised of related actions (process steps) that use resources to transform inputs (resources) to outputs (services or products). A process map is an illustration or picture of the series of steps and associated decisions that comprise the activity (process). Process mapping is the method used to develop the picture. Essentially, process mapping can capture who and what is involved in an activity.

Let's consider a simple example. Imagine how you would make a cup of tea. Mapping the tea making process highlights what is actually involved in making a cup of tea. You could create a map of your tea making process. Importantly, your process for making a cup of tea most likely looks somewhat different than your colleague's process for making a cup of tea. If you were to share your process maps of tea making, you could clearly communicate how your process differs or is similar. Perhaps you might discover that your process could be improved to make a better cup of tea and/or to make it faster and/or with fewer resources.

Why Conduct a Process Mapping Exercise?

Process mapping describes what an individual is required to do, in terms of cognitive processes, actions or both to achieve the system's goal. Within a healthcare setting the members of the microsystem—the front-line clinical team—can gain insight through the process mapping and reflect on how their colleagues and they perceive the same tasks. The process mapping exercise, and the resulting process map that depicts the actual activities, helps to create a shared understanding between colleagues about the current process and the desired process. Quality improvement projects can focus on taking the team from the current process to the desired process.

Ultimately, an organisation's results depend on its processes. Improving outcomes requires appreciating the inherent link between process and results. An analysis of the process can help identify potential areas in which to focus improvement efforts. Visualizing the process can help identify process inefficiencies (e.g. parallel or redundant processes) that are barriers to providing coordinated patient care.

Finally, as a system-centric solution, process mapping does not focus on the individual. Rather, process mapping focuses on the system that is producing the variation in processes and outcomes of care (Barach & Johnson, 2006).

Types of Process Maps

When you set about process mapping, you will note that there are multiple ways to approach this. Many may be unwieldy and cumbersome. It is possible to make it too complicated and to get side tracked in the activity of making the process map. While there is value in detailed process mapping, our focus is to tailor the process mapping exercise to be aligned with your goal—if your goal is to identify improvement activities then you may not need a multilayered process map. Be careful not to let complexity cloud the issues. Creating a simple process map can increase engagement of the team and facilitate communication. If the process map becomes so complicated that all members of the team no longer understand it then the communication benefits of process mapping may be lost.

A variety of terms may be used when referring to process maps. For the most part, differences in terms reflect variations in the degree of detail offered for each step of the process. High-level process maps, often referred to as Process Flow Charts, offer an overview of the major components of a process. These components may themselves be subprocesses (contain a process).

Figure 8.1 uses the example from Bob's case study to illustrate a high-level process map of the admission process to the mental health unit at Nightingale Hospital. For illustrative purposes we decided to focus on mapping the process of Bob's presentation to the ED and admission to the Mental Health Unit. Similarly you could focus on any part of Bob's inpatient journey and map any of those processes. Indeed, being clear about the boundaries of the process and where you anticipate having most leverage for improvement is an important consideration.

Low-level or detailed process maps are contained within high-level process maps and present a detailed representation of the process. A high-level process map may be comprised of several detailed process maps. Figure 8.2 illustrates Bob's waiting process at Nightingale Hospital Emergency Department.

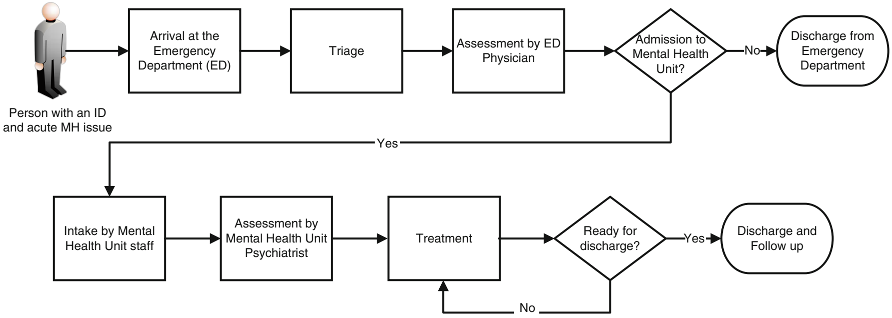


Fig. 8.1 Example of a high-level process map

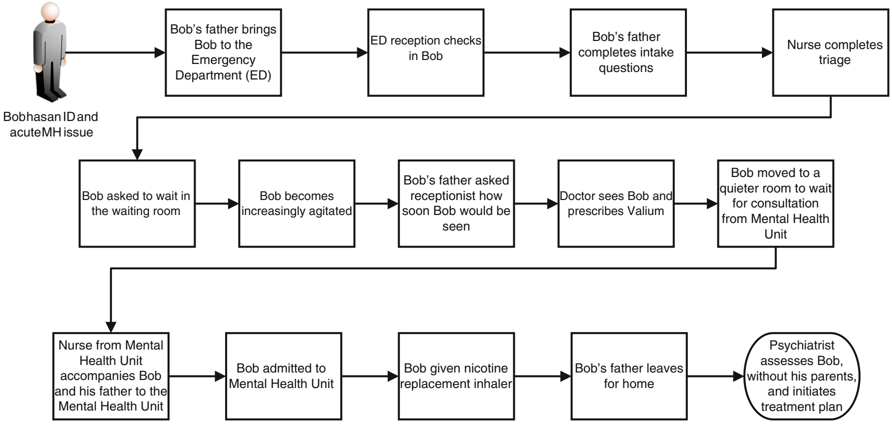


Fig. 8.2 Example of a detailed process map

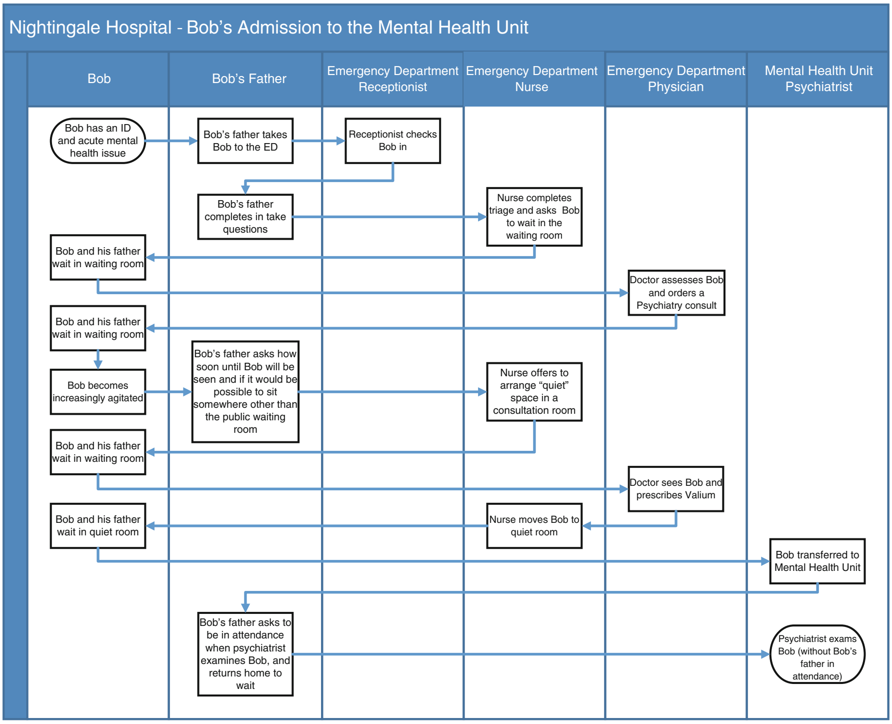
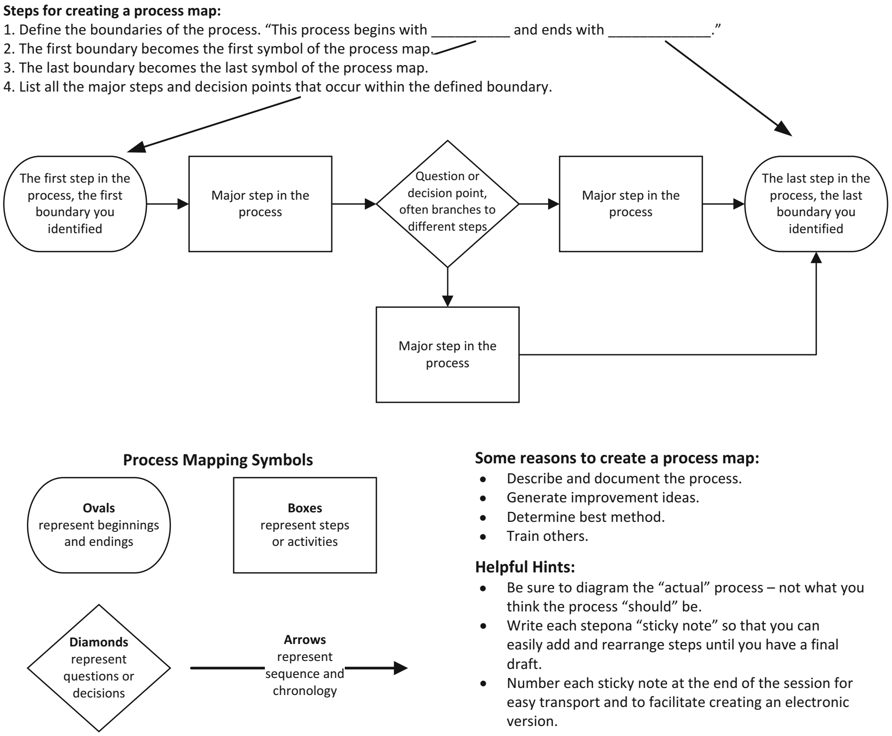


Fig. 8.3 Example of a swim lane process map

Cross-sectional or swim lane process maps (Deployment Flow Charts) also provide a visual representation of the overall process but visually group subprocesses and decisions in vertical or horizontal "lanes" by group, people or subprocess. Swim lane process maps are used to visually illustrate when different individuals, teams or departments are responsible for specific aspects or steps of an overall process. This type of process map is particularly useful in identifying gaps, inefficiencies and duplication when multiple individuals, groups, teams or departments are involved in the process to achieve a goal. Figure 8.3 is the same process shown in Fig. 8.2, but using a swim lane process map.

How to Create a Process Map

Figure 8.4 provides a tutorial on how to create a process map. Methods for creating process maps may include observation of the current process, interview with process owners about the ideal or actual process or a combination of both. Observation to map the actual process is a useful method, as people may believe that they are following the ideal process. Highlighting a discrepancy between what is believed to be the process (ideal) and the actual process (real) can be an essential step of quality improvement because it will help create tension for change.



Steps for creating a process map:

1. Define the boundaries of the process. "This process begins with __________ and ends with _____________."
2. The first boundary becomes the first symbol of the process map.
3. The last boundary becomes the last symbol of the process map.
4. List all the major steps and decision points that occur within the defined boundary.

Some reasons to create a process map:

- Describe and document the process.
- Generate improvement ideas.
- Determine best method.
- Train others.

Helpful Hints:

- Be sure to diagram the "actual" process – not what you think the process "should" be.
- Write each stepona "sticky note" so that you can easily add and rearrange steps until you have a final draft.
- Number each sticky note at the end of the session for easy transport and to facilitate creating an electronic version.

Fig. 8.4 Process mapping tutorial

Process Mapping Is a Quality Improvement Strategy

Every system is perfectly designed to get the results it gets (Carr, 2008).

The process mapping exercise can help clinicians and team members clarify and visualise what they know about their environment and to determine what they want to improve about it. The exercise helps them make assumptions and expectations explicit and can provide insight into how to improve the process of care or to overcome barriers to its improvement.

In order to change the output/outcome/result (e.g. improve quality) one must change the process (i.e. to get a different outcome, you need a different process). To illustrate, let us return to Bob's story. Mapping Bob's presentation and admission process has highlighted several potential areas that could be improved, not only for Bob, but also for others who present to ED with MH and ID issues. For the purposes of this exercise we offer two potential areas that could be considered for improvement. The process mapping exercise illustrates, for example, the need for a quiet space to be made available for people with MH and ID should they require it. This is especially apparent in Fig. 8.3. It also emphasises the important involvement of the carer(s) in the admission process. The process map illustrates the role Bob's elderly father plays to interpret for, represent and calm Bob during his time in the ED. The process map highlights/contrasts the absence then of Bob's father during the initial consultation with the psychiatrist in the Mental Health Unit.

Having highlighted opportunities to streamline the ED presentation and admission process for people with an ID and MH issues, you are now in a position to generate, implement and test ideas for change that are grounded in your intimate knowledge of the process (Nelson, Batalden & Godfrey, 2011). Multiple specific change ideas may be underpinned by a smaller number of change concepts (approaches to change that have proved to be useful). Drawing on different concepts of change will be useful to trigger change ideas (Improvement IfH, 2015; Nelson et al., 2011). There are numerous sources describing change concepts that are available to inform process change strategies (see Improvement IfH, 2015; Langley et al., 2009; Nelson et al., 2011). The following change concepts, while not limited to, may be useful in informing process changes in the described case study: reducing wait time, changing the environment, listening to the "customer" and differentiating the admission process for people with an ID and MH issues.

Conclusion

Process mapping is a simple, yet powerful tool for improving patient care. This chapter used a case study to illustrate how process maps could be a useful way to think about a clinical encounter and visualize the care process from the patient perspective.

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Chapter 9
Ishikawa Diagram

Kam Cheong Wong, Kai Zhi Woo, and Kai Hui Woo

Introduction

Scenario 1

"Hello, my name is Mike. I am a school teacher. Can I speak to Mr Eric Tang?"

"Yes speaking," replied Eric anxiously.

"Your son, Simon, was absent from school for the past three days. I wish to find out how he is doing," said Mike courteously.

Eric was unaware of his 17-year-old son's absence from school. He was upset and anxious and would like to find out the causes for Simon's absence. Eric was a single parent after a divorce. Many potential causes rattled through his head: sickness, behavioural problem (truancy), bullying at school, transportation problem, and conflict with school teacher.

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Dr. Kam Cheong Wong: a medical practitioner in family medicine; Clinical Senior Lecturer at University of Sydney; Senior Lecturer in General Practice, Western Sydney University; medical reviewer for Oxford University Press; former engineer and consultant in quality assurance.
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The above scenario entails a root cause analysis to find out why Simon was absent from school. The potential causes may involve several factors such as social, behavioural, facilities, and school environment. Eric may need to gather more information from several parties including talking to his son and school teachers in order to find out the actual cause. We will get back to this process of gathering information later. Simplistically, problem in one or more of the above factors can lead to Simon's absence which is called the "effect". This method of analysis is known as "cause and effect analysis" which will result in a "cause and effect (CE) diagram" or "Ishikawa diagram" named after Professor Kaoru Ishikawa of Tokyo University, a highly respected Japanese expert in quality management who introduced this methodology in 1940s (Ishikawa & Loftus, 1990). This diagram is also known as fishbone diagram because it looks like the skeleton of a fish, i.e. the head of the fish is the "effect" and the bones represent potential causes (see Fig. 9.1).

In the early days, Ishikawa diagram was mainly used in the engineering industry to investigate for root causes for defects or failures of products detected by quality assurance personnel. In those days, quality by inspection, which was rightly called "Theory of Bad Apples" by Berwick (1989), pervaded the engineering industry. Quality assurance personnel are trained to inspect and detect "bad apples" and reject them. Assuring quality by rejecting the "bad apple" is gradually overtaken by a paradigm called "continuous quality improvement" (CQI) or "total quality management" (TQM) emphasising proactive measures to build quality into the product, service, and process and "do it right the first time". For simplicity, we are calling the paradigm as "quality improvement" (QI) in this chapter. To ensure an effective QI system, we shall incorporate the following steps in it (Colton, 2000): (a) define quality by the internal and external customer, (b) evaluate the process systemati-

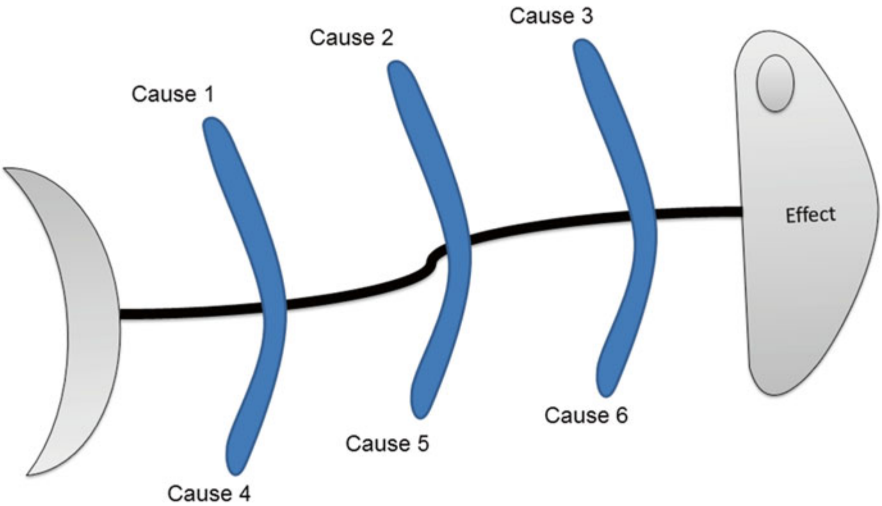

Fig. 9.1 Ishikawa diagram (fishbone diagram)

cally and identify any variation, (c) improve the process throughout the life cycle of the service or product, (d) continuously monitor the service or process, (e) use indicators to compare the service and production to norms, and (f) lead and commit to this process by top management. In a nutshell, QI provides a new landscape to operate an organisation which is client centred and it can be applied in a healthcare profession (Ziegenfuss et al., 1998).

Many quality improvement tools are deployed in QI, and Ishikawa diagram is one of them (Bechtel & Wood, 1996). Ishikawa diagram can be applied not only when a defect has occurred, but it is also applied proactively to prevent defect from occurring. It is often applied during the design and production phases of a product or service in conjunction with other tools such as flow chart and “failure mode and effect analysis” (FMEA) which is a detailed process, usually involving brain storming, of walking through each steps of the design and production of a product, studying what are the potential failure modes and effects, and how to prevent them from occurring. Recently, FMEA has been creatively and practically modified and applied in clinical reasoning as illustrated in an editorial paper (Wong, 2016). In a healthcare organisation, flow charts that outline process steps of healthcare services or procedures are more commonly used in lieu of FMEA. The following sections illustrate the use of Ishikawa diagram in QI. We will start with examples in general clinical fields and healthcare services to illustrate the basic concepts, and the essential components (“the nuts and bolts”) and methodology required to establish an Ishikawa diagram. Then, we will apply the nuts and bolts to establish Ishikawa diagrams in mental/ behavioural health settings.

Getting the “Nuts and Bolts” Ready

Human’s health-seeking behaviour is influenced by many factors including the status of their illness, their health awareness and belief, and accessibility to healthcare services. In a study on availability of a medicine called magnesium sulphate ($MgSO_4$) to treat preeclampsia and eclampsia (severe high blood pressure which may cause seizure and death) in pregnant woman, Ridge and colleagues applied Ishikawa diagram in a positive way, i.e. the head of the diagram or the “effect” is called “rational use of $MgSO_4$” (instead of calling it “inaccessibility to $MgSO_4$”) and the bones of the diagram outline the steps/processes required to be put in place to achieve “rational use of $MgSO_4$” (Ridge, Bero, & Hill, 2010).

The nuts and bolts to ensure that the system can deliver “rational use of $MgSO_4$” start from the top governmental level where national policy shall recommend $MgSO_4$ as the first-line treatment for preeclampsia and eclampsia; this policy is then translated into local hospital protocol and procurement procedure. Policy and protocol would be useless if these were not communicated to the “actors” (personnel who implement actions), namely health professionals in this example. Effective communication and education of health professionals (doctors and nurses) about the policy, protocol, diagnostic and delivery skills, and availability of diagnostic resources are pivotal to ensure delivery of this service to the patients. Communicating with and educating patients about the symptoms and signs of the condition and advising them when to seek medical condition are essential. How did Ridge and colleagues find out the nuts and bolts? They conducted relevant literatures search (i.e. reviewing published reports about why $MgSO_4$ was not delivered to the patients), established and deployed a checklist walking through the whole process of making $MgSO_4$ available, and delivered to their local patients. These steps are equivalent to reviewing or establishing a process flow chart and reflecting the essential components in the Ishikawa diagram (Fig. 9.2). You may refer to the actual Ishikawa diagram established by Ridge and colleagues (2010).

Using literature findings and process flow charts as frameworks, we can always conduct brain storming or focus group studies to gather more information. In a study to increase accessibility of diagnostic scan services to patients, Steele and colleagues have applied team brain storming and process flow chart (Steele, Clarke, Terrell, & Brightmon, 2014). The "4M and 1E" (i.e. five main causes are man, materials, method, machine, and environment) technique applied in the engineering industry can be adapted to the healthcare industry by modifying the causes, i.e. patients, health providers, medications/treatment procedure, clinical administration/ scheduling, instrumentations, and environment. Similarly, Steele and colleagues have established an Ishikawa diagram and deployed necessary actions to improve accessibility of the health services (i.e. diagnostic scans) to patients. They have also used control charts and financial accounting to monitor and quantify the positive gains from their project. You may refer to the detailed Ishikawa diagram published by Steele and colleagues (2014).

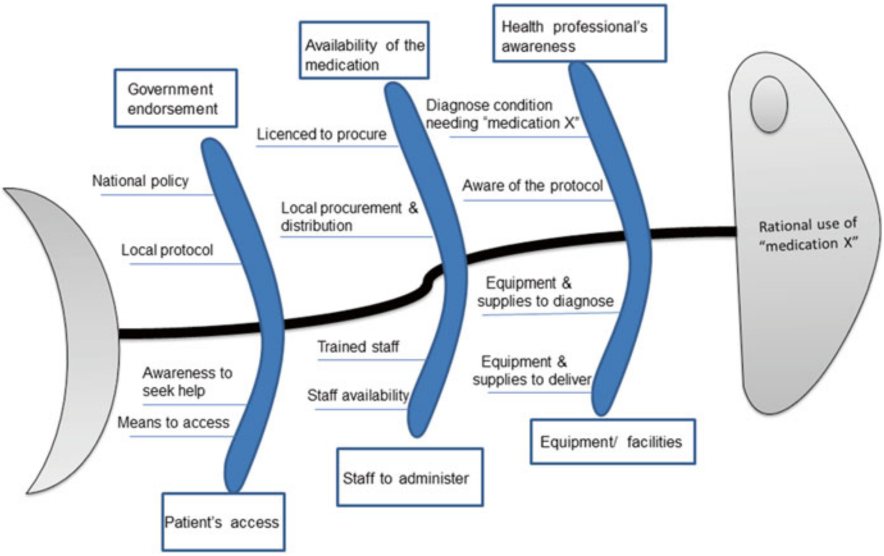

Fig. 9.2 A simplified Ishikawa diagram for "rational use of a medication" (Ridge et al., 2010)

What is the difference between process flow chart and Ishikawa diagram in the above example? The process flow chart could outline very detailed steps of process of delivering the health services which might not be necessarily reflected in the Ishikawa diagram. Both process flow chart and Ishikawa diagram are well "alive", meaning they can be updated and modified whenever necessary. Modifying a step in the process flow that can have an effect on the outcome such as "increase accessibility of a health service" should be reflected in the Ishikawa diagram accordingly. For example, moving a patient who is filling a demographic form from a radiographic room to a waiting room can reduce time wasted in the radiographic room where a radiographer is held up waiting for the patient's details. This process step can be reflected in the Ishikawa diagram under the heading "procedure" when the Ishikawa diagram is updated. On the other hand, if management of the organisation wishes to change a process step, such as returning of patient's demographic form to a receptionist for keying into a computer system, that has no impact on the "effect" in the Ishikawa diagram, the step can be reflected in a process flow chart only.

In the process of getting the nuts and bolts for an Ishikawa diagram, we shall be aware of the strengths and limitations/caveats of the process of gathering information as outlined in Table 9.1.

Identifying the Barriers, Facilitators, and Incentives

Let us get back to Scenario 1. Mr Eric Tang can choose the method "talking to the relevant people" to find out the cause for his son's absence from school. Eric has to be tactful when talking to his son so that Simon will tell him the truth. Eric may also talk to others in the social circle including Simon's friends and school teachers to proactively find out factors that may encourage Simon to attend school.

Let's say Simon has cheated in his English essay by plagiarising his friend's article. He worries that he will receive punishment and embarrassment when this is found out by his teacher (Mike). He has been demotivated and he has adopted an avoidant behaviour; hence, he has played truant. There could be many factors influencing his behaviour. Will he report his wrongdoing to his teacher? What stop him from reporting his wrongdoing? What factors may encourage him to do so? What benefit will he get out of reporting his wrongdoing? These series of questions lead us to discuss about identifying barriers, facilitators, and incentives in the process of establishing an Ishikawa diagram. We will get back to Scenario 1 later.

We like to use a similar case of reporting medication error to explain the concept of barriers, facilitators, and incentives. The interplay among these factors can affect one's behaviour in reporting wrongdoing. Hartnell and colleagues have studied about potential causes leading to medication errors (Hartnell, MacKinnon, Jones, Genge, & Nestel, 2006) and then they studied factors affecting "report of medication errors" (Hartnell, MacKinnon, Sketris, & Fleming, 2012). They have adopted focus groups to gather information about potential causes leading to medication errors.

Table 9.1 Methods for gathering information for Ishikawa diagram—strengths and limitations

Method	Strengths	Limitations/caveats
Literature searches and review	• Published reports are usually peer reviewed for its validity • Systematic reviews of the literatures may include a wide variety of potential causes	• Potential bias (reports with negative outcome might not be published); hence not included in the literature review • Published reports may not necessary be applicable to local context
Review process flow charts	• A thorough walk through a process will identify potential causes which might have been unnoticed • Interdepartmental/discipline approach may enhance interaction of workforce within an organisation	• Time can be wasted in reviewing a poorly established process flow chart • Withholding of suggestion on improvement of a process step that may render a worker jobless, e.g. automation of a process step
Paper surveys	• Anonymity may encourage responder to response and voice negative causes • May be relatively cost effective	• Validity of responses depends on clarity of question • Incomplete responses to survey questions • Illiterate people will be likely left out
Personal interviews (talking to the relevant people)	• More personal approach may encourage responses • Usually done in semi-structured format (i.e. essential checklist questions + open questions) which may collect more responses	• Unfriendly interviewers may affect the responses • Can be viewed as a “threat” to responder if the question is concerning potential cause related to the responder’s fault or negligence
Brain storming/focus group	• A bigger group participation generates more ideas by “hitch hiking” on other’s ideas • Qualitative analysis on the responses (including words and tones of the participants) may lead to formation of themes [see examples (Hartnell et al., 2006, 2012)]	• A “threat” to workers if their boss is in the same group • Some participants can dominate a session and people who are quiet may be missed out • Dependent on the facilitator’s skill

It is noteworthy that they have applied two focus groups separately to ensure that participants who are quiet have a voice and to allow minority ideas to be expressed. Hartnell and colleagues have established two Ishikawa diagrams (Hartnell et al., 2012). The Ishikawa diagram generated from the patient group is less elaborate compared to the one generated by the healthcare professional group. Nonetheless, both diagrams highlighted themes that can be translated into corrective and preventive actions. The themes include poor handwriting, transcription error, fatigue in nurses and doctors due to overwork, failure in patent's identification, and patient's inability to provide medication information. These themes informed the policy makers and relevant personnel to implement the necessary actions.

The challenge for the above example of medication error is how to encourage people to report medication error in the first place. If medication error is underreported, the true causes may not be noticed and acted upon. Hartnell and colleagues conducted focus groups to identify, understand, and overcome barriers to medication error reporting in hospitals (Hartnell et al., 2012). An important note to make about their methodology is that they have audio recorded their focus group activities and interviews and analysed the content including the tones of voice of the participants in order to generate themes via qualitative analysis. The "barriers" include reporter burden (reporter finds it hard to report), professional identity (reporter worried to disclose their identity), information gap (difference in perception about severity of error), organisation factor (ineffective reporting system), and fear (fear of malpractice suits). The "facilitators" include reducing reporter burden, bridging the communication gap, and educating the relevant personnel about the importance of reporting medication errors. The "incentives" include patient protection (patient safety can be enhanced), provider protection (protection from legal action), and professional compliance (compliance with rule and policies) (Hartnell et al., 2012).

Let us brain storm and construct an Ishikawa diagram for our Scenario 1. This time we focus on "reporting wrongdoing to school teacher". What are the barriers for Simon to report his wrongdoing?

After brain storming, we have drafted an Ishikawa diagram (Fig. 9.3).

Now, we can translate the Ishikawa diagram into actions by identifying the "facilitators" and "incentives" for reporting wrongdoing as shown in Table 9.2.

Application in Mental/Behavioural Health

Now, we have helped Mr. Eric Tang in finding ways to encourage his 17-year-old son, Simon, to report his wrongdoing and go back to school. Five weeks later, Mike contacted Eric again regarding Simon's behaviour. Mike said that Simon seems having depressive mood manifested in his lack of interest in class participation and basketball game which Simon used to enjoy playing. Eric has spoken to Simon who has agreed to see his family physician—Dr. Wilson. Clinicians can use Ishikawa diagram to find out potential causes for a clinical presentation, and the Ishikawa diagram can be continually updated to reflect ongoing learning and experiences

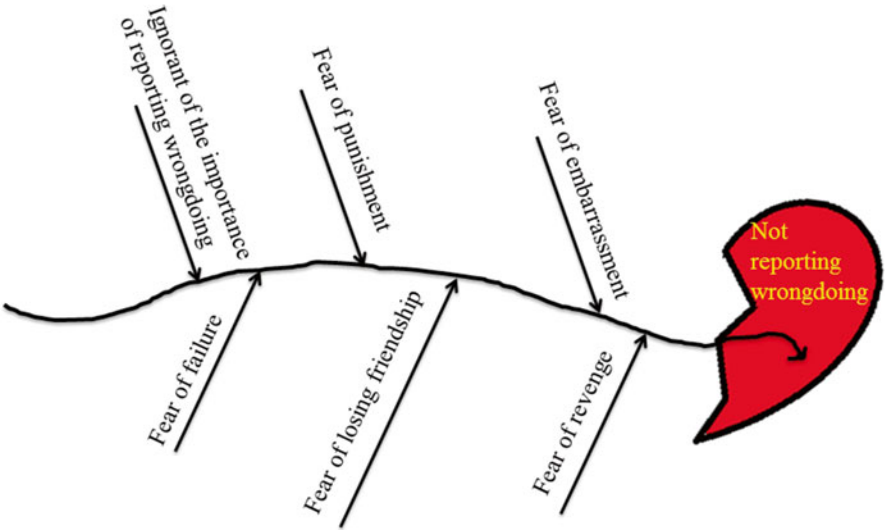

Fig. 9.3 Potential causes for “not reporting wrongdoing”

Table 9.2 Barriers, facilitators, and incentives for reporting wrongdoing to a school teacher

Barriers	Facilitators	Incentives
• Ignorant of the importance of reporting wrongdoing • Fear of punishment • Fear of embarrassment • Fear of failure an examination/assignment after reporting • Fear of losing friendship • Fear of revenge	• Explain the importance of honesty which will gain respect in return • Provide help to report wrongdoing in a confidential manner (in the teacher’s office instead of in the class) • Mediate corrective actions in less punitive format, e.g. redo assignment/exam	• Courage to be honest may gain respect from others • Guilt-free or less guilt after reporting and taking corrective action • Self-confidence and self-esteem can be enhanced • Maintain good companionship among students • Reduce misconduct behaviour

(Wong, 2011). On the other hand, Dr. Wong has also illustrated use of an Ishikawa diagram in solving a clinical problem using an example “secondary amenorrhea” (a condition where a female has ceased menstruation unexpectedly) (Fig. 9.4).

With years of clinical experience, Dr. Wilson can establish an Ishikawa diagram in his head without drawing it. Nonetheless, we are constructing an Ishikawa diagram to illustrate a few potential causes for depressive mood (Fig. 9.5).

After taking a medical history and performing physical and mental examinations on a patient, a doctor may perform investigations to rule out some causes depending on the medical histories, symptoms, and signs of the patient. We leave Simon in the good hands of Dr. Wilson. A diagnosis of depression has been made. Simon is undergoing psychological counselling including cognitive behavioural therapy to manage his depression.

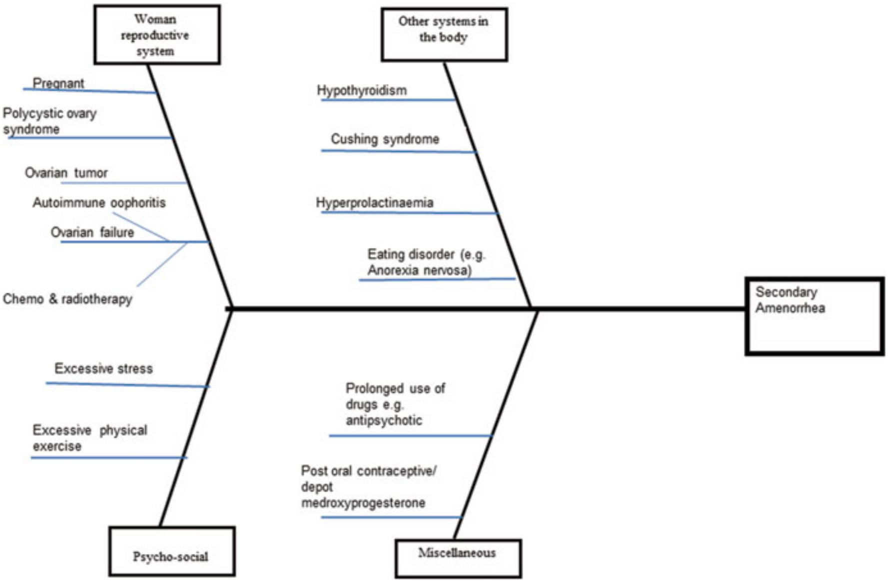

Fig. 9.4 Ishikawa diagram for a clinical presentation called "secondary amenorrhea". [Permission granted from the Journal of Medical Case Reports. Wong: Using an Ishikawa diagram as a tool to assist memory and retrieval of relevant medical cases from the medical literature. Journal of Medical Case Reports 2011, 5:120.]

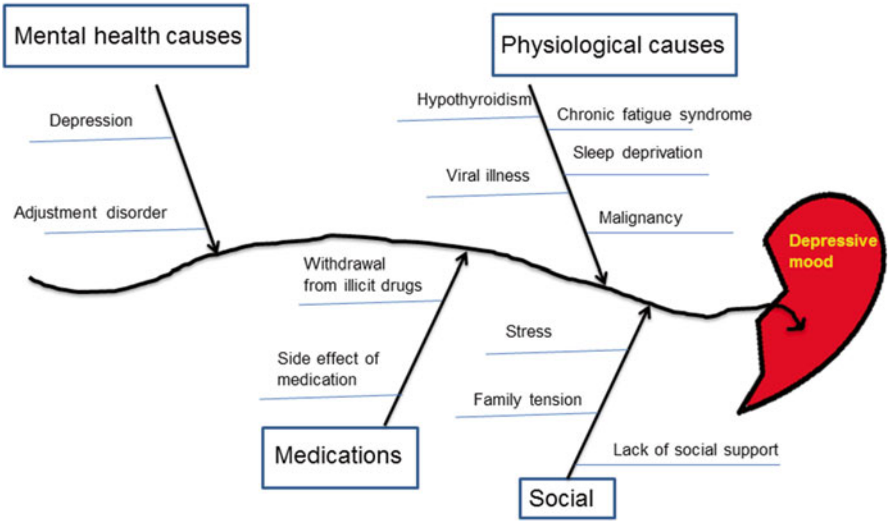

Fig. 9.5 Potential causes for depressive mood

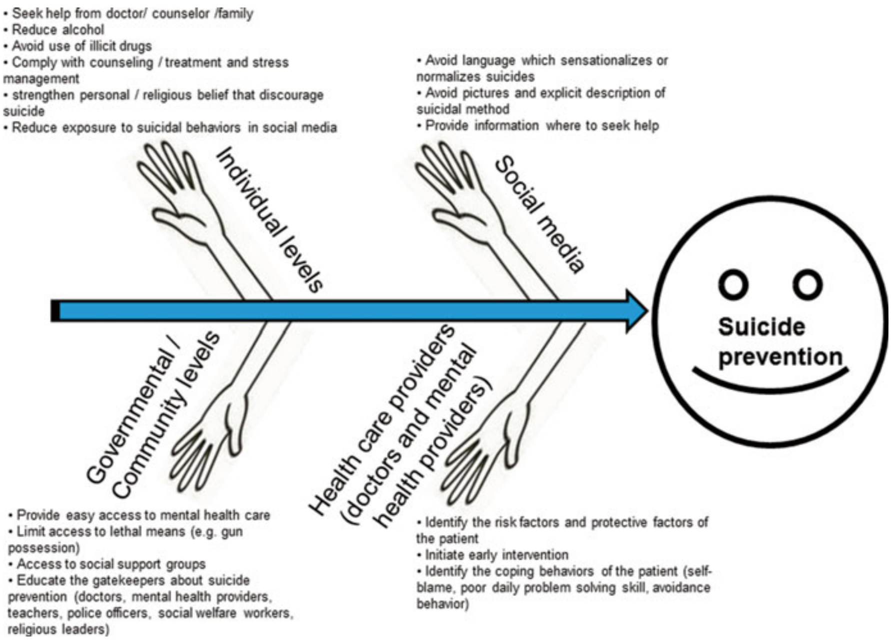

Fig. 9.6 Suicide prevention

Eric knows that depression may increase risk of self-harm or suicidal behaviours. He is seeking more information about suicidal prevention. Let us help Eric. With reference to the World Health Organization Suicide Prevention Framework (World Health Organization, 2014), we construct the following Ishikawa diagram (Fig. 9.6).

The sources for gathering information to construct an Ishikawa diagram are not limited to publications by established institutions such as World Health Organization. Publications from prospective researches can add valuable information to the diagram. For instance, in a large cohort prospective study of more than 70,000 participants over 10 years, Svensson and colleagues found that patients with self-blame behaviour, poor daily problem-solving skill, and avoidance behaviour are at higher risk of suicidal behaviour (Svensson et al., 2014). It is important to note that not all suicidal patients have mental disorder. Certain behaviour like self-blame can be a risk factor for suicide by itself (Svensson et al., 2014). Hence, the Ishikawa diagram (Fig. 9.6) is a “living” diagram that can be continually updated to reflect ongoing research findings.

Simon has progressed well in cognitive behavioural therapy. He is more cheerful and well aware of the value of life and he believes that suicidal behaviour is silly because that behaviour will hurt his family and loved ones, and death does not solve any problem. Now, we know that Simon is safe.

Benefits, Limitations, and Future Perspective

We have illustrated some practical use of Ishikawa diagram in clinical fields and mental/behavioural health. Using together with other tools such as process flow chart and “4M & 1E” technique, we can realise some benefits of Ishikawa diagram as follows:

- Systematic method to identify potential causes
- Classification of causes into categories which can be further explored within a category
- Ease of update to reflect ongoing experiences and findings
- Handy diagram that provides visual cues to users
- Encourage lifelong learning in maintaining and updating an Ishikawa diagram

In order to encourage usage of Ishikawa diagram and to enjoy the above benefits, educators by and large shall consider incorporating QI education including use of Ishikawa diagram in medical education, and assessing the trainee’s understanding of this methodology. For instance, Gupta and Varkey applied competency assessment of using Ishikawa diagram in a fellowship training program (Gupta & Varkey, 2009).

Having said the above benefits, we are well aware that Ishikawa diagram does have its limitations. Sometimes, a patient may not present in a simple “single-dimensional” manner such as depressive mood only. He may have lethargy, poor eating habit, financial constraints, and a different cultural background with different belief in health. There may be no one single “bone” of an Ishikawa diagram that can explain the cause of the patient’s clinical presentations. The potential causes are intertwined and weaved one into another. The patient’s cultural background may affect his health-seeking behaviour. Under certain circumstances where lack of social support coupled with financial constraints and inaccessibility to health services, the patient’s presentations may worsen. Is Ishikawa diagram projecting a two-dimensional view where one dimension is the potential cause and the second dimension is the effect? Not always. We can use the diagram in a three-dimensional way where the third dimension is invisible and hard to be presented in the diagram. That dimension is the intertwining of various potential causes criss-crossing each other in a messy manner where the skill of a health care practitioner is valued in disentangling the mess and finding a solution. This definitely leads us to agree that medicine is an amalgamation of science and art.

Knowing that Ishikawa diagram allows continuous updating to reflect new findings, we are looking out for new method of collecting information which may add to the current repertoires (namely research reports/literatures, focus groups, and audits on compliance to check for variations). Once a process has been established, many of us will be routinely following the process/procedures as compliant personnel. We will usually wait till a problem occurs or a non-compliance detected during an audit, then we go back to revisit the process. This method can be viewed as less proactive. We may miss out an opportunity to enhance our capability and we confine ourselves within our "capability trap"—a relatively new paradigm articulated by Andrews who presented the idea of "avoiding capability traps through problem driven iterative adaptation (PDIA)" by allowing positive deviance and experimentation (Andrews & Pritchett, 2013). As the name PDIA implies, this methodology necessitates one to cultivate an open mind and attitude for positive deviance and experimentation such as doing the same task by different ways to continually revisiting and adapting in the search for an optimal solution. And the iterative adaptation process may provide inputs to an Ishikawa diagram.

On the other hand, we may creatively adapt Ishikawa diagram to reflect a series of events/histories which have relevance and potential linkages related to a research question. For an example, we research on "factors affecting one's behaviour", which is a topic related to behaviourism, and find out many relevant concepts advocated over the years such as the following list extracted from "The Psychology Book" (Atkinson, Tomley, Landau, & O'Hara, 2012):

- Charles Darwin—"behaviours are evolutionary adaptations" (1872)
- Edward Thorndike—"Law of Effect: responses which produce satisfying effects are more likely to be repeated" (1898)
- John B Watson—"conditioned emotional response" (1920)
- Ivan Pavlov—"classical conditioning" (1927)
- B.F. Skinner—"operant conditioning: consequence of an action plays an important role in shaping behaviour" (1930); genetic predisposition (1957)
- Edward Tolman—"cognitive behaviourism" (experiments involved using positive reinforcement to enhance cognitive behaviour) (1948)

Presenting the list as a "history timeline" is good for a historian and general readers to observe the trend and contemporariness of advocated concepts. Nonetheless, we have organised the series of concepts in an Ishikawa diagram to provide a guided and systematic approach about our research question "factors affecting one's behaviour" (Fig. 9.7). This approach can illustrate a potential use of Ishikawa diagram in the future. The Ishikawa diagram (Fig. 9.7) can be continually updated as new concepts and research findings are published, and interlinking of the concepts can be depicted in the diagram.

Conclusion

We can apply Ishikawa diagram proactively in clinical fields, mental health, and behavioural health. In the search for the nuts and bolts of the diagram, we can apply a combination of methods, e.g. literature searches, review process flow chart, failure mode and effect analysis (FMEA), brain storming, surveying, interviewing and focus group while keeping an open mind for new methodology or concept such as PDIA.

The Ishikawa diagrams presented in this chapter are meant to illustrate the concept and methodology. They are not exhaustive. Readers can make use of them and

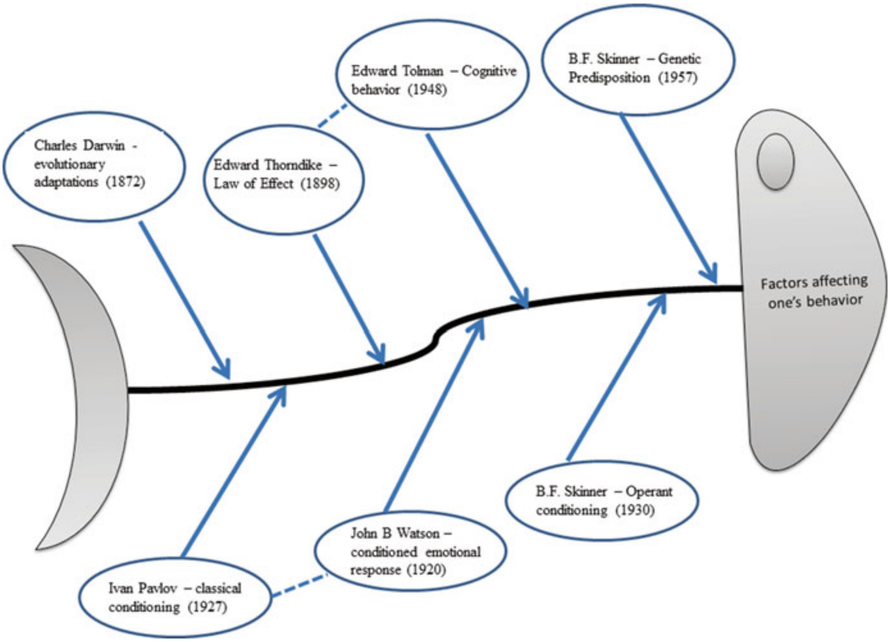

Fig. 9.7 Factors affecting one's behaviour. *Note*: The *dotted lines* indicate relevance/connection between the advocated concepts

continually update them as experience and new findings develop. However, a comprehensive and beautiful Ishikawa diagram can be useless if it is not translated into actions. Communicating with and educating the "actors" (personnel taking action) are pivotal to achieve the desired outcome. We hope that you find the information in this chapter relevant and useful, and put them into action. Finally, we wish that you will share your success in using Ishikawa diagram with others via articles or other form of publications.

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Chapter 10
Checklists for Quality Improvement and Evaluation in Behavioral Health

Lori A. Wingate

> *We need a different strategy for overcoming failure, one that builds on experience and takes advantage of the knowledge people have but somehow also makes up for our inevitable human inadequacies. And there is such a strategy—though it will seem almost ridiculous in its simplicity, maybe even crazy to those of us who have spent years carefully developing ever more advanced skills and technologies.*
>
> *It is a checklist.*
>
> —Atul Gawande, *The Checklist Manifesto*

I have a small, tattered notebook in which I keep a running list of tasks I need to do in order to keep my professional and personal life on track. My colleagues are so familiar with this notebook and how much I depend on it day to day that if I commit to do something, they'll prompt me to record it in my notebook. They know I'm serious about a task when it goes on the list. I keep my notebook handy at all times. That way, when I think of something I need to do, I can quickly translate it from fleeting thought to words on paper, thereby immediately reducing my cognitive load: I know I can refer to my checklist later, so I do not need to expend effort to maintain the thought in my accessible memory. I've canvassed my colleagues and most have their own strategies for recording and tracking the things they need to do. Some prefer to schedule their tasks on a calendar, some use Web-based systems, while others rely on a constellation of post-it notes around their computer monitors. Underlying all these strategies is a recognition that we humans are not that good at holding in our brains all the things we need to do in order to meet our personal and professional obligations. We need tools to help us remember. The "simple" checklist

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is a common solution. But checklists are powerful tools with potential to do much more than help individuals remember what they need to do on a daily basis.

In *The Checklist Manifesto*, Atul Gawande (2009) noted that in our increasingly complex worlds, ordinary people are called upon to do extraordinary things. His book is full of compelling examples of how checklists are used to avoid making mistakes that could result in injury or death. It recounts the critical role that checklists play in aviation safety and showcases the Surgical Safety Checklist, which has led to dramatic increases in patient safety in hospitals that have adopted it. While such checklists may seem in quite a different category of import in relation to the lowly to-do list, the premise is the same: We can't remember it all and when we forget (and we *will* forget something eventually), there will be some degree of inconvenience, suffering, or worse—which could have been avoided had we used a checklist. For individuals whose work directly impacts the safety, health, and well-being of others—whether pilots, surgeons, civil engineers, psychologists, social workers, substance-abuse counselors, or others—the importance of getting things right (as Gawande puts it) cannot be overstated.

In this chapter, I provide an overview of the form and function of checklists, with examples from various disciplines; discuss the benefits of checklists; and offer guidance on the development, validation, and dissemination of checklists to improve performance and assess quality.

The Form and Function of Checklists

Checklists are commonplace and seemingly simple, so you may have never stopped to ponder what a checklist is, really. Among the few formal definitions of checklists proffered in the literature (e.g., Hales, Terblanche, Fowler, & Sibbald, 2008; Scriven, 2005, 2007; Wilson, 2013), I find this one to be the most succinct and comprehensive, addressing both form and function: "A checklist is an organized tool that outlines criteria of consideration for a particular process. It functions as a support resource by delineating and categorizing items as a list—a format that simplifies conceptualization and recall of information" (Hales et al., 2008, p. 22).

In *The Logic and Methodology of Checklists*, Michael Scriven (2007) delineated four basic types of checklists: laundry lists, sequential checklists (which I call procedural checklists in the rest of this chapter), diagnostic checklists, and criteria of merit checklists. Regardless of form or purpose, all checklists essentially serve as "cognitive aids to guide users through accurate task completion" (Hales et al., 2008, p. 22)—the task in question may be anything from shopping for tonight's dinner to performing high-risk surgery to judging the quality of organizational performance. In Table 10.1, I offer a general typology of checklists, highlighting the purposes of each type and providing examples of each type from diverse fields.

Below I provide a more detailed description of each checklist type.

