

Chapter 2

Health Complexity and the Interaction Between Physical and Behavioral Health Conditions in Adults

“If you’re not confused, you’re not paying attention.”

—Tom Peters

Thriving on Chaos: Handbook for a Management Revolution

Chapter Objectives

- *To define “health complexity” and its importance in integrated complex case management for adults.*
- *To describe the effects of the interaction of physical and comorbid behavioral health conditions on health and cost outcomes in adults with health complexity.*
- *To discuss the fragmentation of physical and behavioral health assessment and treatment due to independent payment practices.*
- *To summarize the potential for value through multi-domain physical and behavioral health integrated case management in adults with health complexity.*

The first chapter of the *Physician’s Guide* goes into great detail about patient health care assistance and support programs and their case management subcategories, which requires the skills of licensed professionals with case manager competencies that match increasing levels of assist and support program intensity. Since assistance and support programs and the published literature are generally indiscriminant in their use of terminology (see Table 1.1) to describe assistance and support interventions regardless of program intensity or the personnel competencies of those providing services, we will rely on the concepts of program intensity and assist and support personnel competency used in Chapter 1 throughout this book. “Case management” will remain the term that demarcates programs with higher intensity and “case managers” the professionals needed to meet program and patient needs.

Again, it is not the intention of this *Guide* to devalue low intensity assistance and support programs since several with rigorously followed work process algorithms have the potential to improve the patient experience, enhance clinical outcomes, and reduce the total cost of care. Low intensity assistance and support, however, focuses on discrete issues for clients and patients, such as fostering healthy behaviors, improving transitions from one level of care to another, or efficiently supporting the

needs of patients confined by health or age to their home environment. For patients with persistent, expensive, and treatment resistant chronic conditions, low- and many medium-intensity assistance and support programs do not foster total health improvement and stabilization. Since this is a major area of opportunity for improving health outcomes and lowering cost, it is where emphasis lies in this book.

Before we get into the work processes that are used by complex case managers, and particularly integrated complex case managers, it is important for physicians to have an understanding of what is meant by “health complexity” in the context of the *Physician’s Guide*. Further, we live in a health care environment in which medical and BH services are segregated. There is increasing awareness that separation of the two has been destructive for patients, both clinically and economically, but few recognize the extent to which medical and BH comorbidity affect total health outcomes and the cost of care. In this chapter, we will delineate the specific meaning assigned to health complexity and summarize how the interaction of medical and BH conditions affects “standard” clinical care as it is currently practiced.

Bob, briefly described in Chapter 1, is a good example of a patient with health complexity who for 5 years has been treated with a target on his biomedical presentations in a system that, by financial and clinical fiat, negated the possibility of coordinating medical and BH services. As a result, the underlying reason for his multiple medical admissions, i.e., his factitious disorder related to presumed borderline personality disorder with antisocial traits, is never addressed. In fact, Bob is unlikely to receive needed attention for this component of his clinical presentation and other factors for the next 5 years unless a multi-domain approach (biopsychosocial and health system) is included as a part of his plan of care. This is where integrated complex case managers working in concert with Bob’s clinicians come into the picture. As a team, they have the potential to augment Bob’s total health outcomes, not only by addressing his crisis-related medical problems, but also by assuring that the behavioral comorbidities and social and health system issues that complicate health stabilization are addressed.

Health Complexity

The majority of the medical literature defines health complexity by the age of the patient; the number of chronic illnesses the patient has, with an emphasis on physical disease; and the costs of incurred services [1–4]. While these are clearly components of complexity, including for those with primary BH disorders, they do not take into account the many other factors that create obstacles for patients and clinicians in achieving health improvement. For instance, personal and social factors, such as housing, ethnicity, social support, and financial situations, as well as psychological conditions, are also significant factors in the concept of complexity [5, 6]. With the exception of the INTERMED group, based in Europe [6], and the early work of the Agency for Health Research and Quality (AHRQ) Multiple Chronic Condition Research Network (MCCRN) [7], we are unaware of other groups that

have specifically included health system factors as contributing to poor outcomes in complex patients.

For purposes of the *Physician's Guide*, “health complexity” will be defined as *interference with the achievement of expected or desired health and cost outcomes due to the interaction of biological, psychological, social, and health system factors when patients are exposed to standard care delivered by their doctors*. This is a refinement on the definition generated by researchers in Europe over the last 20 years, as they developed and tested a multi-domain complexity assessment instrument called the INTERMED [6]. It inherently recognizes the disconnection of patient needs from available services as suggested by the AHRQ MCCRN [7].

This definition recognizes that clinical and nonclinical factors contribute to health complexity. Importantly, complexity is couched in terms of factors that contribute to poor health and cost outcomes rather than the number and complicated nature of the illnesses or illness combinations experienced by patients, i.e., the clinical factors. Most, but not all, with health complexity have one or more chronic conditions. In these patients, the severity and number of chronic conditions, their acute exacerbations, and the ease with which they can be treated define the level of “clinical” complexity. Some complex patients, however, merely have an acute and serious change in their health status and no chronic condition, such as those who have recently become incapacitated due to a major auto accident. When they also have major nonclinical barriers to improvement, such as homelessness and poor access to coordinated quality clinical care, there is increased complexity, which can retard improvement or recovery.

In over 60% of those with “medical” or “psychiatric” complexity, concurrent medical and BH issues are present [8]. Physicians and other treating practitioners spend the majority of their time addressing these primary “bio” or “psycho” components of health complexity, depending on their discipline, but generally do not attend to nonclinical contributors to complexity or even cross-disciplinary needs because they do not see nonclinical or cross-disciplinary factors as part of their accountability. Their job is to identify and treat disease in their area of clinical practice and the time they devote to it is what is reimbursed.

