Care Experience-based Methodologies: Performance Improvement Roadmap to Value-driven Health Care

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Abstract

Background The literature contains proposals for creating value by creating exceptional patient experiences rather than simply improving services. However, few articles describe replicable applications focused on the patient experience.

Questions/purposes We (1) describe the refinement and exportation of an approach that focuses on the patient and family experience; and (2) report changes in patient satisfaction, infection rates, length of stay, mortality rates, clinical indicators, staff turnover, and cost.

Methods The Patient and Family-Centered Care Methodology and Practice (PFCC M/P) is a six-step process: (1) selecting a care experience needing improvement; (2) establishing a guiding council; (3) evaluating the current state; (4) developing a permanent working group; (5) creating a shared vision of the ideal experience; and (6) identifying improvement projects to address the gap between the current and ideal experience. We assessed

patient satisfaction, changes in clinical indicators, staff turnover, and cost in three clinical programs.

Results In TJA, patient satisfaction is at the 99th percentile; length of stay, infection rates, and mortality rates are substantially better than the national average. In trauma, patient satisfaction increased, time in cervical collars decreased, staff turnover decreased, and the incidence of lost patient belongings was eliminated. In orthopaedic spine, patient satisfaction is higher than the national average, average time for transfer to bed decreased (%), length of stay decreased, and average discharge time decreased. Each of these would have a positive impact on cost.

Conclusions PFCC M/P offers a road map for redefining value as what is important to patients and families.

Background

With no shortage of evidence that health care in the United States is chaotic and in need of fundamental reform [8, 9, 11], value is gaining attention as a crucial element in addressing patient outcomes, patient safety failures, escalating staff shortages, and skyrocketing costs. In 2006, Porter and Teisberg [15] argued that healthcare providers have long focused on dividing value by shifting costs, capturing patients, and restricting services. They pointed out that none of these efforts create value for patients and they have resulted in today's fragmented and costly care delivery system. The answer they proposed lies in redesigning care with a focus on creating value for the patient. This focus, they suggested, will result in improved cost outcomes as well.

In 1999, Pine and Gilmore [14] introduced the idea of creating exceptional customer experiences as a way of improving business outcomes. They differentiated between

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a “service” (a set of intangible activities performed on someone’s behalf) and an “experience” (a memorable event) and suggested that engaging customers in a memorable way is critical to creating value. Applying this idea to health care, the idea is to create a “more engaging, less stressful, and highly valued hospital experience” in an arena where “...research has shown that better experiences lead to better outcomes” [13]. In this context, placing our focus on the patient experience may be an important key to transforming health care from a less-than-optimal service to a valuable experience, leading to improved clinical outcomes with decreased cost.

We have developed an experience-based method that redefines value simply as what is important to patients and families. The Patient- and Family-Centered Care Methodology and Practice (PFCC M/P) is a six-step process that focuses on viewing all aspects of a patient’s care experience through the eyes of the patient and family, leading to organizational transformation that supports improved outcomes. First described in 2007 [5] as a disruptive innovation [3], the PFCC M/P has undergone substantial refinement in the University of Pittsburgh Medical Center’s (UPMC) total joint replacement (TJA) program over the past 4 years. Patient satisfaction rates have been sustained at the 99th percentile (based on data from the Hospital Care Quality Information from the Consumer Perspective [HCAHPS] survey) and infection rates, length of stay, and mortality rates remain better than the national average [5, 6]. The PFCC M/P approach has also been exported to over two dozen clinical and nonclinical care experiences (including areas as diverse as Oncology, Home Health Care, Level I Trauma, and Human Resources) at UPMC (Table 1).

We (1) describe the refinement and exportation of an experience-based design method that focuses on viewing all care experiences through the eyes of patients and families; and (2) report changes in patient satisfaction, infection rates, length of stay mortality rates, clinical indicators, staff turnover, and cost.

