

A PATIENT-CENTERED SURGICAL HOME POST IMPLEMENTATION ANALYSIS

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ABSTRACT

Systems integration and coordination are becoming increasingly important in healthcare systems around the world, particularly in the U.S. with the new healthcare mandate. Nowhere are these strategies more important for improving patient outcomes, increasing access, and reducing costs than in outpatient surgery. Surgeries involve surgeons, anesthesiologists, nurses and perhaps other providers depending on patients' needs. Historically, these services have been fragmented with minimal coordination amongst providers. In this paper, we briefly describe the results of a simulation project to improve outpatient surgery at the University of Texas Health Science Center in San Antonio, TX.

1 INTRODUCTION

Systems integration and coordination are becoming increasingly important in healthcare systems around the world, particularly in the U.S. with the new healthcare mandate. Nowhere are these strategies more important for improving patient outcomes, increasing access, and reducing costs than in outpatient surgery. In 2006, outpatient surgeries accounted for nearly two-thirds of all surgery visits in U.S. with the proportion projected to increase steadily over the next decade (Cullen et al. 2009, Berg and Denton, 2012). Surgeries involve surgeons, anesthesiologists, nurses and perhaps other providers depending on patients' needs. Historically, these services have been fragmented with minimal coordination amongst providers.

In recognition of the need for better coordination of care, the American Society of Anesthesiologists (ASA) conceptualized the "Perioperative Surgical Home (PSH)" (ASA 2011). In a PSH, care is integrated and coordinated among specialties, with anesthesiologists serving as system coordinators and information integrators, in collaboration with surgeons, general internists/hospitalists, and other physicians. In our initial research (Morrice et al. 2013, 2014), we built on the PSH concept and developed a Patient-Centered Surgical Home (PCSH) emphasizing the centrality of improved patient care similar to the Patient-Centered Medical Home found in the practice of primary care (Stange et al. 2010). More specifically, our research improves outpatient surgical care through systems integration, better coordination, and process improvement.

A key feature of the PCSH was to have an anesthesia preoperative clinic (APC) serve as system coordinator and information integrator. We showed that for the PCSH to succeed, APC must see the *right* patients with the *right* information by overcoming improper triaging of patients and patient information deficiencies (Lahiri and Seidmann 2012). Our analysis showed that with the proper screening tool and modifications to the way triage was handled, it was possible to increase the number of patients seen by APC each day with a modest increase in resources. Many of the potential benefits rested on the coopera-

tion of the referring clinics as well as the reduction of the gap between the current level of patient information and what was needed for optimizing medical decisions.

In this paper, we briefly discuss the development of the PCSH which involved a discrete event simulation implemented in Arena simulation software (Kelton et al. 2010). More details are found in Morrice et al. (2014). Then we focus on the results of the implementation.

2 EMPIRICAL ANALYSIS OF PCSH IMPLEMENTATION

Implementation of the PCSH model in Morrice et al. (2014) began in August 2013. Since that time we have tracked five metrics from the system: (i) the number of patients that APC has assessed each month; (ii) APC patient waiting times; (iii) APC patient information deficiency; (iv) percentage of OR patients assessed by APC; and (v) OR first-case delays. The first three metrics measure the performance of APC. The fourth metric tracks the strength of the link between APC and the OR, and the final metric, OR first-case delays, is a commonly used statistic for monitoring OR performance (Ferschl et al. 2005).

All metrics have improved post-PCSH implementation. In particular, the number of patients assessed by APC has increased as a result of a triage that introduced telephone assessments. At the same time, APC in-clinic waiting times have decreased due to improved patient information and because telephone assessments have reduced clinic congestion and enabled providers to focus on patients that truly need in-person visits. Since APC is seeing more patients, we show that the percentage of OR patients assessed by APC has increased. Finally, we show improvement in the OR first-case delays that can be impacted by APC. Interestingly, one class of delays not impacted by APC increased. We deduce that this is likely due to the fact that the reductions in the other delays *revealed pre-existing problems*.

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