Nonclinical factors that contribute to health complexity are more protean. Using the INTERMED-complexity assessment grid (CAG) conceptual framework [6], elements from three other complexity domains are included, the psychological, social, and health system domains. These factors create barriers to improvement for individuals whether they have serious chronic or acute illness or not. Thus, Ellen, a patient with uncomplicated but marginally controlled non-insulin-dependent diabetes (low biological complexity) may become a patient with high health complexity in the medical setting since in addition she is recovering from alcoholic dependence with Wernicke–Korsakoff syndrome (biological and psychological complexity), has no money for hypoglycemic medications (social and health system complexity), has no insurance (health system complexity), lives on the street (social complexity), and eats a fast-food nonregulated diet (biological, psychological, and social complexity). Progression of diabetes with development of complications is much more likely in Ellen than would

Table 2.1 Integrated Case Management-Complexity Assessment Grid (*ICM-CAG*)

	Historical	Current	Vulnerability
Biological	Chronicity	Severity	Complications and life threat
	Dx dilemma	Dx/Rx challenge	
Psychological	Coping	Treatment adherence	Mental health threat
	Mental health	Symptoms	
Social	Job and leisure	Residential stability	Social vulnerability
	Relationships	Network	
Health system	Access	Getting services	Impediments
	Experiences	Coordination	

be the case for Julia, a marginally overweight college educated housewife with good insurance, a family support system, and a desire to remain healthy. More will be said about the Integrated Case Management-Complexity Assessment Grid (ICM-CAG), which has been adapted to the US health system (Tables 1.12 and 2.1), and how it helps disentangle such barriers to improvement in Chapter 4.

Nonclinical factors contributing to health complexity are as important as clinical barriers to improvement; however, they are not normally included among information gathered in a typical physician’s history and physical examination. For instance, a physician’s rendition of a family history will uncover the presence of immediate family members with illness loads. At the same time, it will routinely overlook interference with the patient’s ability to adhere to core elements of a physician’s treatment recommendations, for example, due to a patient’s role as the primary caregiver for an incapacitated relative. The physician-based medical history uncovers potential genetic or environmental (biological) contributors to a patient’s clinical condition but, more often than not, misses personal and social factors that could have even greater impact on outcomes. Since health complexity is defined by the presence of impediments to health and cost outcomes due to a disconnect between needs and services, as suggested by Grembowski et al. [7], rather than a focus on biological features, it is easy to see how nonclinical factors can play such a major role in identifying patients with health complexity.

Health complexity includes two components: “case” and “care” complexity [9]. Case complexity refers to patient-based clinical factors. For instance, patients may have allergies to certain medications, such as sulfonamides, or may have interacting medical conditions, such as acute mania plus lower extremity cellulitis with a fever, that influence the way that the patient can be treated. Care, or health system-based, complexity is manifest by the way that health services are supported by the system, delivered by practitioners, and available to the patient. For instance, patients experience care complexity when:

- Poor insurance coverage limits provider access, thus delaying care.
- Specialty medical services are unavailable in rural locations.
- Independent medical and BH clinical documentation systems disrupt provider communication and collaboration in care delivery.

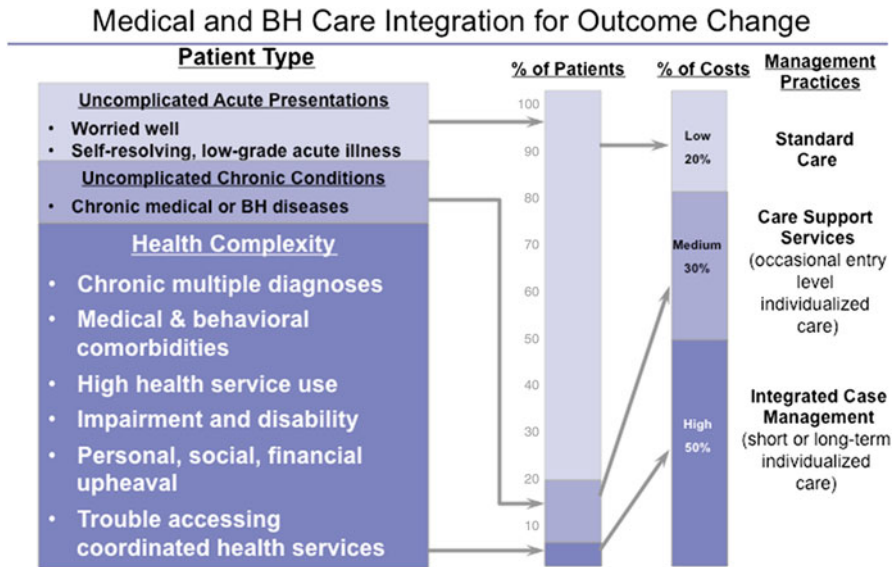


Figure 2.1 Patients with health complexity require individualized medical and BH care integration for outcome change (Data from Meier DE, Thar W, Jordan A, et al. Integrating case management and palliative care. *J Palliat Med*, 7:119-134, 2004)

Both case and care complexity can require a shift from standard (biomedical, including psychiatric) care to individualized care in order for patient outcomes to improve and health to stabilize.

Standard Versus Individualized Care

“Standard care” equates to traditional medical and BH services available through physicians and other treating providers in their offices and hospitals. As mentioned in Chapter 1, more than 80% of patients with acute noncomplex and even chronic, but easily controlled, conditions do well with standard care (Figure 2.1) [10]. An additional 10–15%, largely those with uncomplicated chronic health conditions, also fall into a subset of patients who generally do well with standard care. Some of this chronically ill population, especially the 5% with apparent treatment resistance and high health care service use and cost, however, benefit from occasional or even sustained care support (individualized) services described in the case management and complex case management sections of the last chapter when complicating barriers to improvement arise or if chronic conditions spiral out of control. When stabilized, such patients can return to standard care.

“Individualized care,” i.e., standard care augmented by assist and support services systematically provided by Level 2C to Level 4C professionals, often embellished by

Level 1C personnel, recognizes that occasional patients with chronic illnesses and the majority of patients with health complexity manifest care support needs that fall outside of those that can be easily obtained during standard medical care. Medical and BH physicians and other treating professionals are not equipped or paid to address more than the physical and/or psychiatric conditions with which patients present. Plus, they are usually paid on a unit time basis, such as through relative value units (RVUs), which incents short and focused clinical assessments. As a result, patients with health complexity are at risk for poor outcomes, progressive illness consequences, and persistent health problems unless they receive help from professionals with adequate case management competencies to support adherence and guide patients through their illness exacerbations.