Methods

PFCC M/P enables “caregivers” (see Appendix 1) to deliver exceptional care experiences by refocusing existing resources. This is achieved through a six-step process: (1) selecting a care experience for improvement (and defining the beginning and end points of the selected care experience); (2) establishing a guiding council; (3) evaluating the current state by using techniques from the PFCC Toolbox (Fig. 1) that allow all caregivers to view care through the eyes of patients and families; (4) developing a working group; (5) creating a shared vision of the ideal

Table 1. PFCC Working Group summary statistics: 2008–2010*

Bariatrics
Home health
Lobby/wayfinding
Pediatric emergency
Pediatric outpatient surgery
Rheumatology
Surgical care experience
Total hip and knee arthroplasty
Transplant
Trauma services
Urgent care
Human resources—employee retention
Human resources—employee inclusion
Human resources—ideal staff orientation
Human resources—inclusion
Care giver communication
Cleanliness
Discharge/portal
Noiselessness
Understanding HCAHPS
Ambulatory/outpatient
Dining experience
Environmental services
PFCC Hospital Team
PFCC Super Groups

* Approximately 800 Working Group team members and over 2000 Project Team members; PFCC = Patient and Family-Centered Care; HCAHPS = Hospital Care Quality Information from the Consumer Perspective Survey.

patient and family experience; and (6) identifying PFCC improvement projects and project teams.

The first step in the PFCC M/P is to decide which care experience to focus on. This can be based on (1) existing patient survey data that indicates opportunities for improved patient experiences; (2) existing indicator measures such as patient wait times; or (3) a desire to improve a particular care experience. A care experience selected for improvement can be broad (eg, trauma care from time of trauma through inpatient stay and home care) or narrow (eg, day of surgery). Defining the beginning and end points of the care experience to be improved is important. Does it begin with a phone call to the doctor’s office, with arrival at the hospital’s parking garage, or with admission to preoperative services? Without defining the beginning and end points, the later steps of the method will lack focus.

The multidisciplinary PFCC Guiding Council for the selected care experience will help guide the process, communicate about it to others in the organization, and help break down barriers that can arise during the PFCC process (eg, gaining prioritization for resources needed

Fig. 1 This figure shows the components of the PFCC Toolbox, each with a brief description.

during project improvements). The Guiding Council should include a clinical champion, an administrative champion, and a scribe, the latter to keep track of current, ongoing, and completed projects. The Guiding Council typically meets for 30 minutes weekly.

It is important to accurately understand, in detail, what patients and families currently experience (ie, the current state); otherwise, even the best-intentioned attempts to improve the care experience will fall short of meaningful and lasting improvements. The PFCC Toolbox, used in the third step of the PFCC M/P, includes refined versions of both Shadowing (Fig. 2) [4] and Care Experience Flow Mapping (Fig. 3) [4], which together provide a detailed understanding of the current experience. Shadowing is repeated, direct real-time observation of patients and families as they move through each step of a care experience. Information captured through shadowing includes: (1) Who are the caregivers the patient and family encounter? (2) Where do the patient and family travel within the setting? (3) How long does each process take (for example, how long do patients and families spend in waiting areas, examining rooms, etc)? (4) What are the first-hand comments, questions, and concerns raised by the patient and family and at which points in the care process? (5) What are the shadower's impressions, observations, and

ideas for improvement based on the experiences and comments of the patient and family? Care Experience Flow Maps provide a visual representation of the care experience that can illuminate inefficiencies in process and/or physical space, care delivery silos that present barriers to optimal care experiences as well as redundancies or omissions in the care experience. Shadowing and Care Experience Flow Mapping create a sense of empathy and urgency among caregivers by clarifying the patient and family experience in a way that is difficult to understand otherwise. When the Shadowing and Care Experience Flow Mapping is complete, a Working Group can be formed to prioritize the opportunities for improvement projects.

The PFCC Working Group is made up of the Guiding Council and of caregivers representing a cross-section of departments and levels without regard to "official" organizational structure and silos. Members are invited to be part of the Working Group based on the information identified in the third step of the PFCC M/P so that there is a frontline representative from every area that touches a patient experience. The hospital's Chief Operating Officer and President should also be part of the Working Group to lend credibility and to help accelerate the approach. The PFCC Working Group holds a kick-off meeting and meets for 1 hour weekly thereafter. The PFCC Working Groups

Patient and Family Shadowing

Fig. 2 This figure shows the six steps of shadowing, a process that allows us to identify and understand the actual experience of patients and families rather than relying on our assumptions about their experiences.

Fig. 3 Care Experience Flow Map Touchpoints and Care Givers are shown.

are permanent, periodically returning to the third step of the PFCC M/P to reassess the current state of the care experience and to identify new projects over time as ideals are achieved and new ones are identified.

The fifth step of the PFCC M/P involves creating a shared vision of the ideal care experience. Through discussion and individual stories, a collective ideal story of the patient and family experience emerges.