Table 10.1 Checklist typology

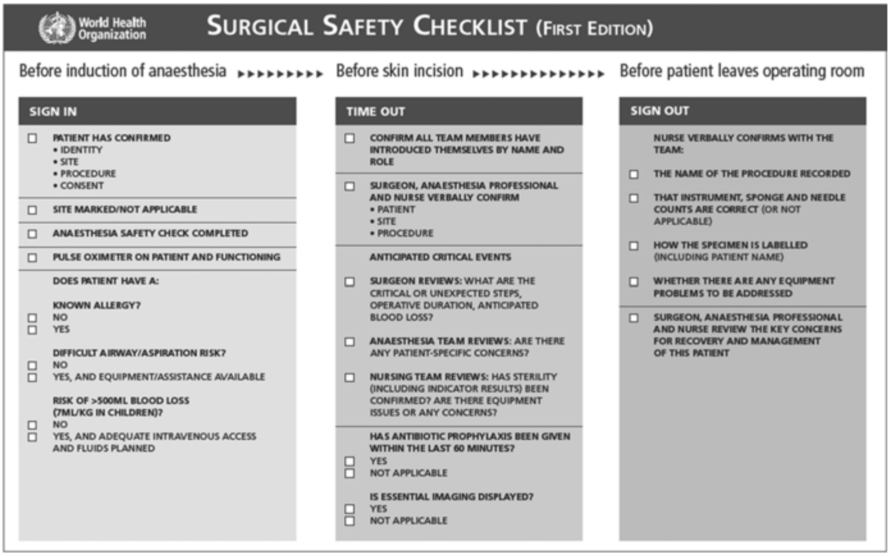
Type	Description	Purposes				Examples
		Aid memory	Task completion	Decision making	Evaluation	
Laundry list	A nonordered list of items or tasks, sometimes grouped into categories	✓				Emergency Supply Checklist (FEMA, 2014)
Procedural checklist	A list of tasks or issues that must be addressed in a particular order	✓	✓			Detailed Emergency Medical Services (EMS) Checklist for Ebola Preparedness (CDC, 2014) Surgical Safety Checklist (World Alliance for Patient Safety, 2008a) Drug Endangered Children (DEC) Checklist Card for Law Enforcement (Office of National Drug Policy, 2015)
Diagnostic checklist	A series of questions or considerations that lead the user to descriptive conclusion about the status of something	✓	✓	✓		PTSD Checklist (Weathers et al., 2013) Diagnostic Checklist: Global Management Accounting Principles (CIMA, 2014)
Criteria of merit checklist	A list of characteristics that define quality for a particular product or phenomena to aid the user in reaching an evaluative judgment	✓	✓	✓	✓	Behavioral Health Integration Checklist (AIMS Center, 2014) Quality Checklist for Evaluation Reports (United Nationals Evaluation Group, 2010) Quality Online Learning Quality Checklist (Hosie, Schibeci, & Backhaus, 2005)

Laundry Lists

The original *laundry lists* were just that—lists of items to be laundered. They were completed by the owners to ensure their return from those doing the laundering (Barder, 2013; Quillen, 2008). *Laundry list* is now widely understood to mean "a usually long list of items" (Merriam Webster, 2014). Scriven (2005, 2007) observed that a distinguishing feature of this type of checklist is that the order of the items is inconsequential. For example, with a grocery list, it doesn't really matter if you get the cereal before the flour or beans (although it is advisable to add the ice cream bars last). Laundry lists are simply an unordered list of things that need attention, such as tasks to complete or items to acquire. My running to-do list, for example, is a laundry list-type checklist, as is the Federal Emergency Management Agency's Emergency Supply checklist (2014). Scriven (2005) noted that laundry lists are "at the bottom of the checklist pecking order" (p. 53). As such, while useful as a mnemonic support, by definition such checklists do not serve higher functions such as guiding a user through a complex task or decision-making process. While such laundry list-type checklists are not a focus of this chapter, they are the forebears of higher order checklists and thus merit acknowledgment.

Procedural Checklists

Procedural checklists focus on a particular task, whether routine or complex. With procedural checklists, the sequence of the checkpoints is purposeful, and users are expected to attend to them in the order they are presented. For example, the World Health Organization's Surgical Safety Checklist (World Alliance for Patient Safety, 2008a) (Fig. 10.1) groups its 19 items in three sequential categories: (1) Before the Induction of Anesthesia, (2) Before Skin Incision, and (3) Before the Patient Leaves Operating Room. Underscoring the sequential aspect of the checklist, these explanatory headings are supported by short-hand descriptors: Sign In, Time Out, and Sign Out, respectively. It's critical that the patient confirms his or her identity (first checkpoint under Sign In) before the surgical procedure commences and that all instruments, sponges, and needles are accounted before the patient leaves the operating room (second checkpoint under Sign Out). These tasks and their prescribed order may seem obvious even to nonsurgeons. They are included in the checklist not because surgeons don't know these steps, but because of in spite of their knowledge, these types are often overlooked, with potentially dire consequences (Gawande, 2009). Thus, the wrong procedures may be performed on the wrong patients, sponges are left inside the patients, and incisions are made on the wrong body parts. The Surgical Safety Checklist championed by Gawande and the World Health Organization is a shining example of a procedural checklist to support the execution of a highly complex task by highly trained professionals.



World Health Organization

SURGICAL SAFETY CHECKLIST (FIRST EDITION)

Before induction of anaesthesia ▸▸▸▸▸▸▸▸▸ Before skin incision ▸▸▸▸▸▸▸▸▸▸▸▸▸▸ Before patient leaves operating room

SIGN IN

☐ PATIENT HAS CONFIRMED
- IDENTITY
- SITE
- PROCEDURE
- CONSENT

☐ SITE MARKED/NOT APPLICABLE

☐ ANAESTHESIA SAFETY CHECK COMPLETED

☐ PULSE OXIMETER ON PATIENT AND FUNCTIONING

DOES PATIENT HAVE A:

KNOWN ALLERGY?
☐ NO
☐ YES

DIFFICULT AIRWAY/ASPIRATION RISK?
☐ NO
☐ YES, AND EQUIPMENT/ASSISTANCE AVAILABLE

RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?
☐ NO
☐ YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED

TIME OUT

☐ CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE

☐ SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM
- PATIENT
- SITE
- PROCEDURE

ANTICIPATED CRITICAL EVENTS

☐ SURGEON REVIEWS: WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS?

☐ ANAESTHESIA TEAM REVIEWS: ARE THERE ANY PATIENT-SPECIFIC CONCERNS?

☐ NURSING TEAM REVIEWS: HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS?

HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE LAST 60 MINUTES?
☐ YES
☐ NOT APPLICABLE

IS ESSENTIAL IMAGING DISPLAYED?
☐ YES
☐ NOT APPLICABLE

SIGN OUT

NURSE VERBALLY CONFIRMS WITH THE TEAM:

☐ THE NAME OF THE PROCEDURE RECORDED

☐ THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE)

☐ HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT NAME)

☐ WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED

☐ SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT

Fig. 10.1 Surgical Safety Checklist (World Alliance for Patient Safety, 2008a)

Within the procedural category of checklists, Scriven (2005, 2007) differentiated between *weakly sequential*, *strongly sequential*, and *iterative* checklists. In the Surgical Safety Checklist, it's clear that the main categories are strongly sequential. Procedural checklists bring into sharp relief the key steps required for "accurate task completion" (Hales et al., 2008).

Aviation checklists are also procedural checklists. Gawande (2009) and others have (Meilinger, 2004; Schamel, 2012) traced the first aviation checklist to an incident involving the crash of a Boeing test plane in 1935 (which later become the B-17). The crash was attributed to pilot error—the pilot forgot to release a locking mechanism on one of the many controls on this state-of-the-art, complicated aircraft. An *Air Force Magazine* article (Meilinger, 2004) noted that this crash—despite its great tragedy—had one "notable benefit":

> Airmen realized that aircraft were becoming too complex to fly safely without standardized procedures. Moreover, these procedures were too numerous and complicated to commit entirely to memory. "Checklists" were now developed that spelled out specific tasks that were to be accomplished by each crew member at various times throughout the flight and also while on the ground (p. 82).

Gawande (2009) found it noteworthy that a simple checklist was regarded by these experienced pilots as a superior solution to other alternatives such as more training or a new aircraft design. Today there are countless aviation checklists for normal (i.e., nonemergency) flight operations and emergency situations during flight, as well as nonflight procedures such as checking for aircraft readiness and investigating accidents—most of which are tailored to different types of aircraft. These checklists are essentially job aids that are embedded in the routine practices of aviation personnel. There is no doubt that the aviation industry is a leader in developing and using checklists to standardize operation and increase safety. Notably, pilots are as much at risk as their passengers if they do not follow their prescribed checklist protocols. In their review of checklist use across professional sectors, Hales and Pronovost (2006) observed, "The use of checklists … is highly regulated in aviation and under most circumstances is considered a mandatory part of practice. Under these circumstances, the checklist becomes flight protocol, and completion of a checklist from memory is considered a protocol violation or pilot error" (p. 232). In short, these types of procedural checklists to guide complex tasks are not intended as instruction for beginners—rather, they serve as mnemonic aids for experienced professionals.

Diagnostic Checklists

Diagnostic checklists present a series of questions or considerations to aid a user in arriving at a "classificatory conclusion" (Scriven, 2005, 2007). Such checklists are commonly used for screening and assessment for psychological and behavioral health problems and disorders (e.g., several diagnostic-type checklists for use in behavioral health practice are available from the Hazelden Betty Ford Foundation website[1]). Ely, Graber, and Croskerry (2011) explained that diagnostic checklists "provide an alternative to reliance on intuition and memory in clinical problem solving. This kind of solution is demanded by the complexity of diagnostic reasoning, which often involves sense-making under conditions of great uncertainty and limited time" (p. 307). Diagnostic checklists overcome "cognitive biases" and "failed heuristics" that result in diagnostic errors (p. 308). Such checklists are used in diverse fields—such as auto maintenance, information technology, and healthcare—to aid professionals in reaching correct decisions about the nature or extent of a problem, so that the appropriate means for treating or correcting the condition can be pursued. Note that diagnostic checklists are distinct from procedural checklists in one important way: Procedural checklists guide users executing a particular task; diagnostic checklists aid users in *reaching decisions*. Thus, the task is diagnosis, but the outcome is not simply a completed process, but a conclusion.

Criteria of Merit Checklists

This type of checklist lists the qualities that define what makes something good—meritorious (Scriven, 2005, 2007). Criteria of merit checklists aid users in reaching evaluative judgments. Like diagnostic checklists, the end result is a conclusion, but what sets criteria of merit checklists apart from diagnostic checklists is that

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[1] www.bhevolution.org/public/screening_tools.page

their purpose is to support an explicitly *evaluative* conclusion (in contrast with the classificatory conclusions supported by diagnostic checklists). The American Evaluation Association (AEA), the flagship organization of professional evaluators around the world, recently put forth this definition of evaluation: "a systematic process to determine merit, worth, value, or significance" (AEA, 2014). It is that sense in which I use the term *evaluation* in this chapter. Accordingly, a criteria of merit checklist specifies the desirable or essential characteristics of something to aid the user in determining its quality, value, or importance. Sometimes the checklist is just a list of criteria; sometimes the criteria are accompanied by prompts for the user to indicate whether each criterion is met or rating scales to indicate how well the criterion is addressed.

Although the objective of a criteria of merit checklist is to arrive at an evaluative conclusion, this type of checklist is also useful as a reference to guide the development of something to ensure that it meets quality criteria. For example, most academic journals provide reviewers with criteria for assessing the quality of manuscripts submitted for publication, which may include options for scoring the manuscript on each criterion. Such checklists are intended to serve as guide for peer review (i.e., judging the quality of a manuscript), but they can also be consulted by authors during manuscript development to increase the likelihood that their papers will meet expectations for publishing in the journal. Likewise, criteria of merit checklists are also useful for guiding quality improvement efforts. By defining "quality" for a given product or aspect of organizational performance, individuals and agencies can self-assess their current performance and identify areas where they need or want to improve. Criteria of merit checklists are appropriate when the aspects of quality can be agreed upon and clearly defined for the objective or phenomena of interest.

The checklist typology presented in Table 10.1 and described above is simply a heuristic to aid in understanding the nuances of checklist form and function. Not all checklists can be neatly categorized within a single type. For example, the one-page *Think Ebola* document by the US Centers for Disease Control and Prevention (2014) is a checklist that is equally oriented to procedure and diagnosis. It is organized around the strongly sequential categories of Initiate—Identify—Isolate—Inform (outlining a process), but under the Identify step, users are prompted to check an individual for several indicators of possible signs of Ebola infection (i.e., preliminary diagnosis).

Checklist Benefits

In their review of the development and use of checklists in medicine, aviation, and other fields, Hales et al. (2008) concluded that checklists are "important tools to condense large quantities of knowledge in a concise fashion, reduce the frequency of errors of omission, create reliable and reproducible evaluations, and improve quality of standards and use of best practices" (p. 23). I discuss these and other benefits of checklist use below.

Minimization of Errors and Oversights

The most fundamental benefit of checklists is that they minimize the risk of important steps or considerations. Gawande (2009) explained, “Checklists remind us of the minimum necessary steps and make them explicit” (p. 36). This is a critical function of all checklists. Checklists can serve as valuable guides for individuals dealing with a new task for which they lack an internal frame of reference. However, it is the experienced and trained professional who is more likely to overlook important steps or considerations, as they may assume that they have fully internalized them and rely on memory alone, which is highly fallible. Using a checklist reduces the risk of overlooking important steps or considerations.

Distillation of Complex Content

Checklists are an efficient means of distilling complex information for audiences, enabling quicker access than traditional narrative text provides. Sometimes simply converting narrative information into a bulleted list of essential points can enhance users’ access and use information. As Hales et al. (2008) noted, “List instructions are … often better understood and recalled than information in paragraph form” (p. 232). This claim is supported by research on the optimal formats for presenting medication instructions (Morrow, Leirer, Andrassy, Hier, & Menard, 1998). To illustrate, in Table 10.2 I compare narrative explanation with a checklist version of the same content.

Although the content is nearly identical, the presentation in checklist form on the right emphasizes that each element is distinct and makes it easier for the user to confirm that each element has been addressed. At the most basic level, placing each element on a separate line with its own checkbox reduces the likelihood that readers will gloss over the content and miss important considerations. In this example, the amount of content is nearly identical, and it is only the format that is different. MacDonald’s (2014b) checklist version of the CDC’s (1999) 58-page *Framework for Program Evaluation in Public Health* is an example of checklist that distills a larger amount of informational text into a much more succinct and manageable format (8 pages of key points). In both cases, the calling out of key points into list form focuses the reader’s attention on the most salient aspects of the content.

Knowledge Transfer

Checklists are also a convenient way to transfer tacit, experiential knowledge. Daniel Stufflebeam, a pioneer in the field of professional program evaluation, described the impetus behind the first checklist he developed:

Table 10.2 Comparison of paragraph and checklist formats describing what to include in an evaluation plan

Narrative descriptive of what to include in an evaluation plan	Checklist for preparing an evaluation plan[a]
Begin the description of the plan by specifying the focus of the evaluation by presenting either evaluation questions or evaluation objective statements. Next, describe the data collection plan, including the indicators that will be used, how data for each indicator will be collected, from what sources, and when. Describe the analytical and interpretive procedures to be used for making sense of the data. Finally, identify the main deliverables (e.g., plans, instruments, reports) and how they will be used.	☐ Specify the focus of the evaluation by formulating evaluation questions (or evaluation objectives).
	☐ Describe the data collection plan, including what indicators will be used, how the data for each indicator will be collected, from what sources, and when.
	☐ Describe the analytical and interpretive procedures to be used.
	☐ Identify the main evaluation deliverables (e.g., plans, instruments, reports) and their anticipated uses.

[a] Excerpted from Wingate (2014)

> Students began pressing me to explain what exactly I was doing in designing project evaluations. Answering their questions proved difficult. In retrospect, I was developing and exercising a kind of personal art of evaluation design rather than laying out and following any particular systematic approach. When the students persisted in pressuring me to give them an evaluation planning protocol, I decided to try to respond. Thus, I developed my first evaluation checklist. (Stufflebeam, 2000, p. 2)

He refined this checklist over decades, with the latest iteration published in 1999 (Stufflebeam, 1999). While the Surgical Safety Checklist and countless aviation checklists make explicit the steps involved in routine procedures, checklists such as Stufflebeam's are a means of bringing tacit, expert knowledge of how to execute nonroutine, complex tasks. In the case of Stufflebeam's (1999) Evaluation Plans and Operations Checklist, that task happens to be planning and negotiating a program evaluation. It brings to light issues that less experienced program evaluators may not be aware of, such as how the security of data will be assured and who has authority to release evaluation reports. The evaluation profession has very few academic training programs, and many professional evaluators learn on the job. Thus, the transfer of knowledge from the few leaders in the field to the multitude of practitioners is especially critical. One way to efficiently disseminate knowledge to practitioners outside the bounds of formal education is through checklists by experts. In 1999, under the auspices of a National Science Foundation grant to build the nation's capacity for evaluating science education programs, the WMU Evaluation Center launched an initiative to develop and disseminate checklists to support evaluation practice.[2] In a field where formal training is minimal and practice is anything but routinized, we believed that checklists were an excellent vehicle for distilling and transmitting expert knowledge and experience. That effort led to 30-plus checklists, many by leading experts in the evaluation field.

Another benefit related to knowledge transfer is that checklists can be used to maintain or support organizational operations amidst turnover among personnel. A project I lead has been conducting a survey of National Science Foundation grantees since 1999. I am the second project director and there have been eight different survey managers—high turnover due largely to the fact that the position is usually filled by doctoral students. Without a checklist to pass from one staff member to the next, there would be many mistakes and oversights due to lack of experience. Our survey checklist continually integrates our lessons learned in conducting the survey and serves as safeguard against loss of organizational memory over an extended period of time.

Standardization of Evaluation

Criteria of merit checklists are often used to improve consistency in assessment or evaluation by focusing users on a common set of criteria, rather than relying on individual ideas about what constitutes quality. Thus, use of these types of checklists provides a first step toward enhancing interrater consistency. At minimum, individuals evaluating the same thing (whether article manuscripts, job candidates, or substance-abuse prevention programs) should base their judgments on common criteria. Stating each criterion clearly and as a distinct checkpoint directs the user's attention to every item in the checklist, forcing judgment on all important factors and making it difficult to gloss over items he or she might prefer to ignore. In other words, it minimizes halo effect, as Scriven (2005, 2007) pointed out. Consider hiring a new employee: Typically, there is a list of desired qualifications (i.e., which is essentially a criteria of merit checklist) that was advertised in the job posting and should guide the selection of candidates. If a candidate is especially charismatic, the interviewers may be tempted to overlook that he or she has a serious deficiency with regard to experience managing others, an important qualification for the job. By adhering to the qualification checklist and reviewing it systemically to inform their decision making, the search committee members are much more likely to select the best candidate for the job.

Caution: Providing a checklist of common criteria is not enough to achieve reliability across evaluators/raters. Thus, when criteria of merit checklists are used in high-stakes contexts (such as when the results will be used to make funding decisions that could affect program service delivery), it is important to provide calibration and training to raters to establish interrater consistency and reliability (Wingate, 2009)—a necessary, albeit not sufficient condition for reaching valid conclusions across multiple raters.

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[2] www.wmich.edu/evalctr/checklists/

Checklists for Quality Improvement in Behavioral Health

There are a multitude of checklists to guide diagnosis and decision making by behavioral health practitioners regarding the care of individual patients and clients. Less common are criteria of merit checklists—checklists that delineate the optimal characteristics of individual or organizational performance. Such checklists commonly serve two complementary purposes: (1) They educate the user as to what constitutes quality with regard to a defined aspect of behavioral healthcare and (2) they facilitate evaluation of organizational or individual performance, whether in the form of self-assessment or external review. Such checklists seem to be less widely known and used in behavioral health professions. Below I describe a few that are available online from reputable sources—showcased here to provide a sense of how such criteria of merit checklists are currently being used in the field.

Developed by the Advancing Integrated Mental Health Solutions (AIMS) Center (2014) at the University of Washington in consultation with a panel of national experts, the Patient-Centered Integrated Behavioral Health Care Principles and Tasks Checklist is a self-assessment tool to help organizations with planning and implementation of integrated behavioral healthcare. It identifies five core principles and seven program components; checklist users rate their organization's current performance on each dimension, allowing them to identify areas for additional focus and development. The five principles include patient-centered care, population-based care, measurement-based care, evidence-based care, and accountable care. The seven core components include patient identification and diagnosis; engagement integrated care program; evidence-based treatment; systematic follow-up, treatment adjustment, and relapse prevention; communication and care coordination; systematic psychiatric case review and consultation; and program oversight and quality improvement. For each of these components, between two and six specific practices identified. The authoring organization does not supply any specific evidence regarding the checklist's validity or its impact. However, the checklist content is informed by a strong evidence base that collaborative care is effective, including findings from randomized controlled trials and meta-analyses—links to these studies are available on the AIMS website (aims.wu.edu).

Also addressing behavioral health integration, the Primary Care and Behavioral Health Integration Sustainability Checklist (National Council for Community Behavioral Healthcare, 2014) identifies key elements that a clinical organization needs to have in place to support and sustain the integration of primary and behavioral healthcare. Developed by the Center for Integrated Health Solutions with funding from the Substance Abuse and Mental Health Services Administration (SAMHSA), this checklist identifies key sustainability factors in 11 domains. Users are prompted to identify which factors are "key" and then to rank the importance of those key factors in order to prioritize them for action planning to improve care integration. The factors are organized in the domains of environment; strategy; leadership practices, culture, and communication; policy and process; billing;

technology; quality improvement; structure; skills; people; and rewards. This checklist is distinct from the AIMS Center's checklist on integrated care because its focus is on the administrative dimensions of providing integrated care, rather the services delivered to individual patients. With more healthcare organizations embracing integrated care strategies, this checklist is a resource provided by SAMHSA to assist organizations to adapt their administrative practices to this new way of operating. The checklist is not accompanied by information about its development or validation.

Another example of a checklist to help organization assess a particular aspect of their performance is the Checklist for Implementing Evidence-Based Practices and Programs for Justice-Involved Adults with Behavioral Health Disorders (Blandford & Osher, 2012). Also developed with funding from SAMHSA, this checklist is intended to help organizations assess their use of evidence-based practices in their work with individuals with behavioral disorders who are involved with the justice system. The checklist has two sections—one for determining if an organization has the capacity to implement evidence-based practices, and the other for determining whether an organization is currently using evidence-based and promising practices and programs or if those approaches should be addressed in future programming. The checklist itself is intended to be used by behavioral health professionals to determine their capacity to implement evidence-based practices; yet the checklist is not accompanied with evidence of its validity and effectiveness. However, the checklist is closely tied to established guidelines from SAMHSA (Substance Abuse Treatment Center, 2005).

In contrast to the checklists described above that focus on organizational performance, Promoting Cultural Diversity and Cultural Competency—Self-Assessment Checklist for Personnel Providing Behavioral Health Services and Supports to Children, Youth and their Families (Goode, 2009), is intended to facilitate reflection and self-assessment by *individual* behavioral health service providers. One of many self-assessment checklists published by National Center for Cultural Competence (NCCC) at Georgetown University's Center for Child and Human Development, this checklist invites the user to rate his or her performance with regard to cultural competence on factors in three domains: physical environment, materials, and resources; communication styles; and values and attitudes. Similar to the other checklists used in behavioral healthcare that I've highlighted, this one is intended to serve as a guide for gauging the quality of current practice and identifying ways to improve. In a section on the NCCC website describing its collection of self-assessment checklists, the organization touches on the many potential use of these types of checklists:

> There are numerous benefits to self-assessment. Such processes can lead to the development of a strategic organizational plan with clearly defined short-term and long-term goals, measurable objectives, identified fiscal and personnel resources, and enhanced consumer and community partnerships.
>
> Self-assessment can also provide a vehicle to measure outcomes for personnel, organizations, population groups and the community at large.
>
> The NCCC views self-assessment as an ongoing process, not a one-time occurrence. It offers organizations and their personnel the opportunity to assess individual and collective progress over time. (NCCC, 2015)

As more checklists are developed to support assessment (self- or otherwise) and quality improvement in behavioral healthcare, it may be time to consider developing a central repository for such checklists. The ProjectCheck website (www.projectcheck.org) houses numerous checklists to enhance routine surgical practice, as well as the handling of common operating room crises, and allows users to contribute their own checklists. Its companion site, Safe Surgery 2015 (www.safesurgery2015.org), includes links to research articles on the effectiveness of the checklists and several other resources to support the use and development of surgical checklists. A comparable site for checklists to enhance performance among individual and organizations working in the behavioral health field would likely facilitate access and use of checklists by the professionals who could benefit from them.

Checklist Development, Validation, and Dissemination

The expert group that led the development of the Surgical Safety Checklist sought assistance from checklists experts at Boeing Corporation (Gawande, 2009). Checklist authors who do not have access to that level of expertise can still benefit from the experience and research of a handful of checklist experts, advocates, and developers (Bichelmeyer, 2003; Duchesne & Jannin, 2008; Gawande & Boorman, 2010; Hales et al., 2008; Schroeter, 2008; Scriven, 2007; Stufflebeam, 2000). Of special note is the Checklist for Checklists, by Atul Gawande and Boeing's Dan Boorman (2010), based on their experience in developing the Surgical Safety Checklist.

Below I provided an overview of key considerations for checklist creation based on the writings of the scholars and practitioners cited above, as well as my own experience as the editor of a collection of evaluation checklists at the Western Michigan University Evaluation Center.[3] In his guide to creating checklists for developing products from a "user-centered design" framework, Wilson (2013) described checklists as tools for risk reduction; as such, he cautioned, "the bigger the risks, the more time you need to invest in the design and testing of your checklist" (p. 2). Although checklists may appear simplistic, it is not necessarily easy to develop a sound checklist. At minimum, it takes time, research, and expertise.

Development

Checklist development is a process that involves defining the checklist's purpose and ensuring that its content and format support that purpose.

First, it is essential to clarify a checklist's **purpose**—is the main purpose to guide users in executing a task, reaching a classificatory conclusion, or assessing

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[3] www.wmich.edu/evalctr/checklists

the quality of something? Gawande and Boorman (2010) recommended establishing "clear, concise objectives" for a new checklist to guide its development. All subsequent decisions made during the checklist development should be driven by the checklist's main purpose. The checklist typology I shared in this chapter is a good place to start: Is there a need for a tool to minimize error and oversights with important tasks and processes? That calls for a procedural checklist. Is there a need to delineate and define dimensions of quality for a program or service delivery? That calls for a criteria of merit checklist. It is important to keep these purposes distinct. It is entirely possible that product or program quality (which can be assessed using a criteria of merit checklist) is independent of the processes followed for creating it (which may be guided by a procedural checklist). Requiring that desired outcomes be achieved via certain processes can stifle innovation, creativity, and problem solving. Therefore, it is important to be clear about checklist's purpose and to design the checklist around its intended use.

Checklist **content** should be informed by multiple sources, such as peer-reviewed research literature, established policies, subject matter experts, and personal experience (Hales et al., 2008; Stufflebeam, 2000). Checklist developers should avoid the temptation to omit "obvious" steps or considerations from the checklists. Ely et al. (2011) noted that some of the content of their diagnostic checklists for use by physicians "will seem familiar and possibly insultingly obvious" (p. 308). But often it is the things that seem obvious and commonsensical that get overlooked in routine practice, leading to errors in task execution or judgment. In order for a checklist to fully serve its mnemonic function, it must include all salient considerations or steps, not just those that tend to get overlooked in practice.

Attention to checklist **format** is especially important to facilitate use and understanding by the intended audience. As with any good product, a checklist's form should follow its function. Whether conscience or not, a decision to create a checklist is driven at least in part by an understanding that the current means of conveying the checklist's content are inadequate. Checklists usually do not present new or novel information—they are grounded in experience, expertise, policy, best practices, and research. As such, the information embodied in checklist is often available in other formats, such as textbooks, journal articles, or policy documents. It is placed in a checklist format to make it more readily accessible. Authors who have provided guidance for developing checklists typically recommend grouping similar items together and presenting them in a functional, hierarchical, and/or chronological order (Bichelmeyer, 2003; Degani & Wiener, 1993; Stufflebeam, 2000). There are additional formatting decisions to make. Bichelmeyer (2003) provided detailed guidance for checklist presentation and format, calling attention to important, but easily overlooked factors that can impinge on usability, such as consistency of language, use of typeface, and white space (these issues are also noted in Gawande and Boorman's Checklist for Checklists, 2010). Checklist authors should critically review their product to ensure that the checklist content is relevant for the intended use of the checklist; comprehensive, but without extraneous detail; and aligned with the knowledge level of the intended users. Readability is essential and may be impacted both by quality of writing and the visual presentation of checklist elements.

In addition to these general considerations regarding content and format, criteria of merit checklists in particular should also have the following characteristics (Scriven, 2007):

- Checkpoints should refer to quality criteria, i.e., the characteristics that define excellence for the object or phenomena of interest.
- Checklists should be nonoverlapping (especially important if the checklist has a scoring element).
- Checkpoints should be commensurable, meaning they are of equal importance, unless the checklist points have differential weighting.
- Checkpoints should be confirmable—that is the observable, measurable, or "reliably inferrable."

Once checklist content is determined by the developers, it should be validated through review, piloting, and research on its effectiveness in the field.

Validation

Even when a checklist is closely informed by experience and evidence, it is crucial that someone other than the checklist developers have an opportunity to review and try out the checklist. It is necessary, but not sufficient, to confirm the checklist's quality with subject matter experts. Feedback from intended and actual users is essential. "Good checklists are the tool, not the goal, in the scheme of improving outcomes" (Robbins, 2011, p. 143). Does the checklist serve its intended purposes? Are there any unintended consequences—positive or negative—from using the checklist? Even more fundamentally, is it being used? Whether anecdotally (at minimum) or systematically (ideal), it's crucial to gather and share evidence about a checklist's effectiveness. This information can then be used to improve the checklists on an ongoing basis. Establishing an evidence base for the checklist is important for ensuring that the checklist is truly beneficial and worth disseminating and promoting. It also helps increase acceptance and buy-in among intended users. The culture of a particular organization or profession may impact the degree to which intended users require evidence of effectiveness before they adopt a checklist. In aviation, checklist use is embedded in training and professional practice. Physicians, in contrast, are not accustomed to using checklists in their practice and in the past viewed them as an insult to their experience and expertise (Gawande, 2009; Hales & Pronovost, 2006; Hales et al., 2008). Hales and Pronovost (2006) observed that in healthcare, "There is often an assumption that the use of memory aids is an admission of weakness of lack of medical skill or knowledge, which can contribute to negative attitudes toward the implementation of these types of resources" (p. 233.).

The Surgical Safety Checklist, which is held up as a model checklist for quality improvement, is well researched. Several studies have investigated its effectiveness, many of which are available in the Evidence section of the SafeSugery2015 website (www.safesurgery2015.org). In one of the earliest studies, a paper published in the *New England Journal of Medicine* (de Vries et al., 2010), researchers reported that use of the checklist in six hospitals led to substantial reductions in postoperative complications and in-hospital deaths following surgery. Subsequent studies corroborated these findings. The mounting evidence of the checklist's effectiveness spurred members of Congress to call for expanded use of checklists in healthcare. In an August 2010 press release, seven members of the US House of Representatives stated, "Checklists alone will not solve all health care quality issues, but these innovations show great promise in improving health care quality and patient safety" (Holt, 2010). In their review of the history, development, and use of checklists in medical practice, McConnell, Fargen, and Mocco (2012) observed, "In a few short years, the checklist has evolved from being perceived as an assault on the practitioners' integrity to being welcomed as an important tool in reducing complications and preventing medical errors" (n.p.). This revolution must, in small part, be due to the strength of the evidence that checklists work.

In contrast, the other checklists I've described in this chapter are not supported by a strong evidence base. Although it is clear that they are informed by experience, policy, and research, it is not apparent that the checklists themselves have been subject to rigorous validation and research.

Dissemination

In order for a checklist to serve its intended purposes, it must get into the hands of those intended to use it. This may be a relatively straightforward task if the checklist is designed for use within a single organization: distribute and discuss at staff meetings, have supervisors review it with staff, and highlight via intraoffice communication channels. If broader adoption is sought, a wider net must be cast. Potential venues include traditional academic and professional outlets such as journals, conferences, and training events, as well as nonacademic venues, such as newsletters, social media, and blogs. It should be easy to find on the Web. If users need training in order to use the checklist properly, training activities can be developed for release along with the checklist. Webinars, videos, and virtual workshops are cost-effective means for educating large numbers of people in disparate locations—the SafeSurgery2015 includes numerous types of supporting materials in various media to support understanding and proper use of surgery checklists. If a checklist is so complicated that it requires intensive, in-person training for professionals to implement properly, that may be a signal that it is overly complex and not adequately tailored to the audience. The Surgical Safety Checklist is supported by a 28-page guidance document (World Alliance for Patient Safety, 2008b) that users can read on their own.

Checklists should be accessible by the full spectrum of intended users. Translation into other languages may be desirable, depending on the context for the checklist's use. For example, the Surgical Safety Checklist is available in Arabic, Chinese, English, French, Russian, and Spanish. Checklists intended for use by public health evaluators in global contexts are available in English, French, and Spanish (MacDonald, 2014a, 2014b). At minimum, checklists intended for consumers/clients of social and medical services should be translated into Spanish or other languages appropriate for the service delivery context. To ensure accessibility by persons with disabilities, checklist developers should consult the US Government's Section 508 standards—easy-to-follow tools, guidance, and checklists are available online for documents, presentations, spreadsheets, PDFs, websites, and mobile applications (U.S. General Services Administration, 2014).

Conclusion

Checklists aid memory, reduce error, and support consistent practice and judgment within and across users. Although the term *checklist* may evoke a general idea of something quite simple like a grocery list, checklists can serve as a valuable tool in professional practice. It's been clearly established that in high-risk fields, the routine use of checklists can dramatically reduce in the incidence of injury and death. The field of aviation has embraced the use of checklist to ensure safety, and there is growing appreciation of checklists in surgical practice. What role could checklists play in providing behavioral health services, implementing prevention programs, and operating organizations? What common pitfalls, oversights, and mistakes could be avoided by providing integrating checklist use into professional practice? Can quality improvement and assurance efforts be augmented by developing and using criteria of merit checklists for behavioral health services, projects, and agencies? Simple, yet well-designed checklists offer a promising solution for improving practice and service delivery in an increasingly complex environment.

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Chapter 11
Project Planning Facilitates Effective Outcomes

Grace L. Duffy

Introduction

As behavioral health leaders, it is our responsibility to define core processes, clarify required outcomes and identify the measures that guide daily performance. Earlier chapters in this text give useful guidance on how to implement flowcharts, use the fishbone diagram for root cause analysis, and establish measures to keep improvement efforts on track. This chapter wraps up the tools section by offering an approach for planning and managing improvement projects within the behavioral health environment.

Behavioral science requires a different mindset than traditional manufacturing, where the foundation of quality improvement began. Chapter 6 describes the basics of The Toyota Way, sharing the concepts of lean and eliminating waste in the workplace. The reader may have noticed during that chapter that many of the tools of lean are labeled from manufacturing and traditional production processes. There is a difference between performance of things and performance of human beings. True, there are many common attributes, such as process definition, continuous improvement, and innovation. Behavioral health, however, must recognize a significantly broader variation in performance. Where a Toyota vehicle production line exhibits significant complexity in parts and assembly actions, the human mind presents an unbounded variety of perspectives and responses around which the behavioral scientist must provide service.

Behavioral health assesses performance of human beings as well as performance of the equipment and administrative tasks that make up our daily work. We create processes to work with each other inside the organization. We create other processes to support the client and their family. Managing these processes takes planning. Specific projects related to our work with clients or in administration must be planned and implemented.

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Effective project planning integrates required activities into the busy schedule of everyday work. Project planning is complementary to the plan–do–check–act (PDCA) model of continuous quality improvement often used by providers and behavioral health administrators. This chapter introduces a process for project planning that uses the PDCA approach for getting things done in a rapid-paced workplace.

The contemporary poet, Kathleen Norris shares a perspective that is totally consistent with the challenges we encounter as we plan and execute our daily work:

> Before you begin a thing, remind yourself that difficulties and delays quite impossible to foresee are ahead. If you could see them clearly, naturally you could do a great deal to get rid of them but you can't. You can only see one thing clearly and that is your goal. Form a mental vision of that and cling to it through thick and thin.
> —Kathleen Norris[1]

What Is Project Planning?

Project planning is part of project management, which relates to the use of schedules such as Gantt charts to plan and subsequently report progress within the project environment.[2]

Project planning is based on defining expected performance, setting goals to attain client outcomes, planning and executing processes which effectively and efficiently achieve those desired outcomes in a predictable, sustainable fashion. The intent of improvement models such as Continuous Quality Improvement and PDCA is to anticipate difficulties and delays caused by variation in a planned process or the influence of external events. In a separate work by the chapter author, the concept of Modular Kaizen refers to these difficulties and delays as "disruptions" (Duffy, 2014) The basis of improvement is effective project planning.

Quality improvement, tracking outcomes and adjusting protocol has been overwhelmingly successful in the private sector. But why have these principles not been applied more often in the behavioral sciences? The care of human beings is arguably the most important industry in which to reduce error and increase performance.

Planning and Improvement Imply a Basic Sequence

Project planning is the beginning of successful execution. The general desire in performing activities to support patients, internal team mates and other stakeholders is that once we define an activity, it can be performed over and over again seamlessly. Not unexpectedly, our working environment rarely stays the same. Change happens every day. Regulations change, client demographics change, new treatment techniques are identified, and new technologies provide more effective administrative

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[1] http://www.goodreads.com/author/quotes/60394.Kathleen_Norris, accessed 4/15/13

[2] http://en.wikipedia.org/wiki/Project_planning

processes. Sometimes we just find a better way of doing things. Anticipating change and affecting process improvement has become a way of life. Project planning must take these inevitable changes into account.

A number of process improvement approaches are described in current literature. Almost all of them follow some version of the seven step process shown below:

1. Define the current process
2. Describe the ideal or future state
3. Identify the gap
4. Develop actions to get from current to future state
5. Identify and secure required resources
6. Establish measures to ensure success
7. Set up a feedback loop for continuous monitoring, correction, and improvement (Westcott & Duffy, 2014, p. 83)

Effective project planning encompasses the same sequence. Basically; where we are now, where we need to go, and how we get there with the maximum outcome for the lowest use of resources. The best project planning puts a lot of effort into up front consideration of opportunities and constraints. Anticipating what can go wrong is a lot less time consuming than cleaning up the mess once the inevitable stumble happens.

Project planning, as a component of continuous quality improvement, builds on the proven success of earlier models identified by Dr. Joseph Juran (Juran & Godfrey, 1999, pp. 4.2–4.5), Dr. W. Edwards Deming (1986, p. 88), and the more recent practitioners of Lean and Six Sigma (Bialek, Duffy, & Moran, 2011). Plan–do–check–act (PDCA) is a basic problem solving model which begins with a clear understanding of the problem.

The basic problem solving model illustrated in Fig. 11.1 is consistent with the activities described in the plan–do–check–act cycle.

Plan–Do–Check–Act Cycle

Dr. W. Edwards Deming was a strong proponent of the plan–do–check–act (PDCA) cycle. The PDCA improvement model is a detailed sequence of steps more aligned with the standards or requirements approach most often associated with medical and behavioral health sciences. Specific occurrences are identified and detailed targets set for improvement tasks. Dr. Deming gives credit to his mentor, Walter Shewhart, for the development of the PDCA cycle. PDCA is a four-step model for carrying out change (see Fig. 11.2). Just as a circle has no end, the PDCA (also known as the plan–do–study–act) cycle should be repeated again and again for continuous improvement. PDCA involves the following:

PLAN

- Select project
- Define problem and aim
- Clarify/understand

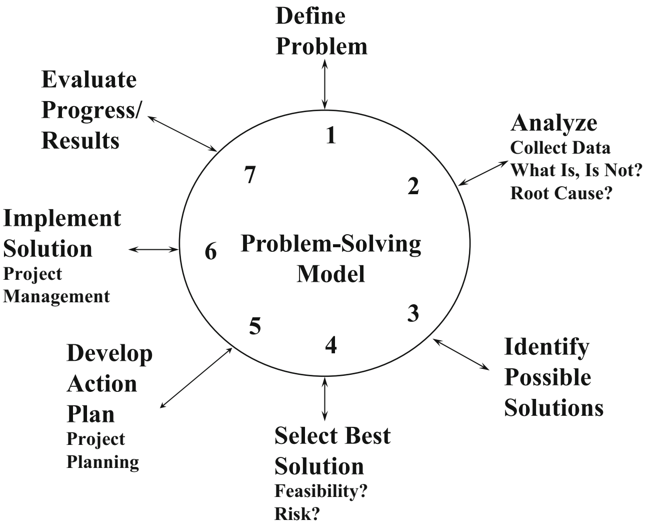
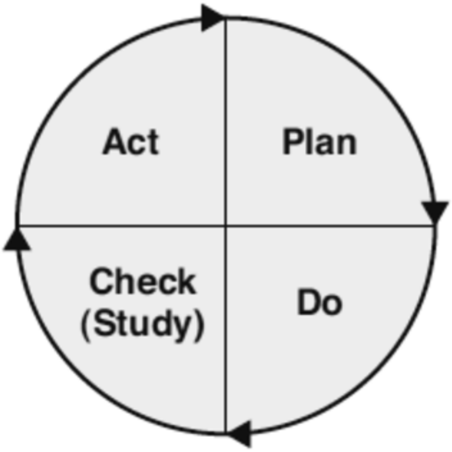


Fig. 11.1 Basic problem solving model

Fig. 11.2 The PDCA cycle



- Set targets/schedules
- Inform and register the project
- Come up with the most suitable recommendation

DO

- Record/observe/collect data
- Examine/prioritize/analyze
- Justify/evaluate cost

- Investigate/determine most likely solutions
- Test and verify/determine cost and benefits
- Test most likely causes

CHECK (STUDY)

- Observe the effects of the change or test
- Consolidate ideas
- Select next project
- Seek approval from management

ACT

- Plan installation/implementation plan
- Install/implement approved project/training
- Maintain/standardize (Duffy, 2013, pp. 19–21)

High-priority projects are planned at the senior leadership level to establish realistic milestones, resources, and measures to ensure a return on investment that includes not only financial commitment but also the involvement of highly skilled facilitators and subject matter experts.

The Organization Must Be Viewed as a System

Processes rarely exist in a vacuum. There are usually inputs and outputs that are dependent upon other processes. Figure 11.3 is a representation of the organization as a system created by Geary Rummler and colleagues, illustrating the interdependence of processes, resources, customers, competition, and the external business environment.

Project planning is effective only to the extent that improvements are based on the overall performance of the organization as a system. Planning daily activities, targeted projects or improving processes in a vacuum, without understanding their dependence upon incoming and outgoing value from other processes is simply a waste of effort. Trying to make a non-value adding process better is an exercise in futility.

Good project planning requires viewing the organization as a system. Effective planning focuses on value-added expenditure of resources from the clients' viewpoint. This viewpoint may be of either the internal or external partner. Another way of putting it would be to give the patient, client or partner:

- What they want
- When they want it
- Where they want it
- In the quantities and varieties they want.

A planned, systematic approach to continuous improvement leads to better performance, better cash flow, increased client satisfaction, greater productivity and throughput, and improved morale. Using a systems approach to minimize disruptions

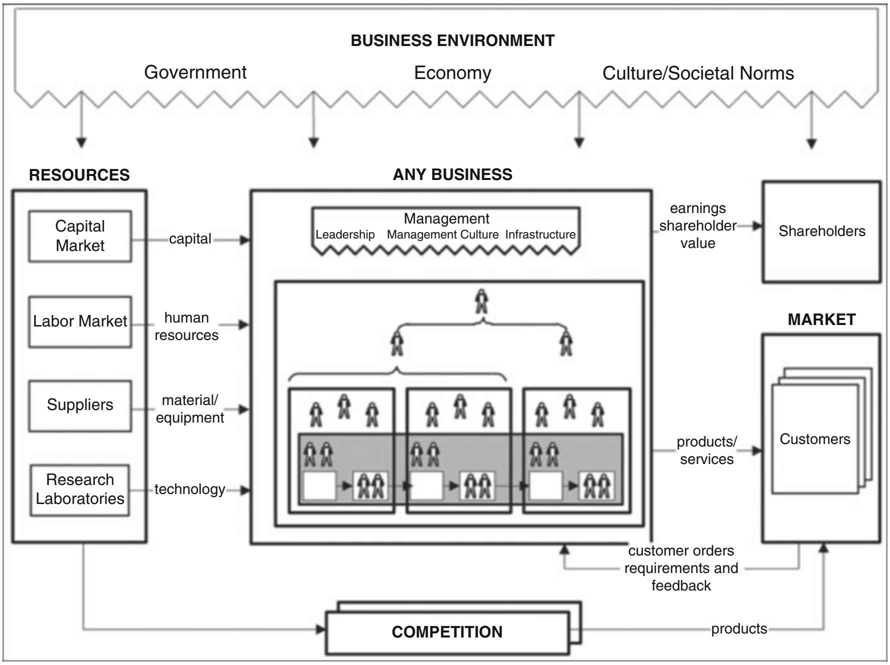


Fig. 11.3 The organization as a systems lens (Rummler, Ramias, & Rummler, 2009)

is an effective, integrated method that recognizes the interdependency of all core processes and the impact of changes both internal and external to the organization.

Improvement concepts are applicable beyond the treatment suite. Practitioners and behavioral administrators have realized great benefit by implementing quality and improvement techniques in office functions, as well as in purely clinical processes. The elements of a system approach for organizational success provide the following benefits:

- More effective service to the client and their family
- More sustainable, cost-effective system
- Greater collaboration across the system to improve services, quality and outcomes
- Leveraged technology for greater utility for all participants and reduced disparities in access

A 2008 IBM study on Making Change Work identifies four approaches to tie the actions of the organization together into an effective system:

1. Real Insights, Real Actions
   Strive for a full, realistic awareness and understanding of the upcoming challenges and complexities, and then follow with actions to address them.
2. Solid Methods, Solid Benefits
   Use a systematic approach to change that is focused on outcomes and closely aligned with formal project management methodology.

3. Better Skills, Better Change
   Leverage resources appropriately to demonstrate top management sponsorship, assign dedicated change managers and empower employees to enact change.
4. Right Investment, Right Impact
   Allocate the right amount for change management by understanding which types of investments can offer the best returns, in terms of greater project success (IBM Global Services, 2008, p. 5).

IBM is well known for its support to health and behavioral support institutions, not only through software applications, but for solutions to communication and interdependent operations.

The key to successful continuous improvement is line of sight connection between what is transpiring at the client front lines and the strategic direction of the organization. Process improvement is only busy work unless it is grounded in the drive to meet client or patient requirements. Change management, as represented by the four approaches identified above, is the vehicle for connecting all action to the right outcomes.

First, senior leadership must know where it is going. Understanding the current situation and how to conquer the challenges of getting to the desired state is what the quality community calls a gap analysis. Where are we now and where do we need to go?

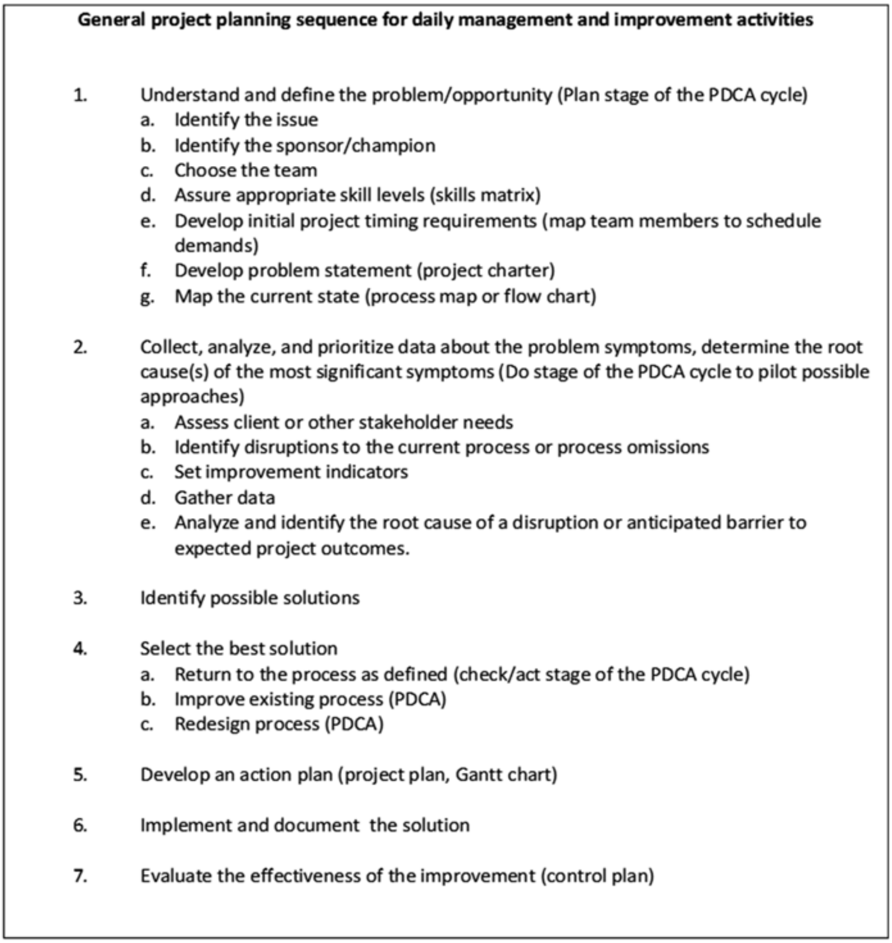
The next step suggested in the IBM Making Change Work Study is employing solid methods tied to solid benefits for the organization. The system concept incorporates project management and the value-added approach to continuous improvement that is required to design and sustain line of sight focus on both effective and efficient operations.

