

THE NEED FOR THE PERIOPERATIVE SURGICAL HOME

The perioperative surgical home (PSH) is a system for organizing and coordinating care that is patient-centered, physician-led and team-based. PSH care extends from the decision for surgery until completion of recovery. The main components of the PSH are engaged physician leadership, patient optimization for surgery, timely scheduling, evidence-informed care pathways, expert surgical and anesthetic care, facilitated rehabilitation, measurement of patient-centered outcomes, continuous performance improvement, and facilitated return to primary care. The benefits of the PSH are improved patient experience; improved safety and health outcomes; and reduced costs.

The development of the PSH is motivated by existing deficiencies and weaknesses in a patient's surgical care experience. A brief review of the literature reveals numerous opportunities for improvements in perioperative care, including the need to:

1. Reduce unwarranted variation in practice, costs, and outcomes;
2. Improve coordination of care, collaboration, teamwork and communication among perioperative healthcare professionals; and
3. Increase emphasis on transparency, patient-centeredness, patient engagement, and shared decision-making.

The following pages present selected references of peer-reviewed articles and other publications that identify and study potential weaknesses in perioperative care along with possible solutions. Opportunities for improvements are available throughout the perioperative episode as evidenced by:

- Variation in pre-operative testing protocols and unnecessary testing;
- Inconsistent or deficient preoperative assessment and patient preparation for surgery (e.g., education, nutrition, prehabilitation);
- Limited use of evidence-informed guidelines and protocols for certain types of surgery;
- Inefficient intraoperative care, including cancellations and delays in procedures; highly variable and unpredictable



surgical times, use of excessively costly medical supplies and implants, and suboptimal blood management;

- Lacking or inappropriate post-operative pain care; and
- Poor discharge planning, care transitions and patient follow-up, which can lead to potentially avoidable readmissions.

The PSH will address these concerns directly as it will:

- Focus on team care with extensive and specific training in (1) preoperative evaluation, testing and medical optimization, (2) intraoperative care, (3) delivery of procedural sedation, analgesia and anesthesia, (4) post-procedural care, (5) critical care, (6) acute and chronic pain management, and (7) post-procedural recovery and rehabilitation;
- Incorporate all clinicians who understand the surgical implications of medical disease and treatment across the continuum of surgical care;
- Build and operate the infrastructure necessary to support the patient throughout the surgical experience;
- Reduce costs by implementing evidence-informed approaches and reducing duplication of services;
- Collect, analyze and report on patient-centered outcomes from all phases of care;
- Implement evidence-informed practices and standardize care across the entire spectrum of surgical patients;
- Monitor and improve the efficient provision of surgical care using rapid cycle performance improvement;
- Provide a common point of contact for patients and families; and
- Empower patients and family members to participate in their own care and recovery.

Surgical services represent more than half of a hospital's costs¹ and optimizing this care is essential to developing high value health systems. In a PSH, surgeons and anesthesiologists and other perioperative team members will work together to ensure the right care at the right time in the right place.

¹Health Care Cost Institute. Health Care Cost and Utilization Report: 2011. Washington, DC: Health Care Cost Institute 2012.

★ **Potentially avoidable adverse events occur too frequently in the perioperative setting.**

“The 1999 Institute of Medicine report *To Err Is Human* put a spotlight on death from preventable medical errors. Surgically related errors are second only to medication errors as the most frequent cause of error-related death.”¹

26% of adverse events identified among sample Medicare beneficiaries were events related to surgery and other procedures.²

“... findings suggest that local, regional, and national efforts aimed at improving surgical quality may ultimately reduce costs and improve outcomes.”³

1 Office of Inspector General (OIG), Department of Health and Human Services. Adverse events in hospitals: National incidence among Medicare beneficiaries. November 2010. <http://oig.hhs.gov/oei/reports/oei-06-09-00090.pdf>

2 Schimpff SC. Improving operating room and perioperative safety: background and specific recommendations. *Surg Innov* 2007;14:127-35.

3 Birkmeyer JD, Gust C, Dimick JB, Birkmeyer NJ, Skinner JS. Hospital quality and the cost of inpatient surgery in the United States. *Ann Surg* 2012;255:1-5.

