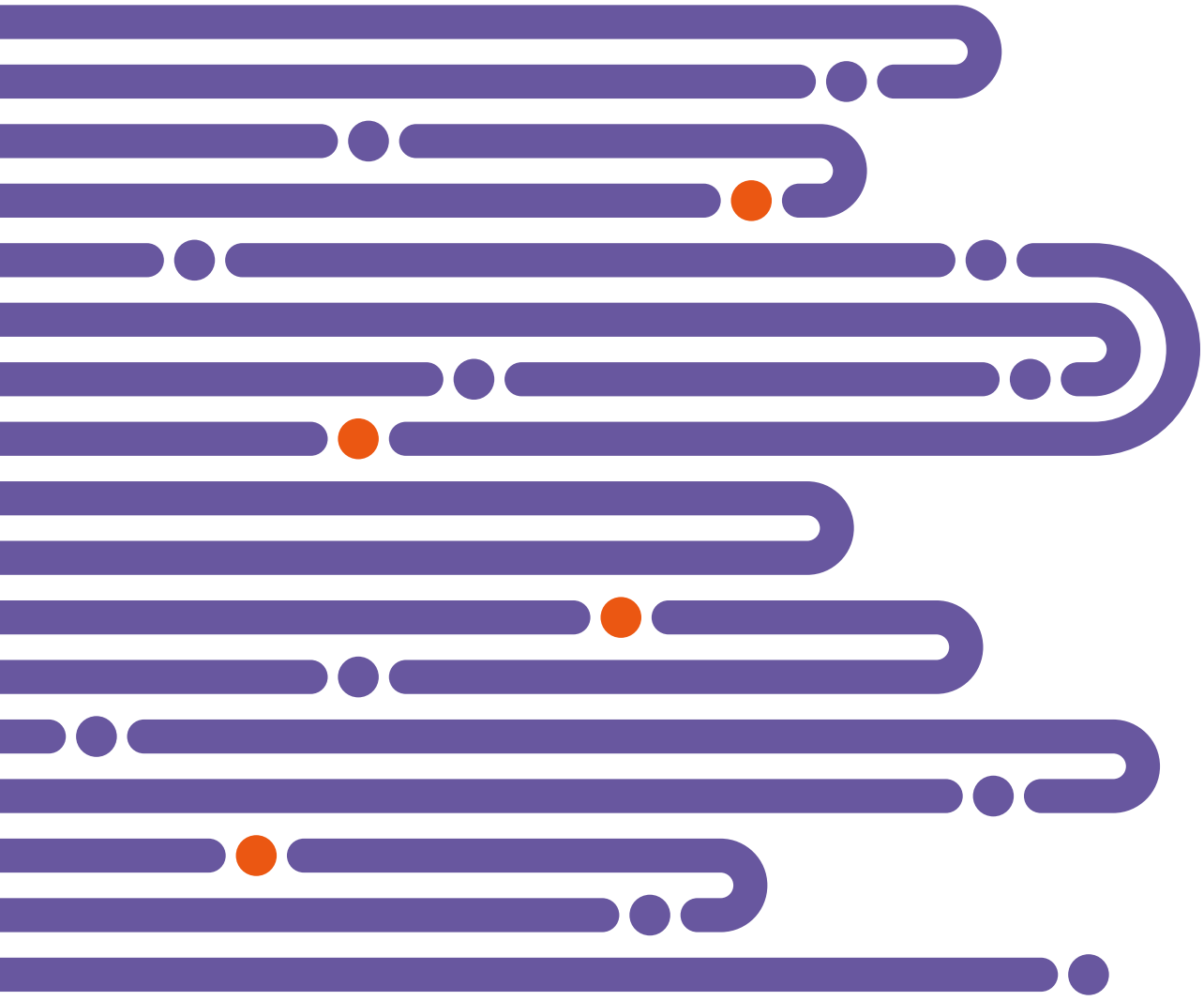
vizient®

Examining the relationship between high-performing person and family engagement hospitals and quality and safety performance



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Abstract

Person and family engagement (PFE), also referred to as patient and family engagement, is a health care delivery and quality improvement approach that fosters partnership with patients and families to drive clinical outcomes. Traditional health care improvement efforts have primarily relied on quality professionals and clinician teams to change processes for the betterment of patient outcomes, leaving out a key piece of the puzzle—health care consumers. A more holistic approach is now taking hold; health care organizations are achieving health care quality and safety through PFE.

Although evidence is growing to support PFE as an outcomes improvement strategy, a lack of consensus continues in understanding the evidence of effective ways to increase adoption of PFE practices in relationship to achievement of improved outcomes. This is partly due to the lack of scientific evidence showing the relationship between PFE and outcomes improvement.

This analysis scientifically examines the relationship between PFE and clinical outcomes, specifically 30-day potentially unplanned readmissions ("readmissions") and falls with injury ("falls"). Findings demonstrate a correlation between PFE being fully implemented and improvements in clinical outcomes; findings also identify specific activities and processes that most impact those improvements.