This is where case managers add great value to a targeted subset of patients in virtually every physician's practice. In individualized care, case managers partner with treating clinicians and their patients with health complexity to help them overcome barriers to improvement using the case management Standards of Practice [11]. Included among the services that they provide are activities designed to overcome nonclinical obstacles, which are typically not addressed in standard care but directly affect the ability of patients to return to health.

Case Triggering Versus Health Complexity Assessments

Health complexity, an important concept most often seen most often in elderly patients, is associated with the presence and number of chronic illnesses. It increases the total cost of care. We have suggested that the perception of health complexity expand to incorporate an even smaller percentage of patients, i.e., those who tend to have progression of illness despite apparent treatment, remain impaired, and persistently use high levels of health resources (Figure 2.1) [5, 10, 12]. Uncovering health complexity is a two-stage process. The first essential stage is one in which patients are efficiently triaged into a targeted population subset of those at greatest risk for health complexity, using clinical algorithms, registries, claims databases, predictive modeling tools, etc. Monheit summarizes elements (Table 2.2) that are commonly found in predictive modeling tools designed to identify high-risk patients [13]. These parallel similar predictors of primary care physician-defined complexity described by Grant [5]. Appendix A provides examples of algorithmic strategies on how triage could be efficiently approached in populations of patients being considered for participation in integrated complex case management, both by health plans and clinical delivery systems. Regardless, the triage process should cost-effectively lead to a short list of high need patients with a minimum use of personnel time.

After a list of triaged patients at high risk is generated, little time and effort should be used in deciding who in the targeted subset will enter complex case management. Almost always, there will be more patients than there are case managers available to provide individualized assistance. Thus, once triage uncovers the 2–8 % of the population with the highest risk, those who can be contacted and are willing

Table 2.2 Predictive modeling for future high service use

	Marginal effect	P
• >75 Years old	9.9	<0.05
• “Fair to poor health”	18.4	<0.01
• Prior high service use	20.7	<0.01
• White, non-hispanic	5.8	<0.05
<i>Illnesses</i>		
– Mental health Dx	11.0	<0.01
– Cancer	9.9	<0.01
– Infectious disease	9.0	<0.01
– Diabetes mellitus	7.7	<0.05

Data from Monheit AC. Persistence in health expenditures in the short run: prevalence and consequences. *Med Care.* 2003;41(7 Suppl):III53-III64

to work with a case manager with new patient/client openings should be assigned and assistance initiated. More will be said about this in Chapter 4. It is from case management, not triage, that value comes to patients, clinicians, the sponsoring organization, and the health system. Thus, the majority of complex case management program and personnel time should be devoted to patient assessment and management rather than triage.

Impact of Health Complexity

The *Physician’s Guide* recommends that patients with high health complexity be targeted for individualized case management. This is because they are patients who predictably demonstrate medical treatment resistance, poor medical and BH illness outcomes [14], high complication rates, impairment and disability [15, 16], increased health care service utilization [17, 18], and earlier mortality [19, 20]. Several studies performed in Europe, using the INTERMED approach to identify patients in various medical settings with health complexity, have found that complexity is associated with a number of negative health outcomes (Figure 2.2) [21]. This corresponds to a much larger literature using multimorbidity as the marker for complexity.

Other Factors Contributing to Bob’s Complex Health Presentation

Readers will recall Bob from Chapter 1, a young but extremely high medical health care service user who presents in the medical setting either with obvious self-inflicted conditions or ill-defined infections. At the insistence of Bob’s state public assistance insurance Medical Director, who had been following Bob’s cost outlier

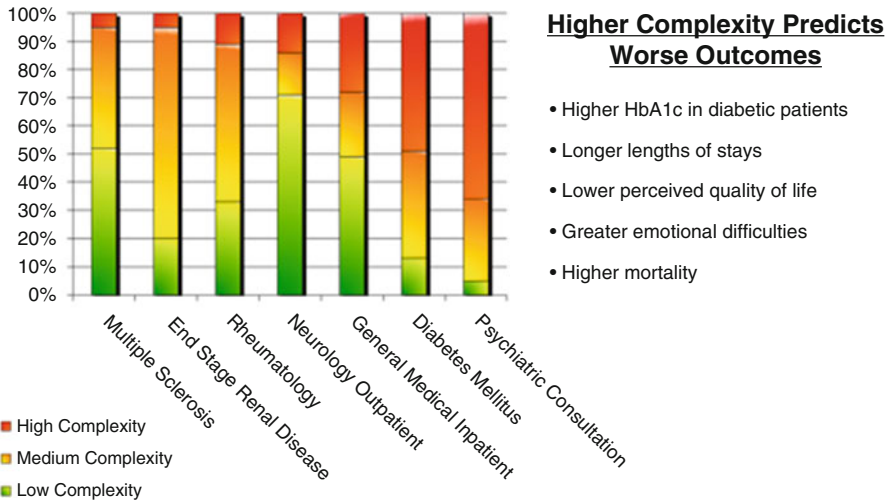


Figure 2.2 Relationship of percent with low to high complexity in various clinical settings to health outcomes (Data from de Jonge P, Huysse FJ, Slaets PJ, et al., Operationalization of biophysical case complexity in general health care: the INTERMED project. *Aust N Z J Psychiatr* 2005; 39:795-799)

status for some time, Bob was transferred to a newly opened Complexity Intervention Unit (CIU) [22] at a quaternary care hospital. This specialized internal medicine unit at the local academic medical center was designed to provide full general medical and psychiatric services. Personnel on the CIU agreed that Bob was an appropriate candidate for admission. Since the unit was locked, it was necessary for Bob to sign in voluntarily to meet state locked unit admission requirements. Bob agreed to do so only after he was told that, if he didn't, involuntary admission procedures would be initiated. Bob was considered a potential danger to himself based on the presence of a mental condition (factitious disorder). Since he had been admitted in Gram-negative sepsis and nearly died, it could not be denied that he was a danger to himself. Multiple self-inflicted injuries supported that he had factitious disorder.

On the CIU, Bob was automatically assigned a complex case manager, Sarah, who had training in integrated case management. Initially, he did not wish to talk with Sarah, but by the end of the first week his defenses broke down when he realized that she was not going to disappear. He began to realize that she may be able to help him even when he left the hospital, not just with his health but also with other life challenges.