The final step of the PFCC M/P is creating Project Teams to address the gaps between the current and ideal state of the care experience. Although Working Groups are permanent, Project Teams have beginnings and endings and new teams are convened as the ideal changes and as the ideal achieves higher levels of performance. This cyclical nature of the PFCC M/P leads to high-performance care teams and is transformative in creating a PFCC culture over time [5].

Exportation of the PFCC M/P beyond the TJA began in 2007. The PFCC Level I Trauma Care Experience Guiding

Council, one of the first areas outside of the TJA to initiate the PFCC M/P, made a decision to define the full Trauma Care Experience as the point in time that a patient is identified at the site of the trauma to the time the patient is discharged from the hospital and posthospital care. Knowing it would be a challenge to begin with such a large focus area, the Guiding Council delineated a pilot initiative aimed at decreasing the amount of time patients have a cervical collar in place, a project that was selected based on patient feedback over previous years. Following the PFCC M/P sequence of Guiding Council → Working Group → Project Improvement Teams, a PFCC Trauma Care Experience Working Group with 25 members was established. Student interns conducted over 300 hours of shadowing that provided both hard and emotive data from patient and family experiences. The resulting shadowing report and Care Experience Flow Map provided the blueprint for the work of Project Teams. The next step for the Cervical Spine Clearance Project Team, then, was to

write the ideal care experience from the viewpoint of patients and families. To address the gaps between the current patient and family experience and the ideal experience, the Project Team created a prioritization process for patients requiring cervical spine collar clearance, upgraded the computer system for online reading of radiographs, and expanded the use of caregiver pagers (at no additional cost). Nearly two dozen Project Teams (Table 2) have been created within the PFCC Trauma Care Working Group, to date, as new improvement projects have been identified and as the bar is continually raised for defining the ideal.

The Orthopaedic Spine Care Project Team was formed in 2009 as part of a larger Surgical Care Experience Working Group. Using methods from the PFCC Toolbox, this Working Group had identified issues with delayed patient discharges, unclear discharge plans, long waits for inpatient beds, admissions to “off-service” beds, and beds becoming available all at the same time creating

Table 2. UPMC Level I Trauma Care Experience: Sample of PFCC Projects

Work Group	Projects and Accomplishments
The portal experience	<p>10 minutes away, secure the trauma bay: Signage in all EMS lounges to educate EMS personnel on importance of early notification in trauma care; communication tool for EMS personnel and ED staff to use for early notification of trauma patient’s needs prior to their arrival in the ED</p> <p>What to expect at the trauma center: Informational brochure for outside facilities to provide to families describing what will occur when they arrive in the hospital ED as well as driving directions</p> <p>Trauma family gold pass: Gold hang tag for car with instructions on what to do once in hospital driveway; also provides identification that they are “Trauma Family” to parking/security/ED staff to facilitate prompt reunion with patient</p> <p>Trauma patient registration efficiency: Fast-track registration for trauma patients and standardized EMS personnel questions to speed their return to availability in their community</p>
Patient/family reunion	<p>Trauma concierge: Personnel assigned to facilitate the reunion of the family with the patient, to facilitate brief meeting between patient/family and trauma surgeon, and to provide amenities to families</p> <p>Trauma comfort kit: Package including note pad, cafeteria vouchers, hospital information, phone numbers to provide support and comfort to families of trauma patients</p> <p>ED family lounge computer kiosks: Three computer kiosks installed in the family lounge to allow families to stay in contact with other families and friends during a very challenging time</p> <p>Improvements to ED family lounge: Cosmetic (new TV) and cleanliness improvements to family lounge and public restrooms</p>
Pain prevention	<p>Conversion to PO medications: Use of evidence-based practice to educate resident physicians on appropriate transition of patient-controlled analgesia to oral analgesia</p> <p>PT/OT refusal of treatments attributable to pain: Dissemination of study disproving conventional wisdom that PT/ OT treatments were being missed as a result of pain</p> <p>Distraction therapy: Pet therapy and TV/DVD carts expanded to include inpatient trauma units</p> <p>Promotion of NSAID therapy: Using evidence-based practice to educate physicians to standardize orders for NSAIDs for all trauma patients requiring pain control along with narcotic analgesia</p> <p>Promotion of PCA use: Educational plan for early initiation of patient-controlled analgesia based on evidence-based practice</p>

UPMC = University of Pittsburgh Medical Center; PFCC = Patient and Family-Centered Care Methodology and Practice; EMS = emergency medical services; ED = emergency department; PO = orally; PT/OT = physical therapy/occupational therapy; NSAID = nonsteroidal anti-inflammatory drug; PCA = patient-controlled analgesia.

bottlenecks. The Project Team created a Flight Plan process as the ideal experience using the analogy of the aviation industry wherein flights are always scheduled, consistency and predictability are built into scheduling, and multiple critical outcomes require clear communication. The Flight Plan involves staff consensus on best practice length of stay, sharing the length of stay goal with the patient and family at the first encounter, providing patients and families with a Flight Plan letter on arrival to the inpatient unit, posting their projected departure date with 11 am discharge posted in room, providing visual triggers (including a color-coded card posted outside the patient's room with the date of planned discharge), and scripting staff to discuss discharge with patients and families.