Introduction

A quarter century after the Picker/Commonwealth Program for Patient-Centered Care popularized the PFE term as an approach "that consciously adopts the patient's perspective," patient and family engagement is being woven into the mainstream of American medicine.[1] Throughout health care, there is broad agreement that, as a 2013 Institute of Medicine (IOM) workshop put it, "Prepared, engaged patients are a fundamental precursor to high-quality care, lower costs and better health."[2]

That consensus is reflected in the Person and Family Engagement Strategy of the Centers for Medicare & Medicaid Services (CMS), which defines its focus this way:

> Patients and families are partners in defining, designing, participating in and assessing the care practices and systems that serve them to assure they are respectful of and responsive to individual patient preferences, needs and values. This collaborative engagement allows patient values to guide all clinical decisions and drive genuine transformation in attitudes, behavior and practice.[3]

The inclusion of PFE within the CMS Quality Strategy signaled a shift from a reliance on process improvements singularly involving clinicians driving clinical outcomes to a more holistic approach designed to improve health care safety and quality through partnerships with patients, families and caregivers. The CMS Hospital Improvement Innovation Network (HIIN) is the first quality improvement program of its kind—a national program with a clear and direct focus on improving hospital quality and safety that uses PFE as a major change accelerator. With more than 4,000 hospital participants, the HIIN measures PFE by process indicators that promote engagement activities along the continuum of care. The Partnership for Patients Strategic Vision Roadmap for PFE[4] outlines the five PFE metrics used to evaluate network performance of patient engagement at the point of care, organizational policy and protocol, and governance levels.

The Vizient® HIIN developed a multifaceted PFE program to help its participating hospitals implement these five PFE metrics. However, the PFE metrics represent process measures that, when considered alone, have no clear linkage to patient outcomes measures and therefore, create the opportunity to scientifically explore the connection between PFE and better outcomes. Understanding how the Vizient HIIN can advance and accelerate its PFE work is the catalyst to bring evidence to the industry about the connection between PFE and outcomes.

The Patient and Family Engaged Care (PFEC) Guiding Framework[5] provides a clearer picture of PFE as an expanded notion of health care's "Quadruple Aim" and a change driver that produces a culture of engagement with better health, improved care, lower cost and better work experiences for patient care providers. This framework provides a detailed explanation of the major elements (inputs, outputs and connectors) that have contributed to the growing body of evidence supporting the inclusion of PFE care models.

The establishment of the PFEC framework can be seen as an industry accelerator for PFE. However, a lack of consensus continues around understanding effective ways to increase adoption of PFE practices and the desired outcomes articulated by the IOM. The analysis described in this report aims to take that next step by examining the link between PFE implementation and quality outcomes improvement.

This analysis investigates whether hospitals reporting a higher implementation rate of the five HIIN PFE metrics also demonstrate better quality and safety results, the hypothesis being that a hospital culture that integrates PFE into existing quality and safety processes positively influences patient outcomes.

The HIIN PFE metrics include:

1. Hospital has a planning checklist that is discussed with every patient who has a scheduled admission.
2. Hospital conducts shift change huddles or bedside reporting with patients and family members in all feasible cases.
3. Hospital has a designated individual(s) with leadership responsibility and accountability for PFE.
4. Hospital has an active patient and family advisory council (PFAC) or at least one patient who serves on a patient safety or quality improvement committee or team.
5. Hospital has one or more patient(s) who serve on a governing and/or leadership board as a patient representative.

To assess quality and safety outcomes, two specific quality and safety measures were investigated within this analysis; hospital rates of readmissions and falls.

Authors of this report recognize wide use of the term *patient and family engagement*. Because this paper uses CMS' Person and Family Engagement Strategic Plan as a guiding framework, the authors have chosen to use the PFE term to be *person and family engagement*.

Available knowledge

PFEC practices, when implemented effectively, create an organizational infrastructure for driving a patient-centered care culture. This culture continuously integrates the patient, family and caregiver perspectives and actively involves all stakeholders to drive the desired outcomes at the point of care, operational policy and protocol, and governance levels. A review of existing scientific evidence demonstrating relationships between PFE and outcomes was limited in results but did produce some evidence connecting PFE activities to improvements in organizational culture and operational outcomes, patient outcomes, and lowered costs.

An examination of more than 60 articles on patient-centered care from health policy, medical and nursing literature found "few common definitions.[6]" Nonetheless, a small but growing amount of literature supports the idea that when patients and families actively partner in making decisions about their own health, it can improve patient quality and safety outcomes and satisfaction.[7] Georgia Health Sciences Medical Center implemented changes to its visitation policy to promote PFE that ultimately resulted in a 40 percent decrease in falls, a 62 percent reduction in medication errors and a 50 percent reduction in length of stay.[7] It also improved patient satisfaction from the 10th to the 95th percentile.[7] In another study, PFE initiatives reduced nurse turnover from 21 percent to 7 percent,[7] illustrating the potential positive impacts of implementing PFE throughout the organization.

A comprehensive evaluation of evidence-based strategies that support PFE improvements in patient care and outcomes conducted by the National Academy of Medicine Scientific Advisory Panel[5] found the following:

- Reduced hospitalization rates
- Decreased emergency department use
- Reduced elective surgery rates
- Shorter lengths of stay and decreased cost per case
- Improvements in staff experience and satisfaction
- Improved staff retention
- Lower staff burnout rates
- Improved patient satisfaction and/or perceptions of their care
- Increased patient and family success in self-management
- Improved quality of life

A further examination of the use of PFACs in quality improvement found some evidence of improved outcomes. For example, Vidant Health, located in Greenville, North Carolina, instituted systemwide patient safety training, including patient advisers in the process. "The transformation of the system has resulted in an 85 percent reduction in serious safety events, a 62 percent reduction in health care-associated infections, 98 percent optimal care in the CMS/Joint Commission core measures, Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) performance in the top 20 percent, and more than 150 patient advisers partnering with leaders, physicians and frontline staff."[8]

While Vidant Health's 150 patient advisers were an integral part of change efforts, their involvement does not establish a causal link. Part of the challenge facing researchers attempting to find a link between patient and family advisers (PFAs) and quality improvements is that quality improvement efforts usually also include other, multifaceted aspects.

