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Establishing a Multi-Institutional Quality and Patient Safety Consortium: Collaboration Across Affiliates in a Community-Based Medical School

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Abstract

The landscape of health care delivery and medical education is evolving. Institutions must continually reassess priorities, strategies, and partnerships to align the knowledge and skills of the health care workforce with the delivery of quality, socially accountable, collaborative health care that meets the needs of diverse populations in communities. This article describes the development, implementation, and early outcomes of the University of Missouri–Kansas City's Health Care Quality and Patient Safety Consortium. Inspired by an actual patient safety event, the consortium aimed to improve patient outcomes by establishing quality improvement and patient safety (QIPS) education and scholarship as foundational within its unique, horizontal-matrix academic health center, which comprises 6 affiliated hospitals and 4 university-based health sciences schools. The consortium established a governance structure with leaders who, collectively, represent the diverse members and stakeholders of the consortium. The members share a common agenda and mutual goals. The consortium measures success by applying published conceptual frameworks for evaluating the outcomes of educational programs on learners (Kirkpatrick) and patients (Bzowyckyj and colleagues). Consortium learner and patient outcomes span all levels of these frameworks. Undergraduate and graduate QIPS-based projects with meaningful health system or improved individual health outcomes signify a Level 4 outcome (the highest level) for learners and patients alike. Factors critical to success include a financial gift, leadership buy-in and support, a clear champion, shared goals and a united vision, a willingness to collaborate across health systems with varied strengths and priorities, and a stable communication platform. Aspirational goals of the consortium include increasing involvement across health professional schools, incorporating simulation into QIPS activities, and aligning the consortium's projects with broader community needs.

The goal of providing safe, high-quality care with positive outcomes for patients is universal among care providers. Since the advent of value-based care, both providing health care across providers and collaborating across disciplines, systems, and locations, have become essential to improved care delivery.[1–3] It is imperative that the health care workforce of the future has experience in quality improvement and patient safety (QIPS) activities—and that this education occurs in teaching sites that are committed to improving care through interdisciplinary collaboration.[4,5] Deliberately empowering trainees with competency in QIPS concepts will help build a future clinical workforce prepared to provide reliable care, sustain change, and spread evidence-based practices within an interdisciplinary milieu.[5–7]

Traditional health care education, delivery methods, and infrastructures may not be sufficient to meet future challenges.[8–10] Traditional models, often based on the individual work of providers in various professional roles and disciplines, are being supplanted by physician-led interdisciplinary teams whose work is informed by collective thoughts and expertise.[10,11] In team-based collaborative care, expertise is shared, discussed, and jointly operationalized.[10,11] Decision-making processes include the patient and family as active participants.[10,11] Such collaborative care models are associated with high performance in quality and safety measures.[11,12]

Academic health centers (AHCs), which provide the setting for much clinical training and education, are uniquely positioned to improve and assess QIPS competencies among learners through the clinical learning environment and formal curriculum.[13,14] Although AHCs play a key role in advancing health care delivery and educating the health care workforce, growing challenges require innovative solutions and exploration of new alliances and partnerships.[15–17] This need to evolve and collaborate is especially true when universities partner with many distinct teaching hospitals. These newer models of multiple partners are stretching and transforming the spectrum of AHC integration.[18] QIPS collaboratives exist in various structures, which collectively can meet multiple, unique challenges.[1,2,19] Here, we describe the development and early outcomes of the unique Health Care Quality and Patient Safety Consortium. Consortium members include the University of Missouri–Kansas City (UMKC) School of Medicine (SOM) and its affiliated hospitals and health science schools. Our consortium mirrors the collaborative care model; bound by our shared learners and

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faculty, we have united around a shared academic mission to improve patient care.

Environment

The UMKC matrix

The UMKC SOM and its affiliated hospitals exist within a horizontal matrix, comprising educational and clinical programs. The term matrix in this context refers to a group of affiliated institutions, connected by a common academic mission, but functioning independently.