In addition to better chronicling the saga of medical admissions, Sarah uncovered that when not in the hospital, Bob had no residence in his local community. He had dropped out of school in the tenth grade and had been kicked out of his home shortly thereafter. His social support system consisted of those who frequented the local community center and food shelter. Interestingly, Bob had not chosen to use recreational substances but he did have gender identity issues. There was no evidence of a mental health disorder, such as depression, psychosis, or mania, but he

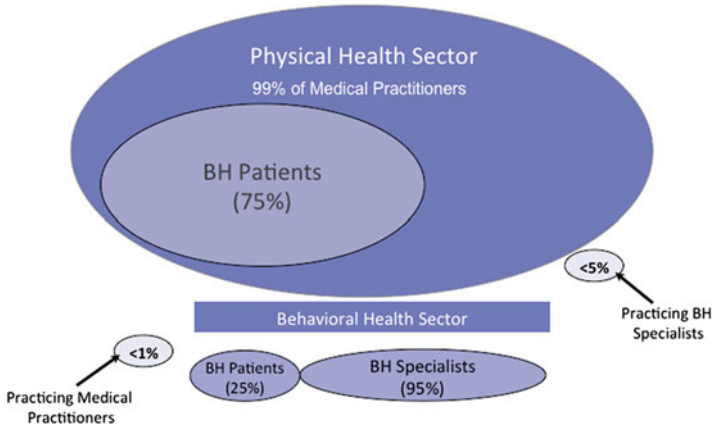


Figure 2.3 BH patient-BH treatment access mismatch (Adapted from Kathol R, Sargent S, Melek S, et al., Nontraditional mental health and substance use disorder services as a core part of health in CINs and ACOs, in *Clinical Integration: Accountable Care and Population Health*, 3rd edition. Virginia Beach, VA: Conurgent Publishing, LLC, 2015, with permission)

did meet criteria for borderline personality disorder and had been arrested on several occasions for minor theft. The county insurance program had covered Bob's health care costs for the past several years and his total health care bill at age 19 was nearly three quarters of a million dollars. Over half was incurred in the last year and associated with several near-death experiences.

The Interaction of Medical and Behavioral Health Conditions

BH conditions play an important role as physicians assist patients with health complexity since BH comorbidity is common in those with complex chronic medical conditions. The combination is associated with medical and BH treatment resistance, persistent illness, higher complication rates, impairment and disability, and greater total health care service use [14, 23–26]. Of the top 5% of patients with multimorbidity, on average 60% has comorbid BH conditions [8]. As the number of chronic medical illnesses increases, the percentage of patients in the top 5% rises and peaks at about 75%.

Three-fourths of patients with BH conditions are primarily or exclusively seen in the medical setting (Figure 2.3). Historically, it has been thought that patients with comorbid BH conditions treated in medical settings had less acute psychiatric illnesses than BH patients seen in the primary BH setting. Recent evidence, however, suggests that this is not true, even for patients with schizophrenia and bipolar disorder [27]. In absolute numbers, more patients with serious BH conditions, including substance use disorders, eating disorders, delirium, depression, and dementia, are seen in the non-BH sector than the BH sector.

Table 2.3 Total health costs in patients with BH conditions

	Total population served	% of population with BH claims	Total annual spend	% BH^a spend	% of total medical claims incurred by BH Pop.
Commercial	198.8 M	14	\$1.0 T	6 (\$42.9B)	28.7 (\$275B)
Medicare/Medicaid	91.8 M	9/20	\$0.67 T	7.7 (\$46.2B)	26.3 (\$163B)
Total	290.6 M	14	\$1.7 T	6.8 (\$91.8B)	27.5 (\$444B)

^aIncludes BH meds for commercial and Medicaid but not Medicare

Data from Melek, SP, Norris, DT, and Paulus, J. Economic impact of integrated medical-behavioral healthcare: implications for psychiatry. Milliman American Psychiatric Association Report, April 2014. Milliman Inc, Denver; 2014

For this reason, primary and specialty medical physicians and other treating practitioners need to be familiar with the basics of BH assessment and first-line treatments. Perhaps more importantly, they also need access to psychiatrists and doctoral level psychologists, the BH specialists most able to institute second- and third-line BH treatments. This is especially true for patients with health complexity who often fail first-line intervention attempts. BH professionals with lesser levels of assessment and intervention skills are not equipped to take on these higher level tasks.

The rationale for attending to BH conditions in the medical setting involves more than just the need to improve access, clinical care, and health outcomes for BH issues. On average, patients with BH conditions have twice as high annual claims expenditures as patients without and yet refuse to access BH services in the BH setting [18, 28]. Most physicians are not aware that 80% of total health care costs in patients with BH conditions are for medical services [18]. The high cost of general medical care in patients with BH comorbidity has been demonstrated to varying degrees for insured patients in commercial, Medicare, and Medicaid programs nationally (Table 2.3). If ignored, medical and BH conditions will persist and progress, often with synergistic effects. Further, with continued separation of general medical and BH services, care delivery systems and the physicians who work in their networks of providers will find that they have difficulty capturing health and savings, both requirements of ACOs in the post-ACA world. The 14% of patients with BH conditions account for nearly 32% of the total health care budget. This is big money and represents low hanging fruit.

