Chapter 4
Teamwork and Collaboration

Melissa Sundberg, Raina Paul, and George R. Verghese

Introduction

Successful quality improvement (QI) endeavors are achieved through working in collaboration with all stakeholders involved in the process. Optimal teamwork allows project members from frontline staff to team leaders to have a voice and contribute potential ideas. Development and collaboration between all team members will enhance the success of projects through idea sharing, problem solving, and creation of a shared work culture.

Creating a Quality Improvement Infrastructure to Support Successful Teams

Appropriately developing staff, resources, and institutional support is an integral, but often overlooked, component of ensuring quality improvement activities are successful. Having dedicated staff and resources for global quality improvement efforts can enhance long-term success rather than creating new leadership and teams

M. Sundberg, MD, MPH (✉)
Division of Emergency Medicine, Boston Children's Hospital, Harvard Medical School, Boston, MA, USA
e-mail: melissa.sundberg@childrens.harvard.edu

R. Paul, MD, MPH
Division of Emergency Medicine, Ann and Robert Lurie Children's Hospital, Feinberg School of Medicine Northwestern University, Chicago, IL, USA
e-mail: rpaul@luriechildrens.org

G.R. Verghese, MD, MBA
Division of Cardiology, Ann and Robert Lurie Children's Hospital, Feinberg School of Medicine Northwestern University, Chicago, IL, USA
e-mail: gverghese@luriechildrens.org

for individual quality improvement projects. The main components of creating a sustainable infrastructure are outlined below with appropriate consideration given to differing resources available between institutions.

A permanent set of individual(s) trained specifically in QI methodology can provide a base for an effective team. Baseline knowledge of tools for improving care include but are not limited to those related to formal barriers assessment, gap analyses, reliability science as it informs interventions, and run/control chart analytics discussed in more depth later in the chapter. Not every team member will need to have this depth of knowledge, but each should understand the goals, mission, and aim of the project with a basic understanding of the chosen quality improvement framework. There are external resources to aid in this knowledge and further support efforts if there are a lack of internal resources initially; however, it is recommended that building a strong, consistent foundational base is optimal. Leadership of the organization should assist in framing the quality improvement agenda, aligning incentives, and ensuring the overall strategy is consistent with the global vision and mission [1]. Leadership support embedded within institutional QI infrastructure can improve overall performance of an organization and patient outcomes and therefore should not be underestimated. The presence of a knowledgeable point person to communicate goals of QI initiatives, successes, and barriers to organizational leadership is also essential for success.

Although team members with in-depth QI methodology knowledge are integral, managers, trainees, and other frontline staff are also essential. A broad integration of all team members from varying levels and departments in the organization is essential in developing a comprehensive assessment of barriers [2]. Obtaining "buy-in" from frontline staff by providing education regarding the importance of quality improvement and its role in improving patient outcomes and increased patient and provider satisfaction is an important first step. Education regarding quality specific language and control chart interpretation is also crucial in disseminating real-time results [3]. Interdisciplinary communication and teamwork empowers all members and contributes to the culture of safety, thus enhancing sustainability and improving patient care and provider retention. The interaction between leadership and frontline staff should include opportunities for feedback, ongoing monitoring of initiatives, frequent updates, review of barriers using applications of QI tools, as well as dedication by leadership to time for training and educational efforts for all staff. Communicating results for critical indicators and measures across the organization as well as beyond the organization can lead to enhanced success and team engagement.

Although support from leadership and educated team members are essential for developing successful QI initiatives, resources dedicated to creating a culture that supports continuous process change play an important role in creating an environment that supports critical self-evaluation and continuous improvement [2]. This type of resourcing includes financial support for training, purchasing technology and equipment, testing changes, as well as protected time to allow team members to actively participate in the change processes. Statistical support with a working knowledge of improvement science including the generation of control charts is a major advantage to allow real-time evaluation of a process.

Employing a Team-Based Approach: Importance of Teams

Teamwork is essential for the success for quality improvement endeavors in healthcare settings. Although an individual may find an opportunity for improvement, healthcare is a "team sport" in which patients and families, providers, and staff at many levels contribute to both process and outcome. The team effort is integral to QI as healthcare delivery is complex and no one member of a system understands all aspects of a process. A team consisting of all stakeholders allows for perspectives from all levels of care to be reviewed and discussed. Although these members of the core team will meet on a regular basis, these same members should find opportunities to seek guidance and feedback from external team members. As each member brings individual and solicited perspective and ideas to the discussion, it allows the entire team to consider unique contributions of all potential components from a care process of achieving change. Additionally, the involvement of a multidisciplinary team will add to the sustainability of the quality improvement efforts as all members will be invested within the process from the outset.