Specifically, the UMKC SOM is an anchoring education and research institution with 4 health sciences schools and 6 affiliated but independent hospitals located in Kansas City, Missouri. The SOM and the affiliates that constitute the AHC have distinct clinical missions, governance, and fiscal structures; however, they share a common academic mission, and students, residents, fellows, and faculty members learn, train, and work across institutions. The UMKC health science schools and 3 of the affiliated hospitals are colocated in one geographic location, designated as the UMKC Health Sciences District (HSD). The remaining 3 affiliated hospitals are less than 5 miles from the UMKC HSD. Hospital affiliates are as follows:

- a safety net hospital (Truman Medical Centers);
- a free-standing tertiary care children's hospital (Children's Mercy Hospital);
- a private, faith-based tertiary–quaternary care hospital (Saint Luke's Hospital of Kansas City);
- a state psychiatric hospital (Center for Behavioral Medicine);
- a Veterans Affairs hospital (Kansas City Veterans Affairs Medical Center); and
- a Hospital Corporation of America, or HCA, health care system hospital (Research Medical Center).

UMKC QIPS offerings

UMKC SOM's undergraduate medical education curriculum includes 10 courses, clerkships, or interprofessional modules that include QIPS objectives. Collectively, these represent 18.5% (10/54) of all required courses (See Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/A985). Numerous residencies, including but not limited to internal medicine and combined internal medicine and pediatrics, require learners to complete a QIPS experiential project before graduating.

Uniquely, the UMKC SOM structure represents a horizontal matrix of independent, but affiliated institutions that collectively offer a broad diversity of QIPS-focused education and clinical programs.

Establishing a Consortium

Impetus

While each of UMKC SOM's affiliated hospitals commits to high-quality health care and offers internal activities directed toward continuous improvement, these QIPS efforts have historically been intra-institutional. No mechanism existed to coordinate and communicate QIPS programs and projects across the matrixed AHC. The development of an area-wide, multifacility QIPS consortium was inspired by the vision of a family who was affected by an actual patient safety event. The consortium was made possible through philanthropic gifts from the family and their friends to the SOM along with matching funds that together totaled 1.5 million U.S. dollars. This gift was transformative; it supported an endowed chair and inspired the vision that led to deep collaboration across the whole AHC. The gift functioned similarly to a magnet attracting shreds of metal: it pulled diverse institutions together into an organized pattern. The gift helped coordinate QIPS programs and scholarship, and it elevated existing activities.

Planning process

Through a nonlinear, organic process, the impetus and resulting evolution and growth of QIPS activities within the SOM set the stage for the development of the consortium (Table 1). Applying principles of collective impact work (e.g., a common agenda, mutually reinforcing activities, communication among participants, shared outcomes, an infrastructure for support)[20] and following models of successful QI programs, one physician champion (B.D.) engaged leaders across hospital affiliates and the university.[10,11,21] After these initial efforts, the dean appointed a multidisciplinary strategic planning committee comprising key stakeholders from across the AHC. Published literature on the successful integration of QIPS and on effective QIPS programs guided membership decisions.[22] Members of the planning committee represented multiple health science disciplines (e.g., medicine, nursing, pharmacy, risk management law) and multiple fields within medicine (e.g., internal medicine, pediatrics, surgery, emergency medicine). Some members (including the endowed chair and hospital QIPS leaders) were experts in quality and patient safety. Other members included leaders from multiple hospital affiliates, education leaders (including representatives of undergraduate and graduate education), and leaders from local programs who had successfully implemented QIPS activities into education. The physician champion (B.D.) purposefully sought a high degree of engagement from various hospital and university leaders to increase the likelihood of the consortium's success, especially given goals requiring organizational change and faculty engagement.

The planning committee chose a consortium model because it aligned with their vision of prioritizing collaboration above competition to achieve meaningful outcomes. The resulting strategic plan was designed to remove silos, to encourage data sharing, and to employ experiential learning through participating in QIPS projects and presenting results. Figure 1 illustrates the relationship between consortium members at present and in the future and shows our aspirational vision for a highly integrated model.

