CREATEing Leaders in Healthcare Operations Information Management

CREATION de dirigeants: Programme d’opérations de soins de santé et information

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Scheduling Surgical Cases with Stochastically-Ordered Durations
Yun Zhou, Mahmut Parlar, Vedat Verter and Dr. Shannon Fraser

MOTIVATION
- The operating theatre is often the major cost driver in a hospital, accounting for more than 45% of a hospital’s revenue.
- Ineffective scheduling leads to long patient waiting times, cancellation of surgical cases, and significant cost due to idle resources and overtime of surgical teams.

THE MODEL
- Daily surgical scheduling for elective surgeries with random durations where the surgical day is divided into time units.
- Two types of surgical cases to be scheduled:
  - The random duration of one type is statistically shorter than the other.
- Performance measures:
  - (A) Total patient waiting time.
  - (B) Operating room overtime.

AN EXAMPLE OF TWO SURGICAL CASES TO BE SCHEDULED:

Improving Health Outcomes through Operational Policies
Saeed Samiedalaei, Beste Kucukyazici, Vedat Verter and Dan Zhang

MOTIVATION
- For every minute delay in treating a stroke, the average patient loses 1.7 million brain cells.
- Each hour in which treatment does not occur, the brain loses as many neurons as it does in almost 3.6 years of normal aging.

CONCLUSION AND FUTURE WORK
- Providing 10% service level under the Dedicated Units policy versus serving 100% of patients under the Flexible Units policy requires the same number of beds.
- Developing an optimization based on simulation model to find a robust block-schedule for the OR under alternative policing policies and the available downstream surgical beds at each division.

Surgical Block-Scheduling: A Systematic Approach for Surgical Bed Management
Mohammad Mehdi Ghotboddini, Vedat Verter, Dr. Lawrence Rosenberg and Valerie Vandal

MOTIVATION
- Absence of a systematic approach for utilizing the beds of a surgical unit
- Concession and rescheduling of elective surgeries as a formidable challenge.

Significant increases in hospital costs as well as patient and surgeon dissatisfaction

- Surgical procedures cancellation due to bed unavailability
- Incorporation of expected bed availability in the planning process.

CONCLUSIONS
- The dynamic bed allocation policies give better improvements.