Team Composition

Once a quality improvement opportunity has been identified and a global infrastructure created, establishing a team to lead improvement actions will build commitment, generate ideas, and coordinate tasks. Teamwork is now well understood to be essential in providing high-quality and safe patient care throughout medicine [4]. In healthcare improvement, working alone is rarely effective, and having a multidisciplinary team allows for individuals at all levels of the care system to be involved in identifying and implementing the best approach to solving the challenge.

In developing a team for an improvement project, one should consider characteristics of an effective team as well as team dynamics. In general, teams should have clear goals and tasks consisting of members with experience and skills in line with the goal. Consideration for building a team should include patient and family representatives. Patient and families are an integral part of the team striving to meet the needs and expectations of the patient in conjunction with the improvement team. Their critical role will be described in more detail later in the chapter.

In general, the Institute for Healthcare Improvement (IHI) states that teams should include, although are not limited to, the following [1]:

Clinical leadership: Understanding of the clinical care process globally, at the divisional level, is integral to how the change will affect clinical care. This individual should have the authority to test and implement change and problem solve issues on a global scale [2].
*Technical expertise*: Understanding of the clinical process or area where the change will be occurring. This includes frontline staff [3].

Day-to-day leadership or operational lead: This individual is the lead for quality improvement teams ensuring completion of data collection, analysis, and change implementation [4].

Project lead or executive lead: An individual who serves as a link between the team implementing the work and senior leadership [5].

Team members most affected by implementation decisions are usually those who can also provide the most accurate information regarding the impact of these decisions. Improved teamwork and communication by frontline caregivers are often required to make the changes that lead to improved patient outcomes. The knowledge of direct operations lies with those working directly in care areas, and their membership is fundamental for change. In general, trainees, attending physicians, advanced practice providers, nurses, pharmacists, laboratory staff, interpreter services, as well as patients and families should all have membership within a successful team depending on the project (Fig. 4.1).

An alternative structure for team formation in healthcare quality improvement shares some characteristics with the above-proposed composition but may be more comprehensive with respect to the ultimate goal of successful improvement project implementation in an organization. This relatively simple yet effective project team structure proposed by healthcare quality improvement pioneer Brent James has proved successful in practical experience for many [6]. He identifies three major roles within teams: team members, team leader, and team facilitator (Fig. 4.2). First, team members should be drawn from the frontlines of the work process that is trying to be improved. These individuals have fundamental knowledge of the process and understand the intricacies of how work gets done on a day-to-day basis. And as Deming said, in quality improvement, we ought to "organize everything around value-added high-priority work processes" [7]. In addition to providing that
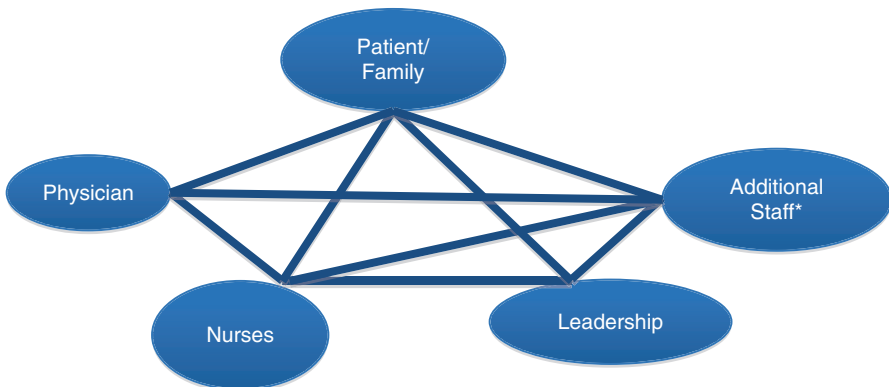
Fig. 4.1 QI team members should include all members throughout the spectrum of the care process and allow for facile communication between all members. *Additional staff*: advanced practice providers, pharmacists, laboratory, interpreters, social work, child life, paramedics, environmental services, engineering, etc
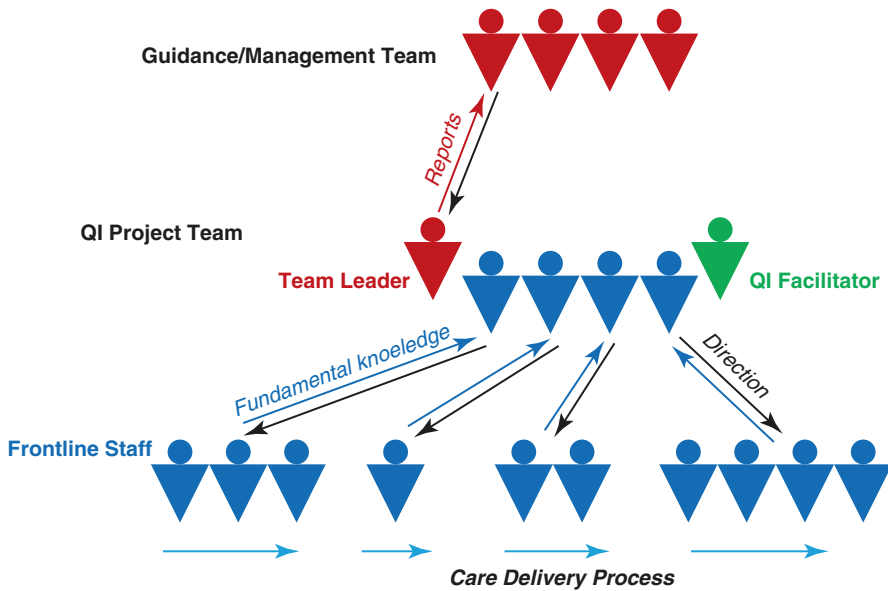
Fig. 4.2 Brent James' teams model. Adapted with permission from Dr. Brent James, Intermountain Healthcare, Institute for Healthcare Delivery Research, 2009