Regina Cunningham and Mary Walton at the University of Pennsylvania Health Sciences Center wrote about a closer relationship between a PFAC and a reduction in patient falls:

> "Nursing asked for the council's help with initiatives to decrease patient falls, especially among high-risk populations such as oncology and transplant. Our patient and family advisers embraced this quality improvement work, meeting with nurses in small groups, reviewing educational materials, providing the patient perspective and even advising how best to roll out the material to resonate with patients.
>
> We believe that the approach of working with advisers to discuss the issues and shape the interventions was an important variable in decreasing our total falls rate per 1000 patient days from 3.03 in 2011 to 2.18 today."[9]

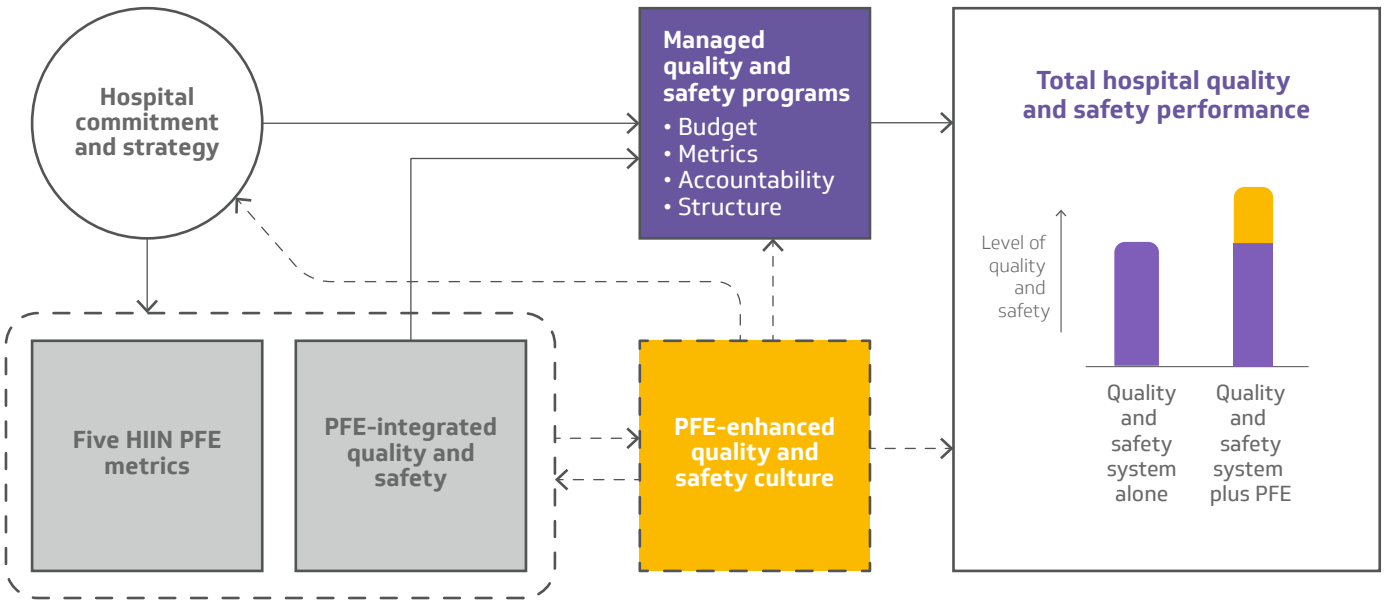
While this example does suggest a closer causation tie, it does not offer any specific data analysis connecting specific PFAC recommendations and specific improvement efforts around falls reduction. Providing more powerful examples of quantitative, as well as qualitative evaluations of PFE implementation and quality improvement outcomes, is a significant area of opportunity to advance a more widespread adoption of person and family engaged cultures and programs. Furthermore, a gap in how improvement in PFE implementation relates to reductions in harm is another significant opportunity for future evidence. Use of a common set of PFE metrics and activities with a standardized definition presented a unique opportunity and was the genesis of this analysis.

Moreover, remaining gaps in the measurement and understanding of PFE implementation have been limited to case studies that do not include specific outcomes.[10] This report directly addresses the need to use a scientific approach to measure correlations between PFE implementation and reductions in harm, as well as to capture specific interventions and outcomes of better-performing organizations.

Rationale

Two primary frameworks underlay this analysis. "Harnessing Evidence and Experience to Change Culture: A Guiding Framework for Patient and Family Engaged Care"[5] incorporates both the evidence base and the experience base study of PFE that impacts health care culture, quality, experience and value, while acknowledging the need to build a PFEC research agenda around evidence. This framework aligned with the idea that evidence-based action will promote a more widespread implementation of PFE and is also aligned with the framework from the CMS Person and Family Engagement Strategic Plan.

In light of the gaps in the measurement and understanding of engagement practices and the previously noted limitations of prior studies, a new theoretical framework was developed as part of this work to explain the influence of specific PFE strategies and activities. That framework is illustrated below. It demonstrates key attributes that produce culture change when implementing the HIIN PFE metrics (in alignment with quality and safety programs). The result is a shift in organizational culture that is reflected in its quality and safety performance.