Treatment of BH Conditions

There remain many medical practitioners who think that BH conditions are largely untreatable. Thus, they consider that expending resources on BH care is unproductive; especially since independent BH payers poorly reimburse for BH services in

Table 2.4 Variable responsiveness to physical and BH condition treatment

Behavioral health	Physical health
<ul style="list-style-type: none"> • Highly treatable <ul style="list-style-type: none"> – Affective/anxiety disorders, delirium, acute psychosis • Moderately treatable <ul style="list-style-type: none"> – Attention deficit hyperactivity disorder, eating disorder, alcoholism, autism • Difficult to treat <ul style="list-style-type: none"> – Dementia, antisocial/borderline personality disorder 	<ul style="list-style-type: none"> • Highly treatable <ul style="list-style-type: none"> – Peptic ulcers, pneumonia, kidney stones • Moderately treatable <ul style="list-style-type: none"> – Common cold, diabetes, back pain, headache, Parkinson’s disease, osteoarthritis • Difficult to treat <ul style="list-style-type: none"> – Drug-resistant tuberculosis, amyotrophic lateral sclerosis, cystic fibrosis

the medical setting. There is no question that a number of BH conditions are more difficult to treat than others, just as with medical conditions, such as completed stroke or esophageal cancer (Table 2.4). Research on treatment of BH conditions during the last 25 years, however, has been substantial with many new outcome changing and cost-effective approaches to treatment added and a number of less successful treatments discarded [29]. Even in those with substance use disorders, it is no longer appropriate to allow patients to go untreated since the combination of behavioral and pharmacologic interventions for substance dependence can lead to sobriety and total cost reduction [30–33]. Thus, it is as possible to institute evidence-based interventions for treatment of BH conditions as it is for medical conditions. Further, there are now promising models for implementation of evidence-based BH treatments in medical settings [22, 34].

Access to Cross-Disciplinary Services

Figure 2.3 shows that the majority of BH patients are actually seen in the medical setting but the majority of BH providers deliver services only in the BH setting. This is solely the result of an independently funded and managed BH budget used to pay for BH services in the USA and most other countries. BH practitioners, including psychiatrists, are paid to practice in segregated BH settings because this is the way that fastidious BH payers can target BH reimbursement only for BH professional and facility fees [35]. By doing so, it prevents inadvertent use of BH funds for medical services but also leads to low psychiatric physician insurance participation, and thus, poor access for patients to needed services (Figure 2.4) [36, 37]. BH is the only allopathic medical specialty that is paid by totally independent insurance payers.

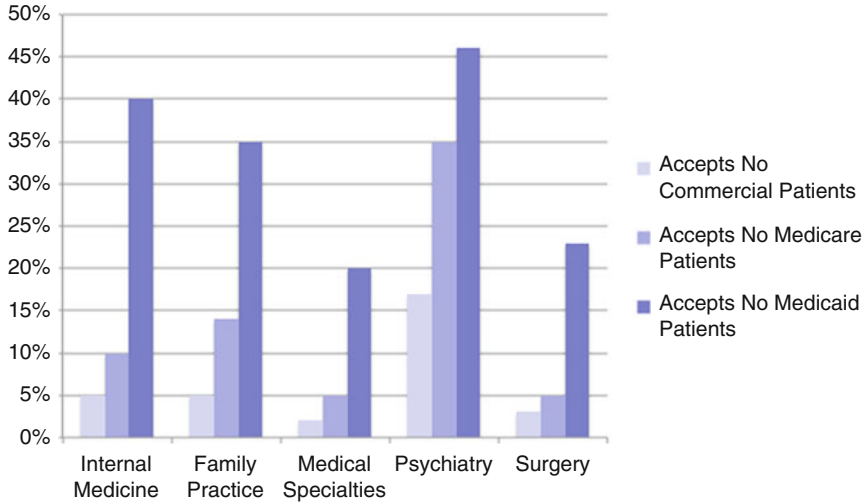


Figure 2.4 Access to BH services hampered by low psychiatrist insurance participation (Data from Boukas, et al., Data Bulletin: Results from Health System Change Research, 35:1-11, 2009)

Even when geographic proximity of medical and BH providers is present, as is commonly the case in academic medical centers and large hospital and clinic systems, divergent insurance company provider networks for medical and BH professionals creates additional hurdles for patients and the physicians desiring to collaborate in their patients' care. It comes as no surprise, therefore, that access for the majority of medical patients with BH comorbidity and their primary and specialty medical physicians to specialty BH assessment and treatment is a challenge in the medical setting [38]. This is exacerbated by the fact that the majority of medical patients with BH comorbidity refuse to access BH services in the BH sector, presumably due to stigma but likely also due to inconvenience and cost. As a result, nearly two-thirds of medical patients with comorbidity receive *no* treatment for their BH conditions [39]. This is true in virtually all countries and cultures [40]. Of the third that does receive treatment in the medical setting, for only one of nine will it be outcome changing [41, 42].

Patients with primary BH conditions fare no better with regard to access to general medical assessments and intervention. In a comparison of medical care for patients with schizophrenia to a community sample, 39% of patients with schizophrenia received no treatment for medical disorders compared to 17% of those without [43]. These findings are supported in another study showing that barriers to treatment are substantially greater for those with BH problems (Table 2.5) [44]. This correlates well with a growing literature showing high and early mortality in those with serious mental illness [19, 23, 45].

While it is no longer acceptable from a health and cost perspective to perpetuate segregated general medical and mental health assessment and treatment, it is not

Table 2.5 Barriers to treatment of medical disorders in BH patients

	Psychotic disorders (N = 592)	Bipolar disorder (N = 511)	Major depression (N = 1828)
	(Adjusted odds ratio)		
Source of regular primary care	0.55	0.74	0.97
Delayed care due to cost concerns	2.56	4.15	3.75
Unable to get needed care	4.01	6.37	4.46
Unable to get prescription for medication	4.83	5.45	4.80

Data from Bradford DW, Kim MM, Braxton LE, Marx CE, Butterfield M, Elbogen EB. Access to medical care among persons with psychotic and major affective disorders. *Psychiatr Serv.* 2008;59(8):847-852

within the scope of this chapter to help physicians understand how to effect a change to integrated service delivery. Other resources can be accessed that help address this issue [29, 35, 46, 47]. The topic also resurfaces in Chapter 9 in which ICM is connected to the delivery system in which it is provided. It is important for physicians to recognize that, as they work with integrated complex case managers, for whom coordination of medical and BH services is a part of their accountability, the managers need to have an understanding of the cross-disciplinary fragmentation described above (Figure 2.5) and strategies to assist patients with the health system-based care complexity challenges they create [48].

