Improving Surgical Care Pathways at Beth Israel Deaconess Medical Center

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Introduction

Beth Israel Deaconess Medical Center

- Location: Boston, USA
- Large academic medical center. Consistently ranked as one of the top hospitals in Massachusetts.
- 660 beds, 71,000 beds, 56,600 outpatient visits/year
- The Department of Surgery overcomes access to 25 divisions and discharges 4,500 in patients/year

The Challenge

- The department of surgery faces complex operational and logistical challenges, partly due to the large number of procedures performed.
- Patients who require surgical intervention typically begin their journey by visiting a surgeon in the outpatient clinic.
- After examination and if warranted, the surgeon will advise a surgical intervention and place an order if there is mutual agreement.
- Following that, the patient would then be worked up and operated upon.
- The series of steps from referral to date to performing the surgery is detailed below:

Background & Approach

Developing the Approach

- Interviewing three types of stakeholders: administrative directors, administrative managers, and operational staff about surgical volume issues, recently/processed around the volume and conversion rates.

Administrative Level Data Sources:
- Ophthalmology
- Gastroenterology
- Cardiac Surgery

2. Conducting a Healthcare Literature Review and Market Research:
- Factors that contribute to whether a particular patient enters the clinic compared to surgery
- Examined patient demographic data, service provider, diagnosis, and diagnosis order to predict whether a particular patient will have surgery within 90 days.
- Factors in increasing elective surgery throughput to baseline.
- Recommended action to increase volume throughput.

3. Conducting a Systematic Industry Analysis
- COVID-19 pandemic in the United States 35% decrease in elective surgery
- The financial impact of $3 billion of losses between March and June 2020
- Elective procedure surge optimizers: important backing of future patient demand
- Factors influencing volume changes: Specialty mix, regional differences, facility size, and system parameters.

Citations


Methods

Surgical Patient Pathway Overview

In a typical workflow, a patient would start with a clinician visit with the specialist to determine the right treatment plan. During this visit, it may be decided by the physician that the patient requires surgery to treat their ailment. In this scenario, the physician would place an order for the patient to receive surgery, which is then reviewed by the physician or nurse. Upon learning the clinician visit, the patient should then work with the surgery scheduling office to schedule a case within the available block for the designated surgeon. They are automating this into three steps in the lead. To measure conversion rates between the three steps, we use three metrics which measure the dropout of patients throughout the journey.

We are investigating only the cardiac surgery, general surgery, and ophthalmology services as they are wholly operated within BIDMC and have a high volume of elective, outpatient surgeries.

Results

Conversion Rates by Division

<table>
<thead>
<tr>
<th>Metric Name</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic to Order Conversion Rate</td>
<td>Order Placed</td>
<td>Clinic Visits</td>
<td>This metric tracks the proportion of patients for whom surgery has been deemed necessary by their clinic’s visit providers, and subsequently have a surgery order placed. Drop-off has typically represented patients who do not need surgery.</td>
</tr>
<tr>
<td>Order to Case Conversion Rate</td>
<td>Surgical Cases</td>
<td>Order Placed</td>
<td>This metric determines the proportion of patients who actually have a surgery case performed versus those who have placed a surgery order. Drop-offs have represented admissions where a patient declined or did not show up to surgery after it was scheduled.</td>
</tr>
<tr>
<td>Clinic to Case Conversion Rate</td>
<td>Surgical Cases</td>
<td>Clinic Visits</td>
<td>Measures the total conversions from when a patient visits the clinic to when they actually have surgery performed. This metric provides the most comprehensive overview of the conversion process, but may not provide enough details about where drop-offs happen in the process.</td>
</tr>
</tbody>
</table>

Conclusions & Future Directions

Patient tracking and following up in key to removing all BIDMC preoperative patients get care they need. The wide range and acute nature of care provided by preop makes it much more difficult to track patient arrivals, and from our interviews, different departments have taken different approaches to keep track of unoccupied beds. A unified, electronic workflow for tracking patients from their initial clinic visit will ensure that no patient is left behind. Correctly, patients come in for office visits and results in one of three reasons:

1. If the patient decides to have surgery, the order is placed for surgery and their procedure is ultimately likely to be performed within the subsequent three months (October/X)
2. If the patient declines for surgery, there will be an order placed and dependent on insurance status.
3. If the patient decides against surgery at BIDMC, and no follow-up is needed.

Patient tracking typically begins once the patient has decided on having surgery, but the unoccupied patients in status 2a & b fall through the cracks. We propose tracking the patients as soon as they come into the clinic and following up with patients until they are no longer decided and in either status 1 or status 3.

The type of patient tracking provides two key benefits:

A. Potential to help more patients receive care. If patients are unsure about surgery or receiving care with BIDMC, proactive outreach can help them feel more comfortable and help remove the potential for unoccupied patients to be processed.

B. Develop a thorough understanding of why patients may not receive care with BIDMC. Patients may not receive care due to a identified a different provider, insurance, or absence with the surgical field. Feedback from these patients will help BIDMC better understand why patients ultimately seek care elsewhere and whether there is an opportunity to improve.

While following up with unoccupied patients would help increase returns retained at the top of the funnel, it is important to understand that increases along the top of the funnel may not necessarily increase surgical volume. This is driven by the different conversion rates for patients of different ages to have surgery. In our study, we saw that as could occur, clinic volume is the conversion rate actually increased. This is likely due to earlier elective surgery patients, so that early in the surgery patients are seen in the clinic. Similarly, the unoccupied patients we follow up with may be on the patients with mostly elective procedures. These patients will likely have a low conversion rate, though even a few extra conversions will be worth the effort to track all unoccupied patients.

References & Acknowledgements


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