Early assessment of resource and skill availability to meet client requirements is a critical step within the project planning sequence. As listed in item 3 of the IBM Study, ensuring better skills to enact better change combines the process based concept of task execution with the human contribution of knowledge, skills, and abilities.

Finally, step 4 in the Making Change Work construct is striking an appropriate balance of investment in an interrelated set of activities that draws the whole organization closer to meeting the wants and needs of the client. Changes in one area of the organization can impact a wide range of outputs across the organization and beyond. Like a spider web, when one supporting strand is plucked, the waves of response radiate to all segments of the web.

Effective project planning is an interactive, problem-solving process that utilizes in-house subject matter experts to minimize disruption to regularly scheduled organizational activities. The project planning sequence model described in Fig. 11.4 places heavy focus on the planning phase; taking into account the availability of team members and subject matter experts. Another key characteristic of the approach is the existence of a project driver who serves as an ongoing communication hub for continuity of improvement efforts when team members are called away for crisis management or other critical activities. The project planning flow is shown in Fig. 11.4.

The seven step process illustrated in Fig. 11.4 should look familiar to most quality professionals involved in improvement efforts. The basics of the PDCA cycle are described in this chapter. Refer to other chapters in this text for specific project and problem solving tools.



General project planning sequence for daily management and improvement activities

1. Understand and define the problem/opportunity (Plan stage of the PDCA cycle)
    a. Identify the issue
    b. Identify the sponsor/champion
    c. Choose the team
    d. Assure appropriate skill levels (skills matrix)
    e. Develop initial project timing requirements (map team members to schedule demands)
    f. Develop problem statement (project charter)
    g. Map the current state (process map or flow chart)

2. Collect, analyze, and prioritize data about the problem symptoms, determine the root cause(s) of the most significant symptoms (Do stage of the PDCA cycle to pilot possible approaches)
    a. Assess client or other stakeholder needs
    b. Identify disruptions to the current process or process omissions
    c. Set improvement indicators
    d. Gather data
    e. Analyze and identify the root cause of a disruption or anticipated barrier to expected project outcomes.

3. Identify possible solutions

4. Select the best solution
    a. Return to the process as defined (check/act stage of the PDCA cycle)
    b. Improve existing process (PDCA)
    c. Redesign process (PDCA)

5. Develop an action plan (project plan, Gantt chart)

6. Implement and document the solution

7. Evaluate the effectiveness of the improvement (control plan)

Fig. 11.4 Project planning daily management and improvement flow

Addressing Disagreements Among Participants

Inherent in any complex or cross functional project is the issue of consensus. Health care professionals are especially self-reliant and often disagree on the best solution for a particular issue or problem. Often, simple team facilitation tools such as brainstorming, multi-voting or weighted decision making will suffice to help a group of professionals choose the best alternative from a number of options. When this approach does not work, more focused techniques may be required.

One useful tool for gaining consensus is the Force Field Analysis. *Force-field analysis* (FFA) is a tool that uses a creative process for encouraging agreement about all facets of a desired change. It is used for clarifying and strengthening the "driving forces" for change (for example, what things are "driving" us toward attending meetings on time?). It can also be used to identify obstacles, or "restraining forces," to change (for example, what is "restraining" us from arriving on time?). Finally, it can be used for encouraging agreement on the relative priority of factors on each side of the balance sheet (Westcott & Duffy, 2014). Figure 11.5 is an illustration of a Force Field Analysis addressing the issues surrounding meetings starting late.

The facilitator engages the impacted parties in a frank and open discussion of the benefits and barriers to resolving the issue at hand. By writing all parties positions clearly on a flip chart, each participant sees that their idea is respected. Because all ideas are displayed, there is less temptation to continue to champion a particular solution or situation over another that is equally valued by the group as a whole. Each participant is encouraged to find alternative solutions that meet the overall goals of the organization addressing the issue.

Project planning is more an integrated, organizational concept than a new set of tools and techniques. A major difference in the approach of effective project planning is seen in step 1 of Fig. 11.4. Because of the need to plan rigorously for the rapid pace of team member schedules, the team sponsor and quality management function are called upon to identify team members and subject matter experts early in the chartering function. Specific skill identification is important to further focus on the most appropriate team members. Once the members are identified, their schedules must be accommodated or adjusted to establish a viable project timeline. Where skills need to be enhanced, planning takes place to schedule additional training or application experience.

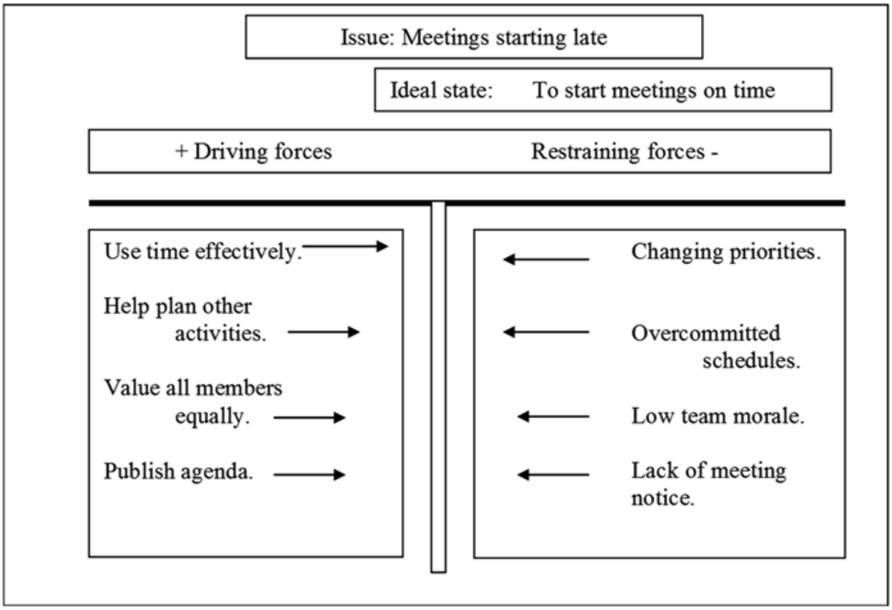


Fig. 11.5 Force field analysis diagram

Remove Disruptions to Improve Flow

An effective project planning approach anticipates and minimizes disruptions by immediately identifying any deviation from the defined process. When any action is taken, it is taken using full knowledge of the impacted process flow. Once the disruption is identified, a team is chartered to develop a plan using the complete PDCA improvement cycle.

A useful tool for planning the flow of a project is the Gantt chart. A Gantt chart is a matrix-type horizontal bar chart used in process/project planning and control to display planned work and finished work in relation to time. It is called a *milestone chart* when interim checkpoints are added (Westcott & Duffy, 2014).

Figure 11.6 is a simple example of a Gantt chart showing a sequence of project activities mapped to dates when the activity is scheduled to be completed. This tool is used in multiple ways to facilitate project planning and implementation.

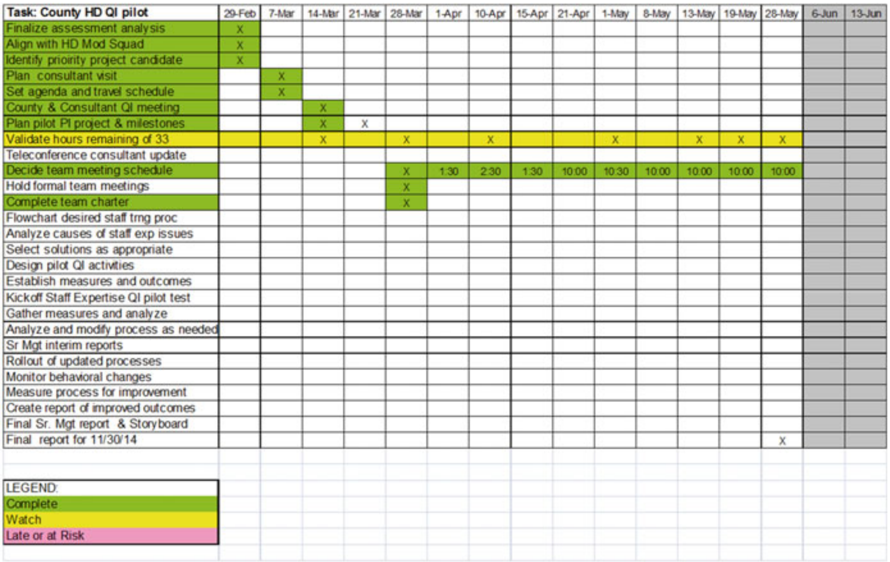
During initial project planning, the project is defined and required steps listed to complete the specified outcomes. These steps are listed on a simple table or Excel spreadsheet so all members of the project planning team can see the sequence and flow of what needs to happen to complete the project.

Once the project planning team is in agreement on the steps and their sequence, an estimate is made on how long each step should take. The planners take into consideration whether some steps can be done in parallel, whether one step must be completed before another can begin, or other interdependencies related to the overall desired outcome of the project. The Gantt chart is an excellent visual representation of the full project. It becomes a living document that guides the planning and execution of the project through its individual steps.

The Gantt chart can be used as a driver for project planning to make sure that all issues are addressed related to the steps listed in the left hand column of the chart. Once all steps are understood and contingencies anticipated, the chart is then used as a meeting tool to track that tasks are completed on time according to the dates along the top of the chart. A legend can be set to color code the chart for tasks completed on time, under special watch for some reason, or late/at risk.

Like many quality tools, the Gantt chart does not provide solutions on its own. The chart graphically presents information that generates questions and dialog for problem solving and decision making. If a task is behind schedule or there is an issue related to the content of the task, the project team can employ the PDCA cycle or other problem solving approach to address the root cause of the disruption. Many community and behavioral health units are adopting a form of PDCA called rapid cycle (Duffy, Moran, & Riley, 2009, p. 2).

The iterative nature of rapid cycle improvement is critical to sustaining and improving an integrated set of core processes which comprise the organization as a whole. A key component of continuous improvement is that processes are defined and followed for sustainability of operating outcomes. Figure 11.7 illustrates the basic rapid cycle improvement model.



Task: County HD QI pilot	29-Feb	7-Mar	14-Mar	21-Mar	28-Mar	1-Apr	10-Apr	15-Apr	21-Apr	1-May	8-May	13-May	19-May	28-May	6-Jun	13-Jun
Finalize assessment analysis	X															
Align with HD Mod Squad	X															
Identify prioirity project candidate	X															
Plan consultant visit		X														
Set agenda and travel schedule		X														
County & Consultant QI meeting			X													
Plan pilot PI project & milestones			X	X												
Validate hours remaining of 33			X		X		X			X		X	X	X		
Teleconference consultant update																
Decide team meeting schedule					X	1:30	2:30	1:30	10:00	10:30	10:00	10:00	10:00	10:00		
Hold formal team meetings					X											
Complete team charter					X											
Flowchart desired staff trng proc																
Analyze causes of staff exp issues																
Select solutions as appropriate																
Design pilot QI activities																
Establish measures and outcomes																
Kickoff Staff Expertise QI pilot test																
Gather measures and analyze																
Analyze and modify process as needed																
Sr Mgt interim reports																
Rollout of updated processes																
Monitor behavioral changes																
Measure process for improvement																
Create report of improved outcomes																
Final Sr. Mgt report & Storyboard																
Final report for 11/30/14														X		

LEGEND:
🟩 Complete
🟨 Watch
🟥 Late or at Risk

Fig. 11.6 Simple Gantt chart created in Microsoft Excel (Derived from Fig. 15.7, Bialek, Duffy, & Moran, 2009, p. 198.)

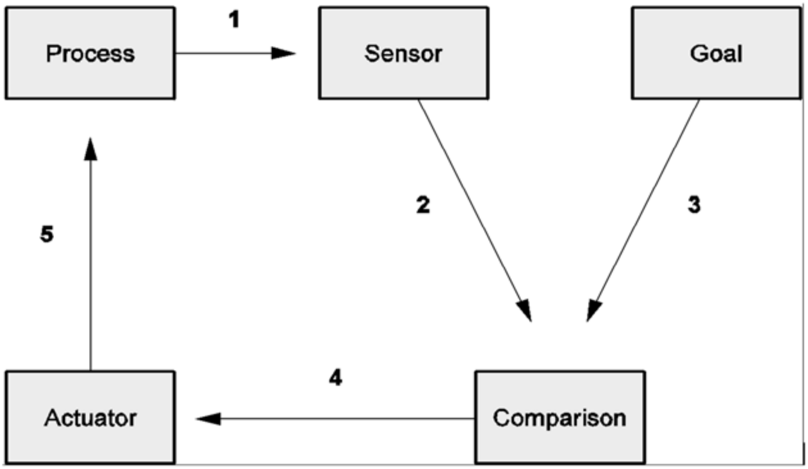


Fig. 11.7 Basic rapid cycle improvement model (Beecroft, Duffy, & Moran, 2003, p. 20.)

During operation, as the practitioner or administrator (the sensor) observes the results of process tasks, a constant comparison is going on in their mind between the intended outcome (the goal) and the process as defined. Questions to be asked are:

- How is the process supposed to work?
- What deviation is observed?
- Can the process be returned to expected flow without further action?

As long as the comparison indicates that the process is being followed within acceptable parameters, work continues. If the flow of the process is disrupted or begins to veer away from expected performance, the worker or automated measurement system is prompted to take action (the actuator). Depending on the amount of deviation from expected performance, action is taken to:

- Return to defined process flow,
- Adjust flow by modifying the existing process,
- Adapt the process to account for changing conditions external to the process, or
- Abandon the existing process by redesigning to meet new requirements.

Advanced project planning discourages an emotional response to process disruption. Once the process is stabilized, a full PDCA cycle is undertaken to develop a plan and action steps to proactively minimize the recurrence of the disruption. A final step of any significant activity is to document successes and lessons learned. Sharing the benefit of this planned improvement approach to crisis strengthens the total organizations' leadership system.

Resource Balancing in a Constrained Environment

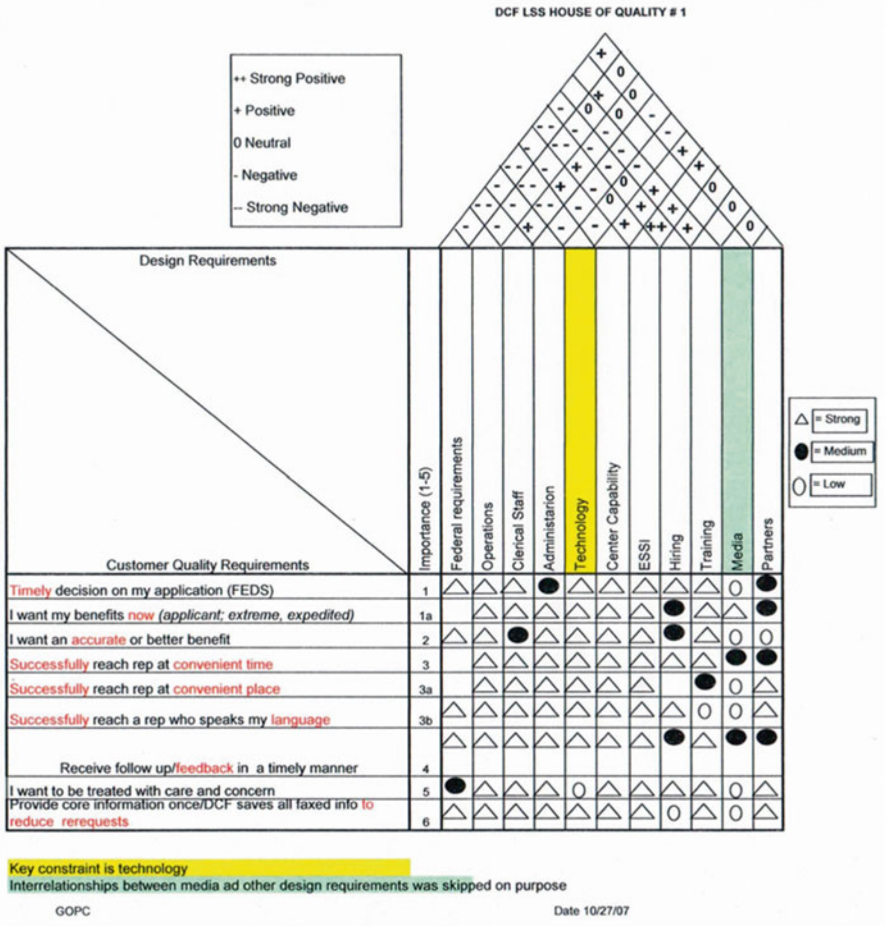
The Gantt chart is an excellent tool for identifying the sequence of activities and tying those activities to resources, including time. This visual representation allows all participants in the project to quickly see interdependencies among departments and activities.

Another tool that is helpful in identifying resource requirements is Quality Function Deployment (QFD). QFD is a system for translating customer requirements into appropriate features at each stage of the development of a concept, to the definition of the function to produce it, to designing the delivery process, and finally to defining the marketing campaign to inform the potential customer of its availability and readiness for use (Duffy, Moran, & Riley, 2006, p. 19).

Figure 11.8 is an example of a QFD exercise undertaken as part of a Lean Six Sigma project to reduce the turnaround time for providing electronic benefit transfer cards to women with dependent children by a Department of Children and Families within the USA. The left column (*Y*-axis) lists the priority requirements from the customer's (Mother's) perspective. The upper row (*X*-axis) lists the functions within the state government department that performed activities to meet the customer (Mother's) requirements. The legend to the right of the figure indicates the strength of the ability of a department function to meet a particular customer need.

The QFD exercise provides an efficient way to engage all stakeholders in the effort to meet project and customer needs. A facilitator takes the involved parties through an open discussion of how and where each customer requirement is met within the responsible organization. The matrix in the middle of the figure illustrates where there may be missed requirements or where duplication of effort may be wasting resources.

In addition to the mapping of internal functions to meeting customer requirements, is the ability to assess the capacity of resources within the organization. The “roof” of the QFD figure provides a venue for gauging the impact of resource use across the organization. The legend to the upper left of the figure indicates levels of support or conflict that use of resources by one function creates in relation to another in the QFD matrix. For example, in Fig. 11.8, there are two functions along the *X*-axis both involved with the project under analysis. One, the Federal requirements desk must assure that compliance to all federal requirements is maintained while issuing the electronic benefit transfer cards to the mother with dependent children. At the same time, the clerical staff, two cells over on the *X*-axis, is also strongly involved in the process. The “roof” of the QFD chart shows an intersection between Federal requirements and Clerical staff with a double – (- -) indicated. This indication means



Design Requirements / Customer Quality Requirements	Importance (1-5)	Federal requirements	Operations	Clerical Staff	Administarion	Technology	Center Capability	ESSI	Hiring	Training	Media	Partners
Timely decision on my application (FEDS)	1	△	△	△	●	△	△	△	△	△	O	●
I want my benefits now *(applicant; extreme, expedited)*	1a		△	△	△	△	△	△	●	△	△	●
I want an accurate or better benefit	2	△	△	●	△	△	△	△	●	△	O	O
Successfully reach rep at convenient time	3		△	△	△	△	△	△	△	△	●	●
Successfully reach rep at convenient place	3a		△	△	△	△	△	△		●	O	△
Successfully reach a rep who speaks my language	3b	△	△	△	△	△	△	△	△	O	O	△
Receive follow up/feedback in a timely manner	4	△	△	△	△	△	△	△	●	△	●	●
I want to be treated with care and concern	5	●	△	△	△	O	△	△	△	△	O	△
Provide core information once/DCF saves all faxed info to reduce rerequests	6	△	△	△	△	△	△	△	O	△	O	△

Key constraint is technology

Interrelationships between media ad other design requirements was skipped on purpose

GOPC

Date 10/27/07

Fig. 11.8 QFD chart for Department of Children and Families that the same resources are used for both functions and that there is a risk of overextending that resource during this project.

Although the QFD chart does not solve a resource constraint in and of itself, the tool is a systematic approach to enable effective dialog for data gathering and decision making. Often the involvement of all affected parties in an exercise such as a QFD matrix will generate enough problem-solving discussion to anticipate and minimize disruptions before severe damage is sustained.[3]

Process and Outcome Measures Related to Project Planning

Measurement frameworks are critical for linking organizational objectives to business unit and clinical or practice operations. They ensure that everyone understands not only how roles align with organizational objectives, but also how each unit and individual contributes to the outcomes. The end result is a scorecard that provides a strategic framework, organizational alignment, and measures that link to critical success factors and can be aggregated to draw meaningful conclusions.

There are many ways to measure and monitor a process. It is best to use the simplest graphical method to monitor a process. A checklist guides the observer or practitioner in performing a series of steps or tasks while providing space for logging critical information about the task being performed. The checklist is a visual representation of the observation of an event. In a related form, the check sheet, the tool is a visual representation of the quantity of observable events or items. The method used will be determined by the availability of data and the degree to which the process is controlled. All of these monitoring methods provide a dynamic visual view of process performance.

One effective method is the use of leading and lagging indicators based on the tasks identified in a flowchart of the process being managed. Leading indicators are measures during the execution of the task that allow an observer to verify that the task is being performed according to requirements established by the client or standard. Leading indicators give us data early in the process so that if performance has begun to slip, we have time to adjust our efforts before the client or other stakeholder is impacted.

Lagging indicators are measures of performance after the task is complete or at the end of the process when the client or stakeholder may have already experienced the outcome. Figure 11.9 is a flowchart of a high level quality improvement cycle for a service function. Note the decision block indicated with the A in a circle. This decision block assesses the effectiveness of a task, which constitutes a leading indicator. If the measure is not met at this point in the process, the performer enters corrective action before the cycle is complete, giving an option of improving performance before the end user experiences a defect. The decision block indicated with a B in a circle assesses whether the overarching goal of the activity was met. At this point, we

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[3] For a more complete treatment of the Quality Function Deployment tool, please refer to the author's text (Duffy et al., 2006).

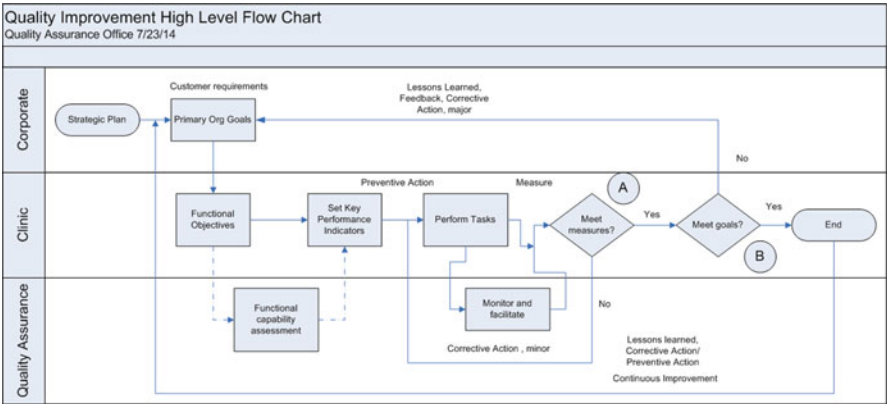

Fig. 11.9 Quality improvement chart showing leading and lagging measures

have a lagging indicator, since the recourse for improvement is outside the timeframe for completing the task. The feedback loop for unmet goals in this flowchart is to return to the corporate function to reassess the strategic goals of the organization.

Lagging indicators are generally more reliable, since the action has already been taken and data truly reflects the outcome of that action. The exposure is that the client may have already experienced a failure in the process and we then must engage in corrective action to resolve the error. A combination of leading and lagging indicators is the usual approach for managing the outcome of a project.

Numeric tables of data or comparison of summary measures do not offer the same graphical impact as visual representations. Data must be collected at key intervals and the resulting measures used to assess quality. Client services and Programs of Care must be reorganized to become more cost-efficient, continuous, evidence based, and safe. All these goals can only be accomplished with a systematic application of continuous improvement principles. Moreover, many patients are dissatisfied with behavioral health care and patient satisfaction must be increased. Again, the systematic application of continuous process improvement is the best way to achieve this important end.

PDCA as a support to project planning uses the concepts of control and standardization to prioritize actions to reduce disruption. Performance management, based upon the organization's strategic plan, sets the foundation for critical measures that reflect required organization and client outcomes. Using standards set for the organization during its annual planning cycle ensures that comparison of activities performed closely matches the unit's mission and objectives. The more aligned teams are to priority outcomes of the organization, the more efficient they will be in choosing the right project activities. Effective project planning keeps the improvement process directly related to priority activities so tasks performed blend easily with the daily work of team members.

Well planned projects and prepared teams can transition quickly from normal work tasks to improvement tasks because the skills and information required for improvement is closely related to what they are doing in their normal work assignments.

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Chapter 12
The Multisystemic Therapy® Quality Assurance/Quality Improvement System

Sonja K. Schoenwald

Quality Assurance, Quality Improvement, and Evidence-Based Treatment

At the turn of this century, with evidence mounting that health care quality improvement initiatives did little to address wide variation in the process and outcomes of care, gross medical errors, and spiraling costs, preeminent health services researchers articulated a framework they hoped would catalyze industry-wide improvement of care (Ferlie & Shortell, 2001). Drs. Ewan Ferlie and Stephen Shortell argued four levels of change would be required to maximize the probability of success of quality improvement efforts: "the individual, group or team, overall organization, and larger system or environment in which individual organizations are embedded" (Ferlie & Shortell, 2001, p. 283). They proposed that organizations that implement continuous quality improvement/total quality management (CQI/TQM) at multiple levels would be most likely to achieve the aims of improved quality and outcomes of health care. CQI had been described as a "philosophy of continual improvement of the processes associated with providing a good or service that meets or exceeds customer expectations" (Shortell, Bennet, & Byck, 1998, p. 594). These processes involve a variety of individuals within an organization who are trained in basic statistical techniques and tools and are empowered to make decisions based on their analysis of data. CQI differs from traditional quality-assurance methods primarily in its emphasis on understanding and improving the underlying work processes and systems rather than primarily on correction of the mistakes individuals make after the fact.

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Author Note
The author is a board member and stockholder of MST Group, LLC (dba MST Services), which has the exclusive licensing agreement through the Medical University of South Carolina for the transfer of MST technology.

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At the time, quality assurance in mental health care consisted chiefly of professional licensure, accreditation, and clinical supervision of unknown substance, all of which prevailed absent evaluation of their effects on the quality, effectiveness, and outcomes of mental health services. And, the use and effects of CQI approaches in mental health services had not been empirically evaluated (Bickman, 1999, 2000).

The subsequent publication by the Institute of Medicine of volumes focused on improving the quality of care in the USA identified six indicators of health care quality: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity (Institute of Medicine Committee on Crossing the Quality Chasm, 2006; Institute of Medicine Committee on Quality of Health Care in America, 2001). Health and mental health services research began to focus on the greater specification and rigorous testing of the effects of CQI programs, and promising findings began to emerge. For example, CQI programs were found to increase the use in primary care of screening of adult depression and subsequent enrollment in depression treatment (see, e.g., Wells et al., 2000). In addition, federal research funding and health care policy began increasingly to focus on the development and evaluation of strategies to effectively disseminate and implement evidence-based mental health and substance abuse treatment (Chambers, Ringeisen, & Hickman, 2005), thereby catalyzing a science of implementation.

Current conceptual frameworks guiding the nascent but rapidly growing field of implementation science capture both quality and effectiveness indicators (McLeod, Southam-Gerow, Tully, Rodriguez, & Smith, 2013; Proctor et al., 2009). Methods often described in psychotherapy research as indicators of "quality assurance" (of an experimental psychotherapy evaluated in a randomized trial) include treatment-specific manuals, training, supervision, and fidelity monitoring (Garland & Schoenwald, 2013) are identified as implementation strategies (Proctor et al., 2009); and, in the case of fidelity monitoring in particular, as a key feature of the sustained implementation of an effective treatment over time (Aarons, Hurlburt, & Horowitz, 2011). The evidence base is growing with respect to the nature and effects of specific components (e.g., training variants, or supervision, or consultation, or practitioner feedback) on the implementation and outcomes of evidence-based treatments. At the same time, there is increased recognition that advancing the larger scale implementation of effective mental health and substance abuse treatment will likely require the development and testing of effective and sustainable multicomponent, multilevel implementation support systems (Glasgow & Chambers, 2011). One system that could be characterized in this way is the focus of the remainder of this chapter.

The Multisystemic Therapy® Quality Assurance/Quality Improvement System

At the time of this writing, there are 15 countries in which adolescents with serious antisocial behavior and their families can receive Multisystemic Therapy® (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). MST is an intensive family-and-community based treatment originally developed for delinquent youth at imminent risk of incarceration or other restrictive out-of-home placement settings. Around the world and in 34 states in the USA, 522 MST teams treat 23,000 youth and families annually. By the time this chapter is published, those numbers will have changed. How is it possible to know that youth and families are actually receiving MST; and, to estimate their numbers? The answers lie in the Quality Assurance/Quality Improvement (QA/QI) system designed to support the community-based implementation with fidelity of MST. The overarching aim of the system is to optimize youth outcomes. The objectives of this chapter are to describe the MST QA/QI system, evidence supporting linkages among elements within it and with youth outcomes, and its continuing evolution and evaluation. Because key features of MST inform the logic and processes used in the QA/QI system, a brief overview of the treatment is first presented.

Overview of Multisystemic Therapy

Service Delivery Model

MST uses a short-term (3–5 months) intensive home-and community based model of service delivery to implement comprehensive treatment that targets specific factors in each system in the youth's social ecology (family, peers, school, neighborhood, and community) and in interactions among these systems. Therapists are available to families 24 h a day, 7 days a week, and are organized into teams consisting of two to four therapists and a clinical supervisor. MST therapists carry a caseload of four to six families at a time, and vary the frequency and duration of treatment contacts to the circumstances, needs, and strengths of each family throughout the treatment episode.

Treatment Principles and Analytic Process

MT is specified in terms of nine principles, enumerated in Table 12.1, and an analytic process. The principles and process guide all aspects of assessment, clinical formulation, and intervention implementation. The foci of assessment and treatment strategies are specific risk factors in the natural ecology consistently demonstrated by research to predict delinquency and related problems in youth. Along with Bronfenbrenner's (1979) social ecological theory of human behavior, this research on the multiple determinants of serious antisocial and related behaviors in youth informs the MST treatment theory. The MST principles embody the present-focused and action-oriented emphases of behavioral and cognitive-behavioral treatment techniques; the contextual emphases of pragmatic family systems therapies; and the importance of client-clinician collaboration and treatment generalization emphasized in consumer advocacy and recovery philosophies. Specific treatment techniques used

Table 12.1 MST principles

1.	The primary purpose of assessment is to understand the fit between the identified problems and their broader systemic context.
2.	Therapeutic contacts emphasize the positive and use systemic strengths as levers for change.
3.	Interventions are designed to promote responsible behavior and decrease irresponsible behavior among family members.
4.	Interventions are present focused and action oriented, targeting specific and well-defined problems.
5.	Interventions target sequences of behavior within and between multiple systems that maintain the identified problems.
6.	Interventions are developmentally appropriate and fit the developmental needs of the youth.
7.	Interventions are designed to require daily or weekly effort by family members.
8.	Intervention effectiveness is evaluated continuously from multiple perspectives with providers assuming accountability for overcoming barriers to successful outcomes.
9.	Interventions are designed to promote treatment generalization and long-term maintenance of therapeutic change by empowering caregivers to address family members' needs across multiple systemic contexts.

in these therapies are strategically integrated, simultaneously or sequentially, in ways hypothesized to maximize their impact with a particular youth and family.

Intervention strategies often focus on improving caregiver discipline and monitoring practices, reducing family conflict, improving affective relations among family members, decreasing youth association with deviant peers, increasing association with prosocial peers, improving school or vocational performance, and developing an indigenous support network of family, friends, and neighbors to support treatment progress and help the family sustain treatment gains. Application in practice of the MST principles, analytic process, and clinical procedures is detailed in published manuals for therapists (Henggeler, Schoenwald, et al., 2009).

The MST Analytic Process, depicted in Fig. 12.1, encourages clinicians to generate specific hypotheses about the combination of factors that sustain a particular problem behavior, provide evidence to support the hypotheses, test the hypotheses by intervening, collect data to assess the impact of the intervention, and use these data to begin the assessment process again. The sources of information from which hypotheses are drawn are: the evidence base on the individual, family, peer, school, and neighborhood factors that contribute to serious antisocial and related clinical problems; direct observations and interactions; and the accounts provided by the youth, family members, and key members of the social context.

Assessment is ongoing of the effects of interventions and of factors presenting barriers to the implementation, or effectiveness, of these interventions (e.g., marital discord, parental depression, and low social support interferes with parental rule setting and youth monitoring). Each of these factors, in turn, may be influenced by a combination of case-specific, clinician-specific, and supervision-specific issues. The analytic process is thus self-reflexive for clinicians and clinical supervisors, who continuously consider how their own behaviors contribute to intervention success and failure. The MST QA/QI system uses this structured, self-reflexive,

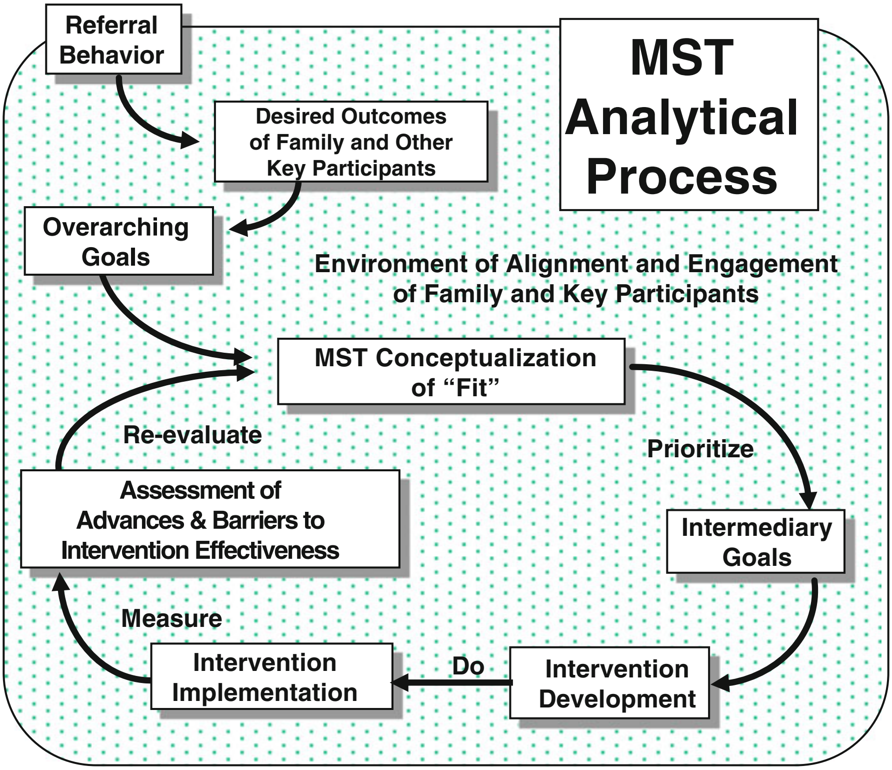

Fig. 12.1 MST Analytic Process (aka "Do-Loop"). Reprinted with the permission of Guilford Press. From Henggeler, Schoenwald, et al. (2009). *Multisystemic Therapy for Antisocial Behavior in Children and Adolescents, Second Edition*. © Guilford Press

hypothesis-testing process to identify factors at all levels of the practice context affecting the implementation and outcomes of MST—service system, organization, clinician, client—and to design strategies to support and improve problematic aspects of implementation.

Evidence of Effectiveness

Considerable evidence supports the effectiveness of MST with juvenile offenders. Descriptions of the methodologies and findings of MST outcome studies appear in Henggeler (2011) and Henggeler and Sheidow (2012), and a list of MST outcome studies is available at http://mstservices.com/outcomestudies.pdf. In addition, modifications of MST for use with other challenging populations have been developed and rigorously evaluated. A table summarizing information about the adaptations and the status of their development and testing is available at (http://mstservices.com/MSTadaptations.pdf), and a recent chapter illustrates aspects of the clinical, administrative, and quality assurance modifications that characterize several adaptations and the rationale for undertaking them (Schoenwald, 2014).

Evidence supporting hypothesized mechanisms of MST action is also noteworthy. Findings from formal tests of mediation support the pivotal role of improving family relations and parenting practices in decreasing youth antisocial behavior (Dekovic, Asscher, Manders, Prins, & van der Laan, 2012; Henggeler, Letourneau, et al., 2009). Moreover, across two samples from randomized trials, high therapist adherence predicted improved family relations and decreased association with deviant peers, which reduced subsequent delinquent behavior (Huey, Henggeler, Brondino, & Pickrel, 2000).

Implementation Support System Development

Historical Context

In 1994, representatives of several service systems and provider organization expressed interest in the adoption of MST. At the time, evidence of a gap between the effectiveness of psychosocial treatment as evaluated in research and as practiced clinically had just been exposed. The "transportability" to practice settings of treatments tested in efficacy trials was largely unknown (Hoagwood, Hibbs, Brent, & Jensen, 1995). The nature of training, supervision, and support provided to clinicians implementing empirically supported treatments was described only briefly in articles reporting the results of efficacy trials of those treatments. Even in the context of efficacy research, however, few studies, measured fidelity (Perepletchikova, Treat, & Kazdin, 2007; Schoenwald & Garland, 2013). In medicine, research showed the most commonly used strategies to support physician implementation of treatment guidelines were not effective (reviews of these studies subsequently appeared in Grimshaw et al., 2001). And, the call had not yet been published for "evidence-based implementation of evidence-based medicine" (Grol & Grimshaw, 1999). In other industries and academic disciplines, however, studies of innovation implementation illuminated the apparent failure of an innovation was often proclaimed absent evidence regarding the extent or quality of its implementation (Klein & Sorra, 1996).

Against this backdrop, the development began of an MST clinical training and support system to transport and implement MST in diverse community settings (Henggeler & Schoenwald, 1999). The effort was informed by procedures used to implement MST in randomized effectiveness trials; then-available theory and research on adopter-based models of the diffusion of innovation (Rogers, 2003) and technology transfer in behavioral health and substance abuse treatment (Backer, David, & Soucy, 1995); and initial experiences attempting the transport of MST. Those experiences illuminated the influence of variables at different levels of the practice context on community-based therapists' implementation of an empirically supported treatment (Schoenwald & Hoagwood, 2001).

MST Quality Assurance/Quality Improvement (MST QA/QI) System

Since 1996, the MST QA/QI system has been deployed through MST Services, LLC, (MSTS) and its Network Partners. MSTS is licensed by the Medical University of South Carolina (MUSC) to transfer MST-related technology to interested communities. MSTS and its Network Partners are the "purveyors" of MST (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005), and the latter serve the majority of MST programs nationally and internationally. Measurement of the implementation of MST is a function of the MST Institute (MSTI; www.mstinstitute.org). MSTI makes available tools to assess therapist adherence, supervisor adherence, expert consultant adherence, and additional indicators of performance; scoring, reporting, and interpretation of results; and, guidance regarding the use of results to inform adherence and outcomes improvement strategies.

Prior to program implementation, MST purveyors engage representatives of communities and service systems who express interest in adopting MST in a collaborative, structured, systematic approach to assess the appropriateness of MST to treat the target populations of interest and, if appropriate, to program development.

Pre-implementation: Assessing and Cultivating the Fit of MST and the Community

The process that ultimately results in the establishment of an MST program in a particular community, or in the informed decision not to establish such a program, begins with a community's initial expression of interest in MST. The process from initial inquiry to installation typically unfolds in seven stages of variable duration. *Initial information collection* begins when someone representing an agency that funds services for youth (e.g., juvenile justice, mental health, a behavioral health care system) contacts an MST purveyor to express interest in starting an MST program. Discussing a few key questions (e.g., intended type and size of target population) typically helps the interested party either eliminate MST from further consideration or take the next step, which is assessing the feasibility of an MST program in a particular locale.

The *MST needs assessment* is designed to help communities determine whether the needs that prompted stakeholder interest in starting an MST program are likely to be met by MST, and, whether an MST program is viable in a specific practice context. This process includes identification of a clearly defined target population in the community to be served by MST, identification of funding sources and a financial plan that can sustain the MST program, and cultivation of commitments from stakeholders to implement the program with fidelity.

Next, community representatives and the MST purveyor together make what is known as a "*Go or No Go*" decision that signals a commitment to conjointly take the next steps in the program development process to verify viability, but not necessarily to start an MST program. These steps include "*MST critical issues sessions*," in which the purveyor and organizations planning to fund and implement MST specify how critical program components will be developed. Nearly a dozen issues (e.g., inclusion/exclusion criteria, discharge criteria, outcomes measurement) are discussed, and an individualized "MST Goals and Guidelines" document is developed that specifies how these issues will be addressed in a particular MST program serving a particular community. Next, a "*Site Readiness Review Meeting*" is scheduled to include the individuals who will be responsible for the day-to-day operations of the referral, funding, and service provider organizations that can affect how and when youth and families can receive MST (e.g., middle management or front line staff from probation, public defenders, the court). "*Follow-up*" conference calls and face-to-face meetings are scheduled as needed to align potentially conflicting organizational and service system procedures illuminated in the Site Readiness Review meeting to support MST implementation. *Staff recruitment and orientation training* can begin before that meeting and continues until all members of the new team are hired. Consultation from the MST purveyor is available regarding advertising, recruitment, and hiring of MST clinicians, given the work force and job market in the particular locale.

Implementation QA/QI

Three broad strategies are designed to increase the likelihood each youth and family referred to MST actually receives the treatment. These are: (1) clinician training and ongoing support; (2) organizational support; and (3) implementation measurement and reporting. Each strategy has multiple elements. These elements are integrated into a feedback loop that includes data about MST implementation at the level of the family, therapist, supervisor, expert consultant, and organization operating the MST program. The MST QA/QI system is illustrated in Fig. 12.2.

Training and Ongoing Clinical Support of Clinicians

MST therapists work every day with families experiencing multiple and often chronic stressors, in the contexts where those stressors are experienced; and, the stakes of treatment failure are high (youth arrest, incarceration and other out-of-home placements). Doing this work well, day in and day out, is demanding, even for seasoned professionals. Accordingly, clinical training and support is provided to them using multiple methods: (1) Initial 5-day orientation training; (2) Quarterly booster training; (3) Weekly on-site supervision, and (4) Weekly consultation with an MST expert (originally, the MST model developers and researchers).

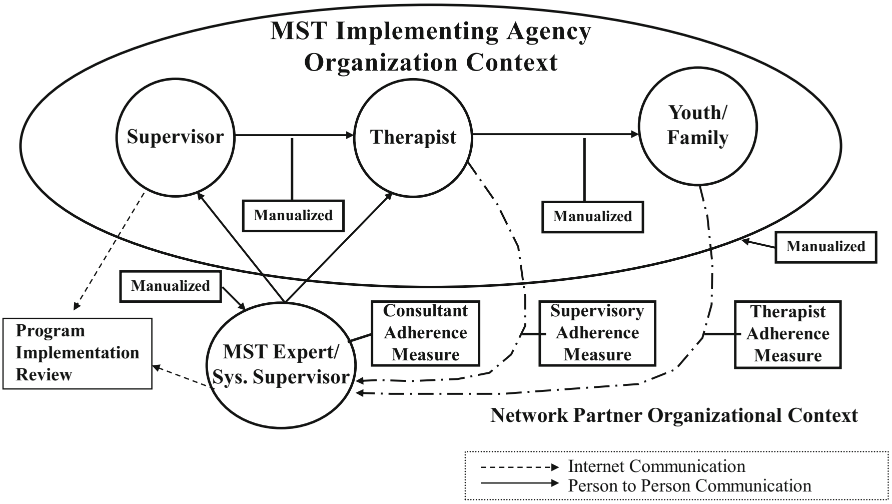

Fig. 12.2 MST Quality Assurance and Improvement System. Reprinted with the permission of Guilford Press. From Henggeler, Schoenwald, et al. (2009). *Multisystemic Therapy for Antisocial Behavior in Children and Adolescents, Second Edition*. © Guilford Press

Initial 5-Day Orientation Training

MST therapists, on-site supervisors, and other clinicians within a provider organization who may participate in some aspect of treatment for some youth treated with MST (e.g., a staff psychiatrist who might evaluate and prescribe medication for a youth or caregiver) participate in 5 days of initial orientation training. The first morning brings together the new MST team, interested members of the organization's management or leadership team, and key community stakeholders, including those who participated in the site assessment and program development process. The remainder of the week focuses on the therapists and MST supervisor. The trainers—one of whom is the expert consultant who will provide ongoing training and consultation to the team—use didactic approaches to lay out the rationale for MST assessment and intervention strategies and experiential approaches to enable participants to observe and practice using such strategies in role-play situations. Upon completion of the orientation week, therapists begin treating families, and thus their on-the-job training begins. Weekly clinical supervision, and telephone consultation from an MST expert begins immediately following the orientation to ensure therapists and supervisors receive specific, timely, feedback as they attempt to use with families the conceptual, assessment, and intervention approaches described and modeled in the orientation training.

Quarterly Booster Training

As therapists gain experience implementing MST with families, the expert consultant working with the team conducts quarterly 1.5-day booster training sessions on site. These sessions are designed to enhance the knowledge base and skills needed to address the particular clinical challenges that arise in the team's caseload over time (e.g., parental substance abuse, marital conflict), and to increase team members' proficiency and comfort in using those skills when and where they are needed. The consultant and team use audio or video review and role-played enactment of particularly difficult cases to identify and problem-solve barriers to progress and to practice implementing specific intervention strategies. Therapists and supervisors evaluate each booster, and consultants use this feedback to improve future booster experiences. The supervisor and consultant ascertain in subsequent supervision and consultation sessions therapists' use of the skills and strategies emphasized during the booster. They together identify and address barriers to such implementation (e.g., the consultant provided too few practice opportunities in the booster session; the supervisor did not adequately monitor therapist use of the newly learned strategies in relevant cases).

Ongoing Clinical Support

Clinical Supervision

The main objective of MST supervision is to help therapists use the clinical skills—conceptual and behavioral—needed to effectively implement MST in the field with each and every youth and family served. The MST team and supervisor meet as a group weekly. The supervisor follows a structured protocol for reviewing and addressing the issues in each case with the team. That protocol reflects the MST Analytic Process, which forms the basis of the MST Case Summary for Supervision and Consultation form completed by each therapist weekly. Additional group or individual supervision meetings can occur to address a case crisis, conduct field supervision (i.e., supervisor accompanies the therapist), or advance a therapist's professional development.

MST supervisors, like MST clinicians, are available 24 h a day, 7 days a week, and many MST supervisors are recruited from the ranks of effective MST therapists. Supervisors of one team may also carry a reduced caseload of families, whereas supervisors of two or more teams typically do not. Training and support of MST supervisors occurs via several venues, which include: Review of the MST supervisory manual (Henggeler & Schoenwald, 1998); initial supervisor orientation training provided by the MST expert consultant prior to or during the initial 5-day orientation training; and, periodic conjoint review with the expert of supervisor work samples, including at least one audio tape of group supervision monthly. In addition, the expert and supervisor together identify supervisory strengths and needs and devise, implement, and monitor strategies to address the identified needs. Finally, booster training sessions designed specifically for MST supervisors are made available several times annually. The sessions are designed to address the opportunities and challenges awaiting supervisors with different levels of MST experience.

Expert Consultation

The functions of the MST expert consultant are to facilitate and refresh the development within MST teams of the knowledge, skills, and competencies therapists and supervisors need to effectively implement MST with the diverse array of families they serve; and of the skills and processes needed to anticipate, identify, and address clinical, team-level, organizational, and systemic barriers to effective clinical implementation. The team's consultant is one of the trainers in the initial 5-day orientation training, and is the individual who conducts the quarterly booster training and weekly telephone consultation sessions with the team. The expert provides 1 h of phone consultation per week to each MST team, and allots approximately an hour to preparation and follow up for each consultation call. The expert also reviews and discusses at least one group supervision recording monthly, and collaborates in the professional development of the supervisor.

The MST consultation manual (Schoenwald, 1998) outlines the knowledge base, skills, and processes an MST expert uses to provide training and consultation to MST therapists and supervisors. An on-the-job training manual details processes used to help individuals develop and proficiently execute expert consultant responsibilities in three domains: clinical training and support; use by MST teams of the data collection, scoring, and reporting aspects of the QA/QI system; and, development and maintenance of organizational and external stakeholder engagement in the implementation of MST. A full-time expert consultant can support the implementation of MST by about ten teams, thereby having the potential to affect 30–40 therapists treating 360–480 families at a time. Today, most MST experts are individuals who were successful MST supervisors in communities that sustained successful MST programs.

Organizational Support

As is common among organizations providing community-based mental health services to children and families, the organizations operating MST teams are busy and diversified. Several strategies are used to cultivate and sustain organizational support for the implementation of MST. First, an organizational manual for administrators makes transparent and accessible the nature of organizational support needed to implement MST. Second, to enable the MST team, provider organization, external stakeholders, and MST purveyor to monitor with relative ease the performance of a particular MST program, a semiannual Program Implementation Review (PIR) is completed by the MST supervisor and expert. The domains of program performance captured in the PIR form include adherence ratings (therapist and supervisor); other attributes of treatment episodes (e.g., treatment duration, case completion, therapist-reported outcomes); service delivery parameters (e.g., caseload, team size, 24/7 coverage, supervision); other operational issues (e.g., staff turnover), and stakeholder inputs (number and appropriateness of referrals). The data pertaining to these indicators are obtained from multiples sources and synthesized in a dashboard format quarterly by the MST Institute, and the supervisor and expert together review this dashboard when preparing the PIR. The PIR also references the program-specific goals and performance indicators established in the program's Goals and Guidelines document. Program strengths and needs and specific plans to address the latte are documented in the PIR form. Consistent with the self-reflexive nature of the MST Analytic Process, the extent to which MST expert and purveyor factors contribute to program strengths and needs are also addressed.