Medical and BH Comorbidity’s Effect on Treatment and Its Outcomes

The prevalence of psychiatric illness in patients with physical disorders is estimated to be 40 % [23, 49, 50]. In those with chronic medical illnesses, the percentage can be higher [50]. Conversely, about half of patients with serious mental conditions will have two or more chronic medical conditions and three-quarters will have at least one [51]. If the prevalence of BH conditions in patients seen in the physical health setting and general medical disorders in the BH setting is as high as the data suggest, it is clear how concurrent illness impacts health outcomes and cost, especially when cross-disciplinary care is difficult to access.

The combination of depression and diabetes mellitus is one of the best-studied regarding health outcomes in those with comorbid conditions. This large series of studies show consistently improved health outcomes and cost savings using a psychiatrist supervised case manager assisted intervention, called collaborative care. They have demonstrated that pre-intervention those with depression and diabetes have lower adherence to healthy behaviors and medication taking (Table 2.6 and

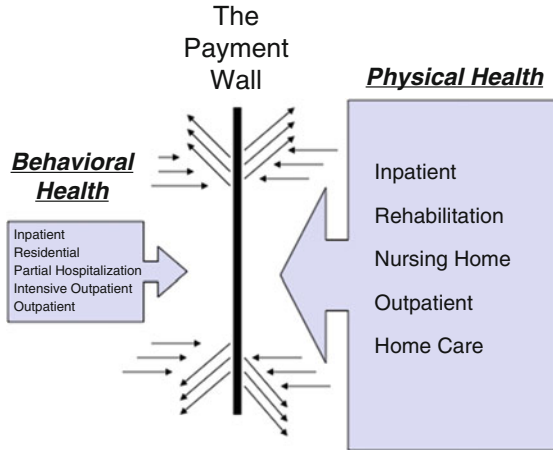


Figure 2.5 Barriers to care created by segregated physical and BH reimbursement (Adapted from Kathol RG, Perez R, Cohen JS, *The Integrated Case Management Manual*, New York, Springer Publishing Co., 2010, with permission). Used with permission from *The Integrated Case Management Manual: Assisting Complex Patients Regain Physical and Mental Health* by Kathol RG, Perez R, Cohen JS, 2010, Springer Publishing Company. Copyright 2010 by Springer Publishing Company

Figure 2.6) [52], more symptoms (Figure 2.7) [53], worse diabetes control (Figure 2.8) [54], greater disability and job loss (Table 2.7) [55], and higher mortality [56] than those without. These findings closely parallel a growing number of studies in patients with multiple other medical and BH illness combinations.

Adverse clinical effects of medical and BH illness combinations also negatively influence total health care expenditures (health care service use) for those with BH comorbidity. Table 2.3 has already demonstrated the gross differences in total cost on a national level. When health service use is explored at a regional level while subdividing patients into various BH illness categories, it becomes evident that total health resource use is high in medical patients with comorbid BH illness. The majority of clinical services used by those with BH conditions are for medical services and pharmacy (Figure 2.9) [28]. Only those with psychotic disorders, which make up less than 0.5 % of the total population, use almost as many BH services as medical. Further, less than 30 % of medications used in comorbid BH patients are psychotropic. The potential for cost savings through improved BH care occurs more through reduction in spending on general medical services than on BH [46]. Only when physical and BH treatment and support are connected is total health cost lowering possible through improved BH outcomes. This is core to the concept of integrated case management.

Table 2.6 Effect of depression on healthy behaviors in diabetic patients

Self-care activities (past 7 days)	No major depression	Major depression	Odds ratio	95 % CI
Healthy eating ≤ 1 time/week	8.8 %	17.2 %	2.1	1.59–2.72
5 Servings of fruit/vegetables ≤ 1 time/week	21.1 %	32.4 %	1.8	1.43–2.17
High fat foods ≥ 6 times/week	11.9 %	15.5 %	1.3	1.01–1.73
Physical activity (>30 min) ≤ 1 time/week	27.3 %	44.1 %	1.9	1.53–2.27
Specific exercise session ≤ 1 time/week	45.8 %	62.1 %	1.7	1.43–2.12
Smoking: Yes	7.7 %	16.1 %	1.9	1.42–2.51

Data from Katon W, von Korff M, Ciechanowski P, et al. Behavioral and clinical factors associated with depression among individuals with diabetes. *Diabetes Care*. 2004;27(4):914-920

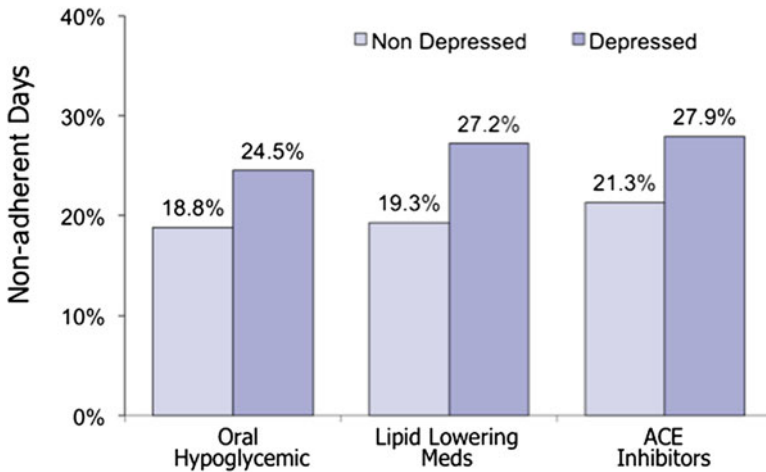


Figure 2.6 Medication adherence in depressed and nondepressed patients with diabetes (Data from Lin EH, Katon W, Von Korff M, et al. Relationship of depression and diabetes self-care, medication adherence, and preventive care., *Diabetes Care*, 27:2154-2160, 2004)

General Medical and Mental Health Interaction in Children and Adolescents

Physical and mental health multimorbidity in children/youth has similar consequences to those found in adults [57–59]. Nearly 7% of children and adolescents drawn from a school-based epidemiologic sample have four or more combined general medical and mental health conditions [57]. This is associated with significantly greater child/youth impairment of health and well-being on 8 of 12 Child Health Questionnaire domains even when compared to children/youth with three or fewer conditions.

