The Perioperative Surgical Home: How Anesthesiology Can Collaboratively Achieve and Leverage the Triple Aim in Health Care

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ORIGINS AND PARTICIPANTS OF THE PERIOPERATIVE SURGICAL HOME

Guiding Principles of the Triple Aim and the Patient-Centered Medical Home

By 2019, an estimated 19.3% of the United States gross domestic product will be devoted to health care. Health care delivery and payment systems in the United States must fundamentally change to contain this spending while improving quality of care. Berwick et al. and the Institute for Healthcare Improvement (IHI) have promulgated the “Triple Aim” as a basic framework for this much needed overall health care reform. The IHI Triple Aim comprises 3 interdependent goals: (1) improving the individual experience of care, (2) improving the health of populations, and (3) reducing per capita costs of care. Achieving this Triple Aim requires an “integrator” to optimise services on all 3 of its dimensions. This integrator is an entity that accepts responsibility for achieving all 3 components of the Triple Aim for a specified population. Such an integrator for primary care is the Patient-Centered Medical Home (PCMH). Recent data suggest that the PCMH improves outcomes and produces cost savings.

Surgical care currently accounts for an estimated 52% of hospital admission expenses in the United States. Factors contributing to excessive surgical expenditures include fragmentation and inefficiencies in delivery, defensive medicine, discordant incentives between stakeholders who deliver versus pay for care, and a lack of emphasis on value. To address these and other factors, the Perioperative Surgical Home (PSH) model has been developed using the guiding principles of the PCMH. The PSH is a patient-centered approach to the surgical patient, with a strong emphasis on standardization, coordination and transitions, and value of care, throughout the perioperative continuum, including the postdischarge phase. We posit in this article that the PSH can serve as the needed integrator for achieving and leveraging the IHI Triple Aim for surgical patients.

The Broad Set of Participants in the Perioperative Surgical Home

The PSH requires a physician team leader, the “perioperativist,” who provides seamless continuity of current best practices of care, while actively involving the patient, family, and the other health care stakeholders and providers, including the primary care physician. Several clinical specialists could serve as this perioperativist in the PSH. The surgeon has traditionally served as the perioperative team leader. However, the individual surgeon’s ability to provide solo perioperative care is diminishing because of increasing expected intraoperative productivity, in addition to continuing surgical advances and expanding health insurance coverage, that are fueling demand for services, all without a proportionate increase in newly trained surgeons. Internal medicine hospitalists have historically comanaged surgical patients, and in some settings, hospitalists will likely continue to serve in this expanded perioperativist role. Anesthesiologists are uniquely positioned to serve as perioperativists because of their understanding and ability to assess, evaluate, and prepare patients with a multitude of complex comorbidities for their procedure and their ability to manage these complex comorbidities intraoperatively and postoperatively. This global understanding will allow anesthesiologists to drive the standardization of care needed to reduce risk and to optimise perioperative outcomes.

ACHIEVING THE TRIPLE AIM WITH THE SURGICAL PATIENT

The PSH strives to enhance the patient experience and to improve the health of the surgical population at the same or lower cost. Analogous to the PCMH, the PSH serves as the integrator to accomplish the interdependent elements of the Triple Aim within surgical care (Fig. 1). The PSH is thus well positioned to achieve the IHI Triple Aim, and achieving the Triple Aim can serve as a leverage point for anesthesiologists and other advocates to obtain the needed local political and fiscal support for developing and implementing a PSH model.
Standardized Clinical Assessment and Management Plans

Although intended to reduce variation and improve care, conventional clinical practice guidelines have drawbacks that can limit clinician buy-in. In contrast, standardized clinical assessment and management plans (SCAMPs) offer a clinician-designed and driven approach that accommodates localised individual and population patient differences, respects local providers’ clinical acumen, and keeps pace with the rapid growth of medical knowledge. Examples of perioperative SCAMPs include protocols focused on anemia and goal-directed blood transfusion, anticoagulants, nausea and vomiting, multimodal analgesia, delirium and cognitive dysfunction, myocardial injury after noncardiac surgery, obstructive sleep apnea, and mode of mechanical ventilation. SCAMPs can play a major and innovative role in the care of all patients undergoing a specific surgical procedure (e.g. total hip or knee arthroplasty) and then highlight and address any lack of process standardization and resulting inefficiencies and waste. SCAMPs naturally complement and strengthen such surgical procedure-specific integrated care pathways. A Personalized Care Matrix can be created by the amalgamation of all the standardized elements of a surgical procedure-specific integrated care pathway and applicable condition-specific SCAMPs (Fig. 2).