★ **There is substantial variability in surgical practice, costs, and outcomes.**

“The mortality rate for patients undergoing inpatient non-cardiac surgery was higher than anticipated. Variations in mortality between countries suggest the need for national and international strategies to improve care for this group of patients.”⁴

“Our data suggest that many hospitals have considerable room to improve their cost efficiency for inpatient surgery and should look for patterns of excess utilization, particularly among surgical specialties, other inpatient specialist consultations, and various types of postdischarge care.”⁵

“The study showed substantial variations across the participating health care organizations in surgery times, hospital lengths-of-stay, discharge dispositions, and in-hospital complication rates.”⁶

“These findings led the consortium to test more coordinated management for medically complex patients, more use of dedicated teams, and a process to improve the management of patients’ expectations.”⁶

• Finks JF, Osborne NH, Birkmeyer JD. Trends in hospital volume and operative mortality for high-risk surgery. *N Engl J Med* 2011;364:2128-37.

• Kehlet H, Mythen M. Why is the surgical high-risk patient still at risk? *Br J Anaesth* 2011;106:289-91.

• McManus ML, Long MC, Cooper A, Mandell J, Berwick D, Pagano M, Litvak E. Variability in surgical caseload and access to intensive care services. *Anesthesiology* 2003;98:1491-6.

• Cowper PA, DeLong ER, Peterson ED, Hannan EL, Ray KT, Racz M, Mark DB. Variability in cost of coronary artery bypass surgery in New York State: Potential for cost savings. *Am Heart J* 2002; 143:130-9.

- Medbery RL, Perez SD, Force SD, Gillespie TW, Pickens A, Miller DL, Fernandez FG: Video-assisted thoracic surgery lobectomy cost variability: implications for a bundled payment era. *Ann Thorac Surg* 2014; 97:1686-92.
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- Brooke BS, Dominci F, Pronovost PJ, Makary MA, Schneider E, Pawlik TM.
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- Jan S, Slap G, Dai D, Rubin DM. Variation in surgical outcomes for adolescents and young adults with inflammatory bowel disease. *Pediatrics* 2013;131: S81-9.
- 5 Miller DC, Gust C, Dimick JB, Birkmeyer N, Skinner J, Birkmeyer JD. Large variations in Medicare payments for surgery highlight savings potential from bundled payment programs. *Health Affairs* 2011;30:2107-15.
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- 6 Tomek IM, Sabel AL, Froimson MI, Muschler G, Jevsevar DS, Koenig KM, Lewallen DG, Naessens JM, Savitz LA, Westrich JL, Weeks WB, Weinstein JN. A collaborative of leading health systems finds wide variations in total knee replacement delivery and takes steps to improve value. *Health Affairs* 2012;31:1329-38.

★ **There are opportunities to improve patient-centeredness.**

“Meeting information needs are positively and significantly associated with both patient satisfaction measures (i.e., Ratings of Care Processes, $p < 0.01$; Global Satisfaction, $p < 0.05$, Perceived Health Benefit, $p < 0.01$) and one general health status measure (i.e. Quality of Life, $p < 0.01$).”⁷

“Patient-centered communication was correlated with the patients’ perceptions of finding common ground. In addition, positive perceptions (both the total score and the subscore on finding common ground) were associated with better recovery from their discomfort and concern, better emotional health two months later, and fewer diagnostic tests and referrals.”⁸

• Bakhtiari E. Patient-Centered Surgery. *HealthLeaders* (Vol. May 12): Institute for Healthcare Improvement. 2010.

• Ellison LM, Pinto PA, Kim F, et al. Telerounding and patient satisfaction after surgery. *J Am Coll Surg* 2004;199:523-30.

