Revenue

Income, especially when of an organization and of a substantial nature.

Operating rooms generate 42% of a hospital's revenue and 30% of hospital waste.

Hospitals depend on procedural revenue to maintain financial health as the recentpandemic has revealed. Proposed policies governing the scheduling of overlapping surgeries may dramatically impact hospital revenue. To date, the potential financial impact has not been modeled.

A linear forecasting model based on a logic matrix decision tree enabled an analysis of surgeon productivity annualized over a fiscal year. The model applies procedural and operational variables to policy constraints limiting surgical scheduling. Model outputs included case and financial metrics modeled over 1000-surgeon-year simulations. Case metrics included annual case volume, case mix, operating room (OR) utilization, surgeon utilization, idle time and staff overtime hours. Financial outputs included annual revenue, expenses and contribution margin.

The model was validated against surgical data. Case and financial metrics decreased as a function of increasingly restrictive scheduling scenarios, with the greatest contribution margin loses ($1,650,000 per surgeon-year) realized with the introduction of policies mandating that a second patient could not enter the OR until the critical portion of the first surgery was completed. We identify an optimal scheduling scenario that maximizes surgeon efficiency, minimizes OR idle time and revenue loses, and satisfies ethical obligations to patients.

Hospitals may expect significant financial loses with the introduction of policies restricting OR scheduling. Brandon et al. identified an optimal solution that maximizes efficiency while satisfying ethical duty to patients. This forecast is immediately relevant to any hospital system that depends upon procedural revenue [1].

Kosic reported that between 46% and 65% of complications in hospitals occur during surgery, resulting in significant loss of revenue [2]. According to scientists at the World Health Organization [3], globally, inpatient surgical complications account for 25% of medical errors annually. In the United States, annual costs due to medical errors account for $17 billion USD, with preventable surgical errors costing healthcare organizations nearly $1.5 billion USD annually [4].

1)
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2)
Kosic K 2015 Raise patient care and lower hospital costs by reducing surgical errors Available from https://adora-med.com/blog/raise-patient-care-and-lower-hospital-costs-byreducing-surgical-errors/[Accessed May 2018]
3)
Semel ME, Resch S, Haynes AB et al 2009 Adopting a surgical safety checklist could save money and

improve the quality of care in US hospitals Available from: https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2009.0709 [Accessed May 2018]

4) Agency for Healthcare Research and Quality 2008 New AHRQ study finds surgical errors cost nearly $1.5 billion annually Available from https://archive.ahrq.gov/news/newsroom/press-releases/2008/surgerr.html [Accessed May 2018]