Triple Aim 1: Improving the Individual Experience of Care

Rising consumerism in health care is exemplified by an emphasis on patient-centered care and shared decision-making. However, patient-centered care and shared decision-making are not simply capitulating to patients’ requests, giving them what they want, when they want it, regardless of cost or value, nor is it throwing information at them and leaving them to sort it out on their own. Instead, at their core, both require teamwork by like-minded clinicians and are predicated on strong communication and trust among clinicians, patients, and patients’
families. The PSH seeks to improve the individual experience of care, specifically, perioperative patient engagement and satisfaction.

An estimated 32% of U.S. elderly (aged 65 years or older) undergo surgery in the year before their death. The rate and intensity of this end-of-life surgery varies substantially by age and region, implying discretion in health care providers’ decisions to intervene surgically at the end of life. Nearly 5% of preoperative outpatients at a tertiary care hospital died within 1 year after their procedure. Among all preoperative outpatients at the same institution, half of those expected clinically to require a postoperative intensive care unit admission were not aware of this fact, and a significant number of patients reported feeling conflicted about having surgery. These data collectively underscore the need for the more robust patient centeredness and shared decision-making afforded by the PSH. In the PSH, patient-centered care plans are generated based on a patient’s coexisting medical conditions and active participation of the patient and family in surgical and anesthetic decision-making. This allows for a personalized care plan designed to achieve optimal outpatient and inpatient outcomes.

Personalized medicine (precision medicine) is often viewed as synonymous with pharmacogenomic medicine. However, a broader, more apropos concept is personalized health care (PHC): defined as a coordinated, strategic approach to patient care that combines systems biology with personalized, predictive, preventive, and participatory care (“P4 medicine”). PHC incorporates an individual patient’s biopsychosocial characteristics and maximises patient/provider involvement, engagement, and satisfaction.

The use of a Personalized Care Matrix (Fig. 2), which is tailored to a given surgical patient’s needs, enhances the ability of the PSH to deliver such PHC. The PSH is also consonant with this broader PHC concept, if surgical patients, with the assistance of their perioperative transitions coach, can move from being passive consumers of clinical care to more active members of their health care team.

Triple Aim 2: Improving the Health of Populations

The number of Americans aged 65 years or older is projected to reach 55 million by 2020 and 72 million by 2030. By 2020, 157 million Americans are predicted to have 1 chronic disease, and 81 million to have multiple diseases. Older age and chronic disease are independently associated with greater surgical morbidity and mortality. Despite this greater associated risk, the rate of surgical procedures in older Americans has continued to increase. The PSH seeks to improve the health of the defined population, specifically, the targeted aging and increasingly chronically ill population undergoing surgery.

Better health is achieved via preoperative risk assessment and mitigation, including prehabilitation to increase functional capacity (physiological reserve) in preparation for surgery. Unlike the current conventional preoperative evaluation of older adults, a salient PSH component is the use of standardized preoperative markers for frailty (Mini-Cog Test score), disability (Katz score), and comorbidity (Charlson Index score), which have been shown to predict 6-month postoperative mortality and postdischarge institutionalization. A SCAMP evaluating preoperative frailty, using a consistent definition and assessment tool, strengthens risk assessment and thus helps patients and physicians make better informed, shared decisions. Another prototypic SCAMP focuses on perioperative patient blood management in a systematic manner with multidisciplinary teams. A preoperative anemia management program can be incorporated into the comprehensive Preoperative Assessment, Consultation, and Treatment Clinic within the PSH.

Triple Aim 3: Reducing Per Capita Costs of Health Care

Current large and unwarranted geographical variation in the provision of surgical and anesthetic care must be recognised and addressed. Research has demonstrated marked variation in perioperative care by location, with only speculated root causes. These variations occur even within single institutions. Each specialty organization formulates guidelines for management of specific conditions, many of which differ depending on which specialty produces the guideline. Ultimately, such widely variable surgical and anesthetic practice in the United States leads to higher costs without achieving better patient outcomes. The PSH seeks to reduce, or at least control, the per capita cost of care, by implementing strategies to optimise clinical outcomes via risk stratification and standardization of care but in a more inclusive manner by widely applying perioperative SCAMPs.

The PSH relies on greater integration of surgical care to reduce variation. This integration requires a professional component, emphasizing formal collaboration among health care professionals within an institution and a clinical component focusing on activities intended to coordinate patient care services across people, functions, activities, and operating units over time. In the PSH, interprofessional teams of physicians, nurses, pharmacists, rehabilitation specialists, social workers, and care coordinators seek to develop evidence-based SCAMPs tailored to the local environment, implement those plans, and ideally hold each other accountable for implementation. In the absence of adequate robust published data, SCAMPs are evidence-informed, in other words, based on local expert opinion and quality assurance and improvement data. In the PSH, “flexible regimentation” is also applied to develop and iteratively improve a common or standard process for performing a specific service, based on the best available evidence.