Peer learning opportunities are provided for MST program directors and other members of organization's management and leadership ranks interested in participating in them. The role of program director emerged about a decade ago, as Network Partners and other organizations began increasingly to operate multiple teams in multiple locales. The directors identify topics of interest (e.g., Medicaid reimbursement, new health care policies, workforce challenges in specific states or nations) in advance, and participate in hour-long Web-based and telephone forums dedicated to discussion of these issues. Last, but not least, in the context of weekly consultation, the MST expert has the opportunity and obligation to identify organizational factors that appear to present barriers to clinical progress in specific cases and to consider with the supervisor and therapists strategies to overcome these barriers.

Implementation Measurement and Reporting

As depicted in Fig. 12.2, feedback on the implementation of MST at multiple levels of the practice context is obtained from multiple respondents. Validated measures are used to assess therapist, supervisor, and consultant adherence. Caregiver reports of therapist adherence are obtained monthly, therapist reports of supervisor and consultant adherence are obtained semimonthly, and MST program performance is monitored via the PIR every 6 months. Youth outcomes upon completion of treatment are measured using standardized discharge forms completed by therapists, and official archival data (i.e., arrests, out of home placements) where government agencies make these such data to provider organizations. Guidelines for collection of data from the caregivers of youths, therapists, supervisors, and expert consultants using each of these instruments are provided through MSTI, which provides a secure, Web-based platform to support the reporting, scoring, and interpretation of therapist adherence, supervisor adherence, consultant adherence, and youth outcomes (www.mstinstitute.org).

Therapist Adherence Measure-Revised (TAM-R)

A 26-item, Likert-format MST Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) was developed by expert consensus to assess therapist adherence to the nine principles of MST. Prior to the collection and reporting of TAM data in the MST QA/QI system, the instrument had been shown in two effectiveness trials to predict long-term reductions in youth arrests, days incarcerated, substance use, aggression, and other antisocial behavior problems (Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Henggeler, Pickrel, & Brondino, 1999) as well as improvements in family functioning (Huey et al., 2000; Schoenwald, Henggeler, Brondino, & Rowland, 2000). Although caregiver, therapist, and youth reports on the TAM were obtained in these trials, caregiver reports were the best predictors of youth outcomes (Schoenwald et al., 2000). Subsequently, adherence data were collected from a large and diverse sample of families ($N = 1979$) treated by 429 therapists in a 45-site prospective study of MST implementation and outcomes funded by the National Institutes of Mental Health, with long-term follow-up funded by the National Institute of Drug Abuse (Schoenwald, PI; hereafter, the Transportability Study). In that study, 12 items were added to the TAM to assess the focus of treatment sessions on school, peer, and neighborhood/social support systems. Nine of these items were retained in further psychometric analyses of the TAM, resulting in a 28-item scale (19 original TAM items + 9 new items) known as the TAM—Revised (TAM-R; Henggeler, Borduin, Schoenwald, Huey, & Chapman, 2006). The TAM-R yields a single, overall adherence score.

Scores from the TAM-R were shown to predict the short and long-term outcomes of youths participating in the Transportability Study, and in samples participating in subsequent, community-based randomized trials. The QA/QI system therefore makes available only the TAM-R, and all sites worldwide use this instrument to assess therapist adherence to MST. The TAM-R takes 10–15 min to administer by telephone. There are two ways to administer the instrument by telephone: A staff member in a provider organization who is not a family's therapist may telephone the family; or, provider organizations may contract with approved call centers to do so. The TAM-R has been translated into numerous languages, following a set of procedures that includes translation, back-translation, and evaluation of potential differences in the distribution of responses on response anchors.

Supervisor Adherence Measure (SAM)

The 43-item, Likert format Supervisor Adherence Measure (SAM; Schoenwald, Henggeler, & Edwards, 1998) was developed by expert consensus and is based on supervision constructs described in the MST Supervisory Manual (Henggeler & Schoenwald, 1998). Therapists rate their MST supervisor on the SAM at 2-month intervals. The initial validation of the SAM was undertaken in the context of a 9-site study of the feasibility use of the supervision and organizational manuals and collection and Web-based reporting of TAM, SAM, and therapist-reported outcomes data. Psychometric evaluation of the SAM data collected revealed three SAM subscales; and, scores on some of these scales correlated with TAM scores, although sometimes in unexpected directions (Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002). The much larger sample of families, therapists, and supervisors in the Transportability Study allowed further exploration of the psychometric properties of the SAM. Thirty-six of the original 43 items of the SAM were retained, and these comprised four subscales (Schoenwald, Sheidow, & Chapman, 2009): Adherence to the structure and process of supervision; Supervisor promotes adherence to the MST treatment principles; Supervisor promotes use of the MST analytic process; Supervisor promotes clinician development of the competencies needed to implement MST. Therapists complete the SAM via the MSTI website, and completion takes 10–15 min.

Consultant Adherence Measure (CAM)

The 44-item, Likert format Consultant Adherence Measure (CAM; Schoenwald, 2001) was developed by expert consensus and is based on the rational constructs of consultation described in the MST consultation manual (Schoenwald, 1998). Therapists and supervisors rate their MST expert consultant on the CAM at 2-month intervals. Analyses of consultants across two study samples yielded a three-factor structure (Schoenwald, Sheidow, & Letourneau, 2004): Consultant competence (i.e., knowledge and skill in MST and in teaching MST); MST procedures (i.e., focus on MST assessment and intervention procedures); and, Alliance (i.e., attentiveness and support of therapists). Therapists and supervisors complete the CAM via the MSTI website, and completion takes 10–15 min.

Outcomes Measurement

The ultimate outcomes typically sought by communities establishing MST programs for juvenile offenders include reductions in criminal activity, out-of-home placements, and costs as well as improved individual, family, and school functioning. The specific outcomes for which a particular MST program is held accountable are detailed in the “MST Goals and Guidelines” document described earlier. Upon completion of a treatment episode, therapists enter the data for each outcome domain directly into the MSTI website. Many programs, however, have difficulty obtaining post-treatment and follow up data on critical variables such as arrest, conviction, and out of home placement from the government agencies (e.g., juvenile justice agencies, probation departments, courts) that possess these data. Reported barriers to the collection of these data include insufficient resources (i.e., staff time) at the provider organization and at the government agencies; regulations governing access to these data; and, ironically, levels of stakeholder satisfaction with the MST program that appears to reduce a sense of need or urgency to obtain outcomes data from official records. In an effort to overcome these barriers to the collection and analysis of outcome data, estimates of the time and cost associated with obtaining these data have been built into the cost estimates for implementation of MST programs. In addition, the site assessment process has been revised to encourage participants to describe the specifics of record keeping at relevant agencies, resolve issues of confidentiality that arise when data are requested, and establish acceptable methods and timing of data collection.

Empirical Evaluation of Linkages Among MST QA/QI Components and Outcomes

Findings from research examining the linkages among the components of the MST quality assurance system and pertinent outcomes are promising, and have been published in a number of peer-reviewed journals. Key findings are summarized here.

Links Between Therapist Adherence and Youth Outcomes

As noted in the description of the TAM-R, the outcomes of MST had been shown in randomized trials to vary with therapist adherence, with higher adherence predicting better long-term criminal and out-of-home placement outcomes and improvements in youth behavior and family functioning. The MST Transportability Study replicated this linkage in community-based implementation. Specifically, caregiver ratings of therapist adherence predicted reductions in youth behavior problems at the end of treatment and through a 1-year post-treatment follow-up and criminal charges through 4 years post-treatment (Schoenwald, Carter, Chapman, & Sheidow, 2008; Schoenwald, Chapman, Sheidow, & Carter, 2009). For example, at the highest level of therapist adherence, the average annual rate of youth criminal charges at 4 years post-treatment was 47 % lower than that for the lowest level of adherence (Schoenwald, Chapman, et al., 2009). In addition, findings from several randomized effectiveness trials of MST conducted by independent investigators in the USA and internationally have support linkages between adherence and outcomes (see, e.g., Ellis, Naar-King, Templin, Frey, & Cunningham, 2007; Ogden & Hagen, 2006; Timmons-Mitchell, Bender, Kishna, & Mitchell, 2006).

Supervisor Adherence, Therapist Adherence, and Youth Outcomes

Evidence linking supervisor adherence with therapist adherence and youth outcomes emanates primarily from the Transportability Study, because there are too few supervisors involved in most effectiveness trials to evaluate supervisor effects.

Multilevel modeling of data pertaining to the 122 clinical supervisors, 429 therapists, and 1979 families participating in the Transportability Study showed supervisor focus on adherence to treatment principles predicted greater therapist adherence. In addition, adherence to the structure and process of supervision, and focus on clinician development, predicted reductions in youth behavior problems through 1-year post-treatment follow-up. In models including both supervisor adherence and therapist adherence, significant direct effects of each were found on these reductions in youth behavior problems (Schoenwald, Sheidow, & Chapman, 2009).

Consultant Adherence, Therapist Adherence, and Youth Outcomes

The effects of consultant adherence on therapist adherence and youth outcomes was assessed in two samples of therapists, consultants, and families, one of which was drawn from the Transportability Study (Schoenwald et al., 2004). Across both samples, the Perceived Consultant Competence and Alliance scales of the CAM predicted therapist MST adherence. As expected, the direction of the relationship was positive for the Perceived Consultant Competence scale. Alliance, however, was negatively related to therapist adherence especially when Consultant Competence was low. In other words, consultants with strong alliances with their therapists, but low competence, had adverse effects on their therapists' adherence. With respect to youth outcomes, higher ratings on the CAM MST Procedures scale was associated with improvements in youth behavior problems post treatment, and higher ratings on the Consultant Competence scale predicted improved youth functioning. Consistent with the finding that high alliance predicted lower therapist adherence when the consultant competence was low, youth behavior problems also deteriorated when alliance was high in the presence of low consultant competence. Thus, while a supportive alliance between consultant and therapist might help keep therapists engaged in consultation, consultant competence and a focus on MST procedures are needed to improve youth outcomes.

Organizational Factors, Therapist Adherence, Youth Outcomes

The potential influence of organizational variables on the adoption, implementation, and outcomes of innovations had been the focus of considerable theoretical and empirical work in other industries and disciplines when the transport of MST began. Scant research existed, however, to guide hypotheses regarding the specific organizational characteristics most likely to affect the implementation and outcomes of an evidence-based mental health treatment. Within child welfare systems, however, Charles Glisson and his colleagues had demonstrated aspects of organizational climate and structure were associated with service quality and reduced youth behavior problems (Glisson & Hemmelgarn, 1998). Psychometric properties of the organizational climate and structure measurement instruments used in that study were sound, and the instruments were used to evaluate organizational climate and structure effects on therapist adherence and youth outcomes in the Transportability Study.

Results showed that scores on two climate subscales—job satisfaction and opportunities for growth and advancement—were associated with therapist adherence. Scores on these subscales also predicted youth criminal charges on average 4 years post-treatment. The associations between the climate variables and outcomes washed out, however, when the models included therapist adherence scores (Schoenwald, Chapman, et al., 2009). Accordingly, the formal assessment of organizational climate and structure has not been incorporated into the MST QA/QI system, nor have psychometrically evaluated measurement methods that index other aspects of organizations research been suggested to probably affect innovation implementation (e.g., culture, leadership, resources, implementation climate). Nonetheless, efforts to assess and understand the contribution of leadership, resources, and organizational mission and culture are embodied in the program development process and organizational support strategies.

Staff turnover is a major problem in the mental health workforce in general, and it has also presented an implementation challenge in some MST programs. Although lower than national averages, the annualized therapist turnover rate in MST programs participating in the Transportability Study was 21 % (Sheidow, Schoenwald, Wagner, Allred, & Burns, 2006). Turnover was predicted by a combination of low salaries and organizational climate characterized by emotional exhaustion. Accordingly, the program development process focuses some attention on salary levels likely to be needed in different locales to adequately compensate therapists and supervisors for the intensive effort and irregular work schedule needed to implement MST effectively. Similarly, MST experts attempt to engage supervisors, program managers, and organizational leadership figures in efforts to assess factors contributing to turnover in the semiannual review process.

Emerging Developments in MST QA/QI

Current refinement and evaluation of aspects of the MST QA/AI system is occurring along two lines: Development and evaluation of the performance of program-level fidelity indicators that might help to predict program sustainability and program closure (Brunk, Chapman, & Schoenwald, 2013); and, development and evaluation of the performance, feasibility, and cost of observationally based feedback systems to provide closer to real time feedback directly to clinical supervisors. In addition, MST purveyors and sites are participating in a study of the implementation, and implementation support, activities that may be common, sequenced similarly, and predictive of successful program start-up and sustainment, across several empirically supported treatments (NIH R01MH097748, L. Saldana, PI). Results of this study could be used to improve the efficiency of the program development process, refine targets of implementation support, and inform the design and evaluation of some basic structures and processes stakeholders and purveyors could use to support the implementation of multiple evidence-based treatments within the same service system.

Indexing Program-Level Adherence

The characterization of a psychosocial treatment model as a program has implications for the definition and measurement of fidelity. There are potential benefits and challenges associated with defining and evaluating fidelity at the program level (see, e.g., Bond, Becker, & Drake, 2011; Mihalic, 2004; Schoenwald, 2011). One challenge is calculating a meaningful program-level score when the components of the program are very different from one another (e.g., availability of specific types of personnel—psychiatrist, case manager, employment specialist; as well as, use of a particular intervention component). Another is to accrue the sample size of programs adequate for psychometric evaluation.

In a recent preliminary study, a composite index—the MST Program Performance Index (PPI)—was developed using data from the MST QA system (Brunk et al., 2013). The PPI included indicators of treatment adherence, treatment completion, program operations, program capacity, clinical supervisor leadership, and stakeholder relationships. A PPI score was calculated for 496 MST teams every 6 months for a 2 year period, during which time the teams served over 25,000 youth and families. The predictive validity of the PPI score was supported by client- and team-level outcomes. Specifically, youth treated by teams with lower PPI scores were more likely to be rearrested (per therapist report) during treatment. Likewise, teams with lower PPI scores were more likely to close during the time period covered by the study. There was, however, substantial within-team variability in PPI scores over time; and, the scores did not follow a linear pattern of change. These findings suggest the PPI may be a useful tool to index program-level fidelity for comparative purposes, and that further evaluation is needed to support its valid use as a prognosticator of program performance over time.

Audit-and-Feedback Using Observational Data

To date, the feasibility of measurement in practice (i.e., low burden, low cost) and establishment of measurement validity and reliability have been equally prioritized in the transport of MST. Accordingly, observational adherence measurement methods, such as coding of audio recorded treatment sessions, have not been incorporated into the measurement and reporting functions of the MST QA/QI system. As digital and Internet-based technologies have advanced, however, research has begun to evaluate the feasibility of Web-based collection and reporting of observational data for facilitating, monitoring, and measuring the implementation of psychosocial interventions (see, e.g., Feil, Sprengelmeyer, Davis, & Chamberlain, 2012). These developments, and evidence supporting the effectiveness of audit-and-feedback systems physician adherence to evidence-based guidelines (Jamtvedt, Young, Kristoffersen, O'Brien, & Oxman, 2006), have informed research currently underway to develop and evaluate the effects of an observationally based audit and feedback system for clinical supervisors on subsequent group supervision sessions, therapist adherence, and youth outcomes. In a measurement development study, digitally recorded and uploaded weekly MST group supervision sessions were coded for supervisor adherence and competence (R21 MH097000; J. Chapman & S. Schoenwald, Co-PIs). Preliminary evidence supports the feasibility across multiple supervisors, locations, and computer speeds, of the digital recording and upload procedure. A randomized trial will evaluate the effects of providing to supervisors Web-based feedback based on the observational adherence and competence instrument. The applicability will be assessed of components of this system to the supervision of other evidence-based treatments in community settings.

QA/QI, MST, and the Advancement of Implementation Science

In the two decades since demand for the transport of MST began, understanding and ensuring the adequate implementation in community settings of effective treatments has increasingly become a priority of health, mental health, and substance abuse treatment and services research. The field of implementation science has been identified as a scholarly umbrella under which theory and research from distinct literatures and fields can coalesce to address this priority (Proctor et al., 2009). In 2005, implementation research in mental health and substance abuse treatment was described as focused on " the use of socio-behavioral strategies to adopt, integrate, and scale-up evidence-based interventions and change practice patterns within specific setting" (Chambers, Ringeisen, & Hickman, 2005, p. 313). Subsequently, studies designed to evaluate the effects of discrete strategies such as treatment model-specific practitioner training, clinical supervision, consultation or coaching, and outcomes monitoring have begun to increase in number and methodological rigor, as have reviews of the effects on implementation and client outcomes of these discrete strategies and combinations thereof (see, e.g., Beidas & Kendall, 2010; Nadeem, Gleacher, & Beidas, 2013; Wandersman, Chien, & Katz, 2012). In addition, experimental studies have begun to evaluate the effects of organizational and service system interventions on the implementation and outcomes of psychosocial treatments such as MST (Glisson et al., 2010) and Multidimensional Treatment Foster Care (Chamberlain et al., 2008) for which training and ongoing quality assurance procedures are already well established.

Currently, leading implementation researchers are calling for the development and evaluation of "robust, sustainable, implementation systems using rigorous, rapid, and relevant science" (Glasgow & Chambers, 2011). Wandersman and colleagues have proposed a structure and elements of an Evidence-Based System for Innovation Support for Implementing Innovations with Quality (EBSIS; Wandersman et al., 2012) to enhance prevention research and practice. They identify four implement support components—tools, training, technical assistance, and quality assurance/quality improvement—noting specifically that the latter "reinforces the proper use of the tools, training, and technical assistance for quality performance" (p. 447). With respect to the larger scale implementation of effective psychotherapy, treatment integrity has been identified as a critical indicator of quality performance that can be used in feedback systems to detect and address problems with implementation; and, to distinguish these from problems with the treatment itself (McLeod et al., 2013).

The MST QA/QI system is one example of a potentially robust, sustainable implementation system. The overarching goal of the system is to optimize treatment outcomes for youth with serious antisocial and related clinical problems. The system encompasses clinical training and support for therapists, supervisors, and consultants; materials and processes to cultivate and maintain organizational and stakeholder support for implementation; measurement and reporting of fidelity at multiple levels of the practice context and of youth outcomes upon treatment completion; and, monitoring of additional operational indicators. The measurement, reporting, and review functions of the system help to identify factors that appear to contribute to implementation success and to implementation problems (e.g., target population, therapists, supervisors, organization, service system/stakeholders, interactions among these) so that improvement efforts can be appropriately targeted. The system also offers all implementation participants a "common yardstick of accountability" (Yeaton & Sechrest, 1981) for the implementation and outcomes of MST. The implementation of MST worldwide, as well as the broader field of implementation research, will continue to inform the refinement and evaluation of this system.

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Chapter 13
The Use of the Electronic Health Record in Behavioral Health Quality Improvement Initiatives

Cassandra Snipes

Introduction

Implementation of electronic health records (EHRs) has become the gold standard in health care delivery and as a result there has been wide proliferation of these systems over the past decade. Currently, about half of all primary care providers in private practice, more than 99 % of physicians in health maintenance organizations, and approximately 73 % of those in academic health centers use EHRs (Decker, Jamoom, & Sisk, 2012). EHRs can improve providers' clinical decision making, increase patient satisfaction, enhance documentation, and increase adherence to evidence-based guidelines when used effectively (Blumenthal & Tavenner, 2010; Chen et al., 2009). Although EHRs were initially envisioned primarily as a mechanism to improve patient care, their use has also now been extended to health care quality improvement efforts.

EHRs have become the cornerstone of quality improvement initiatives in health care because they have the ability to nimbly track provider progress towards important benchmarks and to support clinical decision making (see discussion of "meaningful use" below). EHR reports can usually be run with relative ease and therefore organizations are able to routinely assess progress towards quality improvement goals. For example, if a health care organization was interested in how many patients were screened for depression in the past month, the EHR could generate this data within a matter of seconds. This innovation has vastly changed the quantity, quality, and availability of health care data. Health centers and individual providers are no longer required to generalize findings from other data sets or to conduct lengthy review of paper charts in order to improve patient care at their site. That is not to say that peer-reviewed experimental studies have diminished in importance,

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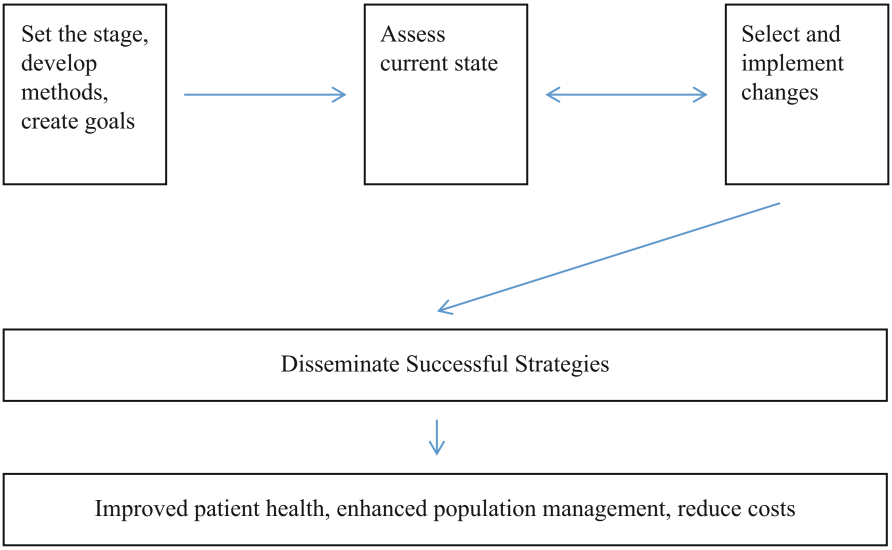

Fig. 13.1 Condensed model of EHR-driven behavioral health quality improvement stages

but rather EHRs allow health care providers to conduct program evaluation, or quality improvement reports, in a more agile manner. To expand on the aforementioned example—suppose that the health center determined that only a small number of patients were screened for depression in the last month. The health center could then identify processes that are hypothesized to increase adherence to a benchmark of 100 % of patients screened (e.g., better training of front-office staff in delivering screens). After these changes were implemented, the EHR could be utilized to identify whether the intervention had the intended impact. EHR systems have vastly improved quality improvement efforts in health care and this value of EHRs should be extended to behavioral health quality improvement.

This chapter provides a practical overview of how to best use EHR systems to implement quality improvement programs in behavioral health care. In order to achieve this aim we review use of EHRs in primary care, discuss implementation in integrated care and specialty behavioral health care settings, and review use of EHRs in behavioral health quality improvement initiatives.

Use of EHRs in Primary Care

Definition and Characteristics of EHRs

EHRs are defined as:

> a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports (HIMSS, 2014).

Any electronic system that documents patient care may be considered an EHR; however, there are varying levels of system capability and sophistication.

EHRs typically consist of a "provider portal" in which all patient care is tracked. Providers can access and update patient demographic information, allergies, problem lists, and medication. Encounter notes, phone contact, and alerts are also electronically documented. In addition, clinical decision support tools are usually implemented in this section of EHRs.

Some EHRs also include a "patient portal" in which patients can access their health information online. This includes, but is not limited to, reviewing providers' notes, requesting refills, and e-mailing their primary provider. Health education information and reminders are also typically included in patient portals. This portal supports patient choice in how to access care (e.g., through an office visit, phone contact, or e-mail) (Chen et al., 2009).

There has been concern in the medical community that full patient access to records could be harmful. However, results show that patient portals empower patients and enhance their contributions to care (Woods et al., 2013; Zarcadoolas, Vaughon, Czaja, Levy, & Rockoff, 2013). Specifically, access to EHRs has been shown to enhance patients' perceptions of control and either reduce or have no effect on patient health-related anxiety (Giardina, Menon, Parrish, Sittig, & Singh, 2014).

The Promise of EHRs

The proliferation of EHRs has been built on the following assumptions regarding influence on patient care:

1. *Shareable patient data*: EHRs were envisioned as a network of protected, yet easily accessible, health information to improve quality of care. For example, if someone was unconscious due to a car accident, their medical information (including medication allergies, pre-existing conditions) could be accessed by emergency responders. The process of sharing patient-level electronic health information between different organizations can create increased efficiency in the delivery of health care. By allowing for the secure and potentially real-time sharing of patient information, EHRs can reduce costly and/or redundant tests that are ordered because one provider does not have access to the clinical information stored at another provider's location. Patients typically have data stored in a variety of locations in which they receive care. This can include their primary care physician's office, as well as other physician specialists, one or more pharmacies, and other locations, such as hospitals and emergency departments.
2. *Reduction of medical errors*: Providers enter orders (e.g., for drugs, laboratory tests, radiology, physical therapy) into a computer rather than doing so on paper when using EHRs. This development eliminates potentially dangerous medical errors caused by poor penmanship of providers. It also makes the ordering

process more efficient due to the fact that support staff has access to patient information and does not need to consult the physician regarding incomplete orders (Menachemi & Collum, 2011).

3. *Reduction of redundant services*: As aforementioned, patient data accumulates in a number of different silos. In the past providers have relied on fax or snail mail as a method of communicating regarding a shared patient. This restricts the availability of "real-time" information when it is needed. EHRs have the potential to solve this problem in that the exchange of pertinent patient information is electronic and immediate (Menachemi & Collum, 2011).
4. *Promotion of transparency in health care*: One of the stated goals of the Affordable Care Act is to increase transparency in health care and EHRs promote speedier advancement towards this objective, relative to paper charts. Transparency is achieved by allowing public access to data regarding quality improvement domains associated with specific health care entities. Simply stated, stakeholders and consumers should have access to data such as how many hospitals administer aspirin after a heart attack, patient satisfaction, etc. EHRs allow reports on quality improvement measures to be generated quickly and therefore expedite the process of delivering health care data to the public. Moreover, EHRs facilitate regularly updated reports and this promotes provision of up-to-date information to the consumer.

Unfortunately, these promises regarding EHR use have generally failed to come to fruition. There was a rapid privatization of the EHR market and programs were developed in isolation from one another. As a result, most EHRs do not "talk" to each other and do not meet the intended goal of developing a nationwide network of accessible health information. Data regarding the reeducation of medical errors is mixed and some analyses show that the EHRs increase the number of (possibly unnecessary) procedures ordered. Furthermore, consumers still have poor access to data such as health care price information largely because websites delivering transparency data are poorly designed (Health Care Incentives Improvement Institute, 2014). Systemic change in the implementation of EHRs is necessary to achieve their intended use.

Government Incentives

In 2009, Congress implemented The Health Information Technology for Economic and Clinical Health Act (HITECH), which authorized incentive payments through Medicare and Medicaid to clinicians and hospitals when they use EHRs in accordance with HIPPA guidelines, to achieve measurable improvements in care delivery. These incentive payments will total up to $27 billion over 10 years, or as much as $44,000 (through Medicare) and $63,750 (through Medicaid) per clinician (Blumenthal & Tavenner, 2010). This funding has been provided in the hope that there will be ubiquitous adoption and proper use of EHRs across the USA.

Meaningful Use

Perhaps most importantly, HITECH promotes "meaningful use" of EHRs—that is, their use by providers to achieve significant improvements in care. The legislation ties payments specifically to the achievement of advances in health care processes and outcomes—namely, incentives are tied to quality improvement efforts (Blumenthal & Tavenner, 2010).

In order to be considered "meaningful users," hospitals and clinicians must meet a set of core objectives that include but are not limited to entering patients' demographics, vital signs, active mediations, allergies, and smoking status. As the adoption of EHRs increases, the criteria for meaningful use incentives are likely to become increasingly sophisticated.

Risk-Stratified Care Management and Coordination

EHR's role in population health management is arguably the "advanced version" of the aforementioned meaningful use. As of late, there has been a focus on population health management to promote decreased health care costs and enhance quality of care. Population health is defined as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group (Kindig, 2015)" and population health management is the improvement of these outcomes.

Approximately 5 % of the population contributes to the majority of health care costs and as a result identifying high utilizers is a crucial step in population management (Scheffler et al., 2013). EHRs have an integral role in this process in that they support patient risk stratification—the process of separating patient populations into high-risk, low-risk, and rising-risk groups (Just, 2014). Usually, providers and/or care managers are involved in assigning a risk category to patients, which is dependent on a number of standardized criteria.

The American Academy of Family Physicians (2013) guidelines for Risk Stratified Care Management and Coordination identify five categories of risk factors, including (1) clinical diagnoses, behavioral health, special needs; (2) potential physical limitations; (3) social determinants; (4) utilization/claims data; and (5) clinical input (personal knowledge). Assessment of these criteria results in identification of a particular patient as between a Level 1 and Level 6 on a scale of health risk status. These levels then guide provision of prevention, health care, and care management services. The goal is to allocate the proper level of care to each patient. For example, a Level 6 patient will receive the highest level of health care resources until the patient has achieved a health status that denotes a lower level of health risk status.

EHR data can help identify patients' risk level and this risk category is oftentimes denoted in patients' electronic chart. This denotation guides allocation of care. Without EHRs, risk stratification would be considerably more cumbersome—thus hindering quality of care. Having a platform to stratify patients according to risk is an integral piece of health care advancement and subsequently of any quality improvement initiative.

Clinical Decision Support Tools

In addition to the meaningful use criteria reviewed above clinicians must also use a clinical decision support system to quality for incentive payments. A clinical decision support (CDS) system is one that assists the provider in making decisions with regard to patient care. Functions of a CDS system include providing the latest information about a drug, cross-referencing a patient allergy to a medication, and alerts for drug interactions and other potential patient issues that are flagged by the computer (Menachemi & Collum, 2011). CDS tools expand EHRs from simply data recording systems to "smart" programs that guide care.

However, there are several limitations in implementation of many clinical decision support tools. First, most clinical decision support tools are limited to general prompts/reminders and do not include more specific guidance. The provider is then left with the burden of researching pertinent care guidelines. Second, evidence shows that CDS tools are not always accompanied by appropriate changes in clinic flow or staff responsibilities to support the impact of CDS tools on patient care. Third, rather than being used for visit planning, clinical decision support displays were usually provided late in the encounter and were often skipped over or not viewed by physicians. Finally, physicians typically received no tangible compensation or reward for the extra time and effort needed to adopt new, unfamiliar clinical routines (O'Connor et al., 2011).

An ongoing challenge with EHR systems is alerting users to clinically significant errors or potential adverse events without overwhelming the prescriber with alerts of little practical significance and causing "alert fatigue." Studies have found that decision support recommendations are frequently disregarded. In many instances, decision support prompts and alerts can be excessive and disruptive, and thus justifiably overridden (Bowman, 2013). Thus, it is important to allow providers to document why they did not follow a rule/reminder.

Reminders produce small improvements when applied individually. The inclusion of provider audit and feedback can enhance the effectiveness of these quality improvement strategies.

Supporting Evidence for Use of EHRs

The evidence supporting the use of EHRs to improve care processes and patient outcomes is mixed. For example, in a study of Kaiser's comprehensive EHR system, Chen et al. (2009) found that primary care office visits decreased by 25.3 %

and specialty care visits decreased by 21.5 %. Phone visits increased more than eightfold and e-mail messaging increased sixfold in 2 years (Chen et al., 2009). However, this analysis failed to find an increase in quality of care. EHRs' decision support tools have also been found to significantly improve type II diabetes patients' glucose control and some aspect of blood pressure (O'Connor et al., 2011). Furthermore, an association between use of EHRs and improved quality of care has been demonstrated in FQHCs (Frimpong et al., 2013).

A review including 166 randomized controlled trials of EHR systems concluded that the systems improved the process of medical care in 52–64 % of studies, but only 15–31 % of those showed positive impact on patient outcomes (Roshanov et al., 2013). Another review suggested that sophisticated (and expensive) EHRs that are implemented at larger "benchmark" institutions have successfully improved quality. However, in community office-based physician practices EHRs failed to reasonably enhance quality and safety of care (Linder, Ma, Bates, Middleton, & Stafford, 2007).

EHRs certainly demonstrate mixed levels of effectiveness on quality of patient care. This is certainly contributed to by the variability in quality of EHR programs, in addition to an organization level of preparedness and resource availability to support EHR implementation. However, it is important to note that despite these mixed findings, EHRs still aided in the availability of said data. Information regarding care processes and patient outcome would not have been as accessible without an EHR system to provide reports. Quality improvement efforts are not about hitting a home run right out of the gate but instead these initiatives are a process of *continued assessment* of the level of success of hypothesized quality of care enhancements over time.

Use of EHRs in Behavioral Health Care

EHRs and Integrated Care

Behavioral health providers are most likely to utilize EHRs in an integrated care setting, in which Primary care providers (PCPs) and behavioral care providers (BCPs) deliver care in a collaborative, team-based manner. The BCP should use the EHR in the same way that the PCP does—to document visits, update problem lists, etc. The EHR also functions as a communication tool between PCPs, BCPs, and medical support staff. For example, the PCP may conduct a "hallway handoff" in which they detected need for behavioral health assessment/intervention and handoff the patient to the BCP. The PCP will then move on to other patient visits and may not be available for a verbal consult regarding the BCP's findings and proposed treatment plan. In this circumstance, the BCP may use the EHR to document the patient encounter and send an alert to the BCP that this encounter documentation is ready to view. EHR communication is not a perfect proxy for verbal communication but can allow care to continue uninterrupted during times that the PCP has a high volume of patients.

An argument has been made that BCP notes should be kept separate from the rest of the EHR because these notes could be potentially stigmatizing. However, this significantly undermines the purpose of integrated care—to create collaborative treatment plans that address complex behavioral and medical components of care. If a PCP cannot read behavioral health-related documentation, it is virtually impossible for this collaborative care to occur.

EHRs and Private Behavioral Health Practice

Our discussion thus far has focused on EHRs in health care organizations and implementation in a behavioral health private or small group practice differs somewhat significantly. A considerable administrative burden is placed on mental health providers. Appointments must be scheduled, reminders sent, insurance billed, and records sent when requested (O'Donohue, Snipes, & Maragakis, 2014). These housekeeping tasks take away from other productive uses of this time. Despite these taxes on resources, very few providers use available technology to more efficiently fulfill these ancillary duties. EHR programs provide online appointment booking; send automatic text messages, calls, and e-mail appointment reminders; automatically bill insurance; and create electronic note templates, among other features. There are free, HIPPA-compliant (U.S. Department of Health & Human Services, 2013; The Office of the National Coordinator for Health Information Technology, 2013) systems that can be implemented on a limited budget while greatly reducing the amount of time practitioners dedicate to administrative duties (Schweitzer, 2012). EHRs not only reduce burden on practitioners, but also provide value to the consumers. Consumers are able to access their records at any time and are able to complete any necessary paperwork before a given session—increasing the efficiency of the session.

Although EHRs are HIPPA compliant, extra precautions may need to be taken by the provider and/or health care organization to ensure compliance. These precautions may include a patient-signed waiver, encryption, and use of multiple firewalls (Grungor, 2013). Furthermore, HIPPA compliance guidelines are often updated and it is the provider's responsibility to be aware of any changes. HIPPA compliance is a matter of concern whether paper or electronic records are used and should not limit a provider or organization from considering the implementation of EHRs.

Implementation of an EHR is clearly feasible in a small practice and may do more than reducing administrative burden of both the consumer and provider. Even the free (and slightly less sophisticated) EHRs provide tools to graph patient progress (i.e., BDI II scores over time) and record completed session assignments/homework. This allows a small or private practice to engage in its own quality improvement efforts by monitor patient outcome.

Drawbacks and Barriers to Implementation

EHRs provide enormous benefit to health care organizations but implementation of these systems is not without obstacles and shortcomings.

The burden of training. There are opportunity costs to consider when making the decision to implement an EHR system—namely training and possible interruption of clinic flow. Evidence shows that adoption of EHRs does not necessarily increase workload, but does change providers' work in that new skills are required (Woods et al., 2013). Implementation of EHRs typically results in 15 % decrease in productivity while providers learn to use the system (Chen et al., 2009). Although this decrease in productivity typically does not last long, continuous training is required to orient providers to system updates, etc. The burden of initial training and system updates may partially interrupt implementation of QI programs—some recommend that quality improvement measures be implemented slowly, only after users have 1–2 years of experience using the system (Persell et al., 2011). These problems associated with adoption are surmountable, but a health care organization or small practice must have an implementation plan in place prior to adoption of an EHR system.

Failure to meet objectives. As aforementioned, EHRs have largely failed to live up to the reasons for systemic implementation. Qualities such as the inability of EHRs to communicate with one another negatively impact quality of patient care and can also hamper implementation of QI programs, as methods for gathering (or "pulling") data from EHR systems are not uniform. Each system is unique and therefore individual organizations must devote considerably more effort to training staff in production of quality improvement reports. If EHRs had been implemented in the way they were initially envisioned quality improvement efforts would arguably be more successful.

Minimizing risk. It is of the utmost importance that stakeholders take care when deciding which EHR system to invest in. Once a health care organization has spent money in EHR implementation and training, they will likely retain this system even if it becomes problematic rather than incurring the high cost of replacement (Bowman, 2013). Therefore, it is important that all strength and weakness of a particular system be considered prior to purchase.

Despite the shortcomings and investment cost associated with current EHRs, these systems remain best at supporting behavioral health quality improvement efforts.

EHRs and Quality Improvement

Stages of Behavioral Health Quality Improvement

The following stages of a successful behavioral health quality improvement plan were adapted from The National Learning Consortium (2013) and the specific role of the EHR is highlighted.

1. *Form the team*. A quality improvement team must be established in order to achieve a strategic vision. This might range from one individual in a private practice to a committee in a large hospital-based health care organization. Ideally, these larger teams would consist of not only experts in quality improvement and care delivery, but also consumers. Formation of this team is also important in order to preserve advancements towards quality improvement aims—by allowing a "free for all" of ideas for improvement an organization may become overburdened and unable to implement any changes successfully. It is also imperative the allocation of responsibility be accomplished at this stage—Who is going to be responsible for running EHR reports? Can this be done by one individual or does the scope of the project require a team?
2. *Set the stage*. As noted above, not all EHRs are created equal. There are varying levels of sophistication in regard to how easily data is tracked and subsequent reports are run. The organization must be clear on a *long-term* quality improvement plan—Is the goal to assess large data sets over a long period of time? Or, is the goal to assess patient outcome in a small practice? Quality improvement programs vary in complexity, similar to EHRs, and an EHR that matches the requirements of the quality improvement program should be selected. Clearly personnel or financial constraints may play a role in implementation of quality improvement efforts; and it is imperative that an organization choose aims that are feasible in order to achieve success. This implies that appropriate planning is a crucial element of a quality improvement effort—without such foresight it is unlikely that an EHR will be successful in supporting such endeavors.
3. *Set aims*. Answer the question: What is the organization trying to accomplish? This naturally flows from the "set the stage" step above; however, it should be more specific, and measurable, and have a defined time period. Consideration should also be given to how EHR reports will be structured in order to meet these specific aims. Please see Tables 13.1, 13.2, and 13.3 for examples of aims across various settings. Evidence shows that a variety of quality improvement

Table 13.1 Sample of behavioral health quality improvement domains in non-integrated primary care settings, as assessed by EHRs

1.	Percent of patients screened for behavioral health problems (including but not limited to depression, anxiety, substance-abuse problems, post-traumatic stress disorder).
2.	Proper level of behavioral health problems identified—specifically, do percent of positive screens mirror what one would expect to see in the population served by the health center.
3.	Percent of patients with positive screens referred to appropriate level of specialty care (i.e., self-help, group psychotherapy, individual psychotherapy, psychiatry).
4.	Continuity of care (e.g., did referred patients complete the referral process and receive behavioral health services).
5.	Percent of patients with improved primary care diagnoses as a result of detection of behavioral health problems and subsequent intervention.
6.	Patient safety: side effects related to psychotropic medication, ED visits, car accidents, etc.
7.	Patient satisfaction

Table 13.2 Sample of behavioral health quality improvement domains in integrated care settings, as assessed by EHRs

1.	Percent of patients screened for behavioral health problems (including but not limited to depression, anxiety, substance-abuse problems, post-traumatic stress disorder).
2.	Proper level of behavioral health problems identified—specifically, do percent of positive screens mirror what one would expect to see in the population served by the health center.
3.	Percent of patients with positive screens referred to BCP
4.	Demographics of patients seen by the BCP
5.	Continuity of care (e.g., the percent of referred patients that attended a first visit, did patients referred to specialty care complete the referral process and receive behavioral health services).
6.	Provision of evidence-based behavioral health care
7.	Rate of clinical significant improvement, as rated by objective measures
8.	Percent of patients with improved primary care diagnoses as a result of detection of behavioral health problems and subsequent intervention.
9.	Patient safety: side effects related to psychotropic medication, ED visits, car accidents, etc.
10.	Cost: did patients that received care from the BCP have reduced overall health care costs
11.	Patient satisfaction
12.	BCP productivity

Table 13.3 Sample of behavioral health quality improvement domains in private and small group behavioral health practice settings, as assessed by EHRs

1.	Demographics of patients seen
2.	Percent of patients that received automated session reminders (and whether this impact provider productivity)
3.	Provision of evidence-based behavioral health care
4.	Rate of clinical significant improvement, as rated by objective measures
5.	Patient safety: side effects related to psychotropic medication, ED visits, car accidents, etc.
6.	Patient satisfaction

domains can be assessed simultaneously, without degradation of quality improvement efforts.

4. *Establish measures.* How will an organization know that these aims were met? What are the appropriate benchmarks? Using the aforementioned example, an organization may choose to work towards the benchmark of 100 % of patients screened for depression. This can be accomplished in many different ways. A paper screen may be completed by the patient and scanned into the chart; a computerized screen may be completed by the patient with findings entered in the encounter note, etc. These various methods will impact the way in which the data is available in the EHR and therefore should be selected with care.
5. *Select changes.* The team should create hypotheses about what changes may impact achievement of the benchmark. To expand on the above example, an organization may decide to test whether delivery of screening measures by the medical assistant is more effective than the current strategy of the screening measure inclusion in the patient intake packet.

6. *Implement changes*. The hypothesized change should be implemented in a systemic manner. This may include administrative changes such as the personnel that is responsible for supplying the screening measures, changes in the way that the information is recorded in the patient's EHR record, or training of medical assistant staff in the delivery and importance of screening. It is important that these changes are able to be documented in the EHR.
7. *Test changes*. The EHR allows outcomes to be tested immediately and frequently. In the above example, an EHR report may be run that identifies the number of patients appropriately screened only a few days after the hypothesized improvement was implemented. In the event that it is immediately clear that there is a barrier to achievement of the benchmark, a nimble change may be possible. Outcome should be *continually assessed*; however the team should agree on a stop point at which it is determined if the change was successful.
8. *Revaluate or disseminate changes*. In the event that the hypothesized change was not successful, the team should generate an amended or new hypothesis regarding potential improvements. In the context of a successful change, the strategy should be disseminated across the organization appropriately. It may also be reasonable to consider contributing to the scientific literature as improvements discovered in one setting may be applicable to the larger clinical community.

Conclusions

EHRs have had widespread implementation over the last decade. This is due to both ease administrative and the ability of these programs to track data. EHRs are the cornerstone of quality improvement efforts via easily generated, sometimes large-scale reports. The systems are not only used to assess movement towards patient care benchmarks but are also tools by which patient care is influenced. EHRs facilitate health care organizations in assigning patients to appropriate risk categories—therefore better achieving the goal of population management. EHRs also allow for the development and implementation of clinical decision tools which may, with the help of provider feedback, support better quality care. Despite the fact that EHRs have not necessarily lived up to their initial promise, these programs remain an important tool by which to assess and implement quality care.

EHRs can be used to implement behavioral health quality improvement initiatives across a number of settings—in primary care outpatient and inpatient settings, integrated care settings, and in specialty behavioral health practices. It is imperative that these programs are implemented with careful planning and foresight. An EHR must be selected that matches the needs of the care environment, as well as the specific aims of the quality improvement effort. With proper preparation an EHR system can be a powerful tool by which organizations can assess quality of behavioral health care, make changes in their own organizations, and contribute to the scientific literature regarding the best behavioral health care pathways.

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Chapter 14
Creating a Quality Improvement System for an Integrated Care (IC) Program: The Why, What, and How to Measure

Alexandros Maragakis and William O'Donohue

Introduction

The landscape of the healthcare system in the USA is rapidly changing. With seminal reports from the Institute of Medicine (IOM), like *Crossing the Quality Chasm* (2001) and *Improving the Quality of Health Care for Mental and Substance-Use Conditions* (2006), and the passage of the Affordable Care Act (ACA), the basic ideas of what quality care is, how to obtain it, and how to lower overall healthcare spending have become the major foci. Variables identified in the IOM reports as barriers to quality of care have become central to improving quality of care and centerpieces to the ACA. These variables include:

1. Access
2. Safety
3. Use of evidence-based procedures
4. Timeliness and continuity
5. Equity
6. Being patient centric
7. Cost

In order to achieve many of these goals, there is a major effort from the ACA to move more health care into the primary care setting (Rozensky, 2012). In order to ensure that the primary care is equipped to handle the many needs of patients, and promote quality of care, the use of multidisciplinary professional teams has also become an emphasis and has led to the creation of patient-centered medical homes

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(PCMHs) (Bechman, Kinman, Harris, & Masters, 2012) and the increased use of integrated care (IC), which places behavioral health providers as members of the primary care team.

In regard to the behavioral health provider (BHP) role, there has been much writing in regarding training issues and guides of how to transition from a traditional mental health setting into the primary care setting (Blount & Miller, 2009; Cummings, 2003; O'Donohue, Cummings, Cucciarre, Cummings, & Runyan, 2006; Rozensky, 2012). While theoretical and financial methods of how to train and implement an IC program are relatively plentiful, research on effectiveness of actually achieving these quality goals has been lacking (Robinson & Strosahl, 2009).

However, systematic quality improvement (QI) systems have been identified as major contributors to properly triggering integration in the primary care setting as well as increasing the likelihood it will be implemented and maintained in a way that it increases the likelihood of producing a variety of desired outcomes (Laygo & O'Donohue, 2009). This chapter provides an overview of why QI is important in an IC program, what are a set of important QI variables in IC, how to measure those variables, as well as some guidelines regarding putting the system together.

Why Quality Improvement Is Important for Effective and Efficient Integrated Care

Quality improvement is essential for producing and maintaining an effective and efficient IC system. IC itself should properly be viewed as a QI innovation—there is nothing inherently good about it—it is "good" to the extent that its outcomes are good—increasing physician efficiency, decreasing medical errors, improving patient health outcomes, decreasing costs, etc. If fragmented care produced these outcomes better than IC, then we ought to remain with a fragmented care. However, IC is not a QI system when it is not implemented within a QI philosophy or a systematic QI system. Anecdotally it seems that the majority of integrated care fails to meet these criteria and is either doomed to disappoint or fail.

Creating a QI framework in a healthcare system allows for a systematic and fluid approach to both preventing errors and continuingly improving outcomes. Even though this chapter recommends general metrics and ways of obtaining data in an IC setting, it is important to note that a QI system allows for constant innovation. We recommend that professionals in the integrated care setting adopt the motto of Honda Motors, "Our customers are satisfied because we never are." This constant innovation allows for patients to receive increased access, safer care, lower costs, and evidence-based treatment as well as have a more generally satisfying experience that may have not otherwise been available to them.

As a healthcare system better identifies patient needs and expectations—which is itself a QI goal—QI also provides a system to quantitatively analyze innovations and their effectiveness in meeting those needs. In QI system, the meaning of effectiveness is a broad term that encompasses many factors. This broad understanding of effectiveness is important, because it goes beyond just clinical outcomes and includes variables such as cost, productivity, and satisfaction. This broad measure of effectiveness can become particularly important when healthcare systems are looking to expand, or reduce costs, or to decrease costs without diminishing healthcare quality. It also allows for a more thoughtful analysis of whether or not a program is significantly adding to the overall quality of care patients are receiving.

QI also prevents stagnation and deterioration (sometimes known as "drift") by constantly reevaluating historically effective programs, and by periodically reassessing the needs of its patients. QI has the benefit of ensuring that a program is effective in the current setting, with current therapists and with current patients. This comes from the assumption that even though a program has been well validated in other settings (e.g., from efficacy studies), those benefits may not generalize into a particular setting. After all, there are different therapists and perhaps different patients—e.g., more comorbidity. This more thorough and continuous evaluation of programs ensures that healthcare dollars are being most efficiently spent. It also creates a method of ensuring that programs offered meet the evolving needs of patients. This of course also assumes that patient needs from 10 years ago may not be the same today, and that care should reflect those changes.

If done correctly, a functional QI system has historically lowered costs (Chassin & O'Kane, 2010). While there is an initial and ongoing investment in QI—which also has to be measured and evaluated—QI is reflexive—how to improve the quality of QI should be considered; there have been many examples across various settings in how QI has helped lower overall costs while helping to produce better produces (Chassin & O'Kane, 2010).