Governance structure

As the consortium has moved from planning to implementation, members of the planning committee have transitioned to 2 governance committees: a steering committee and an advisory committee (Table 1). Steering committee members meet monthly and provide oversight for the development of the consortium and manage the annual Quality and Patient Safety Day (QPSD; see below) by developing the overall topic or theme, selecting speakers, and judging abstracts. They also work to ensure that stakeholders with the background to identify priorities and the authority to

Table 1

Key Elements in the Development of the University of Missouri–Kansas City Health Care Quality and Patient Safety Consortium

Element	Explanation/details
Inspiration and vision	A patient safety event triggered conversations among hospital and medical school leaders about improving the existing QIPS curriculum and the QIPS experiential learning environment.
	A gift for an endowed chair established a vision for the development of a collaborative QIPS program among hospital affiliates and the medical school and supported the recruitment of a QIPS leader.
Leadership engagement	A physician champion (immediate past dean) with relationships across affiliates advocated a collaborative QIPS program.
	Hospital leaders across affiliates (CEO, CMO, CIO, CQO) and clinical department chairs provided input into the vision for improved safety and development of the future health care workforce. They expressed their strong desire to share knowledge and experience across institutions.
	Leaders in graduate medical education, undergraduate medical education, and graduate health professions provided input into curriculum and faculty development needs.
Strategic planning	The dean appointed a planning committee with the intent of aligning the consortium with stakeholder input and the school's strategic plan.
	Planning committee members included the endowed chair, a physician champion, program leaders managing existing QIPS curricula and experiential learning, hospital quality leaders of diverse backgrounds, and education leaders.
	A min-retreat for steering and advisory committee members resulted in further refinement of the consortium's strategic plan.
Structure	Governance is through a steering committee and advisory committee. Both committees are appointed by the dean and have broad representation across disciplines and institutions. • Steering committee: led by a chair, meets monthly and sets priorities and projects, manages operational activities (communication, planning an annual QPSD, etc.). • Advisory Committee: meets semiannually and provides broad stakeholder input and feedback.
	The annual QPSD provides the organizational structure for dissemination of learner QIPS projects (oral and poster abstract presentations). Other opportunities include faculty development, the sharing of affiliated hospital and health science school QIPS programs, and seminars by national experts.
	Funding for the consortium is from the endowment, the medical school dean's office, and in-kind support from graduate medical education programs and hospital affiliates.

Abbreviations: QIPS, quality improvement and patient safety; CEO, chief executive officer; CMO, chief medical officer; CIO, chief information officer; CQO, chief quality officer; QPSD, Quality and Patient Safety Day.

actualize projects remain engaged and committed to the consortium's mission. Advisory committee members meet semiannually and represent a broader group of stakeholders, including a public member, learners, the SOM diversity officer, and representatives from an array of health sciences disciplines. They provide strategic guidance and feedback on consortium activities and engagement. We include students and residents from across health science schools because learners work and train across the AHC and because QIPS-based projects are a substantial focus of their education. The inclusion of a public community member ensures that our priorities and projects align with what is important to the patients we collectively serve. Faculty from allied health and nursing guide the consortium toward its aspirational goal of developing interprofessional learner-initiated projects. The SOM diversity officer promotes QIPS through a culture of inclusiveness—both for learners and for patients. The steering committee integrates the advisory committee's feedback to operationalize the activities of the consortium.

Mission and goals

The mission of the consortium is to lead the creation and dissemination of research and scholarship through local, regional, and national activities directed at enhancing QIPS. The goals of the Health Care Quality and Patient Safety Consortium, as well as the strategies to achieve those goals, align tightly with those of the SOM and affiliate hospitals (Table 2). The consortium uses project outcomes, as described below, to measure success.

Consortium Outcomes

The emergence of the Health Care Quality and Patient Safety Consortium enabled an increased emphasis on QIPS programs and projects across the horizontal, matrixed AHC. Two domains best describe consortium outcomes: (1) educational program outcomes and (2) patient outcomes. Ultimately, these 2 domains overlap at the topmost levels. High-level learning outcomes mean improved patient outcomes and enhanced capacity of the health system to meet community needs.[23]

Program outcomes

Consortium educational program outcomes can be stratified according to Kirkpatrick's hierarchy model, as translated by Yardley and Dornan.[24] Level 1 outcomes measure learners' reactions to a program, Level 2A outcomes measure changes in their attitudes, and Level 2B outcomes measure changes in their knowledge. The higher levels measure changes to learners' behavior (Level 3) and changes to the organization (Level 4A) or improvements in patient care (Level 4B). Consortium outcomes span all Kirkpatrick hierarchy levels (Table 2). Projects involving students and residents that had meaningful institutional and patient outcomes (Level 4; see Table 3) are presented at the annual QPSD.[25,26]