LEVERAGING THE TRIPLE AIM WITH THE SURGICAL PATIENT

To successfully leverage the Triple Aim, advocates and early adopters of any PSH model must demonstrate its various espoused patient-centered and systems-level benefits. This will require the rigorous, reiterative application of the effectiveness, efficiency, and equity criteria, set forth by the Berwick et al. and others, in evaluating the health services performance of this alternate perioperative care model.

The PSH model is essentially a health program, with a multitude of stakeholders (e.g., patients, providers, payers, and policymakers) and pertinent clinical, operational, and fiscal outcomes. The well-established principles of
PAYING FOR THE PERIOPERATIVE SURGICAL HOME

A central question to achieving and leveraging the Triple Aim, which is yet to be adequately answered, is how does one get compensated for creating, piloting, and sustaining a PSH?

Returning to the guiding principles of the PCMH, some insight can be gained from this new model, although for complex chronic care management. The 4 cornerstones of the PCMH model are primary care, patient-centered care, new-model practice, and payment reform. The PCMH is predicated on a payment structure that combines fee-for-service, pay-for-performance, and an explicit separate payment for care coordination and integration, including management of transitions of care. This model also requires financial compensation for case-mix differences, implementation of health information technology for safety and quality improvement, savings from reduced hospitalizations, and achievement of quality metrics. A survey of actual PCMH demonstration project participants revealed that most demonstrations were single payer, and most used a 3-component payment model that comprised traditional fee for service, monthly per person fixed payments, and performance-based bonus payments.

After ample internal dialogue and external discussions with anesthesia colleagues at other institutions, our Perioperative Surgical Home Group at University of Alabama at Birmingham has concluded that a health care organization must be willing to “purchase” the “value” created by a PSH model (i.e., value-based purchasing must be applied at the local microeconomic level). Essentially, creating a PSH must be a local institutional and not simply an anesthesia or other specialty practice initiative. The role of a given anesthesia (or other specialty) practice should then be to lead its own institution in recognizing the value that this new surgical practice model creates by improving patient centeredness and access, and providing higher quality and better outcomes, all at the same or lower cost (i.e., achieving the Triple Aim).

To accomplish this, it would appear that 3 conditions must be met: (1) there is an institutional need or desire to improve 1, 2, or all 3 domains of the Triple Aim; (2) the institution has the ability to capture via its informatics infrastructure the impact of this new model on the benchmarks for each Aim; and (3) the anesthesia practice is financially “aligned” with the institution. Although there may be others, based on local politics and economics, this financial alignment can be met in at least 3 ways: (1) the anesthesia practice becomes fully employed by the institution; (2) the anesthesia practice and the institution remain distinct corporate entities but develop an integrated funds flow model that aligns their collective goals and objectives; or (3) the anesthesia practice and institution remain distinct corporate entities but develop comanagement contracts, which also incorporate the surgical-related services yet clearly align financial incentives with the collective goals and objectives of both entities (e.g., “back-stop” contracts, or “at-risk” hospital support).

We have recently adopted a new funds flow model within the University of Alabama at Birmingham Health System. This new funds flow model incorporates the entire scope of anesthesia clinical services, including the additional perioperative, critical care, and pain medicine services provided in our PSH model. In this funds flow model, patient care revenue no longer flows directly to the clinical departments. Payments to departments are based on (a) Medical Group Management Association specialty-specific benchmarks and (b) departmental clinical productivity as measured by applicable work Relative Value Units (wRVUs) or American Society of Anesthesiologists Relative Value Unit guides.

Nevertheless, perhaps the greatest argument against the anesthesiologist functioning as the perioperativeist in the PSH is the differential in apparent cost between perioperative services provided by an anesthesiologist versus an internal medicine hospitalist. Even if payers and administrators agree that anesthesiologists might be better suited for this expanded perioperative role, given ever increasing reimbursement constraints, these key stakeholders will be apt to view internal medicine hospitalists as significantly more “cost-effective” providers. The differential in salary compensation between these 2 specialties may be attributed partly to differences in (a) total work hours per year and/or (b) amount of clinical productivity, per full time equivalent. However, there is currently no assuredly valid way to convert American Society of Anesthesiologists Relative Value Guide units into wRVUs. Ultimately, the added value across various pay-for-performance metrics and the resulting at least cost-neutrality if not cost-benefit of an anesthesiologist versus internal medicine hospitalist must be demonstrated in any PSH proof-of-concept pilot.

CONCLUSIONS

The PSH has the promise to achieve the Triple Aim in the surgical setting, which in turn can be used collaboratively by anesthesiologists and their various colleagues as a leverage point to obtain needed local political and fiscal support. Success of the PSH requires the continued close
clinical collaboration of anesthesiologists, hospitalists, primary care physicians, and surgeons, working in concert with nurses, pharmacists, rehabilitation specialists, and social workers. There must also be a strategic, operational, and financial alignment of payers, hospitals, and physicians and other providers across the perioperative care continuum.

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