fundamental knowledge, a key role of these team members is to communicate the team's output back to their non-team member frontline counterparts. The advantage of this structure is that a peer is keeping the frontline informed about the decisions being made by the team and they can solicit further feedback or refinements from other frontline staff engaged in a similar part of the process throughout the project. This approach makes a critical difference when implementing or scaling efforts. Given these responsibilities, identifying frontline staff up with robust leadership and organizational skills is critical.

In James' model, an improvement team should also have a team leader. Often this individual may be a member of a guidance or more senior management team. They typically set the agenda, record team activities, and report back to senior leadership or executive sponsors. Similar to how the frontline team members communicate back to their frontline peers, team leaders should communicate with their management peers to keep them informed of the project and solicit feedback from the beginning. As a result, when the team presents their final recommendations, senior leadership can implement their findings quickly and effectively with little resistance or rework required from the team. James goes as far to say that senior management has a duty to implement the teams' recommendations "as is" since they have been kept informed of the teams' activities and had plenty of opportunity to offer feedback or constructive critique. Though some may disagree, Dr. James also makes the point that record keeping and the details of the team's output should be performed by the team leader (not delegated to another individual on the team or

to administrative support), as ultimately in this structure, the team leader needs to be able to accurately and fully communicate the team findings throughout the process to senior leadership.

The final role in the basic structure of an improvement team is that of a QI facilitator. Not all teams need a facilitator but it can be helpful in many situations. The role of the facilitator according to James is primarily to keep the team "healthy" rather than attempt to improve the actual problem the team has been assigned. It is the facilitator's responsibility to ensure the team is healthy enough to focus on truly following through on the specific aim the team is committed to improving. Team health can be defined in terms of the components listed under the team dynamics section below that define an effective team—safety, inclusivity, openness, and consensus-seeking. One approach to facilitate this is to establish "ground rules" from the start of how team members will conduct themselves in their interactions inside and outside of the team. For example, a team may choose upfront that once they have achieved consensus that the team speaks with "one voice" to others outside of the team. Similarly, if team members don't voice dissent, this is will be considered akin to assent. Additionally, the facilitator also should have expertise in the QI tools described above and can assist the team leader and the group in the application of formal QI concepts.