We use learner QIPS projects as a surrogate to measure the consortium's effect on learners and the AHC. Although not all ongoing QIPS projects at the AHC are captured by the QPSD, the consortium, at present, primarily measures its outcomes based on QPSD abstract submissions and project outcomes. There were 14 learner abstracts submitted to the inaugural QPSD in 2014 and 52 abstracts in 2017. For the most recent QPSD, in 2019, 47 learner abstracts were submitted. We believe the slight decrease in the number submitted reflects the more stringent submission criteria. Since the establishment of the QPSD in 2014,

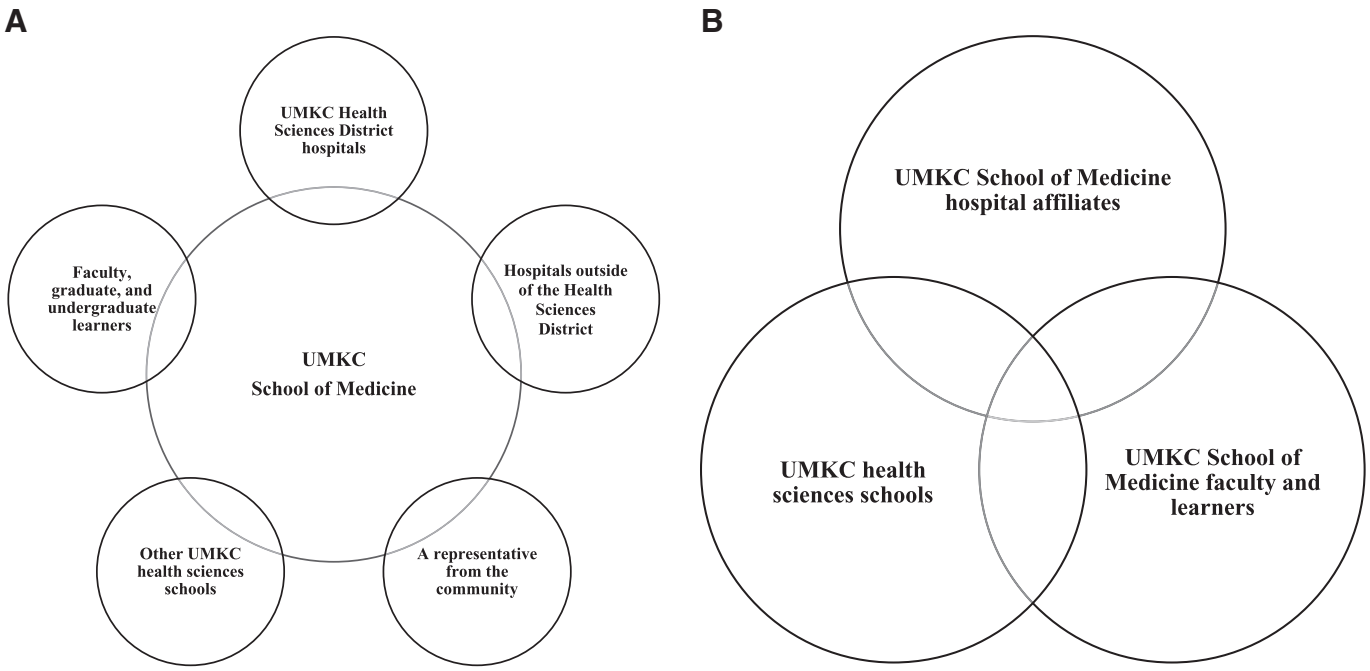

Figure 1 An illustration of (A) the current relationship of University of Missouri–Kansas City (UMKC) Health Care Quality and Patient Safety Consortium members to one another in which the school of medicine (SOM) is central to consortium development and (B) the aspirational relationship which signifies maximal integration and collaboration across health science schools and hospital affiliates. Faculty and learners share an equal emphasis because the goal is for all projects to be learner driven.

214 unique project abstracts have been presented, representing the work of 240 students, 399 residents and fellows, and 114 primary faculty mentors (Kirkpatrick Level 3). Numerous projects have demonstrated a change in student knowledge or behavior as a result of QIPS education (Kirkpatrick Level 2 or 3).[27,28] Initially, nearly all projects were from one academic department. Recently, 8 academic departments from 4 of the SOM-affiliated hospitals participated in QPSD (Kirkpatrick Level 1).

