Establishing an Ambulatory Medicine Quality and Safety Oversight Structure: Leveraging the Fractal Model

Steven J. Kravet, MD, MBA, Jennifer Bailey, RN, MS, Renee Demski, MSW, MBA, and Peter Pronovost, MD, PhD

Abstract

Problem

Academic health systems face challenges in the governance and oversight of quality and safety efforts across their organizations. Ambulatory practices, which are growing in number, size, and complexity, face particular challenges in these areas.

Approach

In February 2014, leaders at Johns Hopkins Medicine (JHM) implemented a governance, oversight, and accountability structure for quality and safety efforts across JHM ambulatory practices. This model was based on the fractal approach, which balances independence and interdependence and provides horizontal and vertical support. It set expectations of accountability at all levels from the Board of Trustees to frontline staff and featured a cascading structure that reached all units and ambulatory practices. This model leveraged an Ambulatory Quality Council led by a physician and nurse dyad to provide the infrastructure to share best practices, continuously improve, and define accountable local leaders.

Outcomes

This model was incorporated into the quality and safety infrastructure across JHM. Improved outcomes in the domains of patient safety/risk reduction, externally reported quality measures, patient care/experience, and value have been demonstrated. An additional benefit was an improvement in Medicaid value-based purchasing metrics, which are linked to several million dollars of revenue.

Next Steps

As this model matures, it will serve as a mechanism to align quality standards and programs across regional, national, and international partners and to provide a clear quality structure as new practices join the health system. Future efforts will link this model to JHM's academic mission, enhancing education to address Accreditation Council for Graduate Medical Education core competencies.

Problem

Large academic health systems face challenges in overseeing the quality and safety of the health care they provide. Governance and accountability in this area in such large systems are often underdeveloped. To overcome these challenges, in 2011, the leaders of Johns Hopkins Medicine (JHM) formed the Armstrong Institute for Patient Safety and Quality (Armstrong Institute), which was tasked with coordinating improvement efforts across the health system. As part of this initiative, the JHM leaders also created a governance structure for all quality and safety efforts. This structure as it applies to the inpatient area in such large systems is often underdeveloped. To overcome these challenges, the JHM Board of Trustees became the governing body of the Armstrong Institute, and the Patient Safety and Quality Board Committee (JHM Quality Board Committee) assumed responsibility for establishing strategic goals and providing oversight and accountability to JHM leaders. We have previously described this governance structure as it applies to the inpatient settings of our health system. Under this new structure, the JHM Board of Trustees became the governing body of the Armstrong Institute, and the Patient Safety and Quality Board Committee responsible for the nearly two million nonancillary ambulatory visits conducted annually across the health system. The major constituents of the OJHP include the Johns Hopkins University School of Medicine faculty (approximately 1,600 individuals with 650 clinical full-time equivalents [FTEs]) and the Johns Hopkins Community Physicians (JHCP) providers (approximately 400 individuals with 350 FTEs, organized as a single entity across more than 40 practice sites). The OJHP currently does not have direct oversight of the private practice physicians who provide ambulatory care using leased space on the community hospital campuses.

Role of the Armstrong Institute and its relationship to the OJHP

The Armstrong Institute was charged with ensuring that all care delivered directly under the JHM brand mapped to the standards of the JHM Quality Board Committee. Recognizing the importance of the OJHP's oversight of ambulatory care, the Armstrong Institute selected a senior physician leader from the OJHP to be the ambulatory chief quality officer (CQO) as well as a masters-trained nurse to be a senior director for ambulatory care.

Approach

Organization of ambulatory medicine within JHM

JHM leaders created the Office of Johns Hopkins Physicians (OJHP) to coordinate and oversee the physicians and staff responsible for the nearly two million nonancillary ambulatory visits conducted annually across the health system. The major constituents of the OJHP include the Johns Hopkins University School of Medicine faculty (approximately 1,600 individuals with 650 clinical full-time equivalents [FTEs]) and the Johns Hopkins Community Physicians (JHCP) providers (approximately 400 individuals with 350 FTEs, organized as a single entity across more than 40 practice sites). The OJHP currently does not have direct oversight of the private practice physicians who provide ambulatory care using leased space on the community hospital campuses.
quality. Together, this CQO and senior director formed an ambulatory leadership dyad (CQO dyad). The CQO dyad drafted their scope of work and convened a quality council of ambulatory leaders, described below. A parallel ambulatory operations council operates within the OJHP; their scope of work includes the more traditional operational aspects of care, such as access and efficiency.