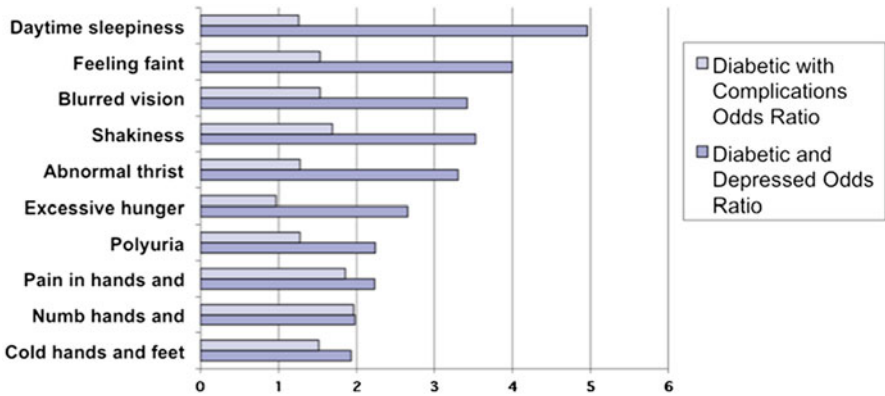


Figure 2.7 Relationship of depression to diabetic symptoms (Data from Ludman EJ, Katon W, Russo J, et al. Depression and diabetes symptom burden. *Gen Hosp Psychiatry* 26:430-436, 2004)

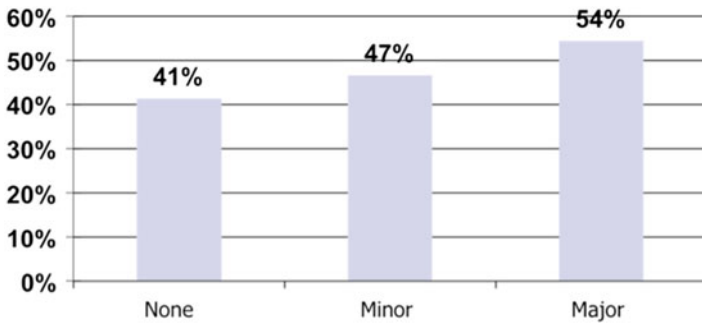


Figure 2.8 Effect of depression on Hb_{A1c} control in patients with diabetes (Data from Katon W, von Korff M, Ciechanowski P, et al. Behavioral and clinical factors associated with depression among individuals with diabetes. *Diabetes Care*. 2004;27(4):914-920)

Children/youth with chronic conditions, such as asthma and cystic fibrosis, who have concurrent BH conditions are at greater risk for poor outcomes than those without [58]. Of particular concern is the finding that these children/youth not only have worse health but that they are less able to participate in age appropriate child/youth activities [59]. This is covered in greater depth in Chapter 3.

The Role and Value of Integrated Physical and BH Complex Case Management

In Chapter 1, many forms of patient assistance and support programs were reviewed and yet this *Physician’s Guide* cursorily hones in on a discussion of integrated complex case management for those with health complexity. There is a very good reason

Table 2.7 Annual work days lost and disability bed days for patients with depression and/or diabetes

	Neither	Diabetes	Depression	Both
<i>Work days lost</i>	• 4.5	• 6.3	• 13.2	• 13.1
– Odds ratio	(1.0)	(1.5)	(3.08)	(3.25)
<i>Disability bed days</i>				
– Employed	• 2.2	• 3.5	• 7.9	• 23.4
– Unemployed	• 6.5	• 8.5	• 23.2	• 45.8
– Odds ratio	(1.0)	(1.63)	(4.0)	(5.61)

Data from Egede LE. Effects of depression on work loss and disability bed days in individuals with diabetes. *Diabetes Care*. 2004;27(7):1751-1753

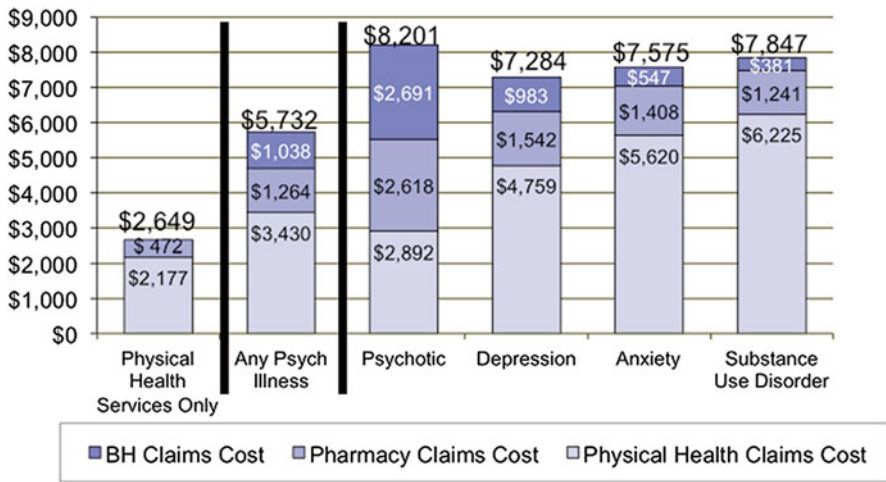


Figure 2.9 Annual claims costs for Medicaid patients with and without BH conditions (Data from Thomas MR, Waxmonsky JA, Gabow PA, Flanders-McGinnis G, Socherman R, Rost K. Prevalence of psychiatric disorders and costs of care among adult enrollees in a Medicaid HMO. *Psychiatr Serv*. 2005;56(11):1394-1401)

for this. Patients with health complexity, the 2–5% of patients that use 50–70% of health resources, are a poorly served population for whom even small efforts to improve their care can often lead to health improvement and substantial cost reduction. For assist and support services to bring value to patients, their treating physicians, and the health system, this is the population with the greatest potential and the place to start.

Some physicians will be dissatisfied with targeting patients with health complexity since the approach selectively excludes those with less complicated health situations from access to the assist services of trained case managers. Complex and integrated complex case management targets a small subset at the expense of the majority. There are two ways that we argue the logic of targeting high-cost, high-need patients for prioritized case management.