Patient outcomes

The consortium's vision is for its activities, programs, and related projects to improve patient care. While Kirkpatrick's model is used to assess the effectiveness of medical education programs, other models can be applied to determine the effect that QIPS projects have on patient outcomes. One such model, published by Bzowyckyj, Dow, and Knab, includes a 4-level framework ranging from patient interaction (Level 1) and patient acceptability (Level 2) to individual health outcomes (Level 3) and population (i.e., community or health system) outcomes (Level 4).[23] Completed and ongoing QIPS projects, including many presented at the annual QPSD, span all 4 levels (Table 3).

Aspirational Goals

In looking toward the future, the consortium has identified 3 aspirational goals—expanding learner-driven, interprofessional opportunities, leveraging simulation as a tool, aligning with the community—and it has defined measurable outcomes.

Expanding learner-driven, interprofessional opportunities

Prior studies have demonstrated that learner engagement contributes to the success of QIPS curricula.[29,30] Experiential learning is an effective means of actively engaging learners in QI activities.[7,30] Currently, most completed and ongoing QIPS projects are not interdisciplinary, nor solely originated by learners; instead, they include practicing health professionals working with undergraduate and graduate learners. The consortium aims to engage all health science programs in consortium activities, especially where the clinical environment can link these students together. Formalizing these collaborative processes will facilitate experiential learning opportunities that mirror future multidisciplinary practice environments and also enable a transition from faculty-initiated to learner-initiated projects.

Leveraging simulation as a tool

Simulation, which educators are using more ubiquitously to train health care professionals,[31,32] has the potential to improve health care quality and patient safety.[33–35] Patient-centered, interdisciplinary simulation as a means to improve patient outcomes is on the horizon.[36] Improved patient outcomes, as measured through translational patient safety research and quality improvement scholarship, is the highest aspirational goal for simulation-based consortium activities.

Aligning with the community

Improving quality and safety in the community is a key goal of the consortium; a community member serves in the advisory committee, signifying our commitment to this goal. Drawing on the concept of social accountability, the consortium aims to identify the unique needs of the broader community and align its activities to help address these.[17] Guided by local community members, the consortium has identified, as a first step, engaging with established community and regional stakeholders to form partnerships. In addition, the consortium has also begun working with local experts who have proficiency in community-based participatory research

Table 2

University of Missouri–Kansas City Health Care (UMKC) Quality and Patient Safety Consortium Goals With Related Strategies and Representative Outcomes According to Kirkpatrick's Hierarchy

Goal and strategies	Representative outcomes[a]	Kirkpatrick's level[b]
Develop and maintain a robust educational QIPS curriculum • Integrate QIPS teaching into the undergraduate and graduate medical education curricula. • Develop educational programs in quality and safety at the undergraduate and graduate medical education levels.	• Students' ratings of their educational experience on the AAMC Graduation Questionnaire (i) • ACGME Resident/Fellow Surveys (i) • Number of health professions students participating in interprofessional events with QIPS objectives (p)	1, 2A
	• Learner performance in courses and programs with QIPS curricula (p)	2B
	• Projects demonstrating students' behavioral changes as a result of QIPS-related educational interventions[27,28] (p)	3
	• Undergraduate medical QIPS curriculum mapping • QIPS-based curricula and required projects in graduate medical education programs	4A
Develop the infrastructure to support the creation and dissemination of QIPS scholarship • Promote professional development in QIPS project design, education, and scholarship/publication. • Vet and support student-, resident-, and fellow-led projects (including facilitation of hospital, department, and discipline approval). • Provide resources for projects and programs. • Collect and provide access to current knowledge of national and international trends and scholarship.	• Number of QPSD attendees (i) • Number of professional development seminars around QIPS • Number of interprofessional QIPS abstracts submitted to the UMKC-SOM annual QPSD	1
	• QIPS faculty development seminar evaluations	2A, 2B
	• Number of primary faculty mentors for the QIPS projects presented at the UMKC-SOM annual QPSD • Number of student-led and resident/fellow-led QIPS abstracts presented at the QPSD	3
	• Establishment and growth of the UMKC-SOM annual QPSD (measured by the number and quality of QPSD abstracts)	4A
	• Recent publications of high-quality QPSD projects demonstrating improved patient outcomes[25,26]	4B
Support and provide resources for QIPS projects and programs • Identify common issues across affiliates and develop consortium-wide projects. • Develop, maintain, and communicate the value of the consortium to the stakeholders and benefactors. • Develop internal and external funding support for consortium activities. • Establish effective platforms for internal and external communications.	• Number of QIPS projects from each affiliate hospital presented at the UMKC-SOM annual QPSD • Number of nurses (and affiliates they represent) that attend resident simulation-based central line skills training	1
	• Consortium-wide faculty/staff/learner survey regarding QIPS and the consortium (i)	2A, 2B
	• Number of QIPS projects tracked internally through the Truman Medical Centers Resident Learner Project Portfolio (p)	3
	• Integration of the QIPS consortium goals within the SOM strategic plan (i) • Identification of a shared QIPS theme to prioritize QIPS projects (p)	4A
Improve health care quality and safety for the community • Align projects with affiliate hospital QIPS priorities. • Anticipate population health needs.	• Resident survey results for simulation-based central line skills training	1, 2A
	• Emergence of learner-led QIPS projects presented at the UMKC-SOM annual QPSD that show improved patient outcomes (see Table 3)	4A, 4B