Patient satisfaction was measured using HCAHPS, a national, standardized, validated, publicly reported survey of patients' perspectives of hospital care (Baltimore, MD). Infection rates, length of stay, and mortality rates were assessed using internal electronic data collection tools. Other clinical indicator data such as time spent in cervical collars, average time for transfer to bed, and average discharge time were collected pre- and postimplementation (electronically or manually). Staff turnover was assessed pre- and postimplementation through payroll data.

Results

Over the 4 years since the PFCC was first reported [5], it has been refined into a six-step method and the initial positive results (patient satisfaction, infection and mortality rates, average length of stay, percentage of patients

discharged directly home, and percentage of patients walking without handheld assistance at discharge) in the TJA have been sustained. Exportation of the PFCC M/P to over two dozen clinical and nonclinical areas (eg, Bariatrics, Transplant, and Human Resources) has shown positive results as well.

Patient satisfaction is higher than the national or has improved (Table 3). Patient satisfaction in the TJA is at the 99th percentile, increased up to 11.4% in trauma services departments, and is higher than the national average in the orthopaedic spine program.

Infection rates in the TJA are 0.7% and 0.3% compared with national rates of 1.7% and 2.4% for hip and knee, respectively.

Length of stay in the TJA program is 2.6 and 3.0 days compared with national averages of 4.9 and 3.8 days for total hip and total knee, respectively. Length of stay in the orthopaedic spine program decreased by 0.87 days and average patient discharge time decreased by 2 hours.

Mortality rates in the TJA are 0% compared with national rates of 1.2% and 0.2% for hip and knee, respectively.

Staff turnover decreased in the trauma services departments by 66%.

We observed a decrease in the length of time patients spend in cervical collars of 50% (from 26.5 hours to 12 hours), elimination of lost patient belongings (from 12–25 bags per week to 0) in the trauma program, and a decrease in the average time for transfer to bed of 47% in the orthopaedic spine program.

Improvements in infection rates, length of stay, mortality rates, staff turnover, and lost patient belongings

Table 3. The impact of the Patient and Family Centered Care Methodology and Practice (PFCC M/P) on patient satisfaction* in the total joint arthroplasty program, trauma services, and orthopaedic spine services (2010 data)

Clinical program or department	Patient satisfaction compared with national rates	Patient satisfaction "Top Box" percentile ranking preimplementation	Patient satisfaction "Top Box" percentile ranking postimplementation	Percentile point increase
Total joint arthroplasty (hips and knees)	99th percentile			
Emergency department [†]		77%	87.4%	11.4
General trauma inpatient [†]		70.3%	79.7%	9.4
Trauma stepdown unit [†]		68.3%	72.5%	4.2
Orthopaedic spine program [‡]	89% of patients checked the top box ("satisfaction with discharge") compared with 83% of patients from the other 600 + -bed participating hospitals 91% of patients checked the top box for "staff talked with patient about help after discharge" compared with 80% of patients from the other 600 + -bed participating hospitals			

* Patient satisfaction is based on Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey data; [†]part of UPMC Adult Trauma Services—preimplementation measurement from July 2008; [‡]part of the larger Surgical Services PFCC M/P initiative.

translate to decreases in cost. For example, staff turnover is estimated at between \$24,000 and \$64,000 per nurse [10]; cost savings from decreased length of stay and early discharge vary but are considerable: “272 of the 743 elective spine surgery patients at UPMC Presbyterian Hospital admitted in 2010 were discharged ahead of schedule, and 312 were released on schedule, saving a total of 336 hospital days and \$117,600” [12]. These cost savings can be extrapolated to incrementally larger decreases when exported to additional departments and programs areas.