**Ambulatory Quality Council**

The Ambulatory Quality Council was formed in February 2014 and comprises key leaders from each ambulatory practice setting (Johns Hopkins Hospital [JHH], Johns Hopkins Bayview Medical Center [JHBMC], and JHCP), the OJHP, and the Armstrong Institute. Each of the more than 40 JHCP practices is represented on the council by a dyad (a physician and an administrative leader). Because of the importance of nursing in hospital governance, the JHH and JHBMC ambulatory practices are represented by a triad (the physician–administrative leader dyad plus a senior nurse).

An early activity of the council was to develop a charter to establish its scope of work and to define the roles of its members. This charter linked to a cascading accountability model (see Figure 1) that provided a quality structure for all JHM ambulatory practices. As part of this model, the JHM Quality Board Committee created a quality and safety accountability system, establishing goals and measures for the CQO dyad. The Ambulatory Quality Council then defined its goals, set standards, monitored performance, and reported to the JHM Quality Board Committee as well as to OJHP leaders. The scope of the council’s work can be summarized by the four agenda areas outlined by the JHM Quality Board Committee: (1) patient safety/risk within the local environment, (2) externally reported quality measures, (3) patient care/experience, and (4) value (balance between cost and quality).

The Ambulatory Quality Council is organized into workgroups, which are cross-practice, multistakeholder collaboratives in which members share best practices and help drive improvement through peer support. The workgroups are structured around the four JHM Quality Board Committee agenda areas and often include subject matter experts from across ambulatory practices. The council meetings are structured around the same agenda areas; thus, the workgroups report out to all council members. JHCP, JHH, and JHBMC each has its own internal ambulatory quality committee, the leaders of which independently drive process change to the front lines to achieve the specific goals of their practices.

This accountability structure is based on the fractal model, in which each ambulatory practice employs a repeating structure for building and supporting quality improvement expertise, aligning goals, and sharing and communicating at all levels of the organization from frontline staff to the JHM Board of Trustees (see Figure 2). In this model, accountability is shared and relational. That is, leaders from each ambulatory practice are accountable through the CQO dyad to the JHM Quality Board Committee. In turn, practice leaders must communicate goals and quality measures internally to their unit managers and teams, providing an infrastructure to ensure that all staff are supported to achieve their performance goals.

**Figure 1** Organization, scope, and accountability pathways of the Johns Hopkins Medicine (JHM) ambulatory medicine quality and safety oversight structure. Accountability is established at the Board of Trustees level and cascades to the Ambulatory Quality Council and workgroups, then to the local performance improvement committees at the ambulatory practice level. If an ambulatory practice continues to report substandard performance metrics, its leaders as well as the ambulatory practice chief quality officer are required to create an action plan and present it to the Board of Trustees. The Armstrong Institute in turn leads and facilitates the quality and safety process throughout the JHM health system. Abbreviations: OJHP indicates Office of Johns Hopkins Physicians; ACO, accountable care organization; PCMH, patient-centered medical home; MU, meaningful use of electronic health records; CUSP, Comprehensive Unit-based Safety Program; CG-CAHPS, Clinician and Group Consumer Assessment of Healthcare Providers and Systems.
One of the major functions of the CQO dyad is to organize and oversee the analytics and dashboards for the quality metrics. Most metrics are collected monthly, although some are collected quarterly or over longer reporting periods. If a unit has two reporting periods of substandard performance, we expect that they will create a specific process to address this variance at the front lines of practice. After three reporting periods of substandard performance, ambulatory practice leaders from the appropriate hospital or JHCP will, with the CQO, present an action plan for improvement to the JHM Quality Board Committee. Simultaneously, the CQO dyad will mobilize the necessary Armstrong Institute resources to conduct a formal audit to better assess the reasons for the unit’s performance, including whether the local leader has sufficient resources, time, and skills to achieve the set goals. Thus, the Ambulatory Quality Council creates shared accountability for leaders and acts as the facilitator of quality improvement, providing direction and resources to units and staff.