Stages of Team Formation

The development of teams focused on implementation and continuous evaluation of strategy within and external to the team can improve the overall outcome of the results [8]. Although teams were once considered to be static in nature, as goals are defined and projects evaluated with time, they can be dynamic, reflecting changes in resources and priorities [9, 10]. One cannot expect a team to work optimally when it first comes together. Forming a successful team takes time to allow members to progress through a series of well-characterized stages. The model described by Bruce Tuckerman in 1965 established a theory of group dynamics that can be integral to understanding these stages of team development. There are four recognizable stages: forming, storming, norming, and performing [11] (Table 4.1). As a group is

Table 4.1 Bruce W. Tuckman's stages of team development

Stage	
Forming	The team is developing and learning about goals and direction usually with excitement and eagerness. As this stage is focused on direction primarily by the team leader, goal setting productivity may be low
Storming	Team members' excitement wanes; they push the boundaries of others with frustrations, conflicts, and disagreements
Norming	Although there are differences among team members, these differences are accepted with the ability to move on as a team
Performing	The team now has a shared vision and goal, and individuals have more autonomy in decision-making

formed, team members will act independently, will be motivated, and will act politely and courteously toward others. However, as the team may not be informed of the goals and objectives, some individuals may also be anxious and fearful. As the team progresses, the next stage of storming may develop; other teams may progress to norming without this stage. While in the storming stage, members feel compelled to voice their opinions, which may be positive or negative, pushing against the boundaries and resisting quality improvement strategies proposed by other members. During this stage, it can be difficult to move toward the group's goals, but with time and strong leadership, one can move to the next phase of norming. In this stage, individuals start to resolve their differences, appreciate the input and skills of their colleagues, as well as respect leadership. At this time, team members know one another, are able to socialize, ask for help, and provide constructive criticism leading to a stronger team and progress toward the goal. As norming is established, a team's hard work without friction leads to the performing stage and, in turn, achievement of the team's goals. It is important to consider these stages as a team is being established, as recognition of the stage of a team can allow for knowledge as to how the team may progress especially from storming to norming, allowing time for the dynamics to develop through the stage without failures and dissolution of the team.

Although it is important to consider internal team dynamics for successful progress toward a goal, several recent studies have shown that how much a team's members interact with individuals outside the team boundaries can also be an important factor in team performance [12]. Other members outside a team can influence the behaviors, expectations, and motivations that team members bring back to the group and thus should be given appropriate consideration [11].

Team Dynamics

After successful development of a team, how individuals work within the team is integral to obtaining the desired outcome. Dr. Brent James again has identified a number of features of effective QI teams [6]. He asserts that teams do not just happen but rather require thoughtful planning, leadership, and organization. He draws in part from work written about communities by psychiatrist and author M. Scott Peck to note four qualities of effective teams: *safety, inclusivity, openness, and consensus-seeking*. *Safety* means that members are free to offer ideas without personal attack. Ideas stand on their own; critique of an idea is not a personal attack on the individual it came from, and future ideas should not be judged within the context of prior ideas. *Inclusivity* means examining ideas from different viewpoints. If current team members do not have the relevant fundamental knowledge for a particular aspect of the project, the team should be dynamic enough to bring the appropriate experts into the team on an ad hoc basis. A related concept is that of groupthink, popularized in the 1970s by social psychologist Irving Janis in his discussion of foreign policy as cited by Hart [13]. In this psychosocial phenomenon, dissenting opinions are ostracized, and group members shun confrontation or personal doubts

which leads to a distorted view of reality, unjustified optimism, and ultimately poor decisions. Many involved in teams (including these authors) have discovered that one way to curtail this is for a group leader to intentionally and explicitly raise counterpoints or alternative strategies for the purposes of holistic discussion. The feature of *openness* refers to counteracting hierarchy or dominance based on authority within a group. Finally, James notes that if the aforementioned are present, consensus-seeking, the final characteristic, can occur. *Consensus-seeking* is a fundamental tenet of teams, and it is this characteristic that truly differentiates teams from other group structures. Dr. James defines consensus as finding a solution that is acceptable enough that all members can support it and that no member opposes it. He adds that consensus is neither a unanimous opinion nor a majority vote and does not mean that everyone is completely satisfied. That said, once consensus is reached, all team members should support it, particularly in interactions outside of the team.