HIIN = Hospital Improvement Innovation Network

The components of this systemic process model include:

- Managed quality and safety programs represent current quality and safety programs in place at hospitals nationwide.
- The five PFE metrics represent the five person and family engagement metrics that are part of the CMS HIIN initiative.
- PFE-integrated quality and safety represents the way in which implementation of these metrics can have a clinical impact, discussed in greater detail below.
- PFE-enhanced quality and safety culture represents the impact of integrating the voice of the patient and includes a consistent feedback loop for ongoing quality improvement.

This model provides a new conceptual framework to quantifiably measure implementation of the HIIN PFE metrics, as well as qualitative factors when PFE activities are integrated not only with quality and safety, but throughout the organization. Based on observation and analysis of the implementation processes of the HIIN PFE metrics, the qualitative factors of PFE-integrated quality and safety appear to be a differential of high-performing hospitals within the Vizient network. The PFE-enhanced quality and safety culture provides an explanation for the high-performing hospitals' higher quality and safety levels.

Specific aim

Using a mixed-methods approach exploring both quantitative and qualitative analysis, this analysis examines the impact of PFE in improving quality and safety outcomes in hospitals implementing the five PFE metrics.

Communities

The Vizient HIIN, comprising 266 hospitals, is one of 16 CMS HIINs.

Methods

Prior to our analysis, the Vizient HIIN conducted a gap assessment to determine implementation levels of the five HIIN PFE metrics in their network of hospitals. This gap assessment was used to inform the project team of the current state of PFE implementation across the Vizient network and to provide details on PFE activities being implemented (or not) at each participating hospital site.

The number of potential participants was limited to organizations that completed the gap assessment, which varied widely with regard to geography, size and organizational alignment. They encompassed small, critical access hospitals; community, single-site organizations; larger multisite systems; and academic medical centers. While this variation provided a rich texture of differences, the unifying factor of the HIIN PFE metrics provided a common basis to examine implementation of the metrics.

Factors studied included depth, breadth and intensity of implementation, including elements such as integration with other quality and safety programs.

As described in the "Rationale" section, the systemic processes model includes the known factor of the HIIN PFE metrics, as well as two emerging concepts: PFE-integrated quality and safety and PFE-enhanced quality and safety culture. These emerging concepts surfaced through structured and neutral questioning of each organization, revealing a common set of factors from which the project team drew for this analysis. The operational definitions and corresponding measurement system of quality, safety and PFE outcomes were standardized and understood by all participants coming from the data reported as part of participation within the HIIN initiative.

Review of the interventions

The project design team used multiple criteria to identify top performers. First, to assess HIIN PFE metric implementation, we created a PFE index based on the Vizient PFE gap assessment (previously conducted in 2017). The PFE index is a weighted scoring system representing the depth, breadth and intensity of implementation of the HIIN PFE metrics by each organization. The scoring methodology was vetted and validated by internal and external PFE subject matter experts and patient advocates. These patient advocates were independent people representing diverse backgrounds who were associated with the Consumers Advancing Patient Safety network.

The newly created scoring methodology was applied to the matrix of hospital responses to the gap assessment, thereby creating a PFE index score per participating facility. Hospital respondents answered all gap assessment

questions. Final PFE index scores ranged from 89.3 (highest score) to 0.00 (lowest score). Thresholds were applied where natural breaks in the data occurred. In summary, high performers ranged from 89.13 to 65.00, mid-performers ranged from 63.92 to 31.84 and low performers ranged from 30.26 to 0.00.

Next, because the PFE index score measured only implementation performance of PFE-related activities, the project design team conducted semi-structured interviews by phone to further assess the relationship between PFE-related activities and quality and safety improvements. Organizations scoring the highest on the PFE index were invited to participate in an hour-long extended discussion about their PFE programs, including metrics implementation, as well as other cultural and performance factors. Of specific interest was how, if at all, each organization implemented PFE and its relationship to quality and safety outcomes.

As the extended discussions progressed, common themes from leading organizations emerged. The high performers were integrating PFE and quality and safety by leveraging the power of the patient voice to drive positive change. These organizations spoke about the importance of including patients in key decisions relating to quality and safety. It became apparent that the integration of PFE (at the point of care, organizational policy and protocol, and governance levels) into quality and safety, as well as operations and human resources activities, were important and emerging factors for hospitals that experienced quality and safety improvements.

To measure this PFE and quality and safety integration, the project design team created the quality integration index. This index was designed to demonstrate the intensity of the connection that patient, family and caregiver participation had on the clinical outcomes that drove quality improvements. This index allowed for the assessment of PFE and quality and safety integration and distinguished criteria among organizations where PFE went beyond the establishment of a PFAC. The quality index scoring algorithm was created using indicators for the following areas of PFE and quality and safety integration:

- Patient representation on clinical committees (e.g., quality and safety committee, readmissions committee, etc.)
- Clinical impact of PFAC projects (e.g., projects impacting hospital-acquired conditions, falls and readmissions)
- Reporting structure of PFE program and staff
- Impact of the patient voice

Organizations that met our criteria regarding the PFE and quality integration indices were selected for a deeper examination via a site visit. These organizations displayed a strong implementation of PFE metrics as measured by the PFE index, as well as self-reported quality improvement activities aligned with the HIIN hospital-acquired conditions (HACs) and readmissions reduction goals. They also demonstrated significant integration of PFE with quality and safety as measured by the quality index.