Finally, a functional QI system allows a different work environment. With a QI system in place, there is no longer the search for the "bad apple." This bad apple approach assumes that systems would be perfect if it was not for human error, and unethical behavior is the source of failures in the system (Dekker, 2006). A QI perspective takes into account that the majority of issues in the workplace are usually caused by a few larger, more systematic issues and that while employee error may happen in some nontrivial frequency, these are usually minor when compared to error that the design of the system allows (i.e., Demming's Common vs. Special Cause of Variation or Juran's The Vital Few vs. The Trivial Many (Suarez, 1992)). By engaging in system issues rather than specific personnel issues, a system may improve at a faster rate, which will lead to a more sustainable program, independent of the personnel that are employed. This systems approach allows for better use of precious resources allotted for improving and moreover promoting a more cohesive workforce (Dekker, 2006).

Another philosophical change that needs to occur is the dichotomous categorical thinking associated with the evidence-based medicine movement. Althoughthis movement is important and has some important values—using science to actually understand the effectiveness of safety of interventions and to use these over untested interventions—the problem is that once one concludes that evidence-based treatments are being used the QI task is generally viewed as finished. This static categorical view is incorrect. There are still a plethora of QI questions that remain. For example: (1) Are we achieving the same results as those reported in the literature (benchmarks)? (2) Are we achieving these at the same rate and at the same cost? (3) Are our therapists drifting away from any protocols are faithfully implementing these? (4) What ought to be done with clients that are significantly dissimilar from the experimental samples—perhaps on dimensions of comorbidity or severity?

Finally, it is important to realize that these efficacy trials are really a beginning not an endpoint. There beneficial effects are never universal and often costly. Thus, QI can also address how to increase these positive outcomes, decrease relapse, and produce positive outcomes faster, or at lower cost. In addition, constant improvements can be made regarding improving access, improving the experience of the intervention including the aesthetics (a dimension Apple excelled while Dell less so), increasing health literacy, etc. The evidence-based movement fails to fully envision and embrace this larger QI agenda and thus we argue needs to be replaced with this larger commitment to QI.

What to Measure in Integrated Care

As mentioned earlier, the recommendations made in this chapter are not designed to be "the" areas that need to be measured for a successful IC system. Each system will have unique circumstances that require it to measure various outcomes that are important for specific reasons. However, based on recommendations from reports like *Crossing the Quality Chasm* (IOM, 2001), *Improving the Quality of Health Care for Mental and Substance-Use Conditions* (IOM, 2006), as well as important innovative healthcare agencies like the British Health System, we believe that these metrics allow for a foundation of a QI system that would be very beneficial for any IC program. This section is to orient readers to possible metrics, and why they are important for a comprehensive QI system.

Primary Care Provider Satisfaction

The primary consumer of IC is the primary care provider (PCP), so evaluating their satisfaction with the IC program is of upmost importance. Without the buy-in and continued support of the PCP the behavioral health provider simply cannot function. It is reasonable to see the PCP as the most important consumer—although obviously not the only consumer. While some may think that the patient is the primary consumer (and they are a major consumer), it is the PCP that is the "cornerstone" of the system. If a PCP finds that the IC system is too cumbersome, does not meet their expectations, or does not allow them to treat patients in a more efficient and effective manner (e.g., the referral process is too complex, too much time taken discussing cases, decreases productivity, or does not find the interventions to be particularly useful or helpful), then the IC system will likely fail. Therefore, systematically evaluating PCP satisfaction and incorporating their feedback into the QI process will help ensure that they are having their needs met and continue to support their end of the system.

Patient Satisfaction

Patients are also important consumers in regard to IC. If the patient has any difficulties accessing the system, does not receive demonstrable benefits from the system, or is not satisfied with any part of it, the IC system is also problematic. This metric is also in line with providing patients with "patient-centered" care, which is defined by the IOM as "care that is respectful of and responsive to individual patient preferences, needs, and values (2001)." By engaging in patient-centered care, QI aims to ensure that the needs of the patient are not missed or overlooked. While there have been recent studies on how patient satisfaction may not be the best indicator of quality of care (Bleich, Ozaltin, & Murray, 2009), a patient's experience is still an important quality of dimension. While no IC system will perfectly satisfy every patient it treats, it is still a valuable goal to attend to the wants of the patient, and there are many valuable metrics available to ensure that those wants are met. Qualitatively it is important to understand what patients like and dislike about their experience with the organization. And increasingly this needs to be thought of in very comprehensive terms: it needs to cover dimensions like making an appointment, office staff helpfulness, paperwork burdens, billing, and parking.

Clinical Outcomes

Clinical outcomes in IC are obviously very important, yet difficult to define and measure. However, systematic measurement of outcomes often does not occur in IC setting for various reasons (e.g., time constraints, cost, belief that IC will inevitably produce desired outcomes). Also, it is still unclear what outcomes should be captured or emphasized in an IC program. For example, a patient that is depressed, smokes heavily, and is obese has multiple important variables that could be tracked to measure "clinical outcomes." All of these variables would require various measurements, and it may be the case that there is no clear factor that would be more important than the other. These multiple variables add to the complexity of tracking clinical outcomes. Do we need individual outcome measures of the roughly 600 possible targets that may be addressed in integrated care? Additional questions include the following: (1) Should the QI innovation contain a control group such as treatment as usual—so that improved valid inference regarding causality can be made? (2) What dimensions of Gordon Paul's classic "ultimate" outcome question ought to be prioritized, namely "What treatment, by whom, is most effective, for this individual, with that specific problem, under which set of circumstances, and how does it come about?" (Paul, 1967). Certainly all are important—and the other dimensions—even when we would like to ignore them they are always there ready to raise their ugly heads and complicate or diminish our outcomes. But one QI study cannot address all questions, priorities must be decided upon, and (3) finally, it is also important that QI can be somewhat inward looking—individuals in the organization producing superior outcomes can be studied in an attempt to understand what they are doing right—perhaps even better than what is done in the literature—and then further QI studies can be done to see if this positive variance can be taught to others. In addition, an effective QI system needs to overcome these barriers by creating a system that captures many variables without adding significant burden to the doctor or patient. The data collected may also provide useful information in regard to which type of setting (e.g., individual, group) and which behavioral health problem (e.g., depression, anxiety, smoking, sleep) the current IC system best targets and has the most impact.

Productivity

Providing quality care, while maintaining high levels of productivity, is a major goal of the primary care setting. One of the goals of a successful IC system is that the BHPs are held to similar standards as those of the PCPs. In regard to productivity, the goal would be to have BHPs have similar levels of productivity perhaps measured by relative value units (RVUs) as PCPs, which would mean that BHPs would have to engage in shorter sessions and brief targeted interventions. Thus, a day's caseload may include 20–30 patients instead of 6–8. The shift from traditional mental healthcare may be difficult for an incoming clinician, especially if they have little or no training in IC. Measuring productivity helps track if an individual may be struggling with the system, and allows for proper supervision and support to occur. However, and more importantly, measuring BHP productivity tests the system itself. A low productivity may indicate problems in regard to the referral process, too few warm handoffs, assessments or interventions that are too time intense, or PCP understanding of how the BHP can be useful in improving quality of care.

Cost

Reducing overall healthcare costs is a major proponent of IC. Ideally, an IC program would target inefficiencies and major drivers of health cost present in the primary care setting. These inefficiencies and drivers would include when behavioral health problems are misdiagnosed or completely missed, noncompliance with medications, and referral to higher levels of care when not needed (e.g., presenting to a cardiologist when the patient is suffering from anxiety). When done correctly, IC models have shown to produce medical cost offset savings of $5 for every $1 spent on behavioral health (Cummings, O'Donohue, & Cummings, 2011). However, there have also been studies that indicate that improper use of IC or behavioral health care can dramatically increase overall healthcare costs (Bickman, 1996) .

In order to ensure that an IC system is properly operating and that the full potential of IC is occurring, tracking costs of both individual patients and the overall healthcare system is extremely important. By tracking cost, both providers and administrators can analyze useful information that may result in more precise changes to ensure that funds are properly used in regard to patient care. Industries may progress by constantly asking the following question: How can we do more with less? Behavioral health has not really embraced this kind of strategic thinking well.

It is important to mention again that this section is not an exhaustive list of potential variables that should always be used to measure an IC system with a QI framework. Rather this section was created to provide a brief description of potential metrics and why they have historically been relevant and useful metrics in successful systems of IC. As we have mentioned earlier, the importance of QI is to be fluid, and if some of the metrics above are irrelevant or other metrics are more important, then a QI system should be tailored around what would be best for that particular IC program.

How to Obtain the Relevant Data

While the previous section described potential metrics that provide valuable data to help assess the utility of an IC program, it is important to keep in mind that *what* is measured is only as valuable as *how* it is measured. To ensure that a QI system will work, an efficient system must be in place that validly capture these data and does not prove to be too cumbersome on those who are asked to participate in the data collection. For example, a primary care clinic may set up a QI system that assesses all the metrics mentioned above. However, if the system proves to be too burdensome on the PCPs, patients, or other personnel involved, then the QI system may cause internal problems (e.g., decrease productivity, decrease work satisfaction) and may lead to no one completing the required metrics to obtain any data.

Another important factor is to ensure that after data are collected in the least burdensome manner, it is easy to access and analyze. If data are collected in a manner that does not prove to be too cumbersome on those who are asked to fill out the necessary metrics, but then is difficult to access or utilize, then data may “sit on the shelf.” This can become particularly problematic when administrators may not see any initial benefit from a QI system, and begin to refocus their personnel on other tasks that would take away from data entry and data analysis. Therefore, an ideal system creates the least amount of burden on both the individuals filling out the metrics and those who need to access and analyze the data. One heuristic we have found useful is to ask “If we were a patient or therapist would we be interested in seeing these data and would the price we pay to see these be reasonable?”

Finally, data collected must be valid, and not easily “explained away.” If other hypotheses are constantly developed to explain way poor outcomes or low values—“only the dissatisfied patients are filling out these forms—there is a vast ‘silent majority’ of patients who love our work,” then the QI system is not properly functioning. In order to prevent ad hoc explanations of data, QI systems must be created with buy-in from those involved in the system, and must adapt if variables change in a way that require data to be collected with a different method. To help achieve these goals, this section describes ways to obtain and analyze data for each other metrics mentioned in the previous section. We will see in Chap. 6 of this volume that the Japanese notion of QI also emphasizes a respect for people, which we wholeheartedly agree.

Primary Care Provider Satisfaction

As mentioned earlier, PCPs are the primary consumer of IC. Without their buy-in and utilization, the program will collapse. Therefore, tracking their satisfaction and adapting IC program to meet their need are of high importance.

Given that one of the main goals of IC is to help remove some of the burden of behavioral health problems so that PCPs can focus on what they were trained to do (i.e., physical medicine) and meet the high demand of their schedules (i.e., maintain 15-min appointments), satisfaction surveys should reflect how well those goals are being met. Surveys should include both Likert scale and open-ended questions to ensure that wide arrays of topics are covered, and PCPs can voice their satisfaction or concerns. Some general topics that should be covered could include dimensions like how satisfied they are with their overall levels of productivity and the BHP, the ease of referrals to BHPs, the outcomes they have seen in regard to their patients' behavioral health issues, and others that may be relevant for the specific clinic. An example of PCP satisfaction form can be found in Appendix 1 of this chapter.

As seen in the example provided below, PCP satisfaction surveys can be somewhat lengthy. Given the importance of PCP satisfaction, and being mindful of how long these surveys may take, it is recommended that PCP satisfaction be assessed every 3 months. By assessing every 3 months, the administration provides the PCPs enough time to experience any changes made to the system, and to provide useful feedback. Engaging in quarterly assessment allows for the survey not to become too cumbersome, and provides administrators with fresh data every quarter.

After these data are collected, it is important that actions are taken to show providers that their feedback is taken seriously. This could include having a debriefing meeting with providers to address concerns that were mentioned and a plan to address those concerns. Engaging in these types of problem-solving behaviors helps increase the value of satisfaction surveys, and shows that their concerns are being taken seriously.

Patient Satisfaction

While PCPs are the "keystone" of IC, patients are the fuel necessary to keep the program running. Ensuring that an IC program meets the needs of patients is also key in maximizing the benefits for patients and the healthcare system. However, due to the high volume of patients seen, it is important to balance information obtained and strain on the system. While the goal is to measure the satisfaction of all patients, improper data collection may create too much burden and data may end up “on the shelf.” Therefore, the ideal is to create a system that is easily accessible for and reduces burden for staff and administration.

There are multiple modalities of collecting patient satisfaction, varying levels of patient accessibility and ease of analysis. The first way of collecting patient satisfaction is to periodically provide patients with brief paper-and-pencil survey at the end of the appointment. After the end of the appointment, the PCP, the nurse or medical assistant, or BHP provides the patient with a survey they can either complete in the clinic and place in a secured lockbox or mail it back to the clinic at their convenience (see Appendix 2 for an example of a patient satisfaction survey). This would allow for maximal access to patients with the lowest up-front cost. This method also helps maintain patient anonymity, which is important to ensure that patients may be honest and not feel that their quality of care may be affected for responding unfavorably. However, this method has the distinct disadvantage of having to manually enter all of the data obtained. Given the high volume of patients in a primary care clinic, having to manually enter every patient’s satisfaction survey may be a costly endeavor that may not produce immediate results or change that administrators seek.

Another way of collecting patient satisfaction is to create an online survey that patients may access from the Internet with websites such as SurveyMonkey. With this method, a patient is given a sheet of paper with a website address and instructions in regard to how they could access the survey. The benefit to this method is that all data are collected electronically, and is available immediately for data analysis. However, this method reduces the probability that patients will complete the survey, and further reduces the probability if patients do not have easy access to a computer. Therefore, data may be skewed to portray only a certain portion of the populations (e.g., highly unsatisfied patients with easy access to a computer), and may not provide an overall picture of patient satisfaction.

A compromise between those two methods is to give patients an electronic version of the survey before they leave the clinic. To do this, a clinic would provide access to a computer or a tablet device that would have the survey already loaded on it. While this may have the highest up-front cost for a clinic (e.g., buying extra computers or tablets), it allows for the most comprehensive access to patients and easiest access to analyzing all the data provided. In any event, all three methods would capture patient satisfaction. Administrations would have to determine which method would ideally capture the needs of the clinic given the resources available.

Another method of addressing patient satisfaction is to perform periodic “patient journeys.” A patient journey is a more complex process that examines a patient’s experience from the onset of a problem (e.g., calling the clinic to set up an appointment) throughout the course of treatment. This process is usually much more sophisticated than a satisfaction survey, and involves the creation and analysis of process maps (described below) and semi-structured interviews. By engaging in patient journeys, administrators can analyze processes that go beyond the appointment, and address overall patient experience (e.g., parking, intake process, phone systems). Through the use of patient journeys, healthcare administrators can evaluate how various processes of healthcare delivery are perceived by patients, and adjust processes if necessary. While more complex and time consuming, patient journeys should be revisited periodically to ensure that the changing needs of patients are being met (Baron, 2009).

Clinical Outcomes

As previously mentioned improving clinical outcomes is one of the essential components of IC. If outcomes are not improving, then a change in the program or method of treatment is required. However, establishing what appropriate clinical outcomes are is a complex issue in IC. For example, for a patient who is suffering from depression, obesity, and diabetes, smokes heavily, and is treatment non-compliant, there are many levels of possible intervention for a BHP. Physical health outcomes may be relatively straightforward to capture in an EHR (e.g., weight, hemoglobin A1C levels, number of cigarettes smoked per day), but determining which problem to target first and what is an appropriate reduction in outcomes may be more difficult. Is it important that the patient works on treatment compliance to reduce A1C levels first, or would it be more useful to begin a weight loss program? While these are determinations to be made by the treatment team, it is an example of the many levels of complexity in regard to tracking outcomes of an IC program.

Behavioral health outcomes may be even more complex to capture, because of the various methods of capturing outcomes. To add further complication, what is considered to be an appropriate behavioral health outcome is not consistent. Traditional mental and behavioral health outcomes that focus on symptoms and diagnoses specific to the Diagnostic and Statistical Manual (DSM) are one way of tracking outcomes. Viewing outcomes as a reduction of symptoms, measures like the PHQ-9 for depression (Kroenke, Spitzer, & Williams, 2001) and the GAD-7 for anxiety (Spitzer, Kroenke, Williams, & Lowe, 2006) have been created and well validated to meet the time constraints of the fast-paced primary care setting.

Another form of tracking behavioral health outcomes is by using clinician Subjective Unit of Disturbance Scale (SUDS). While the SUDS is limited by the interpretation of the clinician, which may not be the ideal method of tracking behavioral health outcomes because it removes the patient interpretation of their progress (Bobbitt, Cate, Beardsley, Azocar, & McCulloch, 2012), it allows for some data to be obtained when otherwise not possible. This can be particularly useful because it can be measured after every appointment, and may be the only measure of outcome if a patient discontinued treatment before other measures could be used.

Some would argue that it is less important to focus on diagnosis and symptoms and focus on patient functioning in an IC program (Robinson & Strosahl, 2009). If function and patient quality of life are the important outcomes, then outcomes would measure items like how many days of work a patient missed, how often they used medical services, how satisfied they were with their life, and how well they could perform their daily duties.

A mixture of measures that target all of these domains would produce the most ideal outcome system. Including brief self-report measures that assess symptoms and patient function can produce valuable data in regard to how the patient is perceiving care, and allows for care to be consistent with the patient-centered model. Clinician ratings of SUDS can also be useful as a data point that can be easily obtained if unforeseen events occur during an appointment that may lead to self-report measures to not be completed. Ideally, all outcome measures will be given to a patient before every appointment, and therefore require to be brief (i.e., under 5–10 min). By collecting data at every appointment, patient progress can be continually tracked across multiple domains (self-report, clinician scores, health outcomes). This would allow for treatment team to view and discuss if progress is occurring at an ideal rate or if change is needed in how treatment is being delivered.

Productivity

Productivity is a measure that is particularly important in the primary care setting, but has not been as important in the field of behavioral health. By measuring BHP productivity, potential flaws in the system can become relevant that would not be captured by measuring factors like clinical outcomes. Due to this, measuring productivity may have important implications in regard to QI.

Productivity in medical setting has begun to shift to using a relative value unit (RVU) method of analyzing productivity (Merritt Hawkins, 2011). RVUs help remove the pressure to see as many patients as possible within an hour, due to the fact that there are many non-billable activities (e.g., phone calls, chart reviews, consultations) that providers engage in (Baron, 2010). Given the team collaboration component of an IC setting, and other factors (e.g., phone consults, notes), an RVU system may be most ideal to measure productivity. In theory, the RVUs of the BHPs should be comparable to those of the PCPs. By setting similar benchmarks, BCPs must be effective and efficient with their time (for ways to increase productivity in behavioral health practices, see O’Donohue et al. (2014); a preview of their list is in Appendix 3). However, RVUs have the limitation in that they may not recognize certain psychological interventions (Duncan & Dempsey, 2014), and these may be problematic when trying to apply productivity as a comparison of BHPs and PCPs.

Cost

Reducing healthcare costs while improving overall quality of care for patients is one of the most appealing propositions that IC can help achieve. Healthcare costs of a patient are accessed for a specific time period (e.g., 1 year) before they accessed a BHP and then are reanalyzed a year after their initial contact while placing all the costs of the BHP in the second year. By engaging in this, administrators and health insurance providers have access to how IC in specific affected healthcare cost for this particular individual. This metric may be particularly useful, when patients are being “flagged” as high utilizers and purposely targeted for IC interventions.

Gathering these data can be difficult because the best data are comprehensive: all costs involved in a variety of different locales and a variety of different delivery sites or payers including pharmacy, dental, vision, other specialty care, out-of-network care, emergency and urgent care, substance-abuse treatment are gathered. However, most because more care is fragmented this may entail attempting to gather cost data from a variety of different systems or payers. This can be expensive, involve concerns about patients' confidentiality, and thus may be difficult to collect.

In addition, interpreting these data can be difficult. One concern is regression to the mean—high utilizers as outliers have a tendency to "outlie" less in any subsequent measurement. In addition, IC is rarely the only innovation the healthcare system is engaging in. Thus, the question of how to parse the effects of IC against other innovations also needs to be considered. These sorts of issues need to be anticipated in designing the system (see for a more extended treatment).

Putting It All Together

After metrics have been selected and systems to collect data have been created, a QI system also provides systematic ways to analyze the data. This section provides some information on basic process used in QI to help analyze data in a useful way and help ensure that quality is constantly being improved.

Benchmarks

Benchmarks provide important baseline and target goals for administrators and providers. Through the use of benchmarks obtained through other IC programs or previous data analyzed in a current program, administrators place a target value for a particular dimension. For example, after 3 months of starting an IC program it is discovered that the productivity of BHPs is 1.5 patients per hour. However, in another IC program, the productivity for BHPs is 2.5 patients per hour. These two numbers would provide a minimum benchmark of 1.5 patients per hour (if they were to get less than 1.5 then other problems have emerged in the program) and a target of 2.0 patients per hour (trying to come closer to the productivity of similar IC program) for the following quarter. By using benchmarks effectively, administrators can set (realistic) goals that will allow for analysis of the effectiveness of a system.

Process Maps

As mentioned earlier, process maps are important in a QI system. They provide a clear and visual representation of how a particular process in the overall system works, and who is responsible for conducting the specific activities. These maps help identify both the individuals who are involved in a specific process and the outcomes that are connected to the process. For example, a process map of how a patient would access a BHP would be important for administrators, providers, and support staff to understand how the ideal system would function. For process maps to be effective, they must be clear and easy to read (Webb, 2010). Ideally, anyone would be able to read through a process map and have a basic idea of how the system is operating.

Process maps also make clear which processes are the most important, so individuals involved in the system have an idea on what processes may require more attention. For example, a patient receiving a behavioral health screen during their appointment with the PCP is a vital process. This would be highlighted in a process map so those involved would recognize it. However, it is important to remember that given the uniqueness of every system, process maps should always be created by administrators to reflect their system. Taking a process map from another company may result in problems. Finally, similar to what has been mentioned throughout this chapter, process maps may change if data indicates that the process actually operates in a way different than what was theorized. If done correctly, these process maps help provide very precise and relevant information without running the risk of details being left out from using word of mouth to describe processes.

Profound Knowledge

One of the founders of QI, W. Edwards Deming, believed that for management to be successful it must predict outcomes. Therefore, in order to accomplish the goal of prediction, it must be driven by theory and scientific inquiry. From these beliefs, Deming created the concept of "profound knowledge," which consisted of four parts: theory of systems, theory of variation, theory of knowledge, and theory of psychology.

Theory of systems involves the understanding that a system is composed of multiple parts (e.g., management, consumers, employees), and that these parts are all interrelated (Suarez, 1992). For maximal benefit, executives must understand the roles of each of these parts, and must plan a cohesive strategy. Failure to do so may lead to fragmentation of a system, and hinder total quality.

Theory of variation views sources of variation as two types: common and special. Common variation involves variation that is attributed to the way the system is organized: for example, difference in clinic outcomes because clinic A does not have any standard protocols of care while clinic B does. Special variation involves variation that is attributed to a unique individual in the system (e.g., a therapist conducts treatment under the influence of alcohol) (Suarez, 1992). Understanding sources of variation may help administrators focus efforts on common sources of variation, which will help produce higher quality outcomes more efficiently. This is in contrast to chasing the "bad apple" (i.e., special variation) that may not lead to any permanent increase in quality.

Deming believed that knowledge was a slow and ongoing process that had intermittent "breakthroughs" where rapid advances were made (Suarez, 1992). He urged that management should take a scientific approach to their system, and should continually hypothesize and test processes. To do this, Deming created the Plan-Do-Study-Act (PDSA) process.

PDSA is one of the most recognizable tools in QI. Through PDSA, a QI system is able to use an empirical approach to analyze whether or not a particular intervention or change has its hypothesized effect on quality. This process is particularly important, because Deming stressed that successful systems from other areas should not just be implemented without testing, due to variation that may exist in the other system. Instead, using a PDSA model will allow management to test whether or not a process works in a particular system.

The PDSA begins with the "Plan" phase, in which administrators formulate how they wish to investigate the multiple dimensions of quality of a new program, and the time period they predict would be needed to see change. The "Do" phase is engaging in a small-scale version of the study and collecting the data. For example, instead of rolling out an IC program to an entire hospital system, it may be piloted in one or two primary care clinics. This allows for any systematic problems that may emerge to be documented and analyzed before subjecting the entire system to a given process. The "Study" phase is where the data are analyzed, and any potential problems realized in the "Do" phase are discussed. The "Act" phase involves a decision of whether or not to roll out a program system wide. It is in this phase that the process is also adapted to help address any of the problems realized during the "Do" phase.

These QI tools help ensure the creation of hypotheses of processes that are in turn analyzed by data. These tools also help create ways to analyze systems that minimize any investigator bias, and allow for problem solving to occur, rather than any "chasing" of the hypothesis. By allowing for the possibility of error, and expecting that error in some way will occur, these tools transform error from something feared to another variable that can be systematically identified and resolved to increase quality.

Conclusion

Although integrated care has received increasing attention in the last few decades, its future is threatened by its current tenuous relationship with QI. IC has been seen as an attempt to improve some of the quality concerns associated with healthcare delivery. It has the potential to decrease medical errors, increase access to needed behavioral health services, improve patient outcomes, and decrease costs. However, it must be realized that it is not a magic bullet—and somehow just doing something called integrated care will inevitably produce a deluge of positive outcomes. Unfortunately too many systems have already come to this conclusion.

Integrated care to succeed certainly must be conceived of properly and designed properly at the outset—but the most important dimension of this design must be that it is set inside a system for quality improvement. There has been too much static thinking associated with the notion of either integrated care as a magic bullet, or if there are no bad apples then the system will succeed or if we use evidence-based care the system will succeed. All these may be proper steps in the right direction but this sort of thinking is not sufficient. The key question for success for an integrated care system is simply the following: "How good is the quality improvement system it is embedded in?"

Appendix 1: Primary Care Provider Satisfaction Form: Community Health Alliance

Introduction

Thank you for taking the time to answer these questions. Your opinion is very important to us. All of your responses will be kept confidential and used solely for the purpose of improving the behavioral health consultation services offered in your clinic.

Today's Date

Please Enter Today's Date: _____/_____/________
MM DD YYYY

Provider and Location Info

What type of provider are you?

_____ Medical Doctor
_____ Resident
_____ Intern
_____ Nurse
_____ Other (please specify: ______________________________)

Please indicate where you provide primary care services:

_____ Wells Health Center
_____ Sun Valley Health Center
_____ Neil Road Health Center
_____ Record Street Health Center
_____ Virginia City Health Center

Utilization of Behavioral Health Consultation Services

During the months of August-December 2013, did you refer any patients to the Behavioral Health Consultant in your clinic?

_____ Yes (PLEASE CONTINUE TO THE SECTION "SATISFACTION QUESTIONS")
_____ No

Primary Care Provider Satisfaction Form
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_____ Wells Health Center
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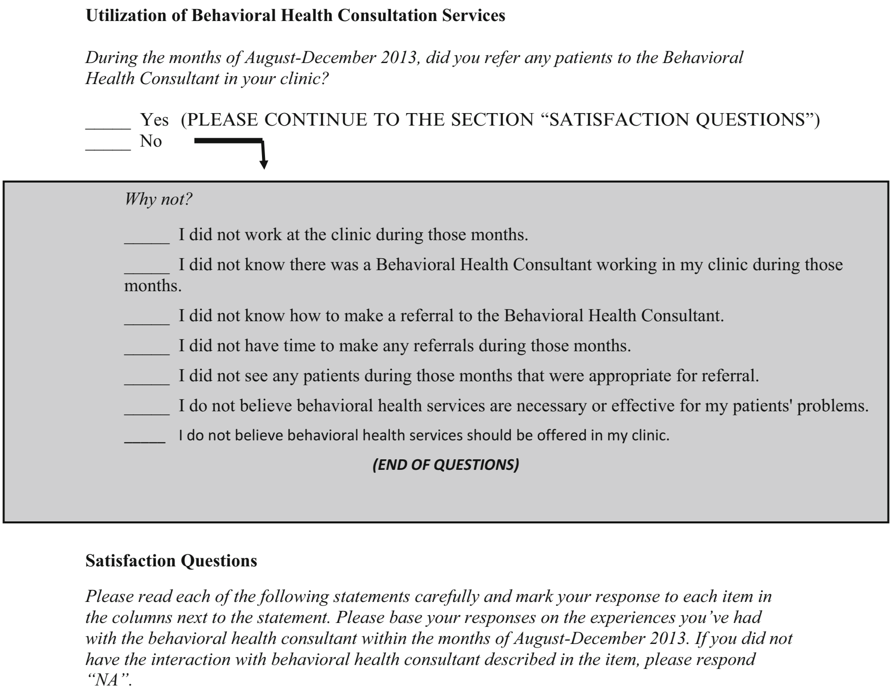
_____ Virginia City Health Center



Utilization of Behavioral Health Consultation Services

During the months of August-December 2013, did you refer any patients to the Behavioral Health Consultant in your clinic?

_____ Yes (PLEASE CONTINUE TO THE SECTION “SATISFACTION QUESTIONS”)
_____ No

Why not?

_____ I did not work at the clinic during those months.
_____ I did not know there was a Behavioral Health Consultant working in my clinic during those months.
_____ I did not know how to make a referral to the Behavioral Health Consultant.
_____ I did not have time to make any referrals during those months.
_____ I did not see any patients during those months that were appropriate for referral.
_____ I do not believe behavioral health services are necessary or effective for my patients' problems.
_____ I do not believe behavioral health services should be offered in my clinic.

(END OF QUESTIONS)

Satisfaction Questions

Please read each of the following statements carefully and mark your response to each item in the columns next to the statement. Please base your responses on the experiences you’ve had with the behavioral health consultant within the months of August-December 2013. If you did not have the interaction with behavioral health consultant described in the item, please respond “NA”.

Statement	**Strongly Disagree**	**Somewhat Disagree**	**Neither Disagree or Agree**	**Somewhat Agree**	**Strongly Agree**	**NA**
Overall I am satisfied with the behavioral health consultation services delivered to my patients and the behavioral health consults I received.						
Patients were more likely to follow through with referrals for behavioral health services when the services were provided in my clinic.						
I would recommend having integrated behavioral health consultation services to my colleagues.						
It is more convenient for me to make referrals to behavioral health when the provider is co-located in my clinic.						
The behavioral health consultant answered my referral questions in a timely manner.						
Patients are more compliant with my medical recommendations after seeing the behavioral health consultant.						
Having behavioral health consultants in my clinic resulted in the improved recognition and treatment of the behavioral components of the physical health problems my patients have.						

The behavioral health consultant made helpful recommendations regarding the use of psychotropic medications with my patients.						
The behavioral health consultations I received were helpful.						
Having a behavioral health consultant in my clinic makes my job easier.						
I am able to see more patients on days when the behavioral health consultant is working in the clinic.						

What can behavioral health consultants do to improve their services (please continue on back if necessary)?

Thank you again for taking time to answer these questions. We appreciate your feedback.

Appendix 2: Patient Satisfaction Scale

Questions	Rating (1—not satisfied at all to 5—very satisfied)					
1. My doctor's ability to listen to my concerns.	N/A	1	2	3	4	5
2. The ease in which I can express my concerns with my doctor.	N/A	1	2	3	4	5
3. My doctor's thoroughness throughout the appointment.	N/A	1	2	3	4	5
4. My doctor's ability to speak in a way which helped me understand any concerns I had.	N/A	1	2	3	4	5
5. My overall satisfaction with the appointment	N/A	1	2	3	4	5

Appendix 3: Ways to Improve Productivity in Psychology

1. Assess efficiently
2. Distinguish between normal problems in living and clinical necessity
3. Increase use of group treatments
4. Use stepped care
5. Know when to terminate and do it effectively
6. Use good time management skills
7. Increase the Scope of One's Practice to Gain Economies of Scale
8. Increase use of evidence-based assessment and treatments
9. Treat the problems at which the clinician/technology is most effective
10. Use adjunctive treatments appropriately
11. Use of paraprofessionals
12. Use technology
13. Use telehealth
14. Implement integrated care (O'Donohue et al., 2014)

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Chapter 15
QI and the APA

Katherine C. Nordal, Raquel Halfond, and Caroline Vaile Wright

The American Psychological Association (APA), located in Washington, D.C., is the largest scientific and professional membership organization representing psychology in the USA. The mission of APA is "to advance the creation, communication and application of psychological knowledge to benefit society and improve people's lives" (APA, n.d.). APA aspires to excel as a leading advocate for psychological practice and a primary resource for all psychologists. This vision is reflected in the organization's strategic plan, which was approved by the APA's policy setting body, the Council of Representatives, in August 2009.

APA's Council of Representatives is a large, diverse legislative body composed of elected members from state/provincial/territorial associations and APA divisions, and the APA Board of Directors, which is the Executive Committee of the Council. Its strategic plan is meant to provide "a road map to guide and prioritize the work of the organization" (APA, n.d.). APA's current strategic plan is in part a response to recent changes in behavioral health care delivery and financing, and includes initiatives related to quality improvement (QI) processes in professional psychology.

One method of quality improvement, APA's policy on evidence-based practice in psychology (EBPP), encourages psychologists to utilize the best research evidence available regarding effective psychological treatments combined with the patient's preferences and values and guided by the clinician's expertise in making treatment decisions. This three-circle model is represented in Fig. 15.1. EBPP posits that clinical decision making should occur at the overlap and intersection of these three circles. Based on this three-circle model, APA adopted and approved an EBPP policy document in 2006. The policy cites the monitoring of patient progress through the collection of patient-reported outcomes as best practice and encourages

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Fig. 15.1 Three-circle model of decision making in health care (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996; Spring & Hitchcock, 2009)

psychologists to use such information to modify treatment as appropriate or address any problems in order to ensure the provision of quality services (APA, 2006).

APA's Policy on Quality Improvement

Although behavioral health care has generally lagged behind physical medicine in the adoption of QI systems (Bobbitt, Cate, Beardsly, Azocar, & McCulloch, 2012; O'Donohue & Engle, 2013), significant changes to our health care system are inevitable following the passage of the Patient Protection and Affordable Care Act (PPACA, 2010). Employers, government organizations and private insurers that pay for health care want providers, including psychologists and other mental health practitioners, to be held accountable for the services they provide (Bachman, 2006; Nordal, 2012). In the final analysis, the goal is to provide consumers and patients with the best care at the lowest cost—best care that is based on valid and reliable data demonstrating what works and what doesn't (Bobbitt, 2006; Lambert, 2001, 2010; Newman & Tejeda, 1996). As such, in order to adapt to this rapidly changing health care system, professional psychology needs to adopt and adhere to QI processes, including the routine collection of psychotherapy outcome data and the development and utilization of clinical practice guidelines (Bobbitt, 2006; Hollon et al., 2014; Johnson & Shaha, 1996; Sanchez & Turner, 2003).

Recognizing psychology's need to adapt to this changing health care system, in 2009 the APA Council of Representatives approved a QI policy that was drafted by APA's Performance Improvement Advisory Group. The policy document provides professional psychologists with detailed, research-based criteria by which to evaluate QI programs and make decisions about whether or not to participate in such programs. While not intended to encourage or discourage the use of QI programs by psychologists, it does promote the development of well-designed QI programs utilizing processes that are open to public scrutiny (APA, 2009), and that focus on identifying and solving problematic processes or systems as opposed to punishing or blaming individual practitioners (Bickman & Noser, 1999; O'Donohue & Engle, 2013). Four criteria, which we will briefly describe, are highlighted in the policy document. Interested readers are referred to the original document (http://www.apa.org/practice/guidelines/criteria-for-evaluation.aspx) for a more complete explanation.

QI Program Criteria

The purpose of the criteria is to provide psychologists with a framework for evaluating the strengths and weaknesses of particular QI programs. The first criterion describes important components related to *program design*, including stakeholder involvement in designing QI programs; relying on best research and evidence-based professional practices (EBPP); ensuring data protection and procedures within the design; taking into account patient diversity; and incorporating an appeals process for practitioners. Aspects related to *program implementation* are the second criterion. Effective QI programs implement psychometrically sound benchmarks that are appropriate for the patient population receiving services, provide appropriate incentives to encourage continued improvement by practitioners, and employ feedback mechanisms regarding performance to improve care (APA, 2009).

Indicators used to measure quality, the third criterion, include the importance of QI programs' utilizing measures that are reliable, valid, sensitive, feasible, relevant, and risk adjusted as appropriate. Further, the policy highlights the importance of having psychologists' involvement in the development and/or selection of relevant indicators. Finally, the last criterion covers issues of *privacy and confidentiality* as they relate to QI programs. These include the need for clearly understood informed consent and voluntary participation procedures, safeguards to protect confidentiality under the Health Insurance Portability and Accountability Act (HIPAA) regulations, and protocols for how and to whom data will be disclosed prior to its collection (APA, 2009).

Benefits and Challenges to Implementing QI for Psychology

APA's QI policy is consistent with the earlier cited policy related to EBPP, solidifying APA's commitment to maintaining behavioral health care accountability (APA, 2006). In addition to ensuring accountability, QI efforts have also been proposed as being an ethical and professional responsibility (Lambert & Hawkins, 2004), with notable benefits to both patients and providers. These benefits include improved health care outcomes for individuals and couples (Reese, Norsworthy, & Rowlands, 2009; Reese, Toland, Slone, & Norsworthy, 2010), improved consumer satisfaction

(Johnson & Shaha, 1996), increased feedback to patients regarding progress (Bobbitt et al., 2012; Lambert, 2010), increased feedback to clinicians enabling them to improve care and increase skills (Bickman & Noser, 1999; Johnson & Shaha, 1996), and increased cost-effectiveness (Slade et al., 2006). These benefits are especially true for patients at risk for prematurely dropping out of treatment (Lambert et al., 2003). Moreover, demonstrating psychotherapy effectiveness sets the stage for advocating for more innovative reimbursement plans in addition to traditional managed care models, thereby increasing psychology's competitiveness in the marketplace (Johnson & Shaha, 1996; Sanchez & Turner, 2003).

Yet despite these numerous benefits, psychologists have traditionally resisted engaging in QI efforts (Lambert & Hawkins, 2004), due to concerns that fall into three categories: practical, philosophical, and training challenges (Bobbitt et al., 2012). Practical challenges include those related to cost, time, feasibility, available resources including adequate staffing, and the potential burden on the patient and provider (Hatfield & Ogles, 2004; Valenstein et al., 2004). Philosophical challenges include beliefs that QI efforts may cause damage to or interfere with the therapeutic relationship (Bickman & Noser, 1999; Cantor & Fuentes, 2008), fear of being evaluated and/or losing clinician autonomy to practice as he/she likes (Bobbitt et al., 2012; Hatfield & Ogles, 2004; Johnson & Shaha, 1996; Lambert, 2010), and a perceived lack of relevance (by some) to the work of psychotherapy (Hatfield & Ogles, 2004). Training challenges include lack of adequate training and exposure to outcome measurement use and evidence-based care in doctoral training programs, particularly for mid- and later-career psychologists (Bobbitt et al., 2012; Rozensky, 2014).

Additional concerns have also been raised in the literature including ensuring protection of the rights of patients, particularly as it relates to safeguarding confidentiality of patient information while adhering to HIPAA laws (APA, 2009; Cantor & Fuentes, 2008; Hermann & Palmer, 2002). Moreover, providers have expressed concerns that QI programs will be used to punish clinicians by linking pay with performance (Bobbitt et al., 2012; Valenstein et al., 2004), and as an unintended consequence lead providers to treat only the more "easily treatable" patients (Bachman, 2006). This in turn could increase health disparities in racial/ethnic minority and other underserved populations who would then fail to receive much needed care (Casalino et al., 2007; La Roche & Turner, 2002). Lastly, given the heterogeneity of clinical settings and patient samples, the variety of diagnoses and presenting problems, and the diversity of theoretical orientations and therapeutic approaches, developing a valid, reliable, and feasible QI program seems a daunting, if not impossible, task.

Psychologists as Leaders in QI

The challenges in developing rigorous QI programs are notable and require ongoing examination; yet, it may be that it is psychologists themselves who are uniquely qualified to develop and participate in QI processes that address these challenges

(Bobbitt et al., 2012; Cantor & Fuentes, 2008; Johnson & Shaha, 1996; Sanchez & Turner, 2003). Although the depth and breadth of one's training may vary by program, doctoral-level professional psychologists receive significant training in both clinical skills and service delivery, and research methodology and program evaluation (APA, 2013). Psychologists' training in measurement methodology constitutes a value-add competency, enabling their participation in developing QI programs that are backed by strong science and put patients' interests first (Bobbitt et al., 2012; Rozensky, 2014).

At this point in time, there is no universally endorsed set of behavioral health metrics for determining quality in psychotherapy (Bobbitt et al., 2012; Hermann & Palmer, 2002; Lambert, 2010). Five domains, however, have been generally identified as important: (1) access to care, (2) service utilization, (3) consumer satisfaction, (4) clinical processes, and (5) treatment outcomes (APA Practice Directorate, 1998; Valenstein et al., 2004). It is the responsibility of providers, especially professional psychologists, to define what the quality thresholds are for determining therapeutic success, and to use their collective voice in determining quality measures across these domains (Bobbitt, 2006; Nordal, 2012). The unfortunate reality is that if psychologists are not taking the leadership role in the development of QI programs in behavioral health, some other discipline will.

APA's Strategic Plan

APA advocates for the implementation of strong QI programs for professional psychology. We also, however, have to balance our responsibility to the profession of psychology and to the individual APA membership while operating with a limited amount of resources and a limited number of initiatives that can be undertaken at any given time. In that vein, APA has recently undertaken two specific initiatives to address issues of QI: (1) providing resources related to psychotherapy outcome assessment and (2) the development of clinical practice guidelines.

Outcome Assessment

Outcome assessment in psychotherapy refers to the measurement of therapeutic progress by patients in treatment (Hatfield & Ogles, 2004; Lambert, 2010). Historically, psychotherapists' attempts at measuring change were informal in nature and lacked methodological rigor (Lambert, 2010). To address these trends and attempt to build consensus regarding the use of outcome measures, APA supported the Vanderbilt Conference in 1994, which was attended by a panel of experts tasked with developing a core battery of outcome measures (Horowitz, Strupp, Lambert, & Elkin, 1997). While the application of a single core battery to routinely measure therapy progress was deemed unfeasible, several general recommendations were made.

These included the importance of using symptom-based atheoretical measures that assess multiple perspectives when possible, and examining patterns of change over time (Lambert, 2010). Despite these improved attempts at consensus, routine outcome assessment remains infrequent with only 37% of psychologists surveyed indicating that they use some form of outcome assessment to measure therapeutic progress (Hatfield & Ogles, 2004). APA's current initiatives are an attempt to increase the use of routine outcome assessment by professional psychologists, utilizing a twofold approach addressing (1) issues related to measurement including identifying indicators of change, and (2) issues related to reporting and analyzing data, and providing feedback.

Measurement

Patient-reported measures of quality behavioral health care need to be psychometrically sound in that they provide valid and reliable results over time (Lambert, 2010). Measures need to be feasible, be easily affordable, be able to be administered quickly and by lay individuals (such as administrative staff or via computer), and provide feedback to the provider in a timely and user-friendly manner (APA, 2009; Bickman & Noser, 1999; Hermann & Palmer, 2002). Quality measures will also be those that are meaningful and receive "buy-in" by both patients and providers (Hermann & Palmer, 2002; Valenstein et al., 2004); buy-in may be more readily obtained when such measures are developed in collaboration with professional psychology (Hatfield & Ogles, 2004; Lambert, 2010).

One QI resource available to APA members began as a pilot project of the 2010 APA Presidential Task Force for Advancing Practice, who was tasked with developing a strategy for APA members to proactively monitor outcomes in their practices. After reviewing the aforementioned APA policy on QI, the task force determined that although new (or updated) policy was unnecessary, it was critical that psychologists have ready access to outcome measures that would be more easily utilized in everyday practice. This led to the development of a centralized collection of items and measures designed to assess psychotherapy outcomes called *Practice OUTCOMES: Measures for Psychologists* (APA, 2011a). The 85 included measures have established strong psychometric properties as described above, and efforts were made to identify those measures which are available in the public domain to assist with feasibility barriers related to cost. *Practice OUTCOMES* is available on APA's Practice Central website, as an online searchable database of measures geared toward monitoring patient progress in treatment.

Data Reporting, Analysis, and Feedback

Practice OUTCOMES also lists several established programs for conducting outcome assessment which provide assistance with data analysis and feedback (e.g., The Treatment Outcome Package [TOP]; see Kraus & Castonguay, 2010 for more detailed information). The benefit of participating in these comprehensive reporting programs is that they provide the clinician with written feedback reports, which can in turn be used to identify patients and clients at risk of responding poorly to treatment (Lambert, 2010). Multiple studies have found that feedback, particularly when shared directly with the patient by the therapist, can help improve outcomes better than clinical intuition alone (Hawkins, Lambert, Vermeersch, Slade, & Tuttle, 2004; Lambert et al., 2001, 2002). Moreover, the feedback provided needs to be credible, frequent, informative, and useful (Lambert, 2010).

Of course, data first needs to be collected, reported, and analyzed before feedback can be provided to clinicians. In the absence of programs mandating this practice to occur, however, we recognize that there is little incentive for professional psychologists to engage in the routine collection of outcome assessments due to the barriers discussed earlier in the chapter. While such programs remain scarce, several QI programs have been recently established by the federal government with the goal of improving quality in health care (APA, 2009). One example of a federal government-initiated QI program is the Centers for Medicare and Medicaid Services (CMS) Physician Quality Reporting System (PQRS).

PQRS, formerly known as the Physician Quality Reporting Initiative (PQRI), is a centralized patient outcome reporting system. It was established following the Tax Relief and Health Care Act of 2006. Initially, PQRS operated as a voluntary incentive-based program to encourage providers to report data on Medicare recipients by providing bonus payments. In 2015, however, PQRS shifted to a mandatory reporting system that employs payment adjustments which penalize providers who fail to submit outcomes data on a certain percentage of their patients who are Medicare beneficiaries. This shift from a voluntary to a mandatory pay-for-reporting program is in response to changes initiated by the passage of PPACA. During the initial reporting period beginning in 2007, PQRS included only one mental health indicator for which psychologists could report. Now there are 13 items, including items related to depression and suicide risk screening, elder maltreatment screening, substance and tobacco use, body mass index screening, pain assessment, and medication compliance.

APA's Practice Organization's (APAPO) website, *Practice Central*, has been providing information and resources on PQRS and QI since 2008, including video tutorials and quick reference guides. While only 3% of psychologists who are Medicare providers currently participate in PQRS (APA, 2012), this percentage is likely to increase given the shift to a penalty-based reporting program. Moreover, given marketplace trends toward an increasing use and demand for QI processes in health care, it may be that third-party payers could start requiring data reporting as well. Furthermore, certain PQRS mental health indicators are only allowed to be reported through a certified data registry, meaning they are no longer available through paper-and-pencil claims reporting to Medicare.

To alleviate this additional burden placed on psychologists who want to participate in the PQRS program, the APA Practice Organization partnered with a registry vendor, Healthmonix, to provide a registry-reporting option for psychologists. A registry is a Web-based system that allows eligible professionals to enter PQRS and other outcome measures, which are then calculated and submitted to CMS and other payers that utilize registry reporting. Participation in a data registry has the potential to benefit a large number of psychologists—not just those who bill Medicare. Data registries have the capability to analyze and provide reports on patient outcomes to clinicians who can use those reports to improve patient care. In addition to these two member resources related to the routine collection and reporting of psychotherapy outcomes, APA has embarked on a large-scale strategic initiative to develop clinical practice guidelines.

APA's Clinical Practice Guideline Initiative

Clinical practice guidelines (CPGs) serve as a high-quality vehicle for APA to combine best available research evidence with clinician expertise and patient preferences and values in formulating recommendations for treatment. Prior to 2010, APA deliberated for many years about whether or not it should develop CPGs, but decided against such given the health care environment at the time. However, during that time period, managed care organizations and other professions did develop mental and behavioral health CPGs and these became the available CPGs used by payers for decision making about treatment. Due to their developers' interests, these CPGs often focused on pharmacological treatments more than psychological treatments. In light of this imbalance along with the growing focus on evidence-based practice, APA's Board of Directors along with APA's other governance groups decided that APA would begin the process of CPG development. APA's Council of Representatives approved the initiation of APA's CPG development initiative in 2010.

APA's evidence-based practice policy (APA, 2006) serves as the underlying foundation for its CPG initiative. CPGs combine an assessment of the balance of harms to benefits, evaluation of overall evidence quality, and consideration of patient values and preferences, with any additional factors considered important by the guideline developer. Thus, consistent with the three-circle model of EBPP, APA's CPG initiative combines patient values and preferences and clinical expertise together with the best available evidence. The Institute of Medicine (IOM) defines quality as "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge," (IOM, 1990, p. 21). APA's CPGs serve as vehicles for transmitting the information from the three-circle model to enhance the likelihood of achieving desired outcomes in one's health.

Types of Guidelines APA Produces

APA produces two types of guidelines: "professional practice guidelines" (formerly called "practice guidelines" by APA) and "clinical practice guidelines" (formerly called “treatment guidelines”). The terminology change for these guidelines occurred in August 2012 when APA changed the names in order to be more consistent with the rest of health care in using the term “clinical practice guidelines.” Professional practice guidelines focus on the behavior of professionals and issues that they should consider when practicing in a particular clinical area (APA, 2002a, 2002b). CPGs tend to be more outcome focused and specific about a condition and treatment recommendations (APA, 2002a, 2002b). The IOM further defines CPGs as “… statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options” (IOM, 2011a, p. 4). While both professional practice guidelines and CPGs are based on professional and scientific knowledge, CPGs have as their basis an independent, thorough systematic review of the scientific literature. Professional practice guidelines are supported by scientific literature though professional consensus is generally factored into a larger extent than in CPGs.