Abbreviations: QIPS, quality improvement and patient safety; AAMC, Association of American Medical Colleges; ACGME, Accreditation Council for Graduate Medical Education; QPSD, Quality and Patient Safety Day; SOM, School of Medicine.

[a]Labels p (partial) or i (in-planning) refer to objectives for which data collection is either planned or in process and not yet available.

[b]Consortium outcomes according to Kirkpatrick's hierarchy levels as translated by Yardley and Dornan[24] are as follows: Level 1 (Participation) measures learners' impression of the learning experience; Level 2A (Attitudes) indicates changes in learner attitudes and Level 2B (Knowledge) indicates changes in learners' knowledge or skill acquisition; Level 3 (Behavior) requires evidence of transfer of learning; and Level 4A (Organizational Change) requires evidence of change in organizational practice and Level 4B (Outcomes) requires evidence of improved patient care.

Table 3

Representative Examples of Quality Improvement and Patient Safety Projects Presented at the UMKC SOM Quality and Patient Safety Consortium's Annual Quality and Patient Safety Day, by Patient Impact Level

Patient impact[a]	Year	Authors	Learners	Author type	Title	Intervention	Main findings
Level 1	2018	Decker M, et al[42]	MS	P, MS	A Student Led Project to Improve Patient Care Coordination via the Post-Discharge Phone Call	Patients admitted to a single inpatient medical team were contacted via phone 48 hours after discharge and asked questions to determine whether they had had filled their prescriptions and were aware of their follow-up appointment.	43% of discharged patients (n = 13) could be reached by phone. 9/13 contacted patients knew the date of their next doctor's appointment and 10/13 had filled their prescriptions.
Level 2	2018	Abughanimeh O, et al[43]	R	P, R	Improving Diabetic Retinopathy Screening in Internal Medicine Clinics	Patients with diabetes presenting to a single outpatient resident clinic were provided a direct phone line to schedule a retinopathy screening appointment.	Successful communication (defined as scheduled retinopathy appointment) improved from 25% to 43%, and the rate of retinopathy screening improved from 11% to 20%.
Level 3	2015	Shah R, et al[44]	R, MS	P, R	Efficacy of Colorectal Cancer Screening Education via CDC Pamphlet Versus an Inflatable Colon	Patient participants received education regarding colon cancer screening either through pamphlet-based education or an interactive walk through an inflatable colon. Knowledge of colon cancer screening was assessed through a pre- and post-test knowledge assessment.	Patients receiving pamphlet-based education (Group A; n = 15) and those receiving an interactive walk through an inflatable colon (Group B; n = 19) showed improved knowledge regarding colon cancer screening. Group A mean difference in pre- and post-testing was 0.52 (95% CI 0.12–0.84; *P* = .014). Group B mean difference 1.06 (95% CI 0.19–1.92; *P* = .0192).
	2018	Patel P, et al[45]	R	P, R, Ph	Improving Rate of Screening Mammograms	Patients seen in 2 outpatient resident clinics were provided educational material regarding screening mammograms when a screening mammogram was ordered.	45% of eligible patients completed a screening mammogram during the preintervention period, compared with 55% in the postintervention period (*P* = .001).
Level 4	2017	Goldschmidt, M et al[46]	R	P, R	To improve the Quality of Documentation in Resident Primary Care Clinics Using Standardized Templates	Quality improvement plan–do–study–assess intervention using text-based notifications to inform primary care physicians of current practice guidelines for quality measure indicators for diabetes, chronic kidney disease, chronic pain management, hypertension, and COPD.	Use of measured quality indicators increased from 19% pre-intervention to 24% post-intervention.
	2017	Ponnapureddy R, et al[47]	R	P, R, Ph	Improving Depression Screening in the Primary Care Clinics	Paper-based PHQ-9[b] screening completed by patients during wait time in the waiting room.	49% increase in use of PHQ-9 utilization for depression screening (*P* = .03).
	2018	Asif T, et al[48]	R	P, R, Ph	Reducing 30-day Readmission Rates of COPD Exacerbations: A Comprehensive Management Approach	COPD education consults were ordered for all patients admitted with the primary diagnosis of COPD exacerbation. Consults included pharmacist-driven education to patients before discharge on inhaler technique, COPD action plan, and medical reconciliation.	Statistically significant reduction in readmissions (*P* = .043). Absolute risk reduction for 30-day readmission was 13% (95% CI 11%–25%, NNT = 7).