It is important to note that the project design team did not review HIIN-reported quality outcomes data prior to selecting site visit participants, but did use the self-reported quality improvement information provided during the extended phone discussions. This was done to avoid bias in the use of only quantitative data when determining site visit locations. The qualitative data collected during the interviews provided a deeper understanding of how patients and patient-centered activities were perceived by staff to have contributed to quality and safety improvements.

The final site visit selection criteria considered characteristics such as region, size and type of facility. Twenty-nine hospitals were invited to participate in phone interviews, 16 of which were completed. Nine hospitals were recommended for site visits. Two additional sites were selected for pilot visits to test methodology and structured interview questions.

Beyond the two pilot sites, those sites selected for visits included seven high performers, one mid-level performer and one low performer. It is important to note that of the 16 extended interviews conducted, hospital respondents referenced readmissions and falls as the two quality and safety areas of improvement (of the 18 HIIN-tracked HACs) where patients and families had an impact on outcomes that was recognized by staff. Surgical site infections and sepsis are other emerging areas cited in which patients are contributing to improvements, but only preliminary results are reflected in the data analysis.

Site visits were conducted to further validate information received from the gap assessment, PFE index and quality integration index. Each site visit served as an opportunity to deepen our understanding of PFE activities, barriers, successes and organizational outcomes. The site visits were conducted by two to three site visit team members using a semi-structured interview guide to facilitate the discussions. Interviews were recorded, and all participants signed a consent form prior to engagement. The interview protocol was developed using responses to the gap assessment, questions based on the project hypothesis and a review of the literature. Interviewees invited to participate included hospital senior management, patient and family engagement and/or patient experience staff, nurses, physicians, and PFAs involved in the organization's PFE work. Both formal and informal discussions were held in an effort to obtain the most accurate information.

To measure the emerging concept of PFE-enhanced quality and safety culture, the project design team used a mixed-methods approach. Transcripts from the phone and site visit interviews provided the data for a thematic analysis. The impact of the patient voice was

assessed through a survey with a Likert Scale provided to interviewees and random staff members during the site visits (patient voice survey). Respondents were asked to score their perceptions on the value of the patient voice, as well as the impact of the patient voice on quality and safety within their organization. Space was provided for respondents to include specific examples and context regarding their scores.

Our project team included two separate groups: the project design team, responsible for the project design, identifying site visit candidates and performing all data analysis; and the site visit team, which was blinded to the site visit selection process, the rankings of the organizations visited, and to all quality outcomes data. Team members were experienced in assessments and analysis with knowledge of performance improvement, PFE and research methods.

Measures

Measures included both quantitative and qualitative data. The primary data sources for this analysis include:

1. PFE index (developed from gap assessment responses)
2. Quality integration index (developed from phone interview narratives)
3. Vizient HIIN outcomes data
4. A patient voice survey collected during site visits

To ensure data completeness and accuracy of qualitative data, all interviews (phone and in-person) were recorded and transcribed. In instances where technological difficulties prevented recording, comprehensive notes were taken, including direct quotes from the interviewees to be included in the analysis. Interviews were structured to allow for free-flowing conversation while still following a structured set of questions.

Commonalities heard in high-performing organizations during the phone interviews (performed prior to site visit selections) were incorporated into the data collection tools for the site visit team. This became important because the team continued to refine and update the on-site interview questions through the pre-site visit period of the project, as well as after the two pilot site visits.

The need for additional data collection tools was identified during the pilot site visit period. The team created two written survey tools, one to measure interviewees and random staff perceptions of the value and impact of the patient voice on quality and safety improvement (patient voice survey) and one to measure both initial and ongoing PFE investments (organizational PFE investment survey). These surveys were added to the site visit protocol prior to the first site visit and appropriate time was given during each subsequent site visit for complete and accurate data collection. After each site visit, all data was uploaded to a secure site and provided to the project design team for analysis. Records were maintained to ensure all data elements required for analysis were obtained.

Quantitative outcomes data for readmissions and patient falls were obtained via an existing database within the Vizient HIIN, which ensured data accuracy and completeness within the confines of feasibility. The CMS readmissions adjustment factor was applied to the raw readmissions outcomes data prior to analysis to ensure there was not a penalty for those hospitals serving more vulnerable populations. Clinical outcomes data for readmissions and patient falls were assessed because they were consistently cited as initiatives where PFE (and more specifically patient voices) had been integrated as part of the overall improvement work within our sample hospital population. Four outcomes measures (surgical site infections, sepsis, iatrogenic delirium and ventilator-associated events) were also evaluated as a control group since organizations did not cite having PFE-related initiatives in these areas.

Specifically, project analysis questions included:

- Do hospitals with a high PFE index score have better quality and safety outcomes?
- Do better-performing hospitals have PFACs?
- Is patient involvement on hospital clinical committees associated with better performance, independent of the hospital having a PFAC?
- Do better-performing hospitals integrate PFE activities with the hospital quality and safety staff?
- Do better-performing hospitals have a culture that fully integrates PFE into all areas of the organization through a range of activities (e.g., hiring practices, sharing clinical notes with patients, etc.)?
- Do better-performing hospitals include a patient representative on the board of directors?
- Does use of a preadmission checklist affect performance?
- Does patient-centered rounding affect performance?
- If any or all of the PFE process measures affect performance, do they do so independently of each other or do interrelationships exist?

These analysis questions were chosen to identify the impact of differing demographic characteristics, as well as the PFE factors that represent influential variables and their contribution, if any, to driving patient outcomes in a positive (or negative) direction.