While both professional practice guidelines and CPGs can improve the quality of care a patient receives, this chapter focuses on APA’s CPG initiative given the consistency of CPGs with the IOM definition of quality and focus on outcomes. However, several professional practice guidelines that APA has related to healthcare include guidelines on psychological evaluation in matters of child protection (APA, 2011b), telepsychology (developed jointly with the Association of State and Provincial Psychology Boards and the APA Insurance Trust) (APA, 2013), and record keeping (APA, 2007). A full list, descriptions, and links to full text of APA’s professional practice guidelines can be found here: http://www.apa.org/practice/guidelines/.

Guidelines Versus Standards

APA distinguishes between *guidelines* and *standards.* Its Office of General Counsel advises including the following statement in all practice guidelines:

> The term *guidelines* refers to statements that suggest or recommend specific professional behavior, endeavors, or conduct for psychologists. Guidelines differ from standards in that standards are mandatory and may be accompanied by an enforcement mechanism. Thus, guidelines are aspirational in intent. They are intended to facilitate the continued systematic development of the profession and to help assure a high level of professional practice by psychologists. Guidelines are not intended to be mandatory or exhaustive and may not be applicable to every professional and clinical situation. They are not definitive and they are not intended to take precedence over the judgment of psychologists. (APA, 2002b, p. 1048)

APA has many guidelines that are intended to be aspirational and educational. They serve to guide professional conduct with certain populations or in certain settings but are not mandatory. By contrast, APA’s Ethical Principles of Psychologists and Code of Conduct (2010) are mandatory, enforceable standards.

Best Practices for CPG Development

The IOM published reports on best practices for developing CPGs ("Clinical Practice Guidelines We Can Trust" IOM, 2011a) and conducting systematic reviews ("Finding What Works in Health Care: Standards for Systematic Reviews" IOM, 2011b). While the IOM refers to these best practices as "standards," by the definition described in this chapter we conceptualize them as "recommendations." APA is striving to follow the recommendations for CPG development set forth in the IOM reports in its own CPG development initiative. Many in the health care field in the USA, including those developing guidelines and those conducting systematic reviews, are also striving to follow these recommendations and regard them highly. The IOM (2011a) recognizes that it might be necessary to adopt their recommendations gradually over time to allow for the requisite skill and resource development. However, the IOM feels that it is important for guideline developers to follow these recommendations in order to produce trustworthy guidelines and recommends end users follow CPGs that have complied with IOM recommendations. The IOM (2011a) recommendations for guideline development are as follows:

1. *Establishing transparency*. Detail and make publicly available information about the CPG development process and funding.
2. *Managing conflict of interest*. Conflicts of interest (COIs) are those conditions that increase the risk for an individual to have his/her decisions or actions influenced by subordinate interests (IOM, 2009). All potential guideline development panel (GDP) members should provide written disclosure of all possible COIs. This written disclosure should include not only current but also planned COIs, including those related to nonfinancial, financial, institutional, patient-public, and intellectual interests relevant to the guideline scope. Disclosure of COIs should also be made and the potential influencing role of COIs should be discussed within the GDP prior to commencing work. GDP members should divest their financial COIs and funders should not develop the guidelines.
3. *Composition of guideline development group*. The GDP membership should be multidisciplinary and include clinicians, experts on methodology, stakeholders impacted by the guideline, a patient advocate/representative consumer organization, and a current/former patient.
4. *Intersection of CPG and systematic review*. The IOM produced a report (IOM, 2011b) on recommended standards for conducting systematic reviews. The GDP should utilize systematic reviews that follow these standards. If the GDP commissions a de novo systematic review for its guideline, the systematic review team and GDP should communicate regarding the approach, scope, and output of the full process.
5. *Establishing foundation of evidence and rating strength of recommendations*. The GDP should explain the underlying rationale for each recommendation, including summarizing the available evidence (i.e., quality, applicability, gaps, consistency, and quantity), describing harms and benefits, and explaining the role of values, theory, opinion, and clinical expertise. The GDP should provide

a confidence rating for the underlying evidence, a strength of recommendation rating, and notation of differences of opinion pertaining to the recommendation.

6. *Articulation of recommendations*. The GDP should articulate recommendations using a standardized form clearly noting the specific action and circumstance for utilizing the recommendation. Care should be taken to word a conditional/weak recommendation differently than a strong recommendation.
7. *External review*. The guideline should be reviewed by a range of external reviewers including organizations and agencies, clinical and scientific experts, and patient and public representatives. Unless waived by a reviewer, external review authorship should be maintained confidential. The GDP should think about each external review provided and document the rationale for following or not following each comment. In addition to making a draft of the guideline publicly available for comment, notice should be given to interested stakeholders of impending guideline publication.
8. *Updating*. The guideline document should include the date of its publication as well as the date of the underlying systematic review and planned date for future review. Continuous monitoring of the literature should evaluate whether new evidence impacts the validity of the guideline recommendations. Updating should occur if new evidence impacts the recommendations in a clinically important way.

The IOM (2011b) recommendations for the conduct of systematic reviews as the underlying basis for CPGs are as follows:

1. *Initiate the systematic review*. An appropriate systematic review team should be established including individuals with expertise in the content area, systematic review methodology, evidence searching, quantitative methods, and any other relevant area. Team members' conflicts of interest should be managed and documented and individuals with apparent financial conflicts or whose other biases could reduce review credibility should be excluded. While the independence of the systematic review should be protected, stakeholders and end user input should be considered. Conflicts of interest and bias for other individuals giving systematic review input should be managed similarly to systematic review team members. In formulating a new systematic review topic, verify the need for the review, develop the underlying analytic framework, articulate key questions in standard format along with associated rationale, and revise key questions based on stakeholder and end user input. A protocol for the systematic review should be developed including the rationale and context, the study selection and screening, a description of outcome measures, interventions, timing, and comparison groups, a description of search strategy, study selection, data extraction, resolution of disagreement, appraisal of individual studies and evaluation of the overall body of evidence, planned analyses, and proposed timetable for the review. This protocol should be posted for public review as well as peer review. The final protocol and any amendments should be posted publicly in a timely manner.

2. *Find and assess individual studies*. A comprehensive evidence search should be conducted and care should be taken to avoid reporting potentially biased research results. Studies should be screened and selected based on criteria specified in advance by the systematic review protocol. Observational studies should be examined along with trials when evaluating intervention harms and dual review should be used to select and screen studies. The search should be documented in detail and data collection should be managed carefully. Each study should be critically appraised including assessing the study's risk of bias, relevance of populations, outcome measures, and interventions, and fidelity of intervention implementation.
3. *Synthesize the body of evidence*. The body of evidence should be evaluated using a prespecified method including evaluating consistency, directness, reporting bias, risk of bias, and precision. A qualitative synthesis should be conducted including methodological and clinical characteristics of included studies. If a meta-analysis is included, it should be developed and conducted by expert methodologists and should also address heterogeneity of study effects and include statistical uncertainty measures and sensitivity analysis.
4. *Report the systematic review*. The final report should be prepared using a structured format including a title, abstract, executive summary, lay public summary, introduction, methods, results (organized around the key questions), discussion, and a section on COI and funding sources. The report should be peer reviewed (with the process managed by a third party) and should be posted publicly for comment (with comments dispositioned publicly). The final report should be published to allow public and free access.

APA's CPG Development Process

APA appointed an Advisory Steering Committee (ASC) in 2010 to oversee the CPG initiative. Since being appointed, the ASC regularly assesses what APA needs and how to fulfill these needs for scientists and practitioners as well as consumers of psychological services. The ASC also regularly studies best practices for guideline development.

Criteria for Topic Selection

APA's ASC evaluates six criteria when considering a topic for CPG development. These criteria are topic importance (considering symptom severity, burden, and prevalence); necessity of having a CPG on the topic; topic appropriateness for psychologists; topic value for a CPG (i.e., added value when factoring in other existing materials on the topic); topic feasibility for development of CPGs; and amount of existing evidence on the topic that could be used to guide a CPG. Ideally guideline topics will cover the full life-span, though this is not possible for all topics due to limited resources and research available. Topics can include not only mental health, but also additional applications of health care that are included among psychologists' activities.

Factoring in all these criteria, the ASC selected depressive disorders, obesity, and post-traumatic stress disorder (PTSD) as APA's first three topics for guideline development.

Progress

A call for nominations for each panel was distributed and a multidisciplinary guideline development panel (GDP) was appointed for each topic. Panel members have a range of research and clinical topical expertise. The membership across the three panels includes psychology, medicine (family, internal, and psychiatry), nursing, social work, dietetics, and patient representatives (community members).

Consistent with the IOM's (2011a, 2011b) guideline development standards, each GDP is utilizing a systematic review as the underlying basis for writing their guideline. Figure 15.2 provides an illustration of the process involved. GDP members have been provided education about best practices and IOM standards for developing guidelines. To promote transparency in APA's CPG initiative (consistent with best practices), APA staff and ASC members worked to update and enhance a policy and disclosure form for conflict of interest. This update includes nonfinancial conflicts of interest in addition to financial ones to address the roles

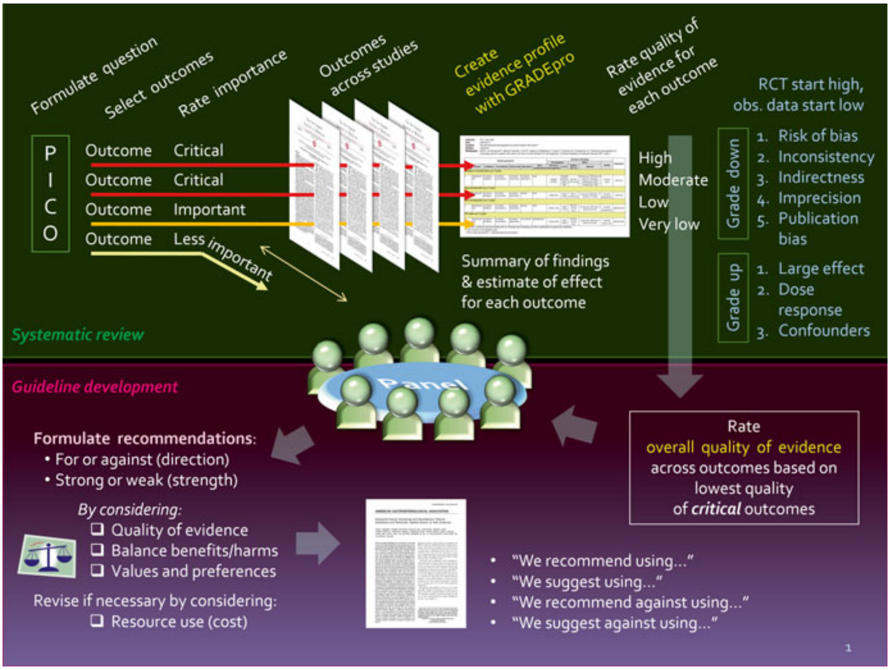

Fig. 15.2 Overview of Guideline Development Process. Falck-Ytter and Schünemann (2009)

these may have in health care and research. APA also consults regularly with methodologists at the Evidence-based Practice Centers (EPC) from the Agency for Healthcare Research and Quality (AHRQ) to ensure rigorous methodology and IOM standard compliance.

APA's CPGs will provide actionable, clear recommendations combining the best research available with patient values, preferences, and characteristics, with clinical expertise. Ideally they will enhance health care overall and also highlight gaps in behavioral and mental health research. While the primary intended audience of APA's CPGs is psychologists, the GDPs are writing the guidelines to also inform consumers, other health care professionals, and policy makers.

Conclusion

In summary, US health care system delivery and payment reforms are being fueled by the 2010 passage of the Patient Protection and Affordable Care Act (PPACA) and will likely continue as the PPACA is fully implemented. These changes will affect all of health care, including psychological practice. Physical medicine has tended to take the lead over behavioral health in adopting QI systems (Bobbitt et al., 2012; O'Donohue & Engle, 2013). However, psychology must be prepared to address the demands of QI systems as payors want providers to demonstrate increasing accountability for treatment outcomes (Bachman, 2006; Nordal, 2012). Psychologists are uniquely positioned to develop and contribute to QI systems given their extensive training as a profession in research methodology (i.e., outcome measurement methodology), service delivery and clinical skills, and program evaluation (APA, 2013). APA is already involved in two initiatives specific to QI: (1) provision of resources pertaining to collection and reporting of psychotherapy outcomes, and (2) the clinical practice guideline initiative. Moreover, APA has provided guidance to psychologists on how to evaluate and make decisions about participating in QI programs (APA, 2009).

Future Directions

With the Medicare PQRS shift in 2015 from voluntary to mandatory reporting on patient outcomes, QI outcome measures will become even more critical for psychologists to implement. The APA Practice Organization's partnership with a registry vendor Healthmonix will facilitate psychologists' involvement in PQRS patient-centered outcome reporting. Further, once finalized, APA's current CPGs will need to be disseminated and efforts will be made to facilitate implementation. While strategies to facilitate dissemination and implementation will need to be developed, some methods might include publication in clearinghouses such as the National Guideline Clearinghouse, Internet-based tools, and computerized decision support systems.

Future guideline topics and associated panels will be developed and decisions about potential collaborations with other professional organizations will be made. These collaborations could allow for enhanced CPG dissemination and sharing of resources. Finally, CPGs have a shelf life of 5 years before they are considered to be outdated. This is fundamentally related to the regular expansion of the underlying scientific literature and need for CPGs to incorporate the best available existing scientific knowledge. Thus strategies for updating APA's CPGs on a regular basis will need to be established. With its QI systems and programs in place, APA in partnership with the APA Practice Organization will be able to contribute substantially to the clinical work of psychologists and to improved behavioral and mental health outcomes for the patients who seek psychological services.

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Chapter 16
Feedback-Informed Treatment (FIT): Improving the Outcome of Psychotherapy One Person at a Time

Scott D. Miller, Susanne Bargmann, Daryl Chow, Jason Seidel, and Cynthia Maeschalck

> It is the big choices we make that set our direction. It is the smallest choices we make that get us to the destination.
>
> Shad Helmstetter

In the field of psychotherapy a "great debate" is raging about how to improve quality and outcome (Wampold, 2001). On one side are those who hold that behavioral health interventions are similar to medical treatments (Barlow, 2004). Therapies work, they believe, because like penicillin they contain specific ingredients remedial to the disorder being treated. Consistent with this perspective, emphasis is placed on diagnosis, treatment plans, and adherence to so-called validated treatments (Chambless & Ollendick, 2001; Huppert, Fabbro, & Barlow, 2006; Siev, Huppert, & Chambless, 2009). The "medical model," as it is termed, is the dominate view of how psychotherapy works. It is arguably the view held by most people who seek behavioral health treatment.

On the other side of the debate are those who maintain that psychotherapy, while demonstrably effective, is incompatible with the medical view (Duncan, Miller, Wampold, & Hubble, 2010; Hubble, Duncan, & Miller, 1999; Wampold, 2001). Proponents of what has been termed the "contextual" perspective highlight the lack of evidence for differential effectiveness among the 250 competing psychological treatments, suggesting instead that the efficacy of psychotherapy is more parsimoniously accounted for by a handful of curative factors shared by all, chief among them being extratherapeutic phenomena, the therapeutic relationship, hope and expectancy, and model and structure (Hubble et al., 1999; Lambert, 1992).

The challenge for practitioners, given the sharply diverging points of view and dizzying array of treatments available, is knowing what to do, when to do it, and with whom? Thankfully, recent developments are on track to providing an empirically

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robust and clinically feasible answer to the question of "what works for whom?" Based on the pioneering work of Howard, Moras, Brill, Martinovich, and Lutz (1996) and others (c.f., Brown, Dreis, & Nace, 1999; Duncan et al., 2010; Lambert, 2010b; Miller, Duncan, Sorrell, & Brown, 2005), this approach transcends the "medical versus contextual" debate by focusing on routine, ongoing monitoring of engagement in and progress of therapy (Lambert, 2010a). Such data, in turn, are utilized to inform decisions about the kind of treatment offered, and improving quality by providing valid and reliable data about when to continue, modify, or even end services.

Multiple, independent randomized clinical trials now show that formally and routinely assessing and discussing clients' experience of the process and outcome of care effectively doubles the rate of reliable and clinically significant change, decreases dropout rates by as much as 50 %, and cuts deterioration rates by one-third (Miller & Schuckard, 2013). The process known as feedback-informed treatment (FIT) is a six sigma, quality improvement methodology specifically designed for application to behavioral health service delivery. In February 2013, the approach was listed on the Substance Abuse and Mental Health Service Administration's National Registry of Evidence-Based Programs and Practices (http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=249).

In the sections that follow, detailed instructions and examples are given for incorporating FIT into clinical practice. All practitioners, whether aligned primarily with the medical or contextual views of psychotherapy, can benefit, using the information generated by the process to improve service delivery, one client at a time.

Why Feedback Matters?

> The proof of the pudding is in the eating.
>
> Cervantes, *Don Quixote*

FIT is based on several well-established findings from the outcome literature. The first is psychotherapy works. Studies dating back over 30 years document that the average treated person is better off than 80 % of the untreated sample in most studies (Duncan et al., 2010; Smith & Glass, 1977; Wampold, 2001). Second, the general trajectory of change in successful treatment is predictable, with the majority of progress occurring earlier rather than later (Brown et al., 1999; Hansen, Lambert, & Forman, 2002). Third, despite the proven efficacy of psychotherapy, there is considerable variation in both the engagement in and outcome of individual episodes of care. With regard to the former, for example, available evidence indicates that as many as 50 % of those who initiate treatment drop out before achieving a reliable improvement in functioning (Garcia & Weisz, 2002; Kazdin, 1996; Swift & Greenberg, 2014; Wierzbicki & Pekarik, 1993). Of greater concern, Lambert (2010a), reviewing outcomes obtained in routine clinical settings, found that a mere 15 % of those treated met criteria for "recovered" status at termination of services. Fourth, significant differences in outcome exist between practitioners. Indeed, a large body of evidence shows that "*who*" provides a treatment contributes five to nine times more to outcome than "what" particular treatment is offered (Miller, Hubble, Chow, & Seidel, 2013; Miller, Hubble, & Duncan, 2007; Wampold, 2005). Such findings indicate that people seeking treatment would do well to choose their provider carefully as it is the therapist—*not* the treatment approach—that matters most in terms of results. Fifth, and finally, a hefty portion of the variability in outcome among clinicians is attributable to the therapeutic alliance. In a study involving 80 clinicians and 331 clients, for example, Baldwin, Wampold, and Imel (2007) found that differences in the alliance accounted for a staggering 97 % of the variability in outcomes among therapists. By contrast, client variability in the alliance was found to be "unrelated to outcome" (p. 842).

Taken together, the foregoing results indicate that real-time monitoring and utilization of outcome and alliance data can improve quality and outcome by maximizing the "fit" between client, therapist, and treatment. Simply put, with so many factors at play influencing outcome at the time of service delivery, it is simply impossible to know a priori what treatment or treatments delivered by a particular therapist will reliably work with a specific client. Regardless of discipline or theoretical orientation, clinicians must determine if the services being offered are working and adjust accordingly.

Two simple scales that have proven useful for monitoring the status of the relationship and progress in care are the *Session Rating Scale* (SRS [Miller, Duncan, & Johnson, 2000]), and the *Outcome Rating Scale* (ORS, [Miller & Duncan, 2000]). The SRS and ORS measure alliance and outcome, respectively. Both scales are short, four-item, self-report instruments that have been tested in numerous studies and shown to have solid reliability and validity (Miller & Schuckard, 2013). Most importantly perhaps, the brevity of the two measures insures that they are *feasible* for use in everyday clinical practice. After having experimented with other tools, the developers, along with others (i.e., Brown et al., 1999), found that "any measure or combination of measures taking more than five minutes to complete, score, and interpret are less likely to be used by clinicians and increase the likelihood of complaints by consumers" (Bargmann & Robinson, 2012, p. 18). Indeed, available evidence indicates that routine use of the ORS and SRS is high compared to other, longer measures (99 % versus 25 % at 1 year [Miller, Duncan, Brown, Sparks, & Claud, 2003]).

Administering and scoring the measures is simple and straightforward. The ORS is administered at the beginning of the session. The scale asks consumers of therapeutic services to think back over the prior week (or since the last visit) and place a hash mark (or "x") on four different lines, each representing a different area of functioning (e.g., individual, interpersonal, social, and overall well-being). The SRS, by contrast, is completed at the end of each visit. Here again, the consumer places a hash mark on four different lines, each corresponding to a different and important quality of the therapeutic alliance (e.g., relationship, goals and tasks, approach and method, and overall). On both measures, the lines are 10 cm in length. Scoring is a simple matter of determining the distance in centimeters (to the nearest millimeter) between the left pole and the client's hash mark on each individual item and then adding the four numbers together to obtain the total score.

Versions of the scales are available for adults, adolescents, and children, in a number of different languages at no cost to individual practitioners at http://www.centerforclinicalexcellence.com/measures/. Additionally, a growing number of computer-based applications are available which can simplify and expedite the process of administering, scoring, interpreting, and aggregating data from the scales. Such programs include Web-based outcome management systems (e.g., fit-outcomes.com, myoutcomes.com, pragmatictracker.com), smartphone apps (TOMS: Therapeutic Outcomes Management System, M2FIT), and Web services designed for integration into electronic health records (e.g., OpenFIT). Detailed descriptions of the other applications can be found online at www.scottdmiller.com.

Creating a "Culture of Feedback"

> My priority is to encourage openness and a culture that is willing to acknowledge when things have gone wrong.
>
> John F. Kennedy

Of course, soliciting clinically meaningful feedback from consumers of therapeutic services requires more than administering two scales. Clinicians must work at creating an atmosphere where clients feel free to rate their experience of the process and outcome of services: (1) without fear of retribution, and (2) with a hope of having an impact on the nature and quality of services delivered.

Interestingly, empirical evidence from both business and healthcare demonstrates that consumers who are happy with the way *failures* in service delivery are handled are generally *more* satisfied at the end of the process than those who experience no problems along the way (Fleming & Asplund, 2007). In one study of the ORS and SRS involving several thousand "at-risk" adolescents, for example, effectiveness rates at termination were 50 % higher in treatments where alliances "improved" rather than were rated consistently "good" over time. The most effective clinicians, it turns out, consistently achieve *lower* scores on standardized alliance measures at the outset of therapy, thereby providing an opportunity to discuss and address problems early in the working relationship—a finding that has now been confirmed in numerous independent samples of real-world clinical samples (Miller et al., 2007).

Beyond displaying an attitude of openness and receptivity, creating a "culture of feedback" involves taking time to introduce the measures in a thoughtful and thorough manner. Providing a rationale for using the tools is critical, as is including a description of how the feedback will be used to guide service delivery (e.g., enabling the therapist to catch and repair alliance breaches, prevent dropout, correct deviations from optimal treatment experiences). Additionally, it is important that clients who trust the therapist will not be offended or become defensive in response to feedback given. Instead, therapists must take client's concerns regarding the treatment process seriously and avoid the temptation to interpret feedback clinically. When introducing the measures at the beginning of a therapy, the therapist might say:

> (I/We) work a little differently at this (agency/practice). (My/Our) first priority is making sure that you get the results you want. For this reason, it is very important that you are involved in monitoring our progress throughout therapy. (I/We) like to do this formally by using a short paper and pencil measure called the Outcome Rating Scale. It takes about a

> minute. Basically, you fill it out at the beginning of each session and then we talk about the results. A fair amount of research shows that if we are going to be successful in our work together, we should see signs of improvement earlier rather than later. If what we're doing works, then we'll continue. If not, however, then I'll try to change or modify the treatment. If things still don't improve, then I'll work with you to find someone or someplace else for you to get the help you want. Does this make sense to you? (Bargmann & Robinson, 2012)

At the end of each session, the therapist administers the SRS, emphasizing the importance of the relationship in successful treatment *and* encouraging negative feedback:

> I'd like to ask you to fill out one additional form. This is called the Session Rating Scale. Basically, this is a tool that you and I will use at each session to adjust and improve the way we work together. A great deal of research shows that your experience of our work together—did you feel understood, did we focus on what was important to you, did the approach I'm taking make sense and feel right—is a good predictor of whether we'll be successful. I want to emphasize that I'm not aiming for a perfect score—a 10 out of 10. Life isn't perfect and neither am I. What I'm aiming for is your feedback about even the smallest things—even if it seems unimportant—so we can adjust our work and make sure we don't steer off course. Whatever it might be, I promise I won't take it personally. I'm always learning, and am curious about what I can learn from getting this feedback from you that will in time help me improve my skills. Does this make sense? (Bargmann & Robinson, 2012)

Integrating Feedback into Care

> If we don't change direction, we'll end up where we're going.
>
> Professor Irwin Corey

In 2009, Anker, Duncan, and Sparks published the results of the largest randomized clinical trial in the history of couple therapy research. The design of the study was simple. Using the ORS and SRS, the outcomes and alliance ratings of 200 couples in therapy were gathered during each treatment session. In half of the cases, clinicians received feedback about the couples' experience of the therapeutic relationship and progress in treatment; in the other half, none. At the conclusion of the study, couples whose therapist received feedback experienced twice the rate of reliable and clinically significant change as those in the non-feedback condition. Even more astonishing, at follow-up, couples treated by therapists not receiving feedback had nearly twice the rate of separation and divorce!

What constituted "feedback" in the study? As in most studies to date (c.f., Miller & Schuckard, 2013), the feedback was very basic in nature. Indeed, when surveyed, *none* of the clinicians in the study believed that it would make a difference as *all* stated that they already sought feedback from clients on a regular basis. That said, two kinds of information were made available to clinicians: (1) individual client's scores on the ORS and SRS compared to the clinical cutoff for each measure, and (2) clients' scores on the ORS from session-to-session compared to a computer-generated "expected treatment response" (ETR).

Integrating the Clinical Cutoff into Care

Beginning with the clinical cutoff on the SRS, scores that fall at or below 36 are considered "cause for concern" and should be discussed with clients *prior* to ending the session. Large normative studies to date indicate that fewer than 25 % of people score below the cutoff at any given point during treatment (Miller & Duncan, 2004). Single-point decreases in SRS scores from session to session have also been found to be associated with poorer outcomes at termination—even when the total score consistently falls above 36—and should therefore be addressed with clients (Miller et al., 2007). In sum, the SRS helps clinicians identify problems in the alliance (i.e., misunderstandings, disagreement about goals and methods) early in care, thereby preventing client dropout or deterioration.

Consider the following example from a recent, first session of couples therapy where using the SRS helped prevent one member of the dyad from dropping out of treatment. At the conclusion of the visit, the man and woman both completed the measure. The scores of two diverged significantly, however, with the husband's falling below the clinical cutoff. When the therapist inquired, the man replied, "I know my wife has certain ideas about sex, including that I just want sex on a regular basis to serve my physical needs. But the way we discussed this today leaves me feeling like some kind of 'monster' driven by primitive needs." When the therapist asked how the session would have been different had the man felt understood, he indicated that both his wife and the therapist would know that the sex had nothing to do with satisfying primitive urges but rather was a place for him to feel a close, deep connection with his wife as well as a time he felt truly loved by her. The woman expressed surprise and happiness at her partner's comments. All agreed to continue the discussion at the next visit. As the man stood to leave, he said, "I actually don't think I would have agreed to come back again had we not talked about this—I would have left here feeling that neither of you understood how I felt. Now, I'm looking forward to next time."

Whatever the circumstance, openness and transparency are central to successfully eliciting meaningful feedback on the SRS. When the total score falls below 36, for example, the therapist can encourage discussion by saying:

> Thanks for the time and care you took in filling out the SRS. Your experience here is important to me. Looking at the SRS gives me a chance to check in, one last time, before we end today to make sure we are on the same page—that this is working for you. Most of the time, about 75 % actually, people score 37 or higher. And today, your score falls at (a number 36 or lower), which can mean we need to consider making some changes in the way we are working together. What thoughts do you have about this?

When scores have decreased a single point compared to the prior visit, the clinician can begin exploring the possible reasons by stating:

> Thanks so much for being willing to give me this feedback. As I've told you before, this form is about how the session went; and last week (using the graph to display the results), your marks totaled (X). This week, as you can see, the total is (X – 1). As small as that may seem, research has actually shown that a decrease of a single point can be important. Any ideas about how today was different from prior visits and what, if anything, we may need to change?

Finally, when a particular item on the SRS is rated lower compared to the other items, the therapist can inquire directly about that item regardless of whether the total score falls below the cutoff:

> Thanks for taking this form so seriously. It really helps. I really want to make sure we are on the same page. Looking at the SRS gives me a chance to make sure I'm not missing something big or going in the wrong direction for you. In looking over the scale, I've noticed here (showing the completed form to the client), that your mark on the question about "approach and method" is lower compared to the others. What can you tell me about that?

When seeking feedback via the SRS, it is important to frame questions in a "task-specific" manner. Research shows, for example, that people are more likely to provide feedback when it is not perceived as a criticism of the *person* but rather about specific behaviors (Coyle, 2009; Ericsson, Charness, Feltovich, & Hoffman, 2006). In addition, instead of inquiring generally about how the session went or how the client felt about the visit, the therapist should frame questions in a way that elicits concrete, specific suggestions for altering the type, course, and delivery of services:

- "Did we talk about the right topics today?"
- "What was the least helpful thing that happened today?"
- "Did my questions make sense to you?"
- "Did I fail to ask you about something you consider important or wanted to talk about but didn't?"
- "Was the session too (short/long/just right) for you?"
- "Did my response to your story make you feel like I understood what you were telling me, or do you need me to respond differently?"
- "Is there anything that happened (or did not happen) today that would cause you not to return next time?

On the ORS, the clinical cutoff is 25 and represents the dividing line between clinical (above) and scores considered nonclinical (below) (Bargmann & Robinson, 2012). Importantly, clients who score below 25 are likely to show measured benefit from treatment while those falling above 25 at intake are *less* likely to show improvement and are, in fact, at higher risk of deterioration in care. With regard to the latter, available evidence indicates that between 25 and 33 % of people presenting for treatment score *above* the clinical cutoff at intake (Bargmann & Robinson, 2012; Miller & Duncan, 2004; Miller et al., 2005).

The most common reason given by clients for scoring above the clinical cutoff at the first visit is that someone else sent them to or believes they need treatment (e.g., justice system, employer, family member, partner). In such instances, the client can be asked to complete the ORS *as if* they were the person who sent them. Time in the session can then be usefully spent on working to improve the scores of the "concerned other." A recent session with a man referred for "counseling" by his physician illustrates how this process can work to build an alliance with people who are mandated into care.

Briefly, the man's score on the ORS at the initial session was 28, placing him above the cutoff and in the nonclinical or "functional" range of scores. The therapist plotted the scores on a graph saying, "As you can see, your score falls above this dotted line, called the clinical cut-off. People who score above that line are scoring more like people who are not in treatment and saying life is generally pretty good." The man nodded his head in agreement. "That's great," the therapist said without hesitation, "Can you help me understand why you have come to see me today then?"

"Well," the man said, "I'm OK, but *my family*—and my wife in particular—have been complaining a lot, about, well, saying that I drink too much."

"OK, I get it," the therapist responded, "*they* see things differently than you." Again, the man nodded in agreement. The therapist quickly responded with a request, "Would you mind filling this in one more time then, as if you were your wife and family?" When the items on the ORS were added up, the total had dropped to 15—well below the clinical cutoff.

Using a different colored pen, the therapist plotted the "collateral score" on the graph. Pointing to the man's score, the therapist said, "You're up here, at 28," and then continued, "but your family, they have a different point of view."

"Exactly," the man said, nodding his head and signaling agreement. When the therapist then asked what it would take for the score of his wife and family to go up, the first words out of the man's mouth were, "I'd definitely have to cut down the drinking …," followed by a lengthy and engaged conversation regarding the family's concern about driving while intoxicated and the man's frequent inability to recall events after a night of heavy alcohol consumption.

Another common reason for scores falling above the clinical cutoff at intake is that the client wants help with a very specific problem—one that does not impact the overall quality of life or functioning but is troubling nonetheless. Given the heightened risk of deterioration for people entering treatment above the clinical cutoff, clinicians are advised against "exploratory" and "depth-oriented" work. The best approach, in such instances, is a cautious one, using the least invasive and intensive methods needed to resolve the problem at hand (Miller & Bargmann, 2011; Tilsen, Maeschalck, Seidel, Robinson, & Miller, 2012).

Finally, less frequent, although certainly not unheard-of, causes for high initial ORS scores include (1) high-functioning people who want therapy for growth, self-actualization, and optimizing performance, and (2) people who may have difficulties reading and writing or who have not understood the meaning or purpose of the measure. In the latter instance, time can be taken to explain the measure and build a "culture of feedback" or, in the case of reading or language difficulties, a standardized, oral version is available. For high-functioning people, a strength-based, coaching-type approach focused on achieving specific, targeted, and measurable goals is likely to be most helpful while simultaneously minimizing risks of deterioration (Bargmann & Robinson, 2012).

Integrating the Expected Treatment Response (ETR) into Care

In addition to the clinical cutoff, clinicians in the couple study, as indicated above, received feedback comparing a client's score on the ORS to a computer-generated "expected treatment response" (ETR). As researchers Wampold and Brown (2005) have observed, "Therapists are not cognizant of the trajectory of change of patients (sic) seen by therapists in general … that is to say, they have no way of comparing their treatment outcomes with those obtained by other therapists" (p. 9). Using the largest normative sample to date, including 427,744 administrations of the ORS, 95,478 episodes of care delivered by 2354 providers, a set of algorithms were developed for plotting progress in successful and unsuccessful treatment episodes using ORS scores (Miller, 2011; Owen et al., in press). Comparing an individual client's scores to the ETR enables clinicians to identify those at risk for a null or negative outcome at a time when altering, augmenting, or even referring to other services (or providers) can improve the chances of success (see Fig. 16.1).

In the study by Anker, Duncan, and Sparks (2009) reviewed earlier, participating clinicians used a simple table to determine the ETR for each client. Computer-generated ETRs are available in electronic format in the computer-based applications mentioned above.

So how can clinicians integrate the ETR into their day-today practice with clients? Progress falling short of the ETR should prompt discussion focused on identifying barriers and developing a plan for altering or augmenting services in order to bring about the desired change. Consider the following discussion between a clinician and a 20-year-old female being treated for depression. Two years prior to their first meeting, the client's mother died unexpectedly from a brain hemorrhage. At the initial session, the woman scored 15.4 on the ORS—well below the clinical cutoff. For the first three sessions, the therapist focused on grief, assuming that it

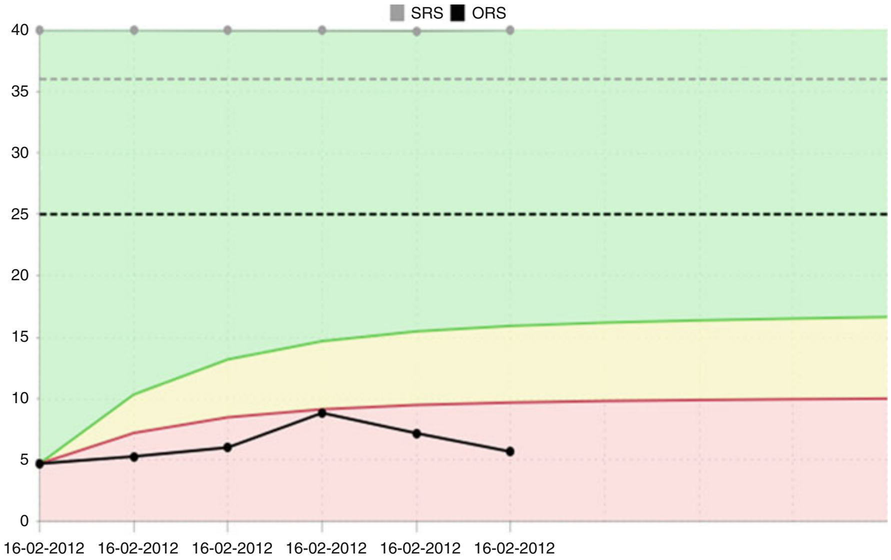

Fig. 16.1 The *green area* represents successful outcomes; the *red area* represents unsuccessful outcomes. The *solid black line* represents actual session-by-session ORS scores (screenshot courtesy of www.fit-outcomes.com) (Color figure online)

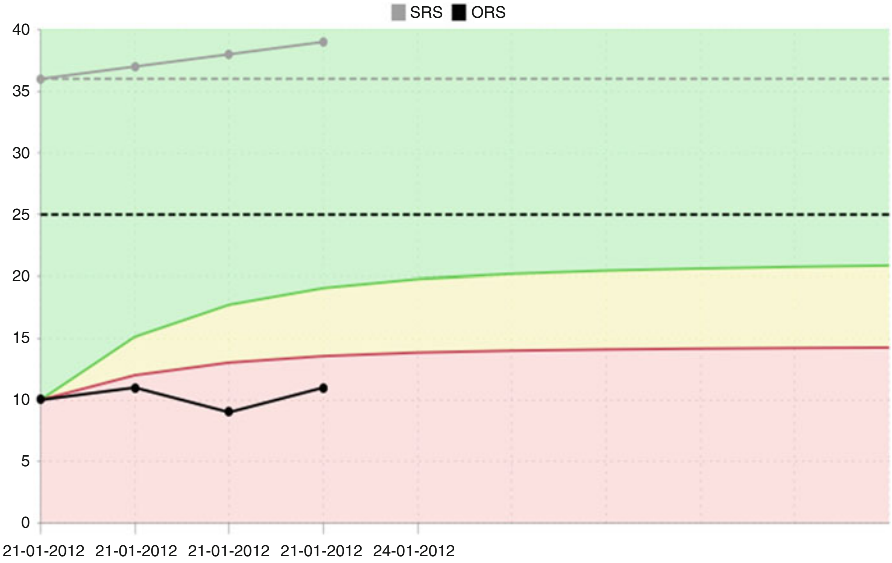

Fig. 16.2 The *dotted lines* on the graph (on 25 and 36) represent the clinical cutoff for the ORS and the alliance cutoff for the SRS. The *green area* represents the expected treatment response (ETR) for a successful treatment episode. The *solid black line* represents the client's actual ORS scores. The *solid gray line* denotes SRS scores from session to session (screenshot courtesy of: www.fit-outcomes.com) (Color figure online)

was at the core of the woman's depression. As can be seen in Fig. 16.2, SRS scores improved with each visit, leading the clinician to believe that the therapeutic alliance was strong. Despite this, ORS scores remained unchanged. Using the ETR as a guide, the therapist initiated a conversation with the client near the beginning of the fourth visit.

T: Looking at your graph, it seems that despite talking about your mother, you're not feeling any better than when we started. Is that right?
C: Yeah, these feelings … they won't go away.
T: (Pointing to the ETR) You can see that your scores fall below this red line here …
C: (Nodding) Mmm huh.
T: The green line shows where we should be …. any thoughts about that?
C: Well, actually, yes.
T: Can you share them with me?
C: Well … I'm just not sure this is all about my mom.
T: Really? The problem may lie elsewhere?
C: (Nodding affirmatively). I mean, of course, I'm very sad about my mom …
T: Sure …
C: (Nodding) … but …

T: … you're thinking there's something else, something we haven't addressed here or talked about?

C: (Nodding) … I'm sad about my Mom, and I think I'm going to be sad for a long time … but I think the real problem, what I really need to work on … is stuff that's going on right now … not the past (long pause).

T: Wow. I'm grateful you're telling me this … so, what is it? Can you tell me?

C: Well … I just really unhappy about living at home … with my Dad.

T: Uh huh …

C: He doesn't seem to really care about me. It's like there's nobody who cares about me now, and that hurts (crying).

The client went on to explain how her father had changed following the death of her mother. Once warm and loving, he had become distant and cold. By the end of the visit, an agreement was made to invite the client's father into the sessions. Scores on the SRS were slightly higher than in previous visits. Over the next few sessions together with the father, the woman's scores on the ORS began moving up, approaching and then slightly exceeding the green line. In sum, the ETR prompted an open and transparent dialogue about the lack of progress and exploration of alternatives. In this instance, altering the focus of services—a component of the therapeutic relationship—resulted in progress in subsequent sessions.

From Feedback to Continuous Practitioner Improvement

> Experts are always made not born.
>
> K. Anders Ericsson

As effective as feedback has proven to be for improving the outcome of individual episodes of care, available evidence indicates that it is not sufficient for generating continuous practitioner improvement. de Jong, van Sluis, Nugter, Heiser, and Spinhoven (2012) found, for instance, that not all therapists benefit from feedback. In addition, Lambert reports that practitioners do not get better at detecting when they are off track or their cases are at risk for dropout or deterioration, despite being exposed to "feedback on half their cases for over three years" (Miller, Duncan, & Hubble, 2004, p. 16). In sum, it appears that feedback functions like a GPS, pointing out when the driver is off track and even suggesting alternate routes while not necessarily improving overall navigation skills or knowledge of the territory and, at times, being completely ignored.

True quality improvement will only occur when practitioners continuously learn from the feedback they receive. Such learning requires an additional step: engaging in deliberate practice (Ericsson, 1996, 2009; Ericsson et al., 2006; Ericsson, Krampe, & Tesch-Romer, 1993). Deliberate practice means setting aside time for reflecting on feedback received, identifying where one's performance falls short, seeking guidance from recognized experts, and then developing, rehearsing, executing, and evaluating a plan for improvement. In addition to helping refine and extend specific skills, engaging in prolonged periods of reflection, planning, and practice engenders the development of mechanisms enabling performers to use their knowledge in more efficient, nuanced, and novel ways than their more average counterparts (Ericsson & Staszewski, 1989).

Results from numerous studies across a variety of professional domains (e.g., sports, chess, business, computer programming, teaching, medicine and surgery) document the effect of deliberate practice on improving performance (Charness, Tuffiash, Krampe, Reingold, & Vasyukova, 2005; Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011; Ericsson et al., 1993; Keith & Ericsson, 2007; Krampe & Ericsson, 1996; Starkes, Deakin, Allard, Hodges, & Hayes, 1996). Chow et al. (2015) conducted the only study on the subject to date in the field of behavioral health. Using a sample of practitioners working in real-world settings, the researchers found, consistent with other studies, that therapist age, gender, years of experience, professional degree or certification, caseload, and theoretical approach were not significant predictors of effectiveness (Beutler et al., 2004). By contrast, the average number of hours clinicians spent in solitary practice outside of work targeted at improving therapeutic skills was a significant predictor of clinician effectiveness. As seen in Fig. 16.3, the top quartile of

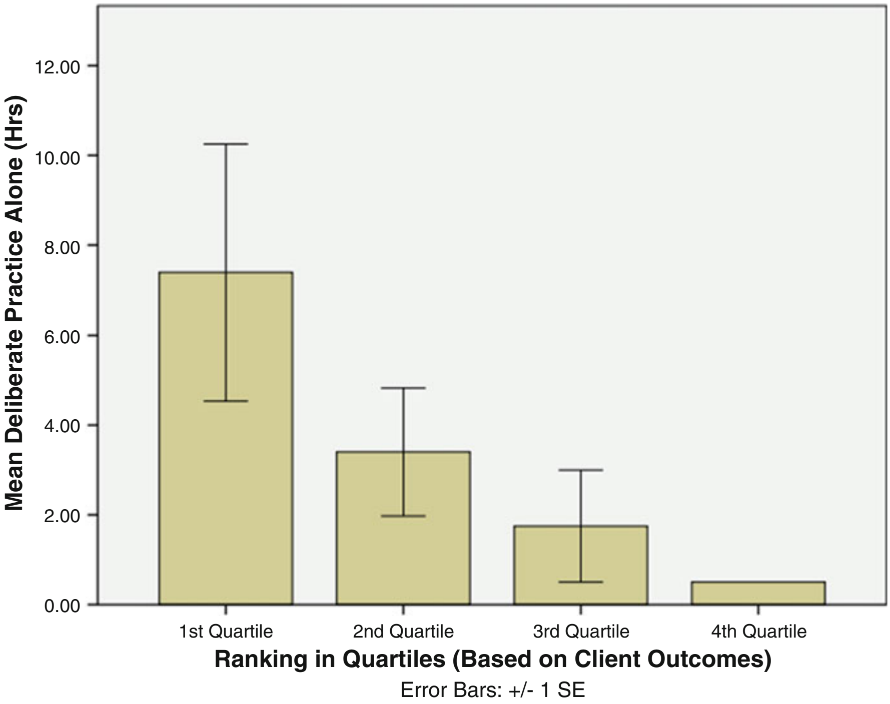

Fig. 16.3 Therapists grouped in quartiles based on their adjusted client outcomes as a function of estimated time spent on "deliberate practice alone" per typical work week. *Note*. Groupings of therapists were based on the ranking of the complete cohort from an initial study. Two out of the 17 therapists in Study II did not complete this part of the questionnaire. Number of therapists in quartile grouping: first quartile = 7; second quartile = 5; third quartile = 2; fourth quartile = 1. There is no error bar for the fourth quartile, as it consists of only one therapist. *SE* standard error of mean

practitioners invested twice as much time as the second engaged in deliberate practice, and four times more than the third. Indeed, across groups, the less time a clinician spent "practicing outside of practice," the less effective they were overall.

Clearly, given the widely varying rates of deliberate practice among practitioners, the important question is how to increase the amount of dedicated time each spends in activities specifically aimed at improving specific aspects of their therapeutic skills. On this subject, available evidence suggests that a focus on intrinsic motivators (i.e., recognition, attention, enhanced competence, and professional identity) is superior to an emphasis on extrinsic drivers (e.g., financial incentives, punishment, external controls [Colvin, 2009]). That said, as Boswell, Kraus, Miller, and Lambert (2013) point out, ample opportunities need to be provided at work for receiving, reviewing, and reflecting on feedback about performance. Left to the individual provider, those most in need are likely to be the least inclined to invest the time and effort required (Maeschalck, Bargmann, Miller, & Bertolino, 2012).

Improving the Outcome of Therapy One Practitioner and One Client at a Time

> It is better to take many small steps in the right direction than to make a great leap forward only to stumble backward.
>
> Chinese Proverb

The research evidence is clear: psychotherapy is an effective treatment for a wide range of presenting concerns and problems. Despite these positive results, too many clients deteriorate while in care and even larger number drop out before experiencing a reliable improvement in functioning. At the same time, outcomes vary widely and consistently among clinicians.

FIT uses routine, ongoing feedback regarding the client's experience of the therapeutic experience and progress to guide behavioral health service delivery. A significant and growing body of research documents that, regardless of theoretical orientation or preferred treatment approach, FIT improves retention and outcome while simultaneously reducing rates of deterioration. In February 2013, the approach was listed on the Substance Abuse and Mental Health Service Administration's National Registry of Evidence-Based Programs and Practices (http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=249).

While feedback has been shown to result in documented improvements in the quality and outcome of individual treatment episodes, it has not proven sufficient for generating continuous practitioner improvement. For feedback to engender learning, practitioners must engage in deliberate practice. Results from numerous studies across a variety of professional domains, including psychotherapy, indicate that the number of hours spent receiving, reviewing, and reflecting on feedback received is a significant predictor of performance.

In sum, FIT and deliberate practice improve the quality and effectiveness of psychotherapy one client and one therapist at a time.

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Chapter 17
Quality Improvement and Management in Correctional Mental Health

T. Dronet

Key Points

- A quality improvement program begins with asking the questions: "*What do we need to change, and how do we do it?*"
- Identify the areas that need to be monitored.
- Set up a quality improvement committee that invites representatives from the mental health department, and other areas of healthcare and security, to meet at least quarterly.
- Compare practices to a nationally recognized association (e.g., NCCHC, ACA) to identify variations between best practices and the agency's current policies and procedures.
- Design one of the two possible quality improvement studies—the process study and the outcome study.
- The process study addresses the methods by which mental health services are provided.
- The outcome study examines whether or not expected outcomes of patient care were achieved.
- A corrective action plan (CAP) outlines the process or outcome needing to be changed, what action will be used to produce the change, the specific time frame for the improvement, who will take responsibility for implementing the change, and when the problem will be reevaluated to ensure that the changes have continued to produce the desired improvement in process or outcome.

When speaking on quality improvement in correctional mental health, it is hard not to consult the national standards on healthcare in corrections, headed by the National Commission on Correctional Health Care (NCCHC). The NCCHC

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determines that a “Continuous Quality Improvement Program” is *essential*, meaning if a healthcare program in a correctional institution wishes to be accredited by the NCCHC and their rigorous auditing process, there must be a continuous quality improvement program in place. And this trend in more and more institutions striving for continuous quality improvement and maintaining high-quality delivery of services is decades in the making. Just look at the many litigations our state departments of corrections are undertaking as a result of accusingly poor quality of care. Although no system or mental healthcare program in corrections is perfect, many changes are occurring because of the lack of sufficient resources available to correctional systems to provide quality mental healthcare. And these systems are falling into a litigious process that, ultimately, is resulting into more qualified staff to provide mental health programming.

Correctional Mental Health Reform

For instance, in 2005, the state of South Carolina’s Department of Corrections came into an agreement with the “Protection and Advocacy for People with Disabilities” group on behalf of inmates living in 30 prisons, with one psychiatrist treating thousands of mentally ill (http://www.wltx.com/story/news/2015/01/15/mental-health-prison/21838327/). The agreement asks for $8 million to hire more psychiatry providers, counselors, and mental health technicians, to improve the treatment of the 42,000 inmates in the system, 6300 with mental health issues.