(*Table continues*)

Table 3
(Continued)

Patient impact[a]	Year	Authors	Learners	Author type	Title	Intervention	Main findings
	2018	Grover P, et al[49]	R	P, R, Ph	Standardizing the Process of Ordering Screening Mammograms in Primary Care Clinics	Medical assistants were empowered to order screening mammography for eligible patients in resident clinics. Medical assistant workflow and ordering processes were standardized through educational interventions and informal interviews.	Percentage of missed opportunities (screening mammography order indicated but no screening mammography was ordered) decreased from 64.1% to 39.2% over a 6-month period ($P < .001$).
	2019	Ibezim C, et al[50]	R, MS	P, R, MS	Fracture Liaison Service in Safety-Net Hospital	Implementation of a structured process for consultations and communication to primary care provider after discharge.	Doubled the number of patients who received osteoporosis medications within 1 year of hip fracture (32% versus 68%; RR = 2.1, 95% CI: 1.37–3.35).
	2019	Makovec T, et al[51]	R	P, R	Effects of Eliminating MRSA Precautions on Hospital-Acquired Infections	Retrospective observational study comparing MRSA infection rates per 1,000 patient days before and after elimination of routine MRSA contact precautions.	No significant difference in MRSA bacteremia rates per 1,000 patient days (0.086 versus 0.145; $P = .47$) and no significant difference in overall rates of MRSA infection (0.316 versus 0.232; $P = .5$).

Abbreviations: MS, medical student; P, physician; R, resident; Ph, pharmacist; CDC, Centers for Disease Control and Prevention; *P*, *P* value; CI, confidence interval; PHQ, Patient Health Questionnaire; COPD, chronic obstructive pulmonary disease; NNT, number needed to treat; RR, relative risk; and MRSA, methicillin-resistant *Staphylococcus aureus*.
[a]The authors used the framework by Bzowyckyj, Dow, and Knab[23] to measure outcomes, which includes 4 levels. Level 1 measures patient interaction, Level 2 measures patient acceptability, Level 3 measures individual health outcomes, and Level 4 measures population (i.e., community or health system) outcomes.
[b]PHQ-9 is a validated tool for self-administered screening for depressive disorders.

to collaborate in ongoing activities and help define new initiatives.

Discussion

The literature describes a growing number of QI collaboratives.[1] Traditional, vertically integrated consortia and organizational structures dedicated to improving health care through quality and safety programs exist in various forms within diverse AHCs.[37–39] Existing collaborative models are often based on the work of individual academic medical centers or institutions working in parallel around one central topic.[1,39] The newly established, multidisciplinary UMKC SOM Health Care Quality and Patient Safety Consortium uniquely links a single university's medical center with multiple affiliated hospitals and health profession schools in a horizontal, matrixed model.

