

Increasing Hospital Bed Capacity by Optimizing Outpatient Surgical Discharges

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Background: Optimizing patient flow is an increasingly prevalent operational management issue in the era of healthcare industry consolidation and declining reimbursement. Perhaps the greatest challenge in patient flow is the lack of vacant hospital beds, which contributes to Emergency Department boarding (i.e. crowding); a national epidemic increasing patients' length of stay, morbidity, and mortality. Further, hospital capacity and safety issues are exacerbated by a significant growth in surgical volumes and the number of outpatient surgical cases that transition into inpatient hospital beds. In addition, the *Outpatient Prospective Payment System (OPPS)* bundles payments for surgical procedures that do not appear on the annual Centers for Medicare and Medicaid Services (CMS) *Inpatient Only Surgery List*. The result is non-reimbursable hospital stays. With the number of overflow patients growing, a thriving surgical practice, and no additional beds available in the near future, a solution was needed for Mayo Clinic in Arizona.

Objective: Increase hospital bed capacity by optimizing same-day outpatient surgical discharges through the development of a quality improvement program that evaluated all outpatients-in-a-bed.

Planning/Research Methods: Six Sigma and Lean principles were used throughout this project, following the DMAIC framework (define, measure, analyze, improve, control). Having clearly defined (D) the challenge, a multi-disciplinary workgroup was formed to measure and guide this work. This group was comprised of administrators, physicians, finance analysts, internal quality consultants, care managers, and nurses. Data was gathered including the total inpatient census as well as the number of outpatients-in-a-bed; the measurement phase of the project (M). The patients were sorted by type of procedure as well as surgical service. The program then began to analyze (A) all surgical outpatients who stayed in a hospital bed overnight. Through this analysis, the team identified several opportunities to safely improve the number of surgical outpatients discharged the same day after their surgical procedure that was not on the inpatient-only surgery list (i.e. outpatients-in-a-bed). With the help of the workgroup, several best practices and opportunities for improvement were developed (I).

Implementation Methods: To help diffuse the process improvement across the organization, the workgroup developed an implementation 'toolkit' that could be easily customized and shared with all departments and hospital locations. The intervention safely increases the ratio of surgical outpatients who are discharged home versus those who stay overnight in a bed.

The toolkit included:

- Suggested patient education materials for outpatient surgery
- Time-of-day scheduling best practices
- In-person or remote follow-up best practices (e.g. post-operative day number one to assure safety)
- Enhanced recovery best practices
- Home and supportive services opportunities
- Procedure-specific recommendations

For further efficiency, standardization, and ease of use during this implementation phase (I) the workgroup also created a communication plan for practice department and division leaders. Leadership from the work-group provided initial information electronically to department and division physician and administrative (dyad) leaders. Next, we met with those leaders through a series of committee, department/division and one-on-one meetings to build awareness and support. For dissemination within department and divisions, dyad leaders were supplied with a set of slides to educate their department/division, an educational PDF document with key messages, data for their department/division (including by individual surgeon), the toolkit for safely improving their outpatient-in-a-bed ratio, and the accountability methods that would be used. The accountability for these practice leaders (a key component of the Control phase in our DMAIC process improvement methodology) was in the form of a transparent quarterly report on the rates of outpatients-in-a-bed and readmission by department/division, by individual surgeon, and by individual type of operation sorted by surgeon. Education was conducted outlining CMS's Inpatient Only Surgical List as well as the OPPS.

Results: Across the hospital, outpatients in a bed decreased from 4.0% of total census in 2015 (n= Total Census: 66,434; OP in Bed: 2625) to 3.3% by 2017 (n= Total Census 73,716; OP in Bed: 2454). By November 2018 YTD, outpatients in a bed made up only 2.7% of total census (n=71,059); a significant hospital-wide improvement. Some departments saw greater individual improvements. For example, in 2014, 36.0% of ankle, foot, hip, leg, shoulder, and arm orthopedic surgery outpatients-in-a-bed were being admitted; by the end of 2017 only 5.5% were admitted.

Conclusions: Surgical outpatients-in-a-bed provide an opportunity for optimization of patient flow within healthcare facilities. With appropriate education and tools, surgical practices can significantly and safely improve the rate of same-day discharges of surgical outpatients-in-a-bed.