Analysis

Quantitative methods

A regression analysis was conducted on a total of six quality outcomes measures (two study measures and four control measures). The outcomes measures as dependent variables were analyzed in relation to the PFE index score as the independent variable for the 98 hospital participants that completed the PFE gap assessment. The top and bottom 25 performers were identified respectively from the full 98-hospital project population. All remaining hospitals were classified as mid-performers. We reviewed the top 25 performers' data for completeness and accuracy, then used a convenience sample of the seven high performers selected for site visits to conduct additional fact-finding and data analysis.

To be clear, readmissions and patient falls make up the two study measures. The four control measures include surgical site infections, sepsis, iatrogenic delirium and ventilator-associated events.

Qualitative methods

Qualitative data from the seven high-performing hospital site visits, patient voice surveys and phone interviews were used to complete a thematic analysis. A modified deductive and inductive method of coding was used with initial themes identified before the analysis began. These themes were determined by PFE subject matter experts and the project design team. In addition, any new themes identified were added to the project outcomes. All themes were cross-referenced with the PFEC Guiding Framework[5] themes to validate our thematic analysis, as well as to build a common language into the coding process. The transcribed interviews and comments were first open-coded where each element was color-coded and provided a summary statement or word. These categories were further coded into larger categories as illustrated in the following table. The coding and theme identification were validated using multiple reviewers.

Together, the quantitative and qualitative data were used to:

1. Understand the relationship of PFE implementation (process measures) to readmissions and falls (outcomes measures)
2. Explore specific PFE activities that characterized better performers

Themes	Specific items within each theme
Role of leadership	• Leadership buy-in and support • PFE is a strategy-based part of the mission or strategic plan • Dedicated PFE staff or department
Leadership/ staff perceptions	• "PFA presence changes the conversation" • "We could not do this without them"
Role of PFA	• PFA on committees • PFA on quality committee • PFA on readmissions committee • PFA on HCAHPS committee • PFA on falls committee or workgroup • PFA on other quality initiatives • PFA on board of directors • PFA involved in new hire orientation • PFA involved in hiring practices • More than one PFAC
Quality of PFA/PFAC role	• Continuous learning opportunities for PFA • Internal and external promotion of PFE/PFAC • Staff and patient connected • Feedback loop for all input provided by PFA/PFAC
PFA satisfaction/ perceptions	• Respect • Fairness • Trust • Teamwork • Engagement • Accountability • Purpose • Communication
Value of PFA	• Value to the organization
Barriers	• Leadership • Resources • Time • Competing priorities

HIIN outcomes data that included readmissions, falls, surgical site infections, sepsis, iatrogenic delirium and ventilator-associated events were validated and vetted as part of Vizient participating in CMS' HIIN initiative. Each composite data set was evaluated for completeness. Participating hospitals' most recent six-month data were included in the analysis. Variations in outcomes measures were mostly associated with scope of hospital practice, patient population and type of facility.

Aggregated qualitative data were collected during the project period. Monthly meetings were hosted throughout the project to validate and vet data integrity. A technical expert panel was also consulted on a monthly basis to further confirm data completeness and interpretations for this project. Microsoft Excel was the primary database for all qualitative and quantitative data.

Ethics

The identities of participating hospitals were blinded to the project design and site visit teams for initial analysis of the PFE index to reduce bias. Furthermore, outcomes data were not disclosed to the project design team to prevent bias for the selection of high performers. Pearl IRB reviewed the project protocol and approved an exemption determination in accordance with FDA 21 CFR 54.104 and DHHS 45 CFR 46.101 regulations. While there was no direct involvement with current inpatients, hospital employees and PFAs were audio-recorded for data collection purposes and gave their written and verbal consent prior to each recorded interview.

Results

Descriptive statistics were completed to identify the summary features of the data set as follows:

PFE index

Total project population PFE index range (n=98)	89.13-0.00
Top 25 performers PFE index range (n=25)	89.13-65.00
High performers (sample population) PFE index range (n=7)	85.00-73.16

High-performing hospital gap assessment summary (n=7)

Metric 1: Hospital uses checklist for planned admissions	43% use checklists prior to admission
Metric 2: Hospital conducts bedside shift change huddles	100% conduct huddles
Metric 2 supplemental: Bedside shift change huddles conducted in non-intensive care units (ICUs)	71% conduct non-ICU huddles
Metric 2 supplemental: Bedside rounding conducted in ICUs	86% conduct ICU bedside rounding
Metric 2 supplemental: Bedside rounding conducted in non-ICUs	57% conduct non-ICU bedside rounding
Metric 3: Hospital has a person or persons responsible for PFE activities	100% have a person(s) responsible for PFE
Metric 4: Hospital has an active PFAC or PFA on a clinical committee	100% have PFAC or PFA on clinical committee
Metric 4 supplemental: PFAC with quality and safety focus	86% PFAC (quality and safety focus) 14% PFAC only (general focus)
Metric 4 supplemental: Patients serve on safety or quality committees or teams	57% have patients on safety or quality committee
Metric 5: Hospital has patient serving in governance (patient representatives serving on board of directors)	100% have a patient serving in governance

Additional factors considered common among all high-performing hospitals included the following quality integration indicators:

- **Leadership**: At six of the seven participating high-performing hospitals the PFE staff report directly to executive leadership.
- **Impact on clinical outcomes**: Every participating high-performing hospital has a PFAC that works on clinical projects (e.g., readmissions, falls, sepsis, etc.)
- **PFE beyond the patient and family advisory council**: Six of the seven participating high-performing hospitals have patients on clinical committees, as well as a PFAC.
- **Quality integration**: All high-performing participants align the functions of risk, quality, safety and legal, such that departments do not function in silos.