Outcomes
An example of cascading quality
In Maryland, there is a value-based purchasing (VBP) program for Medicaid-managed care organizations. VBP is meant to improve health care quality by providing incentives or penalties based on aggregate performance across more than a dozen ambulatory metrics, including vaccination rates, well child care, evidence-based health maintenance, and postpartum care. For each measure, poor performers in the disincentive zone must pay financial penalties, high performers in the incentive zone are rewarded with financial bonuses, and those in the neutral zone incur no financial loss or gain. In 2013, all JHM ambulatory practices had at least three quality metrics fall in the disincentive zone. In response, in early 2014, the CQO dyad formed a VBP workgroup to share best practices across all academic and community practices. The workgroup included quality leads, physician champions, operation leaders, and accountable leaders from each practice. The different levels of the JHM organization are vertically aligned by common goals, accountability, shared learning, and quality leaders. Across each level, every department and unit (represented by the small dark gray circles) has a person(s) or team to complete the quality work, and cross-learning and sharing occur among peers. Clinical communities (represented by the large light gray oval) may exist across hospitals at any level. Abbreviations: QI indicates quality improvement; CUSP, Comprehensive Unit-based Safety Program. Figure adapted from Pronovost PJ, Marsteller JA. Creating a fractal-based quality management infrastructure. J Health Organ Manag. 2014;28:576–586. Used with permission.

Figure 2 The Johns Hopkins Medicine (JHM) ambulatory medicine quality and safety accountability structure, which is based on the fractal model. JHM quality leaders provide the support and expertise needed for quality improvement efforts (e.g., improvement science, biostatistics, organizational theory, teamwork and communication training, performance improvement strategies, such as Lean Sigma or human factors engineering). The different levels of the JHM organization are vertically aligned by common goals, accountability, shared learning, and quality leaders. Across each level, every department and unit (represented by the small dark gray circles) has a person(s) or team to complete the quality work, and cross-learning and sharing occur among peers. Clinical communities (represented by the large light gray oval) may exist across hospitals at any level. Abbreviations: QI indicates quality improvement; CUSP, Comprehensive Unit-based Safety Program. Figure adapted from Pronovost PJ, Marsteller JA. Creating a fractal-based quality management infrastructure. J Health Organ Manag. 2014;28:576–586. Used with permission.
approaches to improvement in most VBP metrics had enough in common that a single workgroup was created; however, subject matter experts from each practice were brought in to address specific areas of clinical expertise and local context.

The CQO dyad held ambulatory practice leaders accountable for the performance of their respective service areas. To ensure accountability, leaders had to review their practice’s progress with the Ambulatory Quality Council; they focused on key lessons for success and existing barriers to fully achieving their goals. Where outcomes lagged behind these goals, the CQO dyad facilitated discussions with senior leaders (i.e., presidents, vice presidents of medical affairs, and chief operating officers) to create awareness and encourage the necessary investments to remove barriers and improve performance. For example, acute child visits were “flipped” to include well child care when appropriate. This workflow was established with the JHCP and shared across the other ambulatory practices. The CQO, in cooperation with JHCP, JHHI, and JHBMC leaders, reported quality measures quarterly to the JHM Quality Board Committee. In 2014, each ambulatory practice showed improvement in each of the more than one dozen VBP metrics. Across all locations, just one measure did not at least reach the neutral zone. Significant improvements were made in the adolescent well care (ages 12–21) and well child care (ages 3–6) metrics, which traditionally have been very difficult to improve because of patient compliance issues.

Benefits of this ambulatory quality structure

With this new structure, the individual ambulatory practices now align with the JHM Quality Board Committee according to their clearly defined goals and measures, their mechanisms for peer learning and sharing of best practices and protocols, and their transparent reporting of quality metrics to ensure accountability. An unexpected positive outcome of this process has been the formation of clinical relationships between providers from academic and community settings.