Ungerleider and Ungerleider, leaders in team dynamics in healthcare and in particular the complex setting of pediatric cardiac care, have described another set of related but more specific features of team dynamics they have identified as the "Seven Practices of the Highly Resonant Teams" [14]. They argue that attention to the intra- and interpersonal factors that create teamwork can result in substantial improvements in quality and outcomes. They remind us that medical knowledge, skills, and judgement alone are likely not enough to achieve high standards of quality and safety in healthcare. These seven practices are built upon a foundation of psychological safety—a space free of judgment, ridicule, and blame as well as attunement, a reflective quality described as mindful sensitivity for the individual's self, for others on the team, and for the context of the present situation. *Mindful integration* focuses on the ability to manage one's own needs and the needs of others within the context and demands of the team. This awareness and ability to manage self, others, and the current situation or environment has also been described as emotional intelligence. Mindfully integrated communication requires that team members are consistently aware of the competing demands of these three elements and find a way to nonjudgmentally value each or risk creating one of several negative cultures depending on which is discounted. The second feature of highly resonant teams is that teams must *invite learning*. The ability to create an environment where it is safe to struggle and learn from failures, where failures are viewed as opportunities to explore and discover rather than being ashamed of, increases the chances of identifying new solutions. Challenging team members to learn and ask questions, even when the answers are not immediately apparent, is part of this element of high resonance teams. The third principle, referred to as the *push-up button*, stresses the importance creating team environments that promote positivity. They cite recent research on creating teams indicating that *how* we communicate is far more important than *what* we communicate. For example, several studies reveal that high-performing teams have a greater amount of positive compared to negative elements and emotions because negativity can have a more powerful influence than positivity, and therefore it takes more positivity to counterbalance the negative. Although there has to be space for conflict and imperfection, the elevation and support among team members must outweigh this for continued success. *Creating*

Table 4.2 Seven practices of highly resonant teams

Mindful integration
Invite learning
Push-up button
Creating systems with outcomes in mind
Be flexible and stable
Shared accountability
Good upstander

systems with outcomes in mind is the fourth principle that includes creating systems for establishing psychological safety. Teams that demonstrate this fourth practice also need to have clarity surrounding the outcomes that they desire including identifying the drivers of those outcomes. The fifth principle focuses on the ability to *be flexible and stable*. Though at first glance these two features may seem mutually exclusive, they are not and rather are requisites for healthy team growth. Resonant teams strive toward a balanced approach to rules. When a team can identify their core values and principles, they can then transform their rules into guidelines but then simultaneously understand the exceptions to their rules that can "create energy and growth, consistency without rigidity, flexibility with stability." The sixth principle is centered upon *shared accountability*. This practice promotes acceptance of an outcome *and* recognition that it belongs to the entire time—the team wins and loses together. Lastly, the seventh principle of highly resonant teams encourages team members to speak up by being a *good upstander* when they see other members being treated unfairly. This is particularly relevant for teams improving patient safety in that concerns are taken seriously and evaluated objectively, regardless of the "role" of the person on the team (Table 4.2).

Quality improvement success can be seen with team member integration and a structure and an environment conducive to all members having the ability to contribute openly. Knowledge of the team dynamics and its evolution as a project progresses can be pivotal to the success of a quality improvement effort.

Novel Approaches and Progression of Teams Within a Quality Improvement Framework

The dynamic nature of a team includes its members during the various stages of progression during a QI project. For example, a clinical team typically forms initially with physicians, nurses, pharmacists, patients, and other members as the stakeholder barriers are explored. This group of larger members may disband or suspend work to form subgroups consisting of other smaller numbers but more directed toward a specific goal. For example, in determining that a barrier to expeditious delivery of antibiotics for sepsis patients is stemming from delay in pharmacy distribution, a subgroup could consist of just pharmacy and floor nurses that deliver that antibiotic.