Analysis of the outcomes data showed an above-average correlation of PFE implementation for the selected outcomes measures of falls and readmissions (where we identified participant efforts to integrate PFE into quality and safety improvement efforts through the interviews). The highest-scoring 25 performers (which featured stronger integration of PFE and quality and safety) had a stronger correlation than those mid-performers and low performers within the hospital project population. When the same analysis was completed using the control measures, results did not show the similar correlations and thus our team validated the correlation summarized between PFE, falls and readmissions. Specific analysis results are listed in the following table.

Outcomes measures	Number of hospitals with data	Correlation of the 25 lowest scoring PFE hospitals	Correlation of the middle set of hospitals	Correlation of the 25 highest scoring PFE hospitals
Falls*	79	+0.09	-0.24	-0.40
Readmissions*	69	+0.23	0.00	-0.21
Surgical site infection hip and knee**	59	+0.25	-0.15	+0.09
Sepsis**	90	+0.12	+0.30	+0.11
Iatrogenic delirium**	75	+0.01	+0.19	+0.30
Ventilator-associated events**	67	+0.17	+0.43	-0.04

*study variables
**control variables

A negative correlation indicates an inverse relationship between two variables: when one variable increases, the other decreases—whereas in the instance of this analysis, when PFE implementation increased the hospital rate of adverse events decreased.

Exploring PFE common themes

Understanding the detailed activities that the seven high performers attributed to the success of their PFE programs and outcomes was the purpose of the thematic analysis. The series of common themes elevated through this analysis include the following as demonstrated by the scored frequency distribution percentages:

Patient and family advisory councils

Patient and family advisory councils	Maximum points	Points scored	Percentage
Outcomes data and other action items are reviewed and discussed within the PFAC meeting	14	14	100%
PFAC is integrated within the hospital	21	18	86%
Feedback provided to PFAC on utilization of recommendations	21	21	100%
PFAC is fully integrated into organizational structure (not a stand-alone initiative)	35	25	71%
Total possible score—PFACs	**91**	**78**	**86%**

Patient and family advisers on committees

PFAs on committees	Maximum points	Points scored	Percentage
Physical design	7	1	14%
HCAHPS/patient experience	7	1	14%
Clinical committees (condition-specific, HAC-specific)	21	12	57%
Quality/safety	28	24	86%
Board of directors	35	25	71%
Total possible score—PFAs on committees	**98**	**63**	**64%**

Patient and family advisers and the human resources function

PFAs and human resources (HR)	Maximum points	Points scored	Percentage
PFA/PFE stories integrated into interviews	7	1	14%
PFA/PFE stories integrated into new hire orientation	14	6	43%
Training to expand partnership capabilities of health care personnel and patients and families	14	4	29%
PFA/PFE stories used in leadership meetings	14	10	71%
PFAs included in all staff organizational events	7	2	29%
PFEC-aligned personnel management practices	14	8	57%
Total possible score—PFAs and HR	**70**	**31**	**44%**

Organizational leadership

Organizational leadership	Maximum points	Points scored	Percentage
Leadership drives the mission and vision aligned with PFEC	14	12	86%
Leadership behaviors aligned with PFEC	35	30	86%
PFEC as strategic priority	21	15	71%
Investment and intentionality in creating an engaged environment	14	8	57%
Environmental supports to facilitate PFEC	14	12	86%
Organizational eagerness to innovate	14	10	71%
Total possible score—Leadership	**112**	**87**	**78%**

Person and family engagement and operations

PFE and operations	Maximum points	Points scored	Percentage
Dedicated PFE staff or department that builds relationships and positively influences PFEC within the organization	35	35	100%
Active recruitment of PFAs from service recovery	28	20	71%
Active recruitment to pursue a diverse set of voices	21	12	57%
Practices that promote patient and family engagement throughout the organization	14	14	100%
Emphasis on empathy and compassion	14	12	86%
Creation of a (bidirectional) learning culture	21	12	57%
Total possible score—Organizational PFE operations	**133**	**105**	**79%**

Value of patient and family advisers

Value of PFAs	Maximum points	Points scored	Percentage
"PFA presence changes the conversation"	14	14	100%
"We could not do this without them"	14	12	86%
Structured communication channels developed to break hierarchy and "level set" to promote partnership of all members (leaders, staff, patients, families); coproduction, shared goals	21	9	43%
Total possible score—Value of PFA	**49**	**35**	**71%**

Measurement of person and family engagement

Measurement of PFE	Maximum points	Points scored	Percentage
A measurement approach that looks beyond patient experience metrics to gauge PFEC	14	8	57%
Measurement including HCAHPS/patient experience	7	7	100%
PFEC measurement of clinical impact	35	10	29%
Total possible score—Measurement	**56**	**25**	**45%**

Additional data were collected during the site visits to identify any investments high-performing organizations made toward their PFE programs. The analysis demonstrated the following results:

Initial cash investment to establish a PFE program:

- Had no initial investment, received assistance at no charge from the Vizient HIIN (29%)
- Spent less than $10,000 (43%)
- Spent less than $50,000 (14%)
- Spent less than $100,000 (14%)

Ongoing cash investment to sustain the PFE program (not including staff salaries):

- No ongoing cash investment (14%)
- Receive free, ongoing assistance from the Vizient HIIN or other internal resources (29%)
- Spend less than $5,000 annually (14%)
- Spend less than $10,000 annually (43%)

Ongoing cash investments include:

- Meals for meetings
- Educational/professional association fees for staff
- Educational/professional association fees for patient and family advisers
- Travel to local, state or national meetings (not sponsored or hosted by their organization)
- Conference registration fees for staff
- Conference registration fees for patient and family advisers

Discussion

The major finding and strength of this analysis is the statistical correlation between PFE implementation and clinical outcomes of readmissions and falls. Few studies have developed scientific evidence that supports the influence of PFE activities on outcomes measures.