Given this unique distribution, no central disease or topic drives consortium activities and outcomes; rather, diverse projects and educational activities focusing on a variety of health and process issues have blossomed. Resources such as local expertise and financial support are known barriers to the implementation of QI curricula.[14] Our horizontally matrixed model of education and QI projects means that, through a common strategy, each participating institution can accomplish more for the patients and the learners served than it would working in isolation. The efficiencies gained through this collaboration have facilitated the efficient distribution of limited resources. The purposeful inclusion of faculty development seminars targets a known barrier to mentored QIPS projects: faculty experience and expertise.[40,41]

The necessary prerequisites for the development of a consortium aimed at improving health care quality and safety across institutions include shared goals, a desire to foster change, and strong leadership support.[37] The development of the consortium at UMKC mirrors descriptions of collective community action for impact—specifically, a champion, access to financial resources, and a sense of urgency for change.[20] Applying a collective impact model,[20] wherein the academic health enterprise is the community, has helped the consortium overcome challenges in several key areas.

Developing shared goals and outcome measures

Leveraging the engagement of leaders and identifying existing expertise and resources at each affiliate were the first steps. Initial planning focused on aligning participating institutions' strategic goals and on identifying mutually agreed upon solutions to implementation barriers.

Relationship building

The inherent nature of working across affiliates and interprofessional schools includes navigating geographical, political, and cultural differences. Transparency in a risk-averse culture requires building trust, especially among institutions that serve the same health care population. Organizations in a competitive business market are not likely to willingly share outcomes data until trust is established. Opportunities for continuous engagement of affiliate leaders and sustainable mechanisms for identifying and fostering collaboration include the annual QPSD, faculty development sessions, undergraduate and graduate QI curricula, and the consortium governance committees.

Setting the foundation for longevity

The consortium established a steering committee to serve as its organizational backbone. This committee serves as the authority responsible for organizing, actualizing, and evaluating the consortium's overall efforts. This structure inherently fosters regular communication across affiliates. The purposeful engagement of key leaders capable of serving as change-agents, promoters, and visionaries is key to continued success. Further, collaboration and collective resources have minimized the critical need for continually raising or competing for external funding.

Next steps

We recognized early that the development and ultimate success of a new consortium would require identification of outcomes, periodic review, and program evaluation. Evaluating patient and organizational-level outcomes requires the deliberate collection of accurate data. As a next step, we hope to ensure purposeful tracking of patient and learner outcome measures for all consortium-driven activities. We hope to continue using already published conceptual frameworks[23,24] to formally link QIPS educational programs and consortium-driven projects to improved patient and educational outcomes.

The consortium is working toward strengthening a centralized communication platform that extends beyond committee meetings and the annual QPSD. The separation of institutions, both in physical location and technology infrastructure, combined with the varying electronic and communication preferences of the representative members, requires creative solutions. Growing faculty development and interdisciplinary mentoring opportunities is a focus.

While all affiliates engage across the consortium through the 2 governance committees, the physical distance and degree of graduate program integration between the medical school and hospital-based affiliates parallel the number of consortium-based activities and projects. That is, projects rarely integrate multiple affiliates. In drawing upon the successes of prior QIPS collaboratives, a new tactic to foster engagement will be selecting a biannual theme around which affiliates can dedicate a portion of QIPS projects and focus their scholarly and operational efforts. We believe the use of a theme will not only facilitate the integration of the consortium and its resources as central to advancing QIPS research but also provide a mechanism to more easily track outcomes related to the consortium.

In Sum

To our knowledge, our consortium is unique given its broad strategy around quality and safety across a horizontal, matrixed AHC and because it is not linked to a specific institution, department, medical specialty, or disease. Since our academic model is a matrix of related organizations with separate governance, a collective community impact model[20] has been useful for facilitating our shared missions in health sciences education and community care. Our initial success hinges on a culture that strongly supports the power of collaboration and transparency. This culture is elevated through multidisciplinary school and hospital leadership and through affiliates that value patient quality and safety above competitive market share interests. The Health Care Quality and Patient Safety Consortium can serve as a model for other AHCs with multiple affiliated hospitals.

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