Like other teams in the new era of business, in QI efforts, successful teams often display this rapid formation/dissolution life cycle referred to by Professor Amy Edmondson as "teaming" [9]. She refers to this as "teamwork on the fly: a pickup basketball game rather than plays run by a team that has trained as a unit for years. When companies or health care organizations need to accomplish something that has not been done before, and might not be done again, traditional team structures are not practical. It is just not possible to identify the right skills and knowledge in advance and to trust that circumstances will not change. Under those conditions, a leader's emphasis has to shift from composing and managing teams to inspiring and enabling teaming" [15]. In consideration of this, teaming still relies on recognizing and clarifying interdependence, establishing trust, and exploring ways to coordinate efforts. Unlike the "core" team, there is no time to build a foundation of familiarity, but rather, members must develop and use new capabilities for sharing crucial knowledge quickly. Edmondson notes that teaming does not happen spontaneously, rather it takes leadership. In healthcare environments, she suggests three tasks that promote teaming: frame the work, make it safe, and build facilitating structure. Historically in healthcare a common frame has been that individual expertise, provided by separate experts, will lead to optimal health outcomes. Rather, leaders interested in teaming need to reframe healthcare delivery as a complex system that is critically dependent on the interdependence of work rather than simply individual expertise—in other words, how does what I do for this patient fit into the larger context of their care? Next, leaders can promote psychological safety by asking questions thereby modeling curiosity and inviting others to speak up. Finally, building facilitating structures such as systematic communication methods like SBAR (situation, background, assessment, recommendation) or redesigning facilities to force cross-disciplinary collaboration aids in creating the environment and context for teaming [16]. Teaming will not always be applicable for all quality improvement work. For some projects, traditional stable teams of individuals who have learned to work well together over time will make more sense; however, as healthcare reimbursement transforms toward value over the coming years, novel and innovative approaches to care delivery are likely to be increasingly utilized, and improvement science teams will need to be at the forefront to ensure optimal outcomes while reducing cost.

Regardless of the approach, a team must also understand the progression of workflow from barrier assessment to measurement development, to interventions, and then analysis. There are several guides and techniques to achieve this, including but not limited to key driver diagrams, workflow mapping, and PDSA (plan, do, study, act) cycles depending on the preferred QI framework [17, 18]. In the development of a QI plan, it is integral to begin with a vision statement, description of the structure of the program, membership, meeting schedule, as well as a list of the improvement goals or priorities that adhere to the goals of a specific, measurable, achievable, relevant, and time-bound (SMART) aim [18]. Once the aim is developed, barriers should be assessed and organized using key driver diagrams, fishbone diagrams, and process maps. Outcome, process, and balancing measures should be assigned to all key drivers within the driver diagram. Interventions should

be prioritized using tools such as the PICK chart or Pareto mapping and should follow the principles of reliability science. Measures should then be tracked using ongoing time-series analysis including run and statistical process control charts. If teams understand that every QI project follows this flow, they will be less apt to perceive that the process is slow or disorganized and will be more willing to contribute to the task at hand.

Knowing When a Stage Is Complete

In quality improvement initiatives, it is important to understand the objectives of a project that are be defined through a SMART aim, driver diagram, or other tools described above. It is integral to understand when moving through the Model for of Improvement (e.g., as one QI framework) when a stage is complete and one can move to the next phase. It is important to set predefined checkpoints with tests upon implementation of whether or not each object has been met. Predefined end points ("exit criteria") with criteria that must be met before completing the process must be established early and be part of the project goals [19]. At times the stages may overlap as PDSA cycles are iterative in nature. This allows for alignment of the end product and expectations of the team working together.

Sustaining improvements after completion of QI initiatives is often challenging. As such, QI initiatives should not be seen as stop-and-go initiatives but as a system that may need continued small improvements. In turn, there should be continuing, although likely less frequent, touch points at a control level to evaluate continued system improvement after the team has navigated to other more active initiatives.

Shared Decision-Making

Collaboration and teamwork moves beyond the relationship between practitioners to that between practitioners and their patients and families, represented as the "voice of the customer." Shared decision-making (SDM) and patient- and family-centered care are a key component of change for improved quality and safety in healthcare [20]. Patient-centered care is respectful of and responsive to individual patient preferences, need, and values, ensuring that clinicians and patients are working together to produce the best possible outcomes. SDM stresses the importance of better understanding the experience of illness and addressing patients' needs within the healthcare system. By including patients within a QI team, the "voice of the customer" becomes forefront. Patient-centered care was stressed within the Institute of Medicine report of Crossing the Quality Chasm, as one of the fundamental approaches to improving the quality of US healthcare. Further investigations and studies have continued to support the importance of SDM in creating sustainable QI successes [21].

The Agency for Healthcare Research and Quality (AHRQ) presents one framework for approaching shared decision-making [22]. In this model, there are five steps to achieving patient and family participation and understanding, SHARE:

Step 1: **S**eek your patient's participation.
Step 2: **H**elp your patient explore and compare treatment options.
Step 3: **A**ssess your patient's values and preferences.
Step 4: **R**each a decision with your patient.
Step 5: **E**valuate your patient's decision.