Another case in correctional litigation resulting in major progressive change in quality mental health programming is in Mississippi. In 2002, prisoner rights activists filed a suit on behalf of 1000 segregated inmates housed at the Mississippi State Penitentiary maximum security unit. The housing conditions, the classification system, and the mental health resources were deemed deplorable (Terry et al., 2009). “In contrast to some states where litigation over such conditions has led to endless court battles and little change, in Mississippi the adversarial relationship shifted after a few years of intensive litigation to a mostly collaborative and extremely productive relationship, ushering in far-reaching reforms in classification and mental health programming. These changes have resulted in significant, documented decreases in rates of violence, disciplinary infractions and use of force” (Human Rights at Home: Mental Illness in U.S. Prisons and Jails, 2009). The rates of behavioral incidence amongst the segregated mentally ill inmates were reduced by over 70 % by implementing a step-down mental health program in segregation. Because the class-action lawsuit resulted in the hiring of new mental health staff and increased psychiatry providers, dedicated staffs, including correctional officers, were specially trained in mental health issues and how to manage mentally ill offenders. With nearly 80 % of inmates in segregation being reclassified to general population, the introduction of the special training curriculum, and the implementation of the special mental health treatment programming, the continued success of the progress made can be attributed to the use of a continuous quality improvement program.

In Nebraska, the advocacy group—Disability Rights Nebraska—recently pushed the state corrections department to “step up to the plate” in reentry and transition services for the mentally ill (Hammel, 2014). As a result some changes were launched, such as group therapy programs at several facilities, and a separate wing for the mentally ill at a special management unit, but the prison officials still feel like more needs to be done.

In yet another example of litigation issues, the Southern Poverty Law Center of Alabama filed a lawsuit in 2014 against the Alabama Department of Corrections claiming the failure to provide constitutionally adequate medical and mental healthcare to offenders. They further mandated that they desist in medicating mentally ill offenders against their will (Cason, 2014).

With the inmate population in the USA increasing almost 600 % between 1970 and 1999 (National Commission on Correctional Health Care, 2002), and with more than half of the offenders housed in US prisons being considered mentally ill (Bureau of Justice Statistics), the prison systems were never designed to be mental health facilities. It is estimated that offenders in correctional settings who suffer from a mental illness represent rates of two to four times higher than the general population (http://nicic.gov/mentalillness). Largely because of their mental illness, offenders being treated for a psychiatric disorder are more likely to be housed in a segregation housing unit. Here they are subject to solitary confinement and potentially deleterious environments. Those housed in these conditions are more likely to suffer from appetite and sleep disturbances, panic, anxiety, hopelessness, depression, rage, loss of control, hallucinations, and self-mutilation (Steinburg, Mills, & Romano, 2015). And furthermore, when resources are limited and mental health staffs are overwhelmed with the work to be done, the idea of pushing to improve the quality of services and programming is usually not one that is heralded and highlighted.

Standards of a Quality Improvement Program

So where does a system that can be fraught with inconsistencies and limited resources begin in implementing a quality improvement program, which ultimately means, “*What do we need to change*, *and how do we do it?*” One would be surprised how small changes can yield huge positive results.

We should begin with what the National Commission on Correctional Healthcare believes to be a good, solid mental health quality improvement program. The standard reads:

> A continuous quality improvement (CQI) program monitors and improves mental health care delivered in the facility. (National Commission on Correctional Health Care, 2014)

The “compliance indictors” include those that (1) identify the areas that need to be monitored, (2) sets up a “quality improvement committee” that invites representatives from the major areas of healthcare delivery, and they must meet at least quarterly, (3) the committee establishes thresholds (expected levels of performance) of mental health services and designs activities and studies that monitor those thresholds, (4) develops strategies to correct (a.k.a., the corrective action plan) the results and get them back to the baseline or threshold, and then (5) remonitors the performance in the future. There is even an annual review of the committee's effectiveness on continuous quality improvement.

To further give direction in the kinds of studies to be conducted for quality improvement, NCCHC instructs to design two types of studies: the process study and the outcome study. The process quality improvement study takes a mental healthcare process that has become an issue for the facility (e.g., discontinuing medications, high volume of sick call requests for mental healthcare submitted by inmates), conducting a baseline study, implementing a corrective action plan, and then restudying the problem to see if the action plan worked. The outcome study examines whether or not expected outcomes of patient care were achieved. This type of study involves identifying a patient clinical care problem (e.g., high volume of off-site mental healthcare visits, poor response to antidepressant psychotropic medications on depression), conducting a baseline study, implementing a clinical corrective action plan, and then restudying the problem to see if the action plan was effective.

The Process Study

To give an example of a simple but very effective process study for quality mental healthcare improvement, one facility decides to study the increased number of sick calls received from offenders for mental health services. The sick call is a formal request for services (including mental health, nursing, and dental), and these requests must be handled and seen to within a certain time frame. Imagine a facility of 3000 inmates, and there are three mental health counselors on staff. According to the facility's policies, a sick call request must be seen within 3 days of receipt of the request. If these requests are not handled within the mandated time frames, the mental health department can quickly go into a backlog of services, and they slip into a noncompliant status. The staffs start to become creative in thinking about the *process* in which they deliver mental health services regularly. They determine that the majority of sick call requests come from those on the psychiatric caseload (those being treated with psychotropic medications). These total on average about 350. They decide that if the caseload were divided amongst the three mental health staff members, and they routinely see everyone on their caseloads every 30 days; perhaps the number of sick call requests would be reduced. The hypothesis being that if inmates can anticipate a regular monthly visit from their mental health counselor, they would be less likely to submit a request for mental health services, therefore un-tethering the staff from the mandate of tending to an exorbitant amount of requests needing to be seen within 3 days of receipt.

What the staff find is this process does indeed reduce the amount of sick call requests by 50 %. The offenders start to become comfortable and secure in the expectation of continuous, ongoing mental health treatment, and the need to submit requests for services was reduced to only those most acute situations.

The main goal of a process study is to focus on access to care and appropriateness of care (Lundquist & Dronet, 2010). The results of a process study should be informative and not punitive in nature. If the findings show that there has been a lack of documentation on the provider's part, the quality improvement team can then seek to find the barriers the providers encounter to making documentation thorough and efficient. The goal simply remains to improve processes and ultimately patient care.

The Outcome Study

The outcome study in a mental healthcare system addresses whether or not treatment goals are achieved through appropriate clinical measures. An example of this would be to study the effectiveness of a self-injurious behavior treatment group on the subsequent rate of incidents for those individuals with a history of self-mutilation. Another example could be the examination of the number of offenders who are identified through the prison intake process as a suicide risk, versus the number who are started on group treatment for depression, and then reviewing these patients' functionality within the facility and subsequent suicidal ideation at current intervals in the future (Lundquist & Dronet, 2010).

The overarching question of an outcome study is—"*Is what we're doing day to day actually working*?" NCCHC recommends eight areas of studies to develop performance measures in all healthcare programs (National Commission on Correctional Health Care, 2014):

1. Accessibility
2. Appropriateness of clinical decision making
3. Continuity
4. Timeliness
5. Effectiveness (outcomes)
6. Efficiency
7. Quality of clinician-patient interaction
8. Safety

For those working in the mental health arena in corrections, many opportunities for quality improvement can be directed to:

- Access to mental health care
- Reentry and transition of offenders into the community
- The intake process and appropriate use of screening for mental health issues
- Achievement of mental health treatment goals
- The appropriateness of diagnosis and subsequent assignment to treatment
- Pharmaceutical issues—the timely and accurate delivery of medications

- Adverse behavioral incidents with mentally ill (e.g., self-injurious behavior, suicide attempts)
- A review of offender grievances of mental health services and a determination of general cause
- The effectiveness of the use of a sleep hygiene treatment module versus the overuse of sleep medication
- The effectiveness of shorter term use of psychotropic medications combined with individual/group therapy treatment versus long-term medication regimens

The Quality Improvement Committee

For one to be a member of a quality improvement committee, it takes not only a depth of job knowledge and an understanding of standards, but also a good amount of creativity and solution-focused thinking. So many times employees attend department meetings with an intent to point out the many things that are going wrong with the system; yet they cannot collaboratively create solutions to those problems. The quality improvement committee member can do both. This team is the keeper of the quality improvement plan and helps the agency foster a culture that focuses its efforts on progress and improvement. The delivery of this message is not one that is punitive, but instead it strives to find new ways to improve the quality and efficiency of mental healthcare services.

The members of a quality improvement committee in correctional mental health are usually multidisciplinary. Along with the mental health director, lead psychologist and psychiatrist, and a mental health professional representative, there may also be the site medical director, the director of nursing or a nursing representative, the health service administrator, the warden of programs (if available), and a member of security personnel directly involved in managing and housing mentally ill offenders. This committee will have a chairperson that is usually the mental health director, given that this position has the broadest knowledge base of the mental health system across the facilities.

The quality improvement committee should always keep minutes of their meetings and the designed action plans as historical records, but essentially they can serve to guide the actions of the teams assigned to carrying out the tasks of improving processes and outcomes and serve as a reminder and project plan (Lundquist & Dronet, 2010).

The Audit Process

In addition to the previously mentioned quality improvement studies, the process study and the outcome study, the committee is charged with maintaining consistent understanding of the quality of documentation of treatment that is evident in the medical records. While it can be laborious, chart reviews are fairly easy to conduct and the results should be replicable (Lundquist & Dronet, 2010). Although the chart review may be seen as more of a quality assurance measure than one of quality improvement, the information gathered from records and documentation can bring attention to areas of improvement, whether they are provider focused, or process centric.

Audit Tools

Once the committee is formed, the next step is to design auditing tools. These tools should provide a consistent approach to data collection that are shown to be reliable among the multiple potential users of the tools. These can be simple spreadsheets that include the many qualifiers the committee wishes to track, to more technological programs that seamlessly interface with electronic health records. The reliability and reproducibility of quality data collection are a crucial step in significant quality improvement studies (Lundquist & Dronet, 2010).

When the mental health quality improvement committee is constructing the audit tools used for chart audits, the team should keep in mind the areas of influence that are driving the quality improvement committee's efforts. Questions to keep in mind are as follows: Who does the committee report to with its results? Is the facility accredited by the National Commission on Correctional Health Care (NCCHC), or the American Correctional Association? Are there policies and procedures that the Department of Corrections (DOC) mandates the mental health department to adhere to? Are there standards of mental health care on which the committee wishes to concentrate its attentions?

The following is a list of potential qualifiers the audit tool may have included in its design that are essential standards of care from NCCHC:

- Have all offenders on psychotropic medications been seen every 90 days by a psychiatric provider for follow-up treatment?
- Have referrals to psychiatry been seen in a timely manner?
- Do all offenders on a psychotropic regimen have a signed informed consent for psychotropic medication (not a generic informed consent for treatment)?
- Is there an individualized mental health treatment plan for all patients on the mental health caseload?
- Are mental health problems listed in the medical/mental health record's problem list?
- Did all offenders receive an intake screening for mental health issues within 24 h of arrival to the intake facility?
- Was a thorough mental health evaluation interview conducted within 14 days of arrival into the system?

In addition to the NCCHC standards, the quality improvement committee may include in its creation of the audit tool the following items:

- Are patients seen monthly by a psychiatric provider when prescribed new medications for follow-up?
- Have lithium and/or carbamazepine levels been drawn every 6 months?

- Has a patient treated with an antipsychotic medication been assessed using an AIMS (abnormal involuntary movement scale)?
- Have requests for mental health services been seen within 7 days (or within the DOC-mandated time frame)?
- Is the mental health treatment plan updated by the multidisciplinary treatment team every 6 months (or within the DOC-mandated time frame)?
- Are patients housed in acute mental healthcare units allowed 7 h of out-of-cell therapeutic treatment weekly (or at the DOC-mandated allotment)?
- Are inmates housed in crisis stabilization units seen daily by mental health providers?
- Do offenders admitted to a suicide precautions watch have an updated individualized treatment plan?

When creating the audit tool, the committee can put a threshold of achievement in which to determine if the standard was met. Taking into account that no system is perfect (e.g., facility lockdowns for security issues, staffing shortages due to inclement weather, an offender refuses to make his psychiatric appointment for being bed-ridden with the flu), it is nearly impossible for a randomized audit of records to result in 100 % in meeting the standard. In some instances, the committee (or the DOC) may put the threshold of "meeting the standard" at 90 or 95 %. For example, if randomly auditing ten mental health records to determine if there is an individualized mental health treatment plan of care, and one out of ten do not have this documented, the standard is still met at 90 %. If the audit reveals that the standard fell below the threshold, then a corrective action plan is created and refined by the quality improvement committee and is then shared with the appropriate mental health staff that will take on the efforts of improvement.

Corrective Action Plans

A corrective action plan (CAP) is most commonly used to outline and document the necessary improvement attempts. The following define the CAP:

1. The process or outcome needing to be changed
2. What action will be employed to produce the change
3. The specific time frame for the change or improvement
4. Who will take responsibility for implementing the change
5. When the problem will be reevaluated to ensure that the changes have continued to produce the desired improvement in process or outcome (Lundquist & Dronet, 2010)

One of the most important functions of the committee is to ensure that the action plan and its progress are not lost and that it is indeed carried out. Holding someone accountable to the action plan, and to the committee, is not seen as disciplinary, but the goal is to create a sense of urgency and excitement around quality improvement efforts. Following is a narrative example of a potential correction action plan for patients referred to psychiatry not being seen at the 14-day time frame within the threshold level of 90 %:

Issue identified

Of the ten records reviewed for referrals to psychiatry, eight were seen within the 14-day mandated time frame.

How was the problem identified?

An internal review of records by a member of the mental health quality improvement committee.

Proposed solution

Mental health staff will be interviewed for potential process issues in scheduling referrals within the mandated time frame. Staff will be trained on appropriate timeliness of referrals to psychiatry.

Who is responsible

The lead psychologist at the facility.

Expected time frame for improvement and for re-review

Immediate. Review in 30 days.

Comments

After meeting with mental health professionals and psychiatry at the facility under review, it was determined that the psychiatrist had issues with the types of referrals scheduled for a clinic (e.g., sleep disturbances, concerns over effectiveness of medication after 1 week of initiation). The mental health staff making the referrals voiced the need for continuing education in sleep hygiene and in psychopharmacology. Training was conducted by the lead psychologist and the mental health director.

One major area of concern in corrections that is a platform for change with the NCCHC is the essential standard of the suicide precaution program. It is difficult to have a discussion on quality improvement in correctional mental health without mentioning the need to bring to light a facility's current suicide prevention program. With open and honest dialogue with the facility's mental health personnel and security team, a critical self-analysis can yield tremendous opportunities for improvement in patient safety, quality of care, and most importantly patients' lives. A tool that is used for review in quality improvement in the instances of completed suicides is the psychological autopsy. This report enables the reviewer to evaluate mental health and psychiatry practices if the patient was engaged in mental health services prior to the suicide. The NCCCH standard states that the psychological autopsy is completed within 30 days of the event, and this is reported at a critical incident debriefing. Just as in the meetings of the quality improvement committee, the critical incident debriefing is an opportunity to learn of any shortcomings of the efforts in patient safety and quality of care, and to make immediate changes and strides towards improvement. The psychology autopsy and the minutes from the critical incident debriefing can be shared with the quality improvement committee for further appraisal and documentation.

Training

One of the substandards under the essential standard of maintaining a suicide prevention program under NCCHC is *training*. It is not coincidence that training remains a crucial ingredient in quality improvement, especially in areas of mental health and crisis management. In a previously cited study of a court-mandated implementation of a mental health step-down program in a segregation unit in the Mississippi State Penitentiary, a 40-h mental health training specially designed for correctional officers was a formal inclusion in the consent decree. This training gave officers knowledge on mental health issues and how to manage those with mental illness. The result was an improved interface between officers and inmates, and ultimately an improved atmosphere in the segregation unit. The outcome was an over 70 % reduction in behavioral incidents for those housed in the administrative segregation unit (Terry et al., 2009).

This example of incredible collaboration between healthcare and security bears the question of how far does the responsibility for quality improvement go in a correctional system. Can a small effort in change make great strides in systemic change?

Systemic Change in Quality Improvement

The motto “Small but Mighty” can be attributed to some of the most resourceful of correctional institutions. Although to have an increase of resources at a mental health department’s disposal is a focus of reform at the litigation level in most states, the fact is that most institutions must provide quality care with very limited treatment options. In fact, as many as 70 % of inmates released into the free population with a diagnosed mental disorder will return at least once into the prison system (Gonzalez & Connell, 2014).

The mental health members of a quality improvement committee have the creative opportunity in the most restrictive of situations to strengthen and advance a mental health program.

A Case Study in Systemic Change

In many correctional facilities across the country, inmates admitted to a suicide watch are housed in a segregation unit. Experts in mental health and members of advocacy groups would say that this is a punitive function, placing a severely depressed individual in isolation with very little contact with others. This could potentially exacerbate the depression and puts the patient in an ever-increasing downward spiral of mental illness. A southern facility with 3000 inmates and three mental health professionals were felt just this way regarding their female inmates housed on suicide watch. The segregation unit, like many, is cold and cut off from the rest of the movement and energy of the facility. Disciplinary inmates tend to yell, and the noise level can be loud and unnerving. Females on suicide watch are kept at the end of the segregation unit hallways, in an effort to reduce the proximity to the noise, but this puts them further from the watchful eye of the security personnel, tasked with making consistent, 15-min rounds on them. It was a hardship on the correctional officers assigned to the segregation unit to tend to the insistent needs of these inmates, as well as perform their other duties to secure this unit full of high-risk behavioral inmates. And due to the location of the segregation unit, it was difficult for mental health staff to make the daily rounds to conduct treatment with these acute cases. And furthermore, because consistent, high-quality care was not being delivered to this population, the rates of return to suicide precautions remained high. Improvement needed to happen.

One mental health professional noticed an unused, three-bed single-cell unit across the hall from her clinic one day. She brought the idea to the mental health them, and then to the quality improvement committee, to make this small unit the crisis stabilization unit to house suicidal inmates. It was small, and quiet; it contained an area in which to do therapy treatments; it was in close proximity to medical and mental health clinics; and there was a "watch tower" for a security officer to be located. The teams immediately began researching the potential for use of this unit, and together they designed a proposal for implementation to be shared with the warden of the facility.

After several weeks of meetings with the warden and other captains of the facility, it was determined that moving the females on suicide watch from the administrative segregation unit to the new "crisis stabilization unit" would be beneficial for all involved—the inmates would receive more quality coverage, the unit would have one devoted officer to make consistent rounds on this population, and the mental health and medical staff would be in close proximity to respond to any crisis and urgent situations. With specialized training given to the officers assigned to the new unit, and a few construction modifications, the unit was opened with 60 days.

After 6 months of implementation, the mental health team noticed that offenders housed on suicide watch were now returning less to the crisis stabilization unit than before. When the quality improvement committee learned of this, they requested an outcome study be conducted to determine the significant difference in the levels of recidivism to suicide watch. The mental health team did just this. After reviewing previous logs of suicide watches from the months leading up to the change in the location of suicide watches, and compared them to the following months when the crisis stabilization unit opened, the rate of return to suicide watch dropped by over 50 %. Was it due to better mental health treatment? Was it due to the quieter environment of the new unit? Was it due to a change in the attitude of the assigned officers to the treatment of offenders on suicide watch? That question remains to be answered. But one thing was apparent, and that is a simple idea in quality improvement led to a notable systemic change.

Summary

As stated by Lundquist and Dronet (Lundquist & Dronet, 2010), “quality improvement efforts, even in the best organizations, are not one-time projects … Health care organizations wishing to be the best must subject themselves to ongoing, continuous quality improvement.” Finding strong leaders, and placing them in a position to not only identify the problems, but also to creatively focus on solutions, is a characteristic of resilient and fervent mental health quality improvement programs.

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Chapter 18
Improving the Quality of Care for Serious Mental Illness

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Serious mental illness (SMI) has been defined as a persistent psychiatric disorder that has resulted in a substantial impairment in functioning. Approximately 1 in 25 (14 million) adults in the USA are living with SMI (NAMI 2015). Schizophrenia, bipolar disorder, and recurrent major depression are common disorders that often meet this definition. About 1 % (two million) and 3 % (six million) of the population have been diagnosed with schizophrenia and bipolar disorder, respectively (NAMI 2015). Of these, only 64 % with schizophrenia and 56 % with bipolar disorder are receiving treatment, often from locations such as community mental health centers, hospitals, or jails and prisons (Substance Abuse and Mental Health Services, 2014). Recurrent major depression is a leading cause of disability and affects 7 % of the population (15 million). Despite high treatment success rates for depressive disorders, nearly two out of three people with these disorders do not seek or receive treatment (Young, Klap, Sherbourne, & Wells, 2001; Young, Klap, Shoai, & Wells, 2008). The disease burden of SMI is amongst the largest of the medical disorders. Short-term adverse effects include impaired ability to carry out daily activities in productive roles (job, school, housework) and social roles (family, friends). Serious psychiatric disorders have an earlier age of onset than most chronic

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physical disorders, which contributes to the magnitude of their long-term adverse effects (Kessler et al., 2007). Early-onset mental disorders predict a persistent disabling course and development of a wide range of physical disorders including obesity, diabetes, cancer, and cardiovascular diseases (Kessler et al., 2009).

Until recently, the goal of treatment for SMI was often to maintain the status quo and minimize hospitalizations. Much more is now possible. A range of effective, recovery-oriented medication and psychosocial treatments are available. These are documented in national treatment guidelines, and include assertive community treatment, guideline-concordant medication management, family and caregiver psychoeducation, supported employment, social skills training, psychoeducation, and cognitive behavioral psychotherapies (American Psychiatric Association, 2002; Buchanan et al., 2010; Dixon et al., 2010; Kreyenbuhl, Buchanan, Dickerson, & Dixon, 2010). Unfortunately, these treatments are often not available or provided. The quality of prevailing treatment is low to moderate, and clinicians too often lack key clinical competencies. Frequently, individuals with SMI do not have access to comprehensive, state-of-the-art care. In high-quality, comprehensive treatment, psychiatric relapse rates are close to zero, about half of interested patients engage in competitive employment, and quality of life is good. Under usual care, annual relapse rates approach 50 %, only about 10 % of people are employed, and people die 10–20 years prematurely, most commonly due to cardiovascular illness or cancer (Institute of Medicine, 2006; Mittman, 2012).

There are obstacles to delivering quality care at the patient, provider, system, and societal levels. At the patient level, there are behavioral manifestations of mental illness that lead to poor involvement in care include isolation, and non-conformative, bizarre, inappropriate, self-defeating, self-injurious, threatening, and, rarely, violent behavior. Cognitive deficits commonly associated with SMI include a poor ability to plan and advocate for treatments. Insight into the disorder and need for treatment vary substantially. This population can also be hampered by limited literacy. At the provider level, clinicians often lack key clinical competencies (Hoge et al., 2005; Young, Forquer, Tran, Starzynski, & Shatkin, 2000), impairing their ability to know the array of recommended treatments and deliver or refer patients to those treatments. Additionally, clinicians find themselves hampered by limited time in the clinical encounter. There is often too little time to fully assess treatment needs, assess patient preferences, and provide referrals beyond medication treatment. At the system level, cost is a concern which can limit treatment availability and time in the clinical encounter. Lastly, at the societal level, mental illnesses are stigmatized, and many people do not appreciate the value of available treatments.

Policies and practices have led to unequal coverage for mental health care, low public treatment funding, and limited funding for clinical and health services research. Unequal funding persists despite the federal Mental Health Parity and Addiction Equity Act, which mandated parity of insurance coverage for many people. Current financing is insufficient to provide evidence-based psychosocial treatments to many people with SMI, undermining opportunities for people to seek help, and limiting efforts to provide high-quality care. The Affordable Care Act (ACA; also known as ObamaCare) reduced financial barriers that prevent individuals with SMI from receiving quality treatment, though these barriers remain large. The ACA also has had some effect on fragmentation between primary care and specialty mental health care through establishment of integrated care models such as patient-centered medical homes and accountable care organizations. These have the potential to support improvement in the quality of care for SMI (Barry & Huskamp, 2011).

Measuring the Quality of Care

To engage in quality improvement, it is first necessary that quality be measured. When evaluating the quality of care, we start with Donabedian, who proposed that individuals' outcomes are affected by processes of treatment received, which in turn are affected by the provider organizations' structure. Each of these three domains can be measured. The most useful measures of structure will have a strong effect on treatment processes, and the most useful process measures will have a strong effect on outcomes. While there are few such measures for SMI that can be analyzed using routinely collected data, there has been progress (Patel et al., 2015). With regard to the structure of care, provider competencies have been defined (Caspi et al., 2005; Young, Forquer, et al., 2000), for example, and instruments exist to measure these competencies (Chinman et al., 2003). Outcome measures are very well developed in SMI, and many accurate measures are available. While some are not feasible within the context of treatment workflow, or do not change substantially with existing treatments, there are numerous relevant, useful measures that are feasible for routine measurement (Barlow, Burlingame, Nebeker, & Anderson, 2000; National Committee for Quality Assurance, 2015).

Quality problems in the of care of SMI can be understood as a mismatch between patients' preferences and needs, and treatments received (Young, Niv, et al., 2010; Cohen, Drapalski et al., 2013). In contrast to evidence-based practices, the primary treatment modalities at many mental health provider organizations are "medication checks" by psychiatrists and "case management" by other providers. Typical case management is poorly defined, including activities ranging from psychotherapy to referral for services, and is of questionable efficacy. Clinics are often chaotic, with modest oversight of the process of care. Medical records do not reliably contain information on clinical status and psychosocial treatment utilization, making it difficult to gauge appropriate treatment use. Patient registries are rarely present, making assertive care management challenging. Often, patient follow-up is not monitored. The result is that care looks similar across patients, regardless of individual needs.

One substantial push towards broad quality improvement has been from the federal government and private payers who are tying healthcare payment to measures of quality and value. So far, there has been relatively little impact on mental health (National Committee for Quality Assurance, 2014). One exception has been implementation of the hospital-based inpatient psychiatric services (HBIPS) quality measures. These are intended to support quality improvement, and allow comparison of quality and safety among hospitals (National Association of Psychiatric Health Systems, 2012). The Joint Commission, as part of its publicly reported ORYX hospital quality initiative, requires that freestanding psychiatric hospitals report HBIPS measures. While HBIPS is changing, current measures include documentation of admission screening, hours of physical restraint and seclusion, prescription of multiple antipsychotic medications at discharge, and documentation of a post-discharge continuing care plan with transmission of this plan to the next provider. There have been quality improvement efforts that have reduced or eliminated the use of restraint and seclusion, high-priority issues for patients. And, failure to communicate with follow-up providers has been a pervasive, severe quality problem in SMI. Beyond these, current measures would be expected to mostly improve documentation, and focus on a treatment process that does substantially affect patient outcomes. However, HBIPS creates a platform for future quality improvement.

Successful Quality Improvement

Although systemic quality improvement (QI) remains relatively uncommon in the care of SMI, there have been numerous examples of successful quality improvement projects. These have used a diverse set of strategies and methods, drawing on core principles of quality improvement: systematic reduction in variation of treatment delivery; data-driven assessment and feedback; and engagement of key stakeholders in the change process. We review successful methods, including outcome monitoring and feedback, implementation of evidence-based practices, increasing treatment fidelity and provider competencies, providing clinical decision support, and implementing collaborative or chronic care models.

Models and frameworks exist for studying and describing QI efforts (Ogrinc et al., 2008); however, many published studies do not use these, and do not include effectiveness outcomes. In a review of QI strategies for evidence-based psychosocial interventions for SMI, Menear and Briand (2014) found 55 articles between 1990 and 2012 examining quality improvement initiatives that took place in North America and internationally. They concluded that quality improvement implementation strategies were only occasionally described, often included only simple evaluations, and only one-third included data on fidelity or patient outcomes. Similarly, Franx and colleagues (2008) systematically reviewed literature published between 2000 and 2007 on organizational changes in SMI quality improvement and found 21 relevant studies. They concluded that multidisciplinary teams and integrated care teams had a positive impact on patient outcomes; however most studies did not describe the change process, nor the impact on the organization and clinician (Franx et al., 2008). There has also been relatively little policy supporting evidence-based quality improvement in SMI. A review by Williamson and colleagues (2015) found a small number of projects to increase the use of evidence in mental health policy, none of which were focused on improving care for adults with SMI.

Quality Improvement Teams

Many projects have used QI teams. These teams include multidisciplinary professionals, with expertise in quality improvement models, techniques, and measurement. In an evaluation of factors related to effective QI, Versteeg and colleagues (2012) evaluated 26 QI teams at 19 mental health organizations in the Netherlands. Teams implemented multiple practice guidelines for anxiety, dual diagnoses, and schizophrenia. Quality improvement implementation strategies included site visits, education, and consultation via an Internet forum. Patient screening, care monitoring, and patient outcomes were measured to guide implementation. Implementation process assessment included QI team composition, team functioning, educational conferences, and organizational factors (time, workforce, sponsoring, skills, management support, and type of leadership). Across disorders, results were mixed and did not differ between theoretical and practice-derived methods. Successful strategies included support from organizational management, active QI leaders, and QI team diversity (education levels, years of employment). In QI for schizophrenia, greater outcome monitoring was associated with improved patient outcomes (Versteeg et al., 2012).

Quality Improvement for Evidence-Based Practices

QI projects often focus on improving the quality of specific clinical practices. In the care of SMI, a number of national practice guidelines specify effective treatments. QI for these practices can focus on one of a number of steps between getting the population with clinical need into appropriate treatment through to achieving the best outcomes. The first step is to increase the rate at which appropriate patients have access to, and to the greatest extent possible make use of, evidence-based treatments. In the care of SMI, criteria for use of specific treatments often include both functional or symptomatic needs and patient preference. Each must be assessed. The second step is to increase the extent to which treatments maintain fidelity to effective care models. This is particularly important for psychosocial treatments and psychotherapies. In the absence of QI, these treatments vary markedly in their delivery, from harmful, to noneffective, to effective. The third step is increasing the rate at which patients sustain ongoing treatment. Most psychosocial treatments are not effective when delivered a small number of times, and need ongoing delivery, according to guidelines and continuing assessment of patients' needs. Medications generally require ongoing adherence, with effectiveness decreasing linearly as patients take lower proportions of prescribed medications (Valenstein et al., 2002). Objective measures of adherence in schizophrenia indicate that 50–60 % of antipsychotic medications are taken, on average. However, it is also possible to conduct important QI focused on discontinuing the use of psychosocial or medication treatments that are no longer effective or needed, and therefore only have the potential for harm.

One evidence-based practice that substantially improves patient outcomes, but is rarely provided or utilized, is family and caregiver interventions (Cohen et al., 2008; Glynn, Cohen, Dixon, & Niv, 2006). With careful attention to implementation, these interventions can be provided in usual care settings (Cohen, Glynn, Hamilton, & Young, 2010; Dixon et al., 2014; Young et al., 2011). Ruffolo and Capobianco (2012) examined QI focused on family group psychoeducation at 30 community mental health centers in 11 regions. QI efforts included supporting clinical decision making (toolkits, training, monthly consultation), and treatment fidelity. Implementation and fidelity were successful across regions, although challenges included low rates of family participation, little clinician time for outreach, negative clinician attitudes, and strain on the system. Positive patient outcomes included fewer hospitalization, and better medication adherence and recovery perspectives. Sites that identified a clinical champion had greater success.

A second rarely used, highly effective psychosocial practice is supported employment. This consists of assistance obtaining and maintaining competitive employment. Clinical activities include job development, job search, ongoing supports, and integration of vocational and mental health services (Dixon et al., 2010). Roughly half of patients with SMI are appropriate for supported employment (Hamilton et al., 2013). When fully provided, supported employment increases rates of competitive employment from about 10 % to half of individuals with SMI. There have been numerous efforts to engage in QI focused on supported employment. Some have been highly effective, while others have been frustrated, mostly by organizational or financial constraints (Drake et al., 2013; Frey et al., 2008, 2011; Hamilton et al., 2013; McHugo et al., 2007).

One of the most important psychosocial interventions for SMI, assertive community treatment (ACT) also has some of the best evidence regarding QI. ACT is a "hospital without walls." Specifically, ACT includes intensive management of a shared caseload of severely ill patients by a multidisciplinary team and a medication prescriber, direct care from the team, community outreach, high-frequency contact, and low patient-to-staff ratios (Dixon et al., 2010). ACT has been consistently shown to reduce rates of hospitalization and homelessness, and sometimes improves functioning. ACT is challenging to deliver at a high level of fidelity, and fidelity to the ACT model is correlated with its effectiveness (Mancini et al., 2009). Maintaining fidelity and effectiveness of ACT requires ongoing QI. Instruments are available to reliably measure ACT fidelity, in specific domains that are amenable to QI. A review of 57 articles published between 2000 and 2011 on ACT program fidelity reported mixed findings of implementation process, with a few studies reporting patient outcomes (Monroe-DeVita, Morse, & Bond, 2012). Successful implementation strategies included technical assistance centers (Salyers et al., 2007), a multifaceted approach including multi-stakeholder engagement, and clinical decision support (monthly consultation, toolkits, ongoing fidelity assessments) (McHugo et al., 2007).

Cognitive behavioral psychotherapies are also critical, effective treatments for SMI (Dixon et al., 2010). These consist of empirically validated cognitive and behavioral methods for coping with collaboratively identified problems and symptoms. There has been a particular interest in making this available to individuals who are not yet ill, but at high risk, or to patients who have a recent onset of illness.

Despite evidence, guidelines, and calls for evaluations (Nordentoft & Austin, 2014), there have been few reports of QI in this area.

Medication represents a core component of treatment for most people with SMI. Treatment guidelines recommend changing medications in response to significant side effects, but this often does not occur (Young, Niv, Cohen, Kessler, & McNagny, 2010). Also, certain medications, such as clozapine or long-acting medications, offer greater effectiveness, but require specific provider competencies and capacity, and are infrequently provided. While there have been numerous efforts to improve the quality of prescribing for SMI, few have produced substantial change (Owen et al., 2008). One prominent project was the Texas Medication Algorithm Project (TMAP) which provided physicians with feedback through an electronic medical record system at community mental health centers (Milner et al., 2009). When applied to schizophrenia, similar to other results, little improvement was seen in prescribing. Innovative methods are needed for improving prescribing of medications to people with SMI.

Multifaceted QI Strategies

QI often focuses on simultaneous provision of multiple interventions (McHugh & Barlow, 2010). For example, to improve the quality of care for bipolar disorder, Miklowitz and colleagues offered systematic implementation of three psychosocial interventions (Miklowitz et al., 2007). QI strategies focused on improving clinical decisions through training, resources, consultation support, and toolkits. This was successful in achieving high fidelity rates and improved patient functioning and recovery outcomes.

From 2006 to 2010, a combination of psychosocial services were implemented for disabled patients with SMI at 23 community mental health clinics across 19 states (Frey et al., 2008). QI strategies included implementation of care coordinators to facilitate improvement, service integration, and provider communication. Challenges included organizational policies, site leadership, difficulties integrating with mental health services, and high staff turnover (Frey et al., 2011).

Falloon led a project to improve delivery of pharmacological and psychosocial interventions, with a focus on patient education, family interventions, stress management and training, ACT, skills training, and CBT (Falloon, 1999, 2014). Strategies included clinical decision support, multidisciplinary clinical teams, and fidelity audits several times a year. Outcomes included good to excellent treatment fidelity, and improved clinical and social functioning in patients.

Case Study: Improving the Quality of Care for Schizophrenia

A program of quality improvement research has been conducted in the US Veterans Health Administration (VHA) over the past decade that demonstrates a process for improving treatment and outcomes at mental health clinics for patients with

SMI. This body of work is remarkable for aligning policy with quality improvement, implementing health informatics systems at usual care clinics, using data to inform change, continuous audit and feedback, and integration of quality improvement into ongoing clinic management. This work began with research studying the quality of care for schizophrenia, and determinants of this care (Young, Sullivan, Burnam, & Brook, 1998; Young, Sullivan, & Duan, 1999). This identified barriers to quality improvement at the patient, provider, and system levels. These included providers who often lacked key clinical competencies (Caspi et al., 2005; Young, Forquer et al., 2000), low rates of assessment and documentation of clinical problems (Cradock, Young, & Sullivan, 2001), and shortcomings with administrative data that were available to drive quality improvement (Young, Grusky, Jordan, & Belin, 2000). One key finding was a desperate need for routine data regarding patients' clinical needs, treatment preferences, and psychosocial treatment utilization (Young et al., 2011). These data are necessary to drive assessment and monitoring of care quality. Although data-driven care is now routine in other disorders (e.g., diabetes), this has been largely absent in specialty mental health.

In describing this series of studies, we illustrate the value of study development and refinement across phased, improvement-focused projects (Brown, Cohen, Chinman, Kessler, & Young, 2008). The initial project, "Enhancing QUality-of-care In Psychosis" (EQUIP), was a pilot, provider-level controlled trial at two VA healthcare centers which applied a chronic illness care model in an attempt to improve care for those with schizophrenia. Care targets were aligned with local and national mental health priorities following discussion with key stakeholders. Care targets were weight management and family involvement in care. At each site, half of the providers were randomized to a 15-month QI intervention and half to care as usual. The care model included a nurse care manager who collected "psychiatric vital signs" from patients at every visit using an online template-based interface using gold standard instruments. These vital signs included psychiatric symptoms, medication side effects, and measures of quality of life. These routine data, alongside the data collected at the previous visit, were made available to clinicians via a "pop-up window" that appeared each time the patient's electronic medical record was accessed. Areas of concern (e.g., symptom exacerbations, body mass index in the overweight range) were automatically highlighted in the pop-up window based on automated scoring of the standard instruments. The pop-up window also allowed clinicians to securely message one another within the clinic and assign tasks (e.g., please refer to weight service) and link to treatment guidelines (Young, Mintz, Cohen, & Chinman, 2004). Data were also rolled up and used by local opinion leaders to identify quality leaders and those providers in need of more support to meet targets. Administrators used the clinical panel data to identify service need priorities. The quality improvement strategies included efforts to improve clinician competencies by training care managers to routinize referrals to needed services and clinicians to deliver family services. Clozapine and wellness services were established in the clinic. Mixed methods with both patients and providers were used to evaluate the intervention and its implementation. The summative evaluation showed improvement in several areas of care quality including symptom and side effect management and medication adherence, but no improvement in use of family services (Cohen et al., 2010; Niv, Cohen, Hamilton, Reist, & Young, 2014). The process evaluation indicated that the informatics were feasible, acceptable, and well utilized (Chinman, Young, Schell, Hassell, & Mintz, 2004; Young et al., 2004).

Following EQUIP, there was an impetus to build a health informatics system that could routinely collect psychiatric vital signs and similar data from patients in order to drive quality improvement for patients with SMI. This led to a series of studies developing, refining, and testing a patient-facing kiosk, the "Patient Assessment System" (PAS), which routinely collects care data directly from the patient at low cost without burdening clinicians. The typical PAS setup includes a touchscreen monitor, computer, headphones, and a color printer all located in a clinic waiting room. Questions and response choices delivered via the PAS are presented both visually and orally, and are designed for people with cognitive deficits or limited literacy. A series of studies with the PAS found the data to be valid, feasible in usual care clinics, and acceptable to individuals with SMI (Chinman et al., 2004, 2007; Niv, Cohen, Mintz, Ventura, & Young, 2007). This work was accompanied by the development of dashboards to collect and manipulate PAS data for use by clinicians and administrators to monitor care quality.

A second EQUIP project sought to close gaps in care in VHA mental health more broadly across the nation. In comparison to the prior EQUIP pilot, this was larger in scope and more sophisticated in its evaluation. It was a clinic-level controlled trial involving eight VHA medical centers, across four regions of the country. Within pairs of sites in each region, one medical center was assigned to the intervention and one to usual care for 15 months. Quality for schizophrenia care was targeted and specific areas of improvement were again aligned with local and national leadership priorities. To facilitate this, leadership in each region was provided a "menu" of areas that could be targeted for improvement, and asked to choose two of five possible care targets. All regions, separately, chose the same two targets: supported employment and weight services, most likely due to the influence of national VHA priorities. At baseline, readiness for change was assessed at each site through quantitative and qualitative data collection from key stakeholders. The data were used to guide the training needed at each site and to tailor QI (Hamilton, Cohen, & Young, 2010). Implementation made use of data from patient-facing kiosks, continuous data feedback, clinical champions, and education, with evidence-based QI teams at each site. At intervention sites, the PAS was located in the waiting room of the clinic and used for patient self-reporting of clinical status. Patients responded to questions delivered via the PAS at each clinic visit prior to seeing their clinicians. A scale was located next to the PAS. PAS questions focused on interest in work, utilization of supported employment, utilization of weight services, symptoms, side effects, and health status. Following the last question, the kiosk printed a Summary Report, which patients were instructed to take to their clinician and use to track their progress. Kiosk data were continuously reported to clinicians via reports, to a nurse quality manager, and to clinic leadership via a dashboard. The nurse quality manager made needed service referrals, encouraged service attendance, and monitored quality improvement and care. Leadership identified service needs and promoted warm handoffs in the referral process. QI teams at sites were taught how to engage in Plan-Do-Study-Act cycles on issues identified by site staff, and to use established QI tools. For some sites this was their first experience tackling quality problems. Local QI teams promoted a sense of teamwork, creativity, and data-driven change. Mixed methods were used to evaluate implementation and care model effectiveness. Patients and clinicians were surveyed and interviewed at baseline and 15 months later. Intervention clinicians were also interviewed mid-study. The quantitative evaluation showed improvement in several areas of care quality including increased appropriate use of both supported employment and weight services. Both types of services are critical for the mental health recovery of individuals with schizophrenia but, until EQUIP, were inadequately utilized by the target population. Qualitative data indicated that provider encouragement of patients to engage in services was critical to increased utilization. Improvement in the distal outcome of competitive employment was limited to one site that had a high level of treatment fidelity. Weight outcomes were significantly improved at all sites by study end (Cohen, Chinman, Hamilton, Whelan, & Young, 2013; Hamilton et al., 2013). Process evaluations indicated that the PAS was useful and feasible in usual care settings (Cohen, Chinman et al., 2013).

A cost evaluation of EQUIP QI indicated that the average treatment costs of EQUIP were modest by comparison to individuals' total expenses for outpatient health care services. EQUIP was also associated with a reduction in use of expensive services, such as intensive psychosocial rehabilitation centers and assertive community treatment. EQUIP demonstrated that routine assessment, care coordination, and an investment in marketing and training of staff enable better outcomes for patients with schizophrenia at a cost that is reasonable. The cost impact of EQUIP is on the low end of the range of costs of implementing evidence-based services for mental disorders (Cohen et al., under review).

This line of research has moved QI into specialty mental health clinics, an area previously thought to be recalcitrant to change and largely ignored. With the establishment of routine data collection directly from patients, via medical informatics, change is possible. This change is supported by the same quality improvement strategies known to be helpful in other parts of healthcare, including alignment with clinical and system priorities, data-driven change, monitoring of service utilization, providing continuous feedback, and integrating quality improvement into regular clinic management.

Conclusions

Although there is a history of poor care quality for people with SMI, it is possible to improve this care, and substantially improve individuals' outcomes. A wide range of successful quality improvement strategies have been used to improve care for SMI. These efforts need wider dissemination to make an impact on the population as a whole. Effective approaches have included the use of outcome monitoring and feedback, implementation of evidence-based practices, increasing treatment fidelity, improving provider competencies, providing clinical decision support, using quality improvement teams, and implementing collaborative or chronic care models. Quality improvement increasingly relies on health informatics systems to efficiently and feasibly provide the data required to improve care. While many mental health provider organizations have been slow to adopt these systems, there are encouraging signs. Mobile information technologies are being widely disseminated, including in populations with SMI. Electronic medical records are becoming more common at mental health provider organizations, and are nearly ubiquitous in psychiatric hospitals. As mental health becomes increasingly integrated with general medical care, and pay for performance accelerates, we can expect substantial pressure to monitor and improve the quality of care for SMI. Mental health clinicians can provide high-value care. Quality improvement provides methods for enhancing care value, and a strategy for obtaining the resources needed to improve the outcomes of people with serious mental illness.

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Chapter 19
Quality Improvement, Professional Competence, and the American Psychological Association's Ethical Principles and Code of Conduct

Alexandros Maragakis and William O'Donohue

The American Psychological Association's Ethical Principles and Code of Conduct (APA, 2010) are foundational partly because they prove the ethical and legal definition of how psychologists ought to behave and conduct themselves professionally. Failure to abide by the enforceable standards advanced by the APA may result in a wide range of negative consequences ranging from harm, to the client as well as potentially embarrassing and consequential disciplinary hearings, to the loss of one's professional license. Due to these implications, for these ethical standards to be useful to both the mental health professionals and consumers of mental health services, it is important that they are clear, effective, and continue to meet the need of the diverse stakeholders that they are designed to serve (Gaumnitz & Lere, 2004).

Standard 2.04, Bases for Scientific and Professional Judgments, is a particularly important yet, as will be argued, problematic enforceable standard. The standard states that "Psychologists' work is based upon established scientific and professional knowledge of the disciple (American Psychological Association, 2010)." This enforceable standard provides an important safeguard for consumers of mental health services in that it requires that the decisions that will be made during a consumer's care will be based on properly informed professional expertise. Psychologists as professionals can be thought of as having epistemic duties—a duty to know (O'Donohue & Henderson, 1999). However, the evidential burden to meet this criterion is none too clear. What exactly is required for a professional decision to be based upon "established scientific and "professional knowledge"? Does the decision need to take account of all relevant information, or just some particular subset? Where does one find a repository of the so-called professional knowledge? How should disparate,

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perhaps even conflicting, information be synthesized? How does "scientific knowledge" interact with "professional knowledge"? Does one override the other? How current does this knowledge need to be? This chapter examines some of the issues that surround enforceable standard 2.04, and contends that a revised enforceable standard advocates that psychologists use systematic quality improvement (QI) procedures to guide all their professional decisions (Walton, 1986). "It will be argued that only with knowledge from systematic QI systems that stakeholder's interests will be optimally met. Furthermore, QI will allow stakeholders to enjoy the additional benefit that the relationship between "scientific knowledge" and "professional knowledge" have as these concepts become more coherent. Thus, this chapter advocates replacing Standard 2.04 with a revised enforceable standard that requires psychological services be delivered in the context of a systematic QI system in which key quality outcomes such as safety, effectiveness, cost, and consumer satisfaction are continually measured.

Problematic Issues with Standard 2.04

As said earlier, ethical enforceable standards should be clear and effective in order to be useful (Gaumnitz & Lere, 2004). However, Standard 2.04 leaves too much room for interpretation, which can have unacceptable variability in its implementation and even in its adjudication if there is some sort of complaint. The following section examines both the constructs of "established scientific knowledge" and "professional knowledge" and discusses general issues with Standard 2.04.

"Established Scientific Knowledge"

The use of peer-reviewed published research to define empirically supported assessments and treatments (Baker, McFall, & Shoham, 2008) is not in dispute in this critique. Rather, it is the ambiguity and the resulting lack of practical impact that arises from the wording of Standard 2.04 that must be resolved. The first question when analyzing the phrase "scientific knowledge" is the following: What is sufficient for a judgment to be based in scientific knowledge? A rigorous answer would be that a judgment is based in scientific knowledge if the argument justifying the decision involves some essential description of scientific results. This is similar to the philosopher of science Carl Hempel's (1964) "covering law" model of scientific explanation. The citation of research appears as a premise in a deductive argument explaining the behavior. For example:

1. This client is suffering from an oppositional defiant disorder.
2. Outcome research x, y, z (and perhaps reviews of outcome research a, b, c,) indicates *that treatment T is safe, effective, and efficient.*

Therefore, treatment T is recommended

However, a wide range of ambiguities arise from this approach. For example, how does one weigh the different quality of experimental designs upon which the scientific information is based? A quasi-experimental design provides evidence with different strengths and weaknesses than an experimental design. The implications of the utility of a specific treatment are different when comparing a randomly controlled trial and multiple single-subject designs. How are comparison studies weighed that show differential outcomes? What is to be done with missing information—e.g., there are critiques of outcome literature suggesting that too little attention is paid to safety and cost (Antonuccio, 2008). How does one assure sufficient fidelity of treatments delivered in the efficacy or effectiveness trials?

These examples demonstrate that it is no simple matter to adjudicate if this ethical condition is met, because of the fact that one's analysis of the import of these data is dependent on a wide array of additional factors including efficacy vs. effectiveness data, replications (or lack of) in independent settings, the appraisal of mixture of positive and negative results, effect sizes, therapy allegiance effects, problems with comorbidity, social validity/consumer satisfaction data, promising initial data of new treatments vs. the established data of older treatments, treatment efficiency, data on iatrogenic effects or side effects of treatment, client preferences, and professional competencies required to perform a treatment effectively. These ambiguities are one reason why professionals come to different conclusions about the ultimate interpretation of research results—for example, those adhering to the so-called dodo verdict (Luborskey et al., 2002) vs. treatment specificity (Siev & Chambless, 2007).