Discussion

The PFCC was first developed in the TJA as a way to exceed the needs and desires of patients and to create program loyalty. Positive results beyond patient satisfaction and loyalty soon became apparent and steps were taken to refine the PFCC into a true method and practice, grounded in the design sciences [16] and built on the work of experts from many fields including leadership, marketing, and organizational behavior. In the 4 years since PFCC was first described in CORR [5], the approach has been refined into a six-step experience-based design method and practice with an accompanying PFCC M/P Toolbox to support replication. The initial positive results seen in the TJA have been sustained over the years since it was developed; replication has occurred in over two dozen clinical and nonclinical areas of the medical center with promising results.

Our study is subject to limitations. First, we have not systematically measured the same indicators in each programmatic area; we have left it up to the PFCC Working Groups to determine which indicators they measure pre- and postimplementation. Second, overall cost reduction data are often hard to determine given the multiple factors impacting cost in hospital care.

There are also limitations to the PFCC M/P approach, although they are fairly straightforward to overcome. First it is important for those who participate to go into it with the attitude that the effort will be worthwhile and cost-effective. This can be addressed by being clear about the limited time commitment (1–2 hours per week per participant) and the lack of incremental cost involved (resources are reallocated). A second limitation is the perceived difficulty of making substantive process changes if the need for them is identified. An example would be the need to streamline the purchasing process if it presents a barrier to the ideal patient experience. With a large, multidisciplinary team addressing the problem, a clear illustration of the impediment it causes for the ideal patient and family experience, and the participation of clinical and administrative champions, process changes like this are not

insurmountable. The broad representation of the project teams breaks down the organizational silos that often cause barriers to this type of challenge. Third, the need for clinical and administrative champions is critical to the success of the PFCC M/P. Although PFCC M/P is largely a grassroots, frontline effort, higher-level intervention to effectively and rapidly remove barriers is important. All of these limitations have been successfully addressed in the PFCC M/P Working Groups and should not hinder replication.

Several authors have been influential in the refinement of PFCC M/P. Design science, as discussed by Simon [16], wherein actions are methodically taken to change existing situations into preferred situations, provides a great deal of the foundation of the PFCC M/P. Brown [2] took design science a step further by illuminating the role that observation plays in transformation and why shadowing and Care Experience Flow Mapping are perhaps the most important segments of the experience improvement process. Brown stressed that observation leads to empathy, which in turn leads to a sense of urgency and action. The PFCC M/P adds to the literature as a real-world application of observation leading to urgency and action in the healthcare arena. Bate and Robert [1] touched on the same theme, emphasizing that it is important to ask patients about details of their unique experience (experience being different from attitudes) and then systematically codesign services with this information in mind. The PFCC M/P applies this concept, creating experiences that play a primary role in transforming care delivery. Herzlinger [7] has also influenced the refinement of the PFCC M/P. Herzlinger advocates for disease-“focused care centers” that provide a full cycle of care for patients in one setting, allowing efficiency and an integrated systems approach that ultimately will result in lower costs and better patient experiences and outcomes. She argues that the development of these kinds of centers is critical as we progress through an era of consumer-driven health care with a growing demand for value-added care and transparency.

Without a roadmap and simple solutions with which to navigate the complexities of healthcare delivery, it is difficult to make sustainable improvements. Through the defined, easy steps of the PFCC M/P, any type and size of healthcare organization can make the transformational changes currently being achieved at UPMC, which, as a large, integrated healthcare delivery system, has served as a robust test platform. With healthcare reform gaining ground, it is imperative that the healthcare industry be prepared to incorporate new care delivery platforms. The PFCC M/P can provide the framework to position all of us for the challenges ahead, simultaneously improving clinical and financial outcomes by redefining value as what is important to patients and families.

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Appendix 1. Glossary of terms

Caregiver = Defined broadly as any person within the healthcare setting whose work touches a patient's or family's care experience, including the doctors, nurses, therapists, technicians, dietitians, appointment schedulers, parking attendants, janitors, and even hospital leaders, purchase and supply chain employees, and financial representatives who the patient and family might never see.

Guiding Council = A small group of committed healthcare professionals, including administrators, to: (1) serve as champions to guide and expand the use of the PFCC M/P; and (2) to perform the essential function of communicating with all levels of the organization.

PFCC Toolbox = Tools to help gather accurate information about patient and family experiences. The PFCC Toolbox includes Shadowing, Care Flow Mapping, storytelling, advisory councils, surveys (phone and paper), digital recording systems, and real-time location systems.

Shadowing = Following patients and families through every step of a defined care experience pathway to observe and record the care experience through their eyes.

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