Moreover, the Ambulatory Quality Council continues to report improved metrics in the domains of patient safety/ risk (i.e., the Comprehensive Unit-based Safety Program rollout), externally reported quality measures (i.e., successful Meaningful Use attestation), patient care/ experience (i.e., responses to the Clinician and Group Consumer Assessment of Healthcare Providers and Systems), and value (i.e., reduced readmission rates). In addition, the council is working to further refine the skills, resources, and time needed to improve quality and safety across all ambulatory practices. Finally, we now have a vehicle to train physician and nurse leaders in ambulatory quality and population health. On the basis of a program to train inpatient quality leaders, the OJHP created an ambulatory management program, to which Ambulatory Quality Council leaders contributed.

Challenges in creating an ambulatory quality structure

Although our new ambulatory quality structure is novel and better than the previous structure, it continues to evolve and face challenges. First, in our academic ambulatory practices, faculty and staff are employed and managed separately through a matrixed leadership structure. To facilitate more collaboration and reduce barriers, we formed ambulatory physician–administrator–nursing triads to co-lead these units.

Second, the science of ambulatory quality and safety improvement is less mature than that of inpatient quality and safety improvement. Most quality measures for ambulatory medicine are defined by pay-for-performance programs linked to electronic health record data entry.4 The U.S. health care system needs more robust and reliable measures of quality and safety in ambulatory medicine to improve care.

Finally, creating meaningful dashboards in a heterogeneous environment remains a challenge. Because providers practice in a number of settings and specialties, creating a uniform and focused dashboard for comparison has been difficult. To address this issue, the Ambulatory Quality Council created a specific forum to discuss data presentation.

Next Steps

Future directions

Ambulatory Quality Council leaders are working to expand this model to other ambulatory practices within and outside JHM, including to regional and international partners. These clinical communities can create a structure to support peer learning and improvements broadly in ambulatory care, just as they have to improve hospital-based care.7 Given our academic enterprise, we see the inclusion of undergraduate and graduate learners as a novel opportunity to enhance education across the schools of medicine and nursing, in particular to address the Accreditation Council for Graduate Medical Education core competencies of systems-based practice and practice-based learning and improvement. Finally, the Ambulatory Quality Council can provide guidance on how the oversight of quality in newly acquired practices will be integrated into JHM.

Conclusions

Going forward, health care innovation in the United States will continue to shift toward ambulatory practices, as care appropriately moves to the lowest cost settings. Culture, governance, transparency, and accountability affect an organization’s ability to provide high-quality care.4 The Ambulatory Quality Council is an example of a high-reliability model to govern this transformation.2 In describing this model, we have provided the structures for horizontal peer learning and created clear vertical lines of accountability. Most important, by implementing this model, we have improved performance on quality and safety measures. We have begun to leverage this learning approach to enhance the education of existing team members as well as learners across our schools. Finally, to expand relationships to improve population health, we see this foundation as one that can bring together regional, national, and international partners. Together as an ambulatory community, we can collaborate to define quality and realize collective goals to partner with patients, their loved ones, and others to eliminate preventable harm, continuously improve patient outcomes, and eliminate waste in health care.

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S.J. Kravet is president, Johns Hopkins Community Physicians, vice president, Office of Johns Hopkins Physicians, chief quality officer for ambulatory practice, Johns Hopkins Medicine, and associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland.

J. Bailey is senior director of quality and transformation, Johns Hopkins Community Physicians, Office of Johns Hopkins Physicians and Armstrong Institute for Patient Safety and Quality, Johns Hopkins Medicine, Baltimore, Maryland.

R. Demski is vice president of quality, Johns Hopkins Health System and Armstrong Institute for Patient Safety and Quality, Johns Hopkins Medicine, Baltimore, Maryland.

P. Pronovost is senior vice president for patient safety and quality and director, Armstrong Institute for Patient Safety and Quality, Johns Hopkins Medicine, and professor of anesthesiology and critical care medicine, surgery, and health policy and management, Johns Hopkins University School of Medicine, Baltimore, Maryland.

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