First, if all patients had unfettered access to complex case managers, there would need to be a massive increase in trained professionals (both medical and BH) to fill these roles. Without this, the few that serve the “total population” would need to accept that time constraints would not allow delivery of services that would change outcomes for even a small number of patients assisted. Perhaps more importantly, those with health complexity would fall to the bottom of the assistance ladder since they are so complicated and individually take so much time. Thus, by neglecting patients with the most health complexity, it severely limits the opportunity to truly achieve the three goals of the Triple Aim. Patients with health complexity would largely remain unhelped.

The second and more substantial argument is that by prioritizing patients with health complexity for complex and integrated complex case management interventions, health plans, care delivery systems, and others running case management programs are more likely to realize clinical and economic value with the potential for return on investment (ROI). Even when patients with health complexity are targeted, there are usually more patients than the number of case managers available to assist with their care. Thus, it makes sense to focus on assisting those for whom the greatest benefit can be derived. Presuming that this leads to clinical and economic success, the number of case managers can be expanded to serve a greater percentage of the population over time.

Data above substantiate that the presence of medical and BH comorbidity have unfavorable clinical and cost consequences. Unless the implementation of integrated complex and complex case management can alter clinical and cost outcomes to a greater extent than is available in today’s “standard care” clinical service delivery settings then it is not worth the effort to undergo the significant changes necessary for the development of specialized case management services. This is a real concern since a recent AHRQ review of 109 randomized controlled trials (RCTs) of outpatient “medical” patient health care assistance and support programs, called “case management” but containing many studies that were at best low intensity with questionable value-added services included, suggests that general application of current assist and support methodologies has only moderate evidence of value in selected areas of care delivery (Table 2.8) [60]. If, however, approaches to case management with targeted outcome changing ingredients are used, such as those associated with integrated complex case management, then desired outcomes are more likely to occur.

Value-Based Integrated Complex Case Management

Since the late 1990s, evidence indicates that properly constructed case management programs can yield health and cost improvements. For instance, Naylor et al. demonstrated that high-risk elderly patients assisted with 4 weeks of proactive multi-domain post-discharge case management procedures showed health and cost improvements (Table 2.9) [61]. Similar findings have been reported in other

Table 2.8 Where we are today (outpatient “medical” assist and support outcomes)—review of 109 RCTs on >100,000 patients

-
- High evidence
 - No reduction in: mortality (dementia) or Medicare expenditures
 - Moderate evidence
 - No reduction in: problem behavior, delay in nursing home placement (dementia); rate of hospitalization (general medical)
 - Improves satisfaction, focused treatment adherence/self management behaviors, caregiver depression, selected diabetes and tuberculosis outcomes
-

Data from Hickam DH, Weiss JW, Guise JM, et al. Outpatient Case Management for Adults With Medical Illness and Complex Care Needs. In: Quality AHRQ, ed. Rockville (MD) 2013

Table 2.9 Cost savings with case management in the high risk^a elderly (*post-discharge from hospital*)

-
- N (CM) = 177; (usual care) = 186
 - Intervention—4 weeks of proactive multi-domain case management after discharge
 - Improvements (at 24 weeks post-discharge)
 - Readmissions = 49 vs. 107 ($p < 0.005$)
 - Hospital days = 1.53 vs. 4.09 ($p < 0.001$)
 - Readmission costs = \$427,217 vs. \$1,024,218 ($p < 0.001$)
 - Total post-discharge costs/patient = \$3630 vs. \$6661 ($p < 0.001$)
-

^aHigh risk =>80 years old; inadequate support; chronic medical illness; depression; functional impairment; poor health rating; non-adherence; multiple hospitalizations

Data from Naylor MD, Broton D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. *JAMA*. 1999;281(7):613-620

populations when using core case management techniques, primarily in patients with high need and high cost [60, 62–67].

It was in light of studies that have shown clinical and fiscal value to patients that integrated complex case management was developed. ICM moved from traditional case and complex case management in which the focus was most often on short-term assistance in patients with one or more biomedical conditions to a longitudinal multi-domain complexity-based approach (Table 2.10) [48]. In the former, process outcomes documented success whereas in ICM clinical and cost outcomes were measured over time as patients moved toward graduation and return to standard care.

Using integrated complex case management, early adopters, such as the Hudson Health Plan (HHP), found that successes in complicated patients were possible and may be robust (Table 2.11). Sixty-one of the most complicated patients consistently covered by HHP over a 24-month period, over 75 % of whom had both medical and BH conditions, demonstrated lower total health care costs, reduced emergency room use, greater adherence to treatment recommendations, and improvement of multi-domain barriers to improvement.

Table 2.10 Traditional versus integrated complex case management

Traditional	Integrated
<ul style="list-style-type: none"> • Illness-focused • Problem-based (check list) • Occasionally longitudinal • Biomedical clinical assessment training • Regular handoffs • Illness targeted care plans • Graduation based on process measurement and completion, e.g., calls made, patients/clients touched 	<ul style="list-style-type: none"> • Complexity-focused • Relationship-based (dialogue) • Always longitudinal • Multi-domain assessment and management training • Few handoffs • Biopsychosocial and health system-based care plans • Escalation of care or graduation based on clinical, functional, and cost outcome measurement

Table 2.11 Preliminary outcomes with ICM at 2 years in 61 NYS-DOH^a chronically ill members

	2 Years pre-enrollment	2 Years post-enrollment
Total inpatient cost	\$1.7 M	\$0.9 M
Inpatient cost PMPM	\$1154	\$624
Average ER visits	8.9	7.6
Total ER visits	545	461
Missed appointments	125	98
Missed medications	95	77
ICM-CAG (initial vs. follow-up)	30	25

Data from Hudson Health Plan, Westchester Cares Actions Program (WCAP), presented at CMSA Annual Meeting, 2012

^aNYS-DOH New York State Department of Health

Integrated Complex Case Management: The Next Generation

This chapter suggests that there is a subset of patients, i.e., those with health complexity, for which the individualized services provided through ICM managers have the greatest potential to lead to health and cost savings, perhaps substantial. Part of this is related to their ability to address needs related to not only commonly co-occurring cross-disciplinary medical and BH conditions but also to include non-clinical barriers to improvement as they assist patients stabilize their health. We consider this a major contribution to the next generation of value-based, not volume-based, health care.

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