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★ **There are opportunities to improve coordination, communication, collaboration and teamwork.**

Observational studies have demonstrated that higher ratings of collaboration and teamwork have been associated with better patient outcomes.⁹⁻¹²

“Patients with multiple, complex comorbidities that require attention from numerous providers with distinct areas of expertise frequently find themselves navigating through diagnoses and treatments from an often disjointed and loosely associated group of providers.”¹³

“High levels of relational coordination among care providers have been associated with shorter hospital stays, greater patient-perceived quality of care, and improved clinical outcomes.”¹³

- ACS Bulletin: Improved communication techniques enable residents to provide better care now and in the future. August 2013 Issue. <http://bulletin.facs.org/2013/08/improved-communication-techniques-enable-residents-to-provide-better-care-now-and-in-the-future/>
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★ **Effective preoperative assessment and patient preparation can improve quality and reduce costs.**

“In the same-day surgery suite, 98 of 1,164 (8.4%) APMC-evaluated patients were cancelled, as compared with 366 of 2,252 (16.2%) in the non-APMC group (P < 0.001). In the general operating rooms, 87 of 1,631 (5.3%) APMC-evaluated patients were cancelled, as compared with 192 of 1,477 (13.0%) patients without a clinic visit (P < 0.001). For both operating areas, APMC patients had a significantly earlier room entry time than patients not evaluated in the APMC.”¹⁴

“Among adults, well-nourished patients were three times more likely to be discharged sooner than those who had some degree of malnutrition. Well-nourished patients with digestive tract diseases were also discharged sooner than malnourished patients with the same condition.”¹⁵

“In the postoperative phase, the patients who had improved during prehabilitation were also more likely to have recovered to their baseline walking capacity than those with no change or deterioration. Patients who deteriorated were at greater risk of complications requiring reoperation and/or intensive care management.”¹⁶

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★ Effective preoperative assessment to reduce unnecessary tests can improve quality and will reduce costs.

“Selective test ordering by staff anesthesiologists reduces the number and cost of preoperative investigations. Educational efforts should be directed towards improving resident and staff preoperative test ordering practices.”¹⁷

“In a 5% sample of Medicare claims data, 2803 patients underwent preoperative stress testing without any indications. When these results were applied to the entire Medicare population, we estimated that there are over 56,000 patients who underwent unnecessary preoperative stress testing. The rate of testing in patients without cardiac indications has increased significantly over time.”¹⁸

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★ Use of clinical pathways such as enhanced recovery after surgery (ERAS) and other guidelines can improve quality and reduce costs.

“A ‘fast track’ protocol allows patients with high levels of co-morbidity undergoing complex colorectal and reoperative pelvic surgery to benefit from a rapid recovery and early discharge from hospital. The approach is safe and has low readmission rates.”¹⁹

“Clinical pathway regional anesthesia care for outpatient orthopedics may have a significant role in simultaneously containing costs and improving both process efficiency and patient outcomes.”²⁰

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★ Improvement in intraoperative blood management can improve quality and reduce costs.

“Variation in hemoglobin transfusion was significant among surgical services, surgeons, and anesthesiologists. The use of erythrocyte salvage, fresh frozen plasma, and platelets varied threefold to fourfold among individual surgeons compared with their peers performing the same surgical procedure.”²¹

“We conclude that blood component usage for coronary artery bypass grafts differs widely among institutions. The variability in use of these components is accounted for in part by unnecessary transfusions in otherwise routine, uncomplicated coronary artery bypass graft procedures.”²²

- Campbell Jr DA, Henderson WG, Englesbe MJ, et al. Surgical site infection prevention: The importance of operative duration and blood transfusion—results of the first American College of Surgeons–National Surgical Quality Improvement Program Best Practices Initiative. *J Am Coll Surg* 2008;207:810-20.
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★ **There are important opportunities to improve postoperative care, transitions, and patient follow-up.**

“The current study found significant variability in the use of follow-up procedures, with the most striking differences apparent across geographic regions.”²³

“Postoperative recovery after open colonic surgery may be accelerated by effective pain relief integrated into an accelerated rehabilitation programme.”²⁴

“Patients would be more adequately prepared for their recovery period at home, by encouraging client-centered, interdisciplinary communication between health practitioners; adopting a flexible, approach to discharge planning which is tailored to individual needs of postsurgical patients, particularly in relation to advice and information related to recovery; and encouraging and supporting adequate health literacy for self-management.”²⁵

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★ **Perioperative leadership and models such as the perioperative surgical home will be required to succeed in the new accountable care environment.**

“We found that ACOs have so far devoted little attention to surgical care.”²⁶

“However, surgeons and other specialists have a large role to play in caring for ACOs' patients.”²⁶

“In the years to come, ACOs will likely focus more on surgical care.”²⁶

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