This model allows for a transparent presentation of all risks and benefits for procedures and treatments and allows the patient to own the decision to proceed within a context of informed understanding.

Although a comprehensive review of shared decision-making and patient- and family-centered care is beyond the scope of this chapter, the concept of patient and family involvement is critical to the discussions surrounding effective improvement teams. As emphasized above, teamwork and collaboration in healthcare quality improvement requires input from not only frontline staff but also patients and families. Recently, this notion of patient- and family-centered care has been conceptualized as the "coproduction" of healthcare [23]. The concept stems from economics in the 1960s as the new service-related economy (retail, banking, education) required a different framework from the old industrial economy (manufacturing and agriculture). In services (unlike products), creating value requires the combined input of companies and customers. Companies often seek focus groups or structured input in the design of products, but the actual product is not truly dependent on them. In the delivery of healthcare, however, the creation of health outcomes in many cases is completely dependent on the dual input of healthcare professional and the patient or family—i.e., health outcomes are coproduced. In general pediatric cardiac care, for example, we can describe the etiology and management of syncope to a patient or family, but they ultimately decide how much water they will drink, how much salt to take in, or whether or not they will perform maneuvers we recommend when they experience prodromal symptoms, and without this, optimal outcomes cannot be achieved. Dr. Maren Batalden (daughter of healthcare QI leader Paul Batalden) describes the power and opportunity of coproduction as helping her see healthcare delivery not as a process in which value is made by health professionals and *pushed* out to patients, but one where value is created by patients with help *pulled* form health professionals [24].

An excellent example of this concept in pediatric healthcare is coproduction within "learning networks." The oldest and most established of these is the learning network for children and adolescents with inflammatory bowel disease (IBD) called ImproveCareNow. This over 70-site network has increased the clinical remission rate for patients with IBD from 60 to 79% in large part through coproduction of care. By example, patients, families, and healthcare professionals have together cocreated tools such as electronic pre-visit planning templates and population management algorithms, self-management support handbooks and shared decision-making tools, parent disease management binders, adolescent transition materials,

handbooks for newly diagnosed families, and a mobile app to track symptoms, plan a visit, or test ideas about how to improve symptoms [23].

In pediatric cardiology, a similar learning network exists called the National Pediatric Cardiology Quality Improvement Collaborative (NPC-QIC) in which coproduction with parents has also been used since early in its inception, in part based on the positive experience of the IBD network. In NPC-QIC, parents are engaged in all aspects of the collaborative including leadership, research, work-groups, and committees. At semiannual learning session, parents are strongly represented (anecdotally, at a recent session one of the authors attended in 2016, there were over 60 parents in attendance), and together with their medical teams, they share information across the collaborative to further develop and spread best clinical practices for a population of patients (hypoplastic left heart syndrome or HLHS) where there is little definitive evidence-based care [25].

In addition to cocreating various tools and resources for new parents with a baby with HLHS, another specific example of coproduction of care has been the "Research Explained" series in which clinicians and parents summarize the results of key articles in the medical literature related to HLHS. This was initiated by a parent group that recognized that some families were discussing research articles online and drawing conclusions from abstracts for their child. Out of concern that their conclusions of the medical research were not always accurate, the "Research Explained" write-up was cocreated [24]. Additionally, academic work itself has been published in the medical literature with parents as first authors on important topics like supporting transparency of outcomes among congenital heart disease centers (in which the working group is made up of equal numbers of parents and clinicians) or even as coauthors of more traditional medical research that have come out of the collaborative [26, 27].

Though the concept of patient and family engagement has been discussed and utilized to a varying degree for many years, the expanded concept of coproduction is less widely recognized. Implementing robust future collaboration with patients and families using similar approaches is likely to become increasingly common and intertwined in care delivery and ultimately improve patient outcomes across pediatric healthcare.

Conclusion

Teamwork and collaboration is particularly important in quality improvement work. Healthcare systems are complex, and improving them requires extensive knowledge of how each piece fits into delivering optimal patient care, and no one individual can understand this. Optimizing teamwork and collaboration across organizations, while including patients and families, will likely be increasingly essential to improvement efforts as healthcare reform rapidly moves us toward value-based care.

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