The guidelines to determine if a treatment can be considered to be an empirically supported treatment (EST) (Chambless & Hollon, 1998) could be used as an answer to the question of what is necessary for something to be considered scientific knowledge. However, these guidelines are not without important critiques (Arkowitz & Lilienfeld, 2006). First, the requirement of "two or more methodologically rigorous controlled studies" seems arbitrary and potentially problematic. Why is the minimum requirement set at two studies? Would it be unethical for a psychologist to deliver a therapy with only one RCT supporting its efficacy—particularly if no other treatment is supported by any RCT? While increasing this minimum requirement may not be practical for many reasons (e.g., insufficient grant funding, withholding useful treatments, etc.), another important issue is that this standard ignores negative results—a very unwise move for those influenced by Popperian falsificationist views of science (see O'Donohue, 2013). How many attempts do researchers have to show that their treatment meets the minimum two positive results? That is, the so-called file drawer problem is a dimension that appears to be relevant and it further complicates the understanding of the applicability of this ethical enforceable standard (Pautasso, 2010; Rosenthal, 1979).

"Professional Knowledge"

As the analysis of scientific knowledge began, the wording of the Ethical Code renders it critical to determine what is necessary for a judgment to be considered based in "professional knowledge." The APA in its ethical enforceable standards does not provide any definition or example of what is considered professional knowledge. Therefore, the ambiguity created by the construct of "professional knowledge" perhaps allows for psychologists to use any claim to determine the course of therapy (O'Donohue & Henderson, 1999). Does professional knowledge include personal experience of success—no matter the well-known epistemic limitations of such? Does it permit claims heard from an APA-approved CEU workshop—again, no matter the lack of research support of these? Does it permit the use of an intervention that appears to be "face valid"—whatever this might be?

One way of defining professional knowledge would be to say that the majority of professionals would have responded in the same way in a given situation. However, this definition is problematic, because advances in a field take a considerable amount of time to disseminate (e.g., an average of 17 years for new knowledge to be incorporated into practice) (Institute of Medicine, 2001). In addition, it would require some sort of systematic empirical polling on a very wide variety of practices—that would be needed to be updated to capture current trends to have the best sort of information regarding consensuses in the field; this would be both expensive and impractical. Does one need to conduct yearly polls regarding key questions regarding, say, the assessment and treatment of OCD? In addition, what if no clear consensus emerges—does "professional knowledge" need to reach greater than 50 % of respondents—and who should be polled—just doctorate-level licensed psychologists—psychiatrists too, those who claim expertise in a particular domain, etc.? Therefore, this definition is not viable.

Another possible definition for professional knowledge would be knowledge that is acquired through idiographic professional interactions with consumers or fellow professionals. This definition would assume that as a professional interacts more in a variety of unique situations in the field, their knowledge base grows through this experience. Cronbach (1975) suggested that there is a sort of "local knowledge" one can acquire in such interactions. However, in general the field has been too quick to make knowledge claims—not too slow. Part of the problem is possibly a lack of understanding of the special properties needed for something to count as "knowledge" (e.g., Platonic conceptions of justified true belief), or how science attempts to instantiate these properties, but part of the problem may be a general human failing to understand the general failings of rational belief formation in humans—including clinicians (Dawes, Faust, & Meehl, 1989; Fischhoff, 1975; Garb, 1989; McFall, 1991; Ruscio, 2007).

Another fundamental problem that can arise is what happens in the event that professionals do not agree on a certain putative knowledge claim. For example, say there is a disagreement among professionals on whether someone who is actively involved in an affair ought to be allowed to continue in marital therapy? Does this mean that both views would be considered to constitute "professional knowledge"? If not, how is an issue like this resolved? If so, can two contradictory claims—e.g., "It does not sufficiently impair marital therapy to have one partner actively engaged in an affair" and "It does sufficiently impair marital therapy to have one partner actively engaged in an affair"—both be considered knowledge? Traditional epistemic accounts analyze knowledge as some sort of justified true belief (Ichikawa & Steup, 2012) and questions can be raised about what exactly are the justification procedures and resultant properties necessary for something to count as "professional knowledge."

Therefore because the construct of professional knowledge cannot be easily defined, and in its current undefined state allows for various interpretations, it fails to meet the requirement for an ethical enforceable standard to be clear and effective. Therefore, having "professional knowledge" as a basis for determining the ethical implication of one's behavior is problematic. Although it is admittedly speculative, it could be the case that these sorts of problems contribute to the unacceptably wide range of assessments and therapies being delivered by psychologists—including those that are iatrogenic (Lilienfeld, 2007).

However, what happens if these two types of knowledge conflict? Does one take precedent over the other? Does satisfying one of the two requirements of the enforceable standard make the behavior technically ethical? What if, for example, the research literature clearly indicates that intervention X is the most effective treatment, but a clinician has faithfully implemented this intervention, say, a dozen times and all these efforts have all resulted in treatment failures? What if the clinician attends a professional workshop and the presenter describes five case studies of effective treatment of this problem by therapy Z? Does this anecdotal evidence count as "professional knowledge" that can trump the scientific knowledge? Based on this anecdotal evidence, should the therapist deliver therapy X or therapy Z for the next client that presents with this type of problem? This ambiguity may cause a potential loophole in the ethical enforceable standards where an individual may practice "professionally" based therapies that may have little to no empirical basis.

Additional General Issues with Standard 2.04

While the constructs of scientific and professional knowledge have somewhat unique problems, all of which can affect practicing psychologists attempting to comply with these constructs as well as the consumers of these services, Standard 2.04 also has additional problems. For example, the wording of Standard 2.04 knowledge-based decisions becomes somewhat static. For example when some therapy becomes "evidence based" or "empirically supported" it seems that it more or less has crossed a threshold and there is no further epistemic work to do. There is a problem with such a static, categorical approach to evidence. Science is attempting to continually grow knowledge and this growth of knowledge ought to be captured in a professional's evaluation of a therapy. For example, in oncology patient's 5-year survival rates can constantly be adjusted given scientific advances in oncology where this would not be possible if oncologist were just to rely on a static categorical "evidence-based" vs. "not evidence-based" distinction.

Quality Improvement in Psychology

What Is Quality Improvement?

QI has gained much attention in manufacturing, the service industries, and more recently the healthcare system (Berwick & Hackbarth, 2012). QI is a philosophy and set of tools that systematically identifies measurable and important outcomes, attempts to understand the processes that influence these outcomes, develops measures for these processes and outcomes, and then performs learning trials to attempt to continuously improve these outcomes (Bobbitt, Cate, Beardsley, Azocar, & McCulloch, 2012). Through this QI process, barriers to improved outcomes are identified, reduced, and eventually eliminated or minimized in order to optimize the quality of the end product. Through QI, a system not only analyzes how its process functions internally, but goes a step further by analyzing how its product and system function with regard to various stakeholders' interests in the product.

Throughout the practice of QI, the goal has always been to continuously increase the value of the product. However, pioneers of QI have had different approaches to accomplish this goal. For example, W. Edwards Deming defined quality as a relative term that will change in meaning depending on the consumer's needs (Suarez, 1992). It is more than somewhat problematic that as a field we have conducted very little research into what our consumers actually want from us. To address the ever-changing needs of the consumer Deming focused on two key components: profound knowledge and Plan-Do-Study-Act cycles.

Deming believed that to fully understand a system was an important step in improving the quality of a product, and to fully understand a system one must have "profound knowledge." Profound knowledge had four key components: theory of systems, theory of variation, theory of knowledge, and theory of psychology. Deming viewed any system as having multiple components (management, customers, and employees) that are interrelated (Suarez, 1992). A failure to understand these interrelations leads to fragmentation, and an inability to identify or coordinate processes that will affect quality. Deming argued that variation in the outcome of a product or service was due to two types of sources, common and special (Suarez, 1992). Common causes of variation were found due to regular processes in the system (e.g., consistently poor quality of raw materials), while special causes were due to uniquely occurring factors (e.g., an employee on the production line coming to work intoxicated occasionally). Identifying the source of variation in outcomes is critical and Deming thought that management too often made the mistake of focusing on special causes instead of common causes. It can be said that the APA's Professional Code makes exactly this mistake—it makes the mistake of focusing on either a few "bad apples" or on the occasional misbehavior.

Deming viewed knowledge as a systematic cumulative process, with the occasional "breakthrough" where rapid advancements were made (Suarez, 1992). He believed that management must take a scientific approach, where hypotheses are continuously formulated, experiments—QI improvement attempts—are conducted, and improvements are then disseminated. Deming finally stressed the importance of understanding the dynamics of individuals, learning styles, and group performance to effectively implement a QI system (Suarez, 1992).

To help address all of these issues, Deming formulated the Plan-Do-Study-Act (PDSA). The PDSA is an empirical approach to measuring the extent to which a hypothesized process change has the hope for effects on quality. The "Plan" phase is where an individual or management formulates hypotheses—hopefully based on profound knowledge—of how changing a process in the system will affect the outcome measures of interest. During the "Plan" how data will be collected is determined. The "Do" phase is where a small-scale project modifying the process and measuring outcomes is run. During the "Do" phase, it is important to document any problems or barriers that present during the trial. The "Study" phase is where all of the data are analyzed. All data including changes to variables of interest as well as barriers that presented themselves are analyzed. The "Act" phase is where an individual or management determines the extent to which the changes to the system had the hypothesized benefit, how it would need to be adapted given unexpected barriers that were encountered, and whether or not to disseminate the change throughout the entire system.

Another pioneer in QI, Joseph M. Juran, addressed QI using somewhat different methods. Juran defined quality as "fitness for use," where there is a balance between product features and products free from deficiencies (Suarez, 1992). To accomplish this balance, Juran used what is now called the "Juran Trilogy" and the Pareto principle.

Juran's trilogy focused on quality planning, quality control, and QI. The quality planning phase focuses on developing products to meet the consumers' needs. The quality planning phase also includes establishing quality goals, and proposed ways to achieve those goals. The quality control phase involves monitoring operations, and analyzing the difference between actual production and goals. If differences arise, an individual or management must act to rectify those differences. The QI phase involves establishing an infrastructure to secure improvement, identify needs for improvement, and provide the resources and training need to achieve improvement (Suarez, 1992).

Juran also focused on the Pareto principle that stated that the majority of poor quality can be found in a small number of causes (Suarez, 1992). Juran called these small causes the "vital few." To improve quality in an efficient way, the vital few must be identified and rectified first. However, a common error in management is that there is a focus on the "trivial many" causes that can lead to massive resource expenditure with little changes in quality.

While these two pioneers emphasized somewhat different approaches, they were both effective at achieving advances in quality in various applications (Walton, 1988). Both pioneers focused on the continuous use of data to ensure that goals and quality were met. Both made QI an epistemic endeavor that is quite similar to scientific inquiry rather than a "professionally based" or "expert" consultation process.

Quality is sometimes associated with "expensive" products or services (Lexus or Nordstroms); however if done correctly QI can actually reduce overall costs and thus make a product more affordable to a wider range of incomes by eliminating waste or more efficiently satisfying consumer wants. For example, "the patient journey" (Baron, 2009) in healthcare attempts to identify each step a consumer made to navigate the system, from the very initial steps—hearing about the healthcare professional, to making an appointment, to traveling to the agency, to parking, to interacting with office staff, to completing paperwork, to receiving services, to billing, and to aftercare, in an attempt to identify unnecessary, redundant, annoying, or inefficient steps. Questions are asked such as "What value is added by this step?" Can this step be eliminated or streamlined? How do we make this step more positive for the consumer?

While there is usually an initial investment in implementing a QI system, successful implementation of QI not only increases the quality of a service or product being delivered, but usually does so while reducing the cost of making or delivering that product. For example, through QI processes Intermountain Health started an elective labor induction protocol that was estimated to reduce healthcare costs in Utah by $50 million dollars, increasing the quality of obstetric care (e.g., lower cesarean section rates, decreased length of time women spent in labor, lower admission rate to newborn intensive care units) (James & Savitz, 2011).

While part of a total quality package, QI is not to be confused with quality management. Quality management is the process of ensuring that the product given in location X is the same as the product given in location Y. QI, on the other hand, is the process of creating and measuring standards to create continual, incremental changes that exceed agreed-upon benchmarks (Bobbitt et al., 2012). While quality management is important to ensure that the variability of a product is low, which is an essential requirement of any good product, QI is the process that continually improves the overall value of a product.

The Benefits of QI in Medicine

Historically probably the most successful and well-known utilizer of the QI system is Japan. Through a series of lectures given by quality leaders like W. Edwards Deming and Joseph M. Juran, after World War II, top industry leaders in Japan were able to take an economically devastated country producing a few shoddy goods, and transform its manufacturing sector into the producer of some of the highest quality goods such as cars, electronics, and steel and thus into one of the world's economic leaders. Through continuous use of QI, products from Japan continue to be of high quality. An example of this dedication to continuous QI is Honda Motor Car's motto "Our customers are satisfied because we never are."

In 2001, the Institute of Medicine published its highly influential report "Crossing the Quality Chasm" that highlighted the inadequacies of the current healthcare system to consistently provide safe and quality care to patients. This report and subsequent reports found that "medical errors" were quite widespread resulting in perhaps as many as 90,000 unnecessary deaths in the USA each year. In addition it identified quality problems in access, timeliness of care, lack of use of evidence-based protocols, continuity of care, problems in care being patient centered, and overall safety. Since this report, QI has taken an increasingly important place in the improvement of the healthcare system, and is now a requirement under the new Affordable Care Act (HHS, 2011).

Studies and reviews of QI systems, that use QI methods like implementing evidence-based guidelines to reduce variability of care, decrease medical errors such as mistakes in reading prescriptions, reminder and decision support systems that would alert clinicians and patients of pending visits or of treatment guidelines, and the use of benchmarks to assess provider performance have demonstrated that substantial improvements in care are made when a QI system is used (Ferris, Dougherty, Blumenthal, & Perrin, 2001; Gilbert et al., 2012; Jha, Perlin, Kizer, & Dudley, 2003). For example, the use of preventative care is increased when QI tools such as physician reminder systems are used in the primary care setting (Ferris et al., 2001). Children with chronic medical conditions, in particular asthma, show dramatic improvements in care including increased treatment adherence and increased access to evidence-based practices when QI tools such as benchmarks, physician reminder systems, and training in disease management were implemented (Ferris et al., 2001). Symptom screening and control for patients with cancer saw significant improvements when Web-based reporting tools were used either in the hospital or the patient's homes (Gilbert et al., 2012). James and Savitz (2011) at Intermountain Health found that a QI system increased the rate of evidence-based care for a number of chronic disease states and in doing this saved the system nearly $100 million dollars. A properly implemented QI system can have overall increases in quality of care on an organizational level as well, with the exemplar of the Veterans Affairs (VA) system. The VA system saw massive improvements in the quality of care their patients received (e.g., increased vaccination rates, screening rates, disease management) after the VA adopted systematic measurement and accountability (e.g., routine performance measures, performance contract, quality indicators) of quality care (Jha et al., 2003). These are only a few examples of how QI has benefited the field of medicine.

Implications of Quality Improvement for Psychology

The field of psychology, like the field of medicine, should in principle share many of the same benefits that others have experienced by using a QI system (Bobbitt et al., 2012). Also, through the new Affordable Care Act, QI will be a requirement for practitioners to participate in the healthcare system. Focus on improving patient-centered care, the use of evidence-based protocols, and quality reporting will all become mandatory under the Affordable Care Act. Therefore, it is important that the field of psychology prepare itself appropriately in order to provide the quality of care that patients want, and the government will soon demand.

A properly implemented QI system would collect the information required to ensure that care is patient centered. The up-front and continual collection of self-report measures can help clinicians identify characteristics of clients that would require different kinds or levels of care, so that treatment can be appropriately tailored to meet the specific needs of the particular client (Bobbitt et al., 2012). For example, it is a premise of integrated care that the behavioral health needs of many patients in medical settings are currently being overlooked, and by providing behavioral healthcare in the medical setting, problems such as depression, anxiety, lifestyle problems, stress, and substance abuse, among others, can be better identified and treated (O'Donohue, Cummings, Cucciarre, Cummings, & Runyan, 2006). By being able to identify clients that require more or less care or a different type of care altogether, the field of psychology would be helping to reduce overall healthcare costs by not wasting precious resources on individuals who do not require the help and allocating them to individuals who would have not otherwise received them in the current system of treatment delivery.

A QI system also provides a framework that continually pushes both management and clinicians in a way that cause continuous innovations—that are measured and either seen to result in improvements and thus implemented or do not produce desired changes and thus are eliminated. Constant monitoring of performance, benchmarks, and metrics that set predetermined and quantified standards (e.g., cost of therapy, time in therapy, symptom reductions) allows for clinicians to continually strive to provide more efficient therapy without compromises to the quality of care a client receives. Therefore, a QI system would no longer allow for ambiguity on the state of knowledge, because it takes a clear position that knowledge is dynamic and constantly changing.

It is important to note that a requirement for all psychological services to take place within a systematic QI system would not only increase the amount of data but it would also close the gap between the "ivory tower" of researchers and the view that practitioners are simply consumers of researcher. Practitioners would actually be producing more outcome data than academics. This is as it should be practice is where the rubber meets the road and thus has always had the potential to be maximally data generating. QI simply actualizes this potential.

For example, practitioners in the course of seeing their clients can collect QI data regarding more nuanced situations: a clinic in a poor urban setting might find different client satisfaction outcomes than a clinic in a wealthy suburban setting. This helps resolve concerns about the nomothetic information coming from efficacy trials with non-diverse samples. Through a consistent and continual application of a QI system, new discoveries and treatment innovations can more consistently occur.

Finally, a QI system has important implications for the scientific community in psychology as well. Currently, therapy outcome research generally focuses on clinical outcome score on symptom scales like the Beck Depression Inventory. While assessing the alleviation of symptoms is an important metric, a QI system opens the door for researchers to begin to investigate other important aspects of treatment. For example, let us assume that treatment A and treatment B are both equivocal at reducing symptoms of depression. However, a QI system could reveal that treatment B has higher patient satisfaction and lower therapist burnout, and requires on average two fewer sessions—and thus is more cost effective. With these QI measures becoming the norm, rather than the exception, the scientific community will have a fuller set of phenomena to investigate. Indeed it is possible that the massive influx of data produced by QI systems should help resolve some of the long-standing debates in clinical psychology about the effectiveness of certain therapies, and the relative effectiveness of therapies, including the alleged equivalence of therapies. With QI data emerging from all delivery systems much more information will be available to decide these critical questions.

Changes to the Ethical Enforceable Standards and Code of Conduct

As mentioned earlier, for ethical enforceable standards to be useful they must be clear and effective (Gaumnitz & Lere, 2004). As we argued in the first section of this chapter, Standard 2.04 does not meet these criteria. Therefore, it must be replaced with a new enforceable standard that is clear and effective, and helps guide psychologists to better meet the epistemic burden of their profession. This can be accomplished by an enforceable standard that states, "*Psychologists*' *work is based upon the continual collection of information on safety*, *effectiveness*, *efficiency*, *timeliness*, *and equitability that is derived from systematic QI processes. Data from practices and research of other professionals may be used*, *but are subject to continuous QI measures in one*'*s own practice*." This enforceable standard makes it clear that psychologist use QI continually through their professional work, and that the decisions that they make ought to be based on these data.

An additional advantage is that more information on a wider range of key dimensions will be collected that will provide useful guides for decision making for a variety of decision makers. Too infrequently is psychotherapy outcome research is safety measured; yet this is a requirement in both Crossing the Quality Chasm (Institute of Medicine, 2001) and the Affordable Care Act. Although there is an increasing reliance on consumer satisfaction measures (e.g., social validity measures) often this key dimension is also ignored both in outcome research and in actual day-to-day practice. Finally, we recommend the QI system also measure cost as the healthcare crisis is largely a financial crisis and we need to investigate and improve the value propositions we are delivering to clients.

The point of this enforceable standard is not designed to burden the clinician with massive amounts of pointless data. Rather, it is an ethical commitment to be made by all psychologists to provide the best therapy to a particular client based on the client's needs and not the theoretical or personal beliefs of the clinician. QI systems can be designed so that they are efficient and minimally intrusive. For example, cost data can be gathered through archival methods. A three- or four-question client satisfaction measure can be e-mailed to all terminated clients. Also, it removes ambiguity around whether or not a decision made by a clinician is ethical or not. Those clinicians who fail to collect, maintain, analyze, and adapt treatment based on the data collected in a QI system are acting in an unethical way and subject to the consequences of that behavior.

An Example of How the New Quality Improvement System Would Compare to the Current System

As described, practice with the new QI orientation would be fundamentally different from the current practices in the field of psychology. Under the current system, a clinician delivers an intervention with some sort of justification that they have read the research and manual behind treatment X, they have attended a workshop, or they have experienced success treatment X regardless of the research behind the treatment. No data on outcome, safety, or client satisfaction need to be collected and thus these dimensions are unknown.

With the use of a QI system, a clinician decides to use treatment Z based on the best empirical evidence that is available over its utility—e.g., the APA's Chambliss report (Chambless et al., 1998). However, from their own past data collection, the clinician also knows that satisfaction ratings were a 4.7 out of 5, the average amount of therapy needed to achieve this was seven sessions, and the self-reported quality of life of the client increased (e.g., less days missed from work, less time in the hospital) by x (e.g., by using a measure like the Health-Related Quality of Life (CDC, 2011)). The clinician may also have data that informs them about interesting variance around these means, e.g., that individuals with a certain personal characteristics such as comorbidity may not require all seven sessions of treatment Z, require more sessions that are not currently a part of treatment Z, or will not respond at all to treatment Z. With this kind of information, a clinician can better tailor treatments to meet the personal need of clients, and analyze data on the extent to which this tailoring was useful. These data allow justifications to third-party payers for payment for standard services but also a justification for more services, by being able to show them data of how similar individuals responded to a particular treatment and the outcomes that they can expect to see.

Conclusions

Standard 2.04 of the APA's Ethical Principles and Code of Conduct as currently stated is unclear and broad, and does not provide a way for psychologists to better the field or the people they intend to help. The constructs of scientific and professional knowledge allow for too much interpretation in regard to their meaning that may allow for certain unwanted professional behaviors to be protected by Standard 2.04. Therefore, it is crucial that this enforceable standard be changed to prevent an unwanted consequence caused by the broadness of these constructs.

An explicit adoption of QI in the Ethical Code can provide an avenue for psychologists to continually improve their professional decisions while meeting their professional epistemic duties so that the interests of the consumers are honored. It has the additional advantage of being endorsed by the Institute of Medicine's Crossing the Quality Chasm (2001) as well as the recent Affordable Care Act. While the proposed revision no doubt will be somewhat controversial and disruptive (i.e., "creative destruction"), it is an important first step that psychologist must take to show the consumers of psychological services that the field of psychology is committed to the highest quality of care, which is only possible if that care takes place within a QI system.

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Chapter 20
Quality Improvement and Population Behavioral Health

Bruce L. Bobbitt and Scott D. Beardsley

As is evidenced by the range and depth of the articles in this volume, improving the quality of behavioral health is emerging as a key component of the evolving healthcare system. Quality improvement is now a well-established operational function within large manufacturing and service industries such as healthcare. Our purpose on these pages is to address the important topic of quality improvement (QI) and population health with a focus on mental health in the current behavioral health system. We approach this task based on our many years of experience in designing and implementing improvement projects in a managed behavioral healthcare setting. Our work in this area is practical. QI projects are designed to improve the health of the enrollees or members who are covered by our insurance plans. Moreover, the projects we have worked on are designed to improve the behavioral health of populations of individuals. Based on this work we have come to some understanding of how QI efforts can improve the health of populations. The focus on the population methodology of improvement projects in our setting is similar to efforts that come out of the public health field. The broad goal of public health methodologies is to improve the overall health of populations.

We set the stage for how QI can impact population health by discussing definitional issues for both quality improvement and population health. Definitions of quality and quality improvement are part of special languages that are crucial to developing any successful model and operations designed to improve quality. We argue that it is imperative to understand how conceptual definitions of quality are mapped onto operational definitions of quality. This might appear to be obvious on the surface—however, it is not and both quality professional and researchers need to be clear on definitions at every step of the way. The current behavioral health system is then described. The current system provides the context that both enables

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and at times constrains efforts to improve population health. We close with a description of the features of how quality improvement efforts can improve the health of a defined behavioral health population. Throughout, we attempt to identify issues that are unique to behavioral health and draw contrasts to other areas of healthcare improvement when appropriate. We do not claim to offer an exhaustive review of any one of these major areas. Rather, we attempt to identify the key elements that link them together.

Quality and Quality Improvement

Providing a completely unambiguous definition of quality is difficult because, like many terms in the field of psychology, quality is used in ordinary language and is operationally defined in technical and business settings. However, even in the ordinary language use of the term there are meanings that are also found in technical languages. In ordinary language the term is somewhat vague, but as a starting point we argue that quality generally means a personally defined expectation for a product or service as well as some sense of durability or reliability of the good or service. Most of us are asked to provide feedback to businesses both about the product purchased or service provided and the experience of dealing with the business. Questions usually pertain to a match of the services with the customer's expectation for the product and service. This is especially evident in highly competitive automotive industries that make extensive use of call centers. Toyota is a good example of a company that focuses on the consumer experience as well as the features of the product (see Chap. 6). The second ordinary sense of quality is the reliability and consistent performance or durability of the product or service. Does the product work as it is intended to or does it break and require repair? Toyota again provides a good example of this feature. Toyota cars are reliable and generally do not require extensive repairs. Toyota also aggressively monitors customer satisfaction, both the experience of purchasing the car and the actual performance of the car itself. Calling any 800 number call center usually includes the offer to complete a survey about the experience of the call (satisfaction) and the resolution of the call (reliability of the service). There are likely other ways in which the term is used in ordinary language but we argue that the two we have identified (expectation matching and reliability) are as good a starting point as any.

Quality and related terms are also defined in the technical literature that has developed in the mid part of the twentieth century. In the technical literature which arose out of engineering and industry, there are also multiple meanings and multiple uses of the term though there is impressive definitional clarity within defined systems (e.g., Deming (1986) or Juran (1999)). Formal quality improvement models such as Six Sigma and Lean make effective use of operational definitions. For example, within Six Sigma defects and process control are concepts that are given clear operational definitions within the system. There are also many other terms that are given precise definitions such as defects per million opportunities (DPMO). Given the technicalities and complexities of these systems it is possible to lose sight of what quality means.

Does a clear and agreed-upon definition of quality emerge from these models? Bobbitt and Rockswold (2016) provided a beginning a step in such definition and we elaborate on it here. Based on the various formal systems available we propose the following as working definition of quality: Quality is an agreed-upon standard of performance or outcome. In turn, quality improvement refers to all of the processes and activities that are used to both achieve a standard of performance and reduce variation in meeting the standard or achieving an outcome. The standard of performance or outcome is the "voice of the customer." The phrase "agreed upon" is important because it defines the voice of the customer or the standard in context of the area in which quality processes are implemented. As an example, consider a manufacturer who makes the materials that are used to attach wings to airplanes. The strength of the material can be measured and each instance manufactured can be measured against a quantitative standard that is known to lead to the outcome—the wing stays on the plane. A defect is a measure that would increase the probability of the material failing. Even in this instance there will be variability around the standard, however minute. Part of the goal of the quality process is to ensure that the standard is met for each instance of the wing material produced and that any variation will be negligible. In this case we argue that the "agreed-upon" defect rate would be essentially zero. The consequences of a wing falling of an airplane are catastrophic and most would agree that the DPMO of near zero is a reasonable standard for this manufacture to meet. Other examples in the manufacturing sector that would have exceedingly low DPMO are the brakes in cars—brakes simply cannot fail.

Consider the example of an individual behavioral health clinician who provides psychotherapy. Based on a review of the evidence the clinician has developed a theory that reducing no shows for sessions is related to a positive outcome because a certain number of sessions are seen as necessary for a positive outcome (see Lambert, 2007 for a discussion of the impact of outcome monitoring and number of sessions). In this instance there is likely to be professional debate about what the dose effect target should be. Nevertheless, the improvement project in this case is designed to meet a standard (agreed upon by some) and the clinician realizes that the standard cannot be reached when the clients do not come to scheduled sessions. The clinician decides that a no-show rate of 5 % is acceptable and he or she develops processes to ensure that the rate is essentially at that level. In this instance the standard of agreed-upon performance may have some but not universal scientific support and the actual performance that is seen as acceptable includes 5 defects out of 100 (or 50,000 defects out of million). This performance is quite a bit different than the airplane example. Nevertheless, the logic of how quality and quality improvement is defined is the same.

Population Health

In the history of the US healthcare system the main goal of public health efforts is to improve the overall health of the entire population of the country. Viewed in aggregate the health and welfare of the US population have improved dramatically over the last 150 years. Average life expectancy has increased and a number of diseases have been almost completely eliminated (e.g., polio) while major advancements have occurred in reducing the negative impacts of heart disease through reduction in cigarette smoking and changes in diet and increased exercise. Tooth decay has dramatically been reduced in the previous century. In current times it is difficult to recall how poor dental hygiene could impact overall physical health. It was not uncommon for individuals with severe tooth decay to have all their teeth removed and replaced by dentures. Moreover, if decay, especially deep decay, was not identified and treated rapidly, infection could travel to the bloodstream and have fatal consequences.

In the examples described above vaccines were identified for polio and given to essentially the entire population of citizens which had the effect of preventing the disease. In the case of tooth decay, the introduction of fluoride into the water system along with its topical dental application has contributed to the reduction in tooth decay. Along with ensuring sterile medical settings, the use of antibiotics to treat infections has saved countless lives over the past 100 years. In the dental example above, the antibiotics are routinely used to treat infections and are used prophylactically during dental surgery.

Basic science with its unique combination of discipline and serendipity identified that germs cause certain diseases and that mode of transmission of germs was through physical contact and that use of sterilization procedures prevented the transmission of certain germs, thus preventing disease. Once it became clear that antibiotics eliminated certain infections they were and are prescribed routinely in medical and dental practice. In these examples, once the causative agent was identified it was introduced into the population impacted by the disease—antibiotics were prescribed for certain people who had a disease (the population is the class of people who have the disease) and fluoride was introduced into the water system (the population is all people who drink water from the municipal water source—essentially the entire US population). Even though polio occurred in clusters and was characterized by epidemics vaccines were given to the entire population of the USA.

These examples are provided because they introduce both the concept of public health and the concept of population health, both of which inform how quality improvement processes can have an impact on improving population behavioral health. Public health is a value-driven concept that drives policy decisions in the USA and has become a formal part of our culture and government. The overall mission of the public health enterprise is to increase the overall health of the US population. The key governmental organizations that drive this mission are the Public Health Service, the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Research and Quality (AHRQ), and the Substance Abuse and Mental Health Administration (SAMHSA). Through the Centers for Medicare and Medicaid Services (CMS) the US Government also administers the Medicare and Medicaid insurance programs. While Medicare is a purely federal program for individuals 65 years and over, Medicaid targets low-income individuals and is administered both by the federal government and by state governments. CMS oversees not only the payment structure for these programs but also outlines quality expectations for payers who administer CMS programs. The role of the government is highlighted here because it serves as a key factor in how quality improvement approaches find their way into behavioral health. Public health is characterized by interdisciplinary research devoted to understanding the epidemiology of diseases and lethal events and to identifying interventions of the kind mentioned above. The American Public Health Association (APHA) is the professional society that is home for a wide range of professionals devoted to improving public health.

In addition to these structures, there are other major organizations outside of the government that play important roles in conceptualizing population health. Notable examples are the World Health Organization (WHO) and the Institute of Medicine (IOM). The WHO has sponsored surveys on the burden of mental disorders (e.g., Kessler et al., 2011) and the IOM has issued policy statements on quality in health care (IOM, 2001) and on quality of care for mental health and substance abuse (IOM, 2006).

Population health and by extension population behavioral health is a key part of the overall public health enterprise. But what is population health (population behavioral health) and how does it relate to quality improvement processes? In reviewing the above discussion it might appear obvious what the concept refers to. The examples of improved health are compelling. However these examples do not provide the conceptual apparatus to move the process forward across a number of different content areas. Kindig and Stoddart (2003) addressed the definitional issue head on by asking the very same question (their article was titled “What is population health?”). Their answer was that population health refers to the health outcomes of a group and the distribution of outcomes within the group. They expand their definition by referring to population health as a field that includes outcomes, determinants, and policies and interventions that link the two. Kindig and Stoddart (2003) note that they chose health outcomes as opposed to “health status” which they felt was limiting because it connoted health at a particular point in time.

Recently Struijs, Drewes, Heijnk, and Baan (2014) used the phrase “population management” as opposed to the narrower concept of population health to refer to a broad array of activities designed to create a conceptual system that expands the six-part model espoused by the Population Health Alliance (PHA, originally referred to as the Care Continuum Alliance (CCA)—see Felt-Lisk & Higgins, 2011 for a summary of the model). The six parts of the model outlined by Struijs et al. (2014) are (1) population identification; (2) health assessment; (3) risk stratification; (4) patient-centered interventions; (5) impact evaluation; and (6) quality improvement. Struijs et al. (2014) and Felt-Lisk and Higgins (2011) both argue that population management as they define it provides the depth and richness needed to improve population health across a wide range of conditions.

We find the types of models outlined above to be rich and conceptually detailed and we will touch base with them throughout these pages. However, these models are so rich that they do not allow a clear beginning point for understanding the practical issues of developing and evaluating improvement projects for behavioral population health. What is needed is a way to identify the way to operationally define the broad concepts that characterize this field. So we step back a bit and offer a beginning version of such an operational definition. Our answer to this definitional question is to start with a simple methodological definition which is then elaborated upon based on the specific issues within behavioral health. Our working operational definition is this: Population health refers to the identification of a defined population of individuals (population) and the identification of measurable health attributes within the population (health). Depending on the type of project or issue being improved the first part of the definition requires a strict definition of the population. The population is defined by all members in the set and only those members. Clear inclusion and exclusion criteria need to be articulated. Second, there needs to be a way to unambiguously identify the health attribute that is of interest.

In the example of polio, the population is all members of the US population at a particular time or a defined period of time, say one entire year. This is the entire population. The health attribute is the number of those individuals who are diagnosed with polio at any time during that year. For the sake of argument, assume that the population is only 100 people and 20 receive the diagnosis during the year in question. The number of people with the diagnosis becomes the numerator and the entire population becomes the denominator. This metric is 20/100 = 20 % of the population had the health attribute or characteristic. To begin to build a quality model assumes that the vaccine is introduced to the entire population the next year and the third year the metric is remeasured. Moreover, the vaccine is given to all members of the population in the future and measurements are taken every year. Thus the period of time before the vaccine is the baseline period and the period that includes the introduction of the vaccine becomes the measurement period following the introduction of the vaccine. If all else is held constant and if the rate goes down and continues to go down it may very well be possible to argue that the vaccine led to the reduction.

Hopefully this type of example leads you to wonder if it is possible to actually draw the conclusion that the vaccine caused the reduction in rate. It seems deceptively simple. Despite this simplicity, we argue that in order to understand and operate population health improvement projects the core metric is always an attribute within a population. In this section we have provided examples drawn primarily from "physical medicine" because these are clear examples of broad and successful efforts to improve health. In the next section we continue to elaborate the key concepts in population health improvement and focus on the current status of the behavioral health system.

Healthcare System Changes

In this section we provide a brief review of the role that federal government legislation has played in influencing how care is delivered and funded. Our point is not that the government is exclusively driving how healthcare is delivered—it is not. However, the federal government is a substantial influencer in how healthcare is funded and delivered. In the section following, we focus on how population health has been improved through the efforts of managed healthcare organizations over the past 20 years and the status of this improvement in behavioral population health. In that section we provide examples drawn from these efforts. However, it is also important to understand the impact that legislation has and is having on the healthcare system.

The current US healthcare system has changed and evolved dramatically since the period before WW II and has included the public health achievements outlined above in addition to changes in the way that healthcare is financed. Even though not mentioned in the examples above, the interventions that have almost eliminated polio and sharply reduced tooth decay were paid for by the government drawing on general funds. In like fashion the delivery of healthcare is paid for by a mixture of private health insurance and public health insurance (Medicare, Medicaid, and now subsidized Exchanges). Since WW II most sizable private employers have included health insurance as part of the benefits of being an employee. Until the advent of Medicare and Medicaid, insurance provided by employeers was the dominant mode of health insurance payment. Shi and Singh (2013) have provided a thorough review of the current US healthcare system and is a good starting point for additional information on the system. In addition, Mechanic and Grob (2011) have written an excellent review of the history of the behavioral health system which includes a discussion of payment and managed care models. The key point is that payment for care is a major driver in the access and utilization of healthcare.

In a seminal paper Berwick, Nolan, and Whittington (2008) outlined three interrelated goals of the healthcare system referred to as the “Triple Aim.” The three goals are improved overall population health, improved experience of individual care, and reduction in per capita expense for healthcare. These three goals elegantly capture the focus of this chapter (population health) but also the intuitive points that individual care provided by clinicians and facilities (generally hospitals) must be of high quality and that the overall cost of the system needs to be reduced. These three goals now serve as organizing principles of most every effort to improve quality in the healthcare system—whether directly acknowledged or not.

The Berwick et al. (2008) article was published 2 years prior to the passage of the Patient Protection and Affordable Care Act (2010, referred to subsequently as PPACA) and the same year as the passage of the Paul Wellstone-Pete Domenici Mental Health Parity and Addiction Equity Act (2008, referred to subsequently as parity). PPACA is the most recent in a long line of federal government actions that have dramatically influenced the payment and delivery of healthcare. The funding of Medicare and Medicaid has already been mentioned. In addition, the Health Maintenance Organization Act (1973) had a dramatic influence on the funding and practice of the healthcare system. This enabling legislation gave rise to managed care organizations which developed rapidly in the late 1980's and are operational to this day. Much employer health insurance is administered through managed care plans and federal, state, and local government contracts with managed care organizations to administer and manage Medicare and Medicaid benefits. Managed care organizations develop contracts with clinicians and hospitals to be in the provider network. For members enrolled in the plan it is advantageous from a cost perspective to get care from a clinician who is in the network. In addition, managed care organizations review certain (not all) procedures to ensure that the requested care is medically necessary. These brief comments do not capture all of the variants of managed care plans but they do capture some of the core elements of these payment arrangements.

While PPACA did not alter the core functioning of managed care organizations it did extend insurance benefits by mandating certain benefits (there are ten core benefits that must be in plans including behavioral health) and requiring that young people up to the age of 26 can be covered on their parents' insurance if their parents have insurance. Health insurance cannot be denied based on preexisting conditions. In addition, PPACA allowed the development of both federal and state insurance exchanges that allow individuals to buy health insurance and pay a penalty if they do not.

The Parity legislation passed in 2008 requires that insurers administer behavioral health benefits in a way no more restrictive than the way that medical benefits are managed. In the case of both PPACA and Parity the CMS has been developing the rules for their implemention. Taken together these two laws have led to a disruptive period in the delivery of healthcare similar to the impact that the HMO legislation had—though the development of mature managed care organizations did not occur until many years after the law was passed.

We note these pieces of legislation because they serve as the backdrop for current efforts to improve behavioral health quality. In addition to the insurance requirements noted above PPACA also set the stage for the development of Accountable Care Organizations (ACOs) and Health Homes (see Bobbitt & Rockswold, 2016 for a discussion of these structures). In addition, PPACA authorized payment for a variety of demonstration projects designed to investigate how quality of care can be improved in a variety of settings and directed HHS to develop a comprehensive National Quality Strategy (NQS).

The NQS is developed and overseen by the US Department of Health and Human Services (DHS) who reports yearly to Congress on the progress of this effort (United States Department of Health and Human Services, 2014). The NQS has three broad aims which are consistent with the Triple Aim: (1) Better Care (Triple Aim—Improved Experience of Individual Care); (2) Healthy People/Communities (Triple Aim—Improved Population Health); and (3) Affordable Care (Triple Aim—Reduced Cost). In addition to the aims, the NQS identifies strategies and priorities such as promoting effective communication and coordination of care.

We have reviewed these parts of PPACA and Parity to emphasize the point that government legislation has and is playing a role in how healthcare and behavioral healthcare is delivered. In addition to impacting payment for healthcare PPACA has called for an explicit emphasis on population quality improvement.

Behavioral Population Health Quality Improvement: An Example

While the previous section focused on the role of the government in requiring a focus on quality, population improvement efforts have been under way in the private sector for many years. This chapter is the most recent update by the lead author on various aspects of managed behavioral healthcare, all of which focus on quality as a key part of the enterprise. A recurring theme is this work is that improvement processes need to be focused on population improvement that is consistent with the individual care that is provided to patients (two of the three aims outlined by Berwick et al., 2008). This section extends that work by describing improvement examples based on the logic of improving NCQA-developed HEDIS scores. Bobbitt, Marques, and Trout (1998) provided an overall summary of quality in managed behavioral healthcare organizations (MBHOs) and outlined a still relevant organizing framework for quality ranging from individual clinicians to payer organizations such as MBHOs. Bobbitt (2006) reviewed the logic of population health improvement efforts and made the point that clinical practice guidelines need to be consistent with population health metrics. Bobbitt, Cate, Beardsley, Azocar, and McCulloch (2012) reviewed the core requirements of quality models and articulated how outcomes need to be a key part of the process. Finally, Bobbitt and Rockswold (2016) reviewed the changing dynamic between payers and new delivery models such as ACOs and Health Homes.

In section "Quality and Quality Improvement" we outlined the type of definitions required in order to do effective population improvement projects. In this section we focus on an example of an operational definition afforded by a particular HEDIS metric. Payer organizations have focused on quality by achieving accreditation by the National Committee for Quality Assurance (NCQA) and by contributing to the improvement in NCQA-developed HEDIS (Health Effectiveness Data and Information Set) scores. Each Fall NCQA releases a summary of Healthcare Quality that focuses on aggregate performance across all of the reported HEDIS scores (e.g., NCQA, 2016).

Bobbitt (2006) provided a listing of the then current HEDIS metrics. The current set (NCQA, 2015) has additional measures, many of which are behavioral. NCQA adds measures through a clearly defined development process that makes use of researchers, external experts, and vetting committees. The goal is to ensure that all of the metrics have current scientific support. One of the metrics that is reported by Health Plans is Follow-Up After Hospitalization for Mental Illness (FUH). This is the only HEDIS measure that is directly impacted by the performance of an MBHO and by behavioral health clinicians.

In terms of our earlier definition the population in this case is the universe of all enrolled members in the health plan that have an acute inpatient stay during a defined period of time. This is the population—so the population set is those individuals and only those individuals who were in an acute inpatient mental health facility. The population does not include all members who were covered by health insurance or people who received other levels of mental healthcare. The period time during the calendar year is precisely defined to the day and the definition of a mental health facility is defined both by provider type and by procedure code. The specifications published by NCQA (NCQA, 2015) provides a complete and unambiguous definition of who is included in the population and who is not. The population is defined as the denominator in the measurement equation. The health attribute which becomes the numerator is the number of people in the population who received an ambulatory visit with a mental health profession within 7 or 30 days of the discharge from the hospital. Mental health professional is given a clear definition as are the types of visits that are allowed as meeting the specification. For example, a re-hospitalization does not count as a follow-up visit. The data points are based on healthcare claim forms submitted by the facilities and the clinicians.

The logic of the measure is that it is important to provide continuity of care for people who are in an acute mental health facility and this measure was deemed by the various NCQA review panels to be an indicator of a broader quality process (these panels consist of researchers, policy makers, and at times advocates; while there are representatives of the managed care industry on the review panels they are always a small minority of the group). The visit does not have to be with the ongoing treating provider for the patient; it can be with any outpatient clinician who meets the specification. HEDIS scores are reported once a year and the report of a particular calendar year is for data from the previous year.

As with the definition, the reported metric is deceptively simple. For any given health plan the 7-day metric is the # of 7-day kept appointments/the population of individuals who were hospitalized. The actual scores vary from below 50 % to up to 80 % and even higher on occasion. What this means is that on the low end it is possible that half the discharged patients do not have a visit in 7 days in certain circumstances. The rate goes up for 30 days but does not approach 100 %. Once the metric is for a particular health plan is identified (say 70 %—remember that with a score of 70 % success there is a 30 % defect rate using standard quality terminology) the score is reported to NCQA who then compares that performance with all reporting companies and the results are reported in percentile rankings. The 70 % reported may be in the top 75th percentile of all plans reporting. Thus, the measure allows both a cross-system measure of performance (what is the percentages of people who have a visit within 7 days) and a comparison and profile of health plan performance based on percentile rankings.

Once the results are received it is the job of the quality professionals and other professionals to determine if the performance meets the standard (part of the original definition of quality outlined in the first section) based on the voice of a customer. A particular health plan may have as its standard that the 7-day performance be in the 90th percentile compared to its peers. If the performance is at the 75th percentile work needs to be done to improve the score. The work that needs to be done follows a standard QI process. If 30 % of the people discharged did not have an appointment a root-cause analysis needs to be done to find out why and then develop interventions to improve the performance. Examples of potential causes could be that the discharging facility did not schedule a follow-up appointment with a clinician. It is possible that the person had an appointment scheduled but did not have transportation to get to the appointment. It is also possible that the contracted network did not have a sufficient number of clinicians to see the discharged patient. The list could go on. The point is that the purpose of the QI process is to determine the likely cause in order to put in interventions to improve the score. Perhaps the managed behavioral healthcare company calls the facility to ensure that a follow-up appointment is made for the discharged person. Perhaps the organization contracts with certain providers to ensure that there are appointments available following discharge. Once the interventions are put in place the measurement process continues and the scores are evaluated the next year. The root-cause analysis and the identification and implementation of the interventions are the quality improvement part of the definition that we started with in the section on definitions.

We have provided this example because it is the kind of system process that focuses directly on metrics that have been identified and vetted by NCQA which is one of the major industry standards for metric measurement in the Health Plan and MBHO space. Moreover, NCQA is currently in the process of introducing a number of new behavioral health HEDIS measures. While the focus here has been on NCQA and HEDIS it is important to note that there are a number of organizations who develop and vet metrics. The National Quality Forum (NQF, 2015) is one of the leading reviewers of metrics including behavioral health metrics. NQF metrics are thoroughly vetted and are used in a variety of settings to measure quality performance.

Summary and Concluding Comments

On these pages we have provided a brief summary of what may appear to be disparate areas of inquiry and practice ranging from defining quality to reviewing the context of the current behavioral health system. Our focus has been on the issues involved in developing a systematic approach to improving population behavioral health. In this journey we have argued that it is important to develop clear definitions of concepts that are followed by unambiguous operational definitions when doing population improvement work. We provided our own candidate for such a definition and our belief is that this approach allows improvement work to have an anchor.

We also provided an example of a measure that is currently used in the healthcare system to measure behavioral health quality in a managed care context. The population was clearly defined as was the attribute to be improved. Even a seemingly simple metric such as measuring the number of people who have a follow-up appointment following an acute inpatient stay for mental health has a great deal of complexity. However the example did demonstrate how the agreed-upon standard as voice of the customer operates in a real-world healthcare setting. The agreed-upon standard is far more difficult to achieve compared to the engineering/manufacturing example outlined earlier because there is less ability to control the operational processes. In addition, the defect rates are much higher. Nevertheless, we argue that the concepts need to be used in the same way.

We now step back from our example and our plea for having clear definitions of the population in question and the agreed-upon standard, to return to the current state of behavioral health population improvement. Is behavioral health improving for key subpopulations within the USA and/or for the population at large? In looking at the types of models mentioned earlier such as the CCA (as discussed by Struijs et al., 2014) model we were struck by both the importance of the approach and its complexity—the six components of the model make sense to us but the task of providing long-term demonstrations of this type of approach appear daunting. Also recently, Sanson-Fisher, D'Este, Carey, Noble, and Paul (2014) clearly articulated the research complexities of evaluating public health interventions. Starting as we did with a relatively simple set of definitions—public health interventions are strategies designed to improve the health of the population or subgroups within the population and that interventions can range widely from vaccines to programs designed to improve nutrition in children. However, Sanson-Fisher et al. (2014) note that rigorous evaluation of interventions requires well-done research in complex systems to ensure that findings are robust and replicable. We have no quarrel with either of these authors as both the models and the assumptions are true. The question is how long will this work take to identify interventions that meet this standard and at what point will it be clear how these interventions can be introduced into the healthcare system?

Cohen and Galea (2011) edited a series of papers that provide a state-of-the-art summary of the current state of affairs in behavioral or mental health population health. Kessler et al. (2011) clearly demonstrate the enormous burden that untreated behavioral health problems has on populations across the entire world. In like fashion, Aguilar-Gaxiola et al. (2011) chronicle the mental healthcare disparities that exist in the USA with multiple minority populations having less access to high-quality care than majority populations. In an interesting and compelling piece Caine, Knox, and Conwel (2011) meticulously chronicle statistics about incidence of suicide and also the fact that rates of suicide vary over time and there are no clear models or reasons to explain these findings. They also note that the challenges are many in charting a clear course to both identify and prevent suicide.

We started with a plea for ensuring that definitions are clear and ended up with adding back in the complexity and lack of clear and core knowledge of the determinants of behavioral health difficulties and how and why there are population differences in these difficulties. There is no vaccine for behavioral health challenges. Despite the complexity and lack of complete and clear knowledge there are some guide posts and ways in which quality improvement processes can assist. First, QI processes are most robust in situations where there is control over most of the variables. This is true in manufacturing and in service industries such as hotels where there is potential control over the variables. The less control and more complexity that there is in the system, such as is the case in behavioral health service delivery, it is important to ensure that a quality process or improvement project has clear definitions and that such projects are realistic. The results of improvement projects will be incremental and at times local and specific. While we may be a ways away from preventing the expression of mental disorders we maintain that even small and well-designed projects can produce incremental improvement—and that is a positive outcome of QI methodologies.

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