

Increasing Throughput in Health Services Organizations

by

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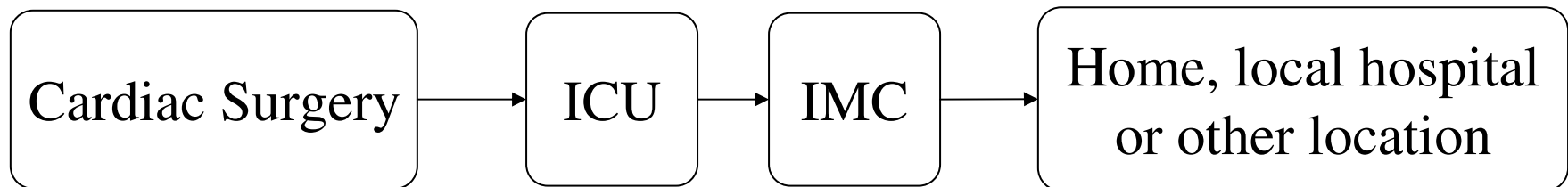
- Man Dies After Surgeon Operates on Wrong Side of Head
 - Rhode Island Hospital in Providence
 - 86-year-old man dies three weeks after surgery
 - This was 3rd wrong-side surgery error in the hospital's neurosurgery unit in 6 years

- The hospital's public reaction
 - In the surgical team's haste to treat the patient, it didn't follow proper procedures

- Hospitals need help!

Areas of Research Interest

- Cardiac surgery line throughput
 - Carter Price (Ph.D. student), Ed Wasil
 - ICU vs. IMC beds
 - We used simulation
 - Increased throughput by 17%
 - Increased profit by \$2.67 million/year
- A simplified view



Areas of Research -- continued

- Hospital bed management
 - The ultimate goal
 - Impacts the utilization of operating rooms, surgical scheduling, admissions, referrals, the emergency department, diversions, etc.
 - Gemstone Project, 13 students, 3-year effort
 - E.g., the OR, random demand, and non-random demand

- Reducing PACU backlog and boarding
 - Carter Price (Ph.D. student), Ed Wasil
 - Part of hospital bed management
 - Short-term goal
 - E.g., discharge by noon rather than 4 pm

Reducing PACU Backlog and Boarding

- Patients flow from the PACU to intensive care beds
- Surgeries are scheduled with surgeons in mind, without taking patient flow into account
- Boarding occurs when a patient is forced to remain in the PACU overnight
- Backlog and boarding increase the likelihood that surgeries will be put on hold, since patients have to remain in the OR
- On 7/17/07, 13 patients spent the night in the PACU due to a lack of intensive care beds

Current Status of the PACU Project

- An IP was formulated to balance the in-flow of scheduled surgeries with the out-flow of patients being discharged
- Based on 6 months of recent data, the IP reduced the number of boarders by 26%
- We are in the process of refining the model and expect to implement it within a year