PFE in health care is an emerging area, but it has fallen short of widespread adoption and systematic integration. In other industries, such as education, PFE is a primary tenet of measurable success and is embedded by measurable policy in Title I, Part A, which has one of the strongest PFE components of all Title federal programs. Family engagement (as referenced by the U.S. Department of Education, 2016)[11] is the systematic inclusion of families in activities and programs that promote children's development, learning and wellness, as well as including families in the planning, development and evaluation of such activities, programs and systems.

The lack of scientifically modeled evidence has been a major barrier to successful PFE implementation within health care. The conscientious use of evidence and best practice has been the hallmark of making decisions about the care of individual patients or the delivery of health services. In an ideal world, public policy is made on the basis of clear evidence of what works and what does not. While integration of PFE into health care quality and safety is not mandated by policy, this analysis found leadership support and a culture that places a high value on the voice of the patient to be primary catalysts for high-performing hospitals that have achieved improvements in outcomes.

Defining in greater detail the nature of PFE activities that support outcome improvements has been also been a barrier to PFE implementation. While support has grown over the last three to five years for the development and use of PFACs across the health care continuum, scaling up for a more widespread implementation has failed due to the perceived commitment and investment of time and resources. This analysis cites not only evidence of PFACs and their relationship to outcomes but also provides insight as to how much these councils and their specific activities and structures have supported outcome improvements.

Discoveries within this body of knowledge reveal the key elements to successful use of PFACs to be:

1. Transparency with patients and families and the regular review of data and outcomes.
2. The existence of feedback loops that promote continuous quality improvement through the lens of patients, in partnership with clinicians and administrators.
3. PFAC integration within the hospital setting, where all stakeholders have an awareness of and support the work of patients and families.
4. A PFAC that is fully integrated into the institution and influences supporting operations (such as HR, community outreach and hospital governance) and quality and safety improvements.

The PFE-integrated quality and safety model produced as a result of this project captures the essence of PFE when supported by those activities and systems identified within this project. This model demonstrates how organizational culture is impacted and thereby influences a system for sustaining PFE and continually improving outcomes. Integrated PFE transforms the tasks and processes of person and family engagement activities into a new way to be. Organizations looking for innovative ways to improve readmissions and falls outcomes or implement and/or enrich their PFE program should organize plans of action that support the common themes of high-performing hospitals identified in this analysis.

Interpretation

The observed correlations between PFE (as an independent variable) and outcomes (as a dependent variable) were only seen in cases where the five HIIN PFE metrics were implemented at the highest rates (as per the PFE index). Through qualitative investigation, readmissions and falls were the isolated quality performance metrics for which high-performing hospitals demonstrated evidence of patients and families playing a role in outcomes. The control variables (surgical site infections, sepsis, iatrogenic delirium and ventilator-associated events) did not show any correlation. Thereby, our hypothesis is proved TRUE in that the expected inverse relationship between the two variables (PFE and outcomes of readmissions and falls) was concluded. A negative correlation indicates there is an inverse relationship between two variables—when one variable increases, the other decreases. In this analysis it was statically proven that as PFE implementation increases, the hospital rate of adverse events decreases.

Frequency tables are a common and simple way to display the number of occurrences when examining a particular value or characteristic. The thematic analysis of high-performing hospital data was used to organize the most common characteristics shared by interviewees and validated by site team members. The qualitative analysis used frequency distributions to understand the primary PFE-related activities as implemented by high-performing hospitals. In conclusion, the summary activities, ordered by

priority and using percentages of frequency distribution, revealed the following:

- PFACs (86%)
- PFE in operations (79%)
- Organizational leadership (78%)
- Value of patient and family advisers (71%)
- Patient and family advisers on committees (64%)
- Measurement of PFE (45%)
- Patient and family advisers and the HR function (44%)

Our findings present a compelling story to accelerate PFE across health care and use PFE-integrated quality and safety as a model for change. The evidence provided by both our quantitative and qualitative analysis presents the framework, processes and activities that informed the development of a change package for PFE-integrated quality and safety. This change package is a documented road map of the common themes of high-performing hospitals identified in this project and can be used by institutions seeking innovative approaches to improve clinical outcomes.

Limitations

This analysis has limitations because it was conducted as part of the Vizient HIIN program. Thus, broad interpretations of the findings must consider the impact of the Vizient HIIN PFE program as a support system for PFE implementation within its network. Moreover, the sample population of high-performing hospitals is small. Additional research should be conducted to further scientifically modeled testing of the relationship between activities cited within the thematic analysis. Research dealing with implementation of the five HIIN PFE metrics within an integrated framework of quality and safety efforts presents another suggested next step. Implementing the framework described in this report at hospitals with no PFE infrastructure and assessing any associated improvements in quality and safety would strengthen these findings.

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