A PACU Usage Tracking Platform
For Improving Peri-Operative Patient Flow

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The Hospital

- The Sir Mortimer B. Davis Jewish General Hospital:
  - Is a full service university affiliated medical center
  - Serves a large and diverse population in Montreal
  - Provides a broad range of inpatient and outpatient services
  - Has major tertiary & quaternary cardiovascular, neuroscience, oncology (including robotic surgery) and neo-natology programs
  - Performs approximately 15,000 operative procedures per year
  - Has 637 beds (154 surgical beds, and 20-22 staffed ICU beds)
  - Has 16 Post Anesthesia Care Unit (PACU) beds
PACU Usage

- Because of hospital space limitations and the skill level of its nurses, the PACU is used:
  - Each morning as a staging area for the first surgical patients
  - Each morning for recovery from non-surgical procedures
  - As an overflow for patients that should be in the ICU
  - As a PACU
PACU Issues

- The anesthesia department insists on doing longer procedures first so as to preclude or minimize overtime which results in:
  - The PACU being almost empty most of the morning
  - The PACU becoming very busy early afternoon
  - The PACU becoming even busier later in the afternoon
- Often patients are not able to be transported from the PACU when they are medically ready because:
  - Orderlies are not available
  - Beds are not available or ready
  - Nursing units are not ready to take the patients
Complications Arising

• As a result, starting mid-afternoons, it is not unusual for the PACU to be unable to accept more patients from the OR

• This in turn leads to the operating rooms being clocked

• This in turn leads to procedure cancellation

• This in turn leads to patient and staff frustration and poor OR utilization
Proposed Solution

- To address these issues the hospital decided to build a peri-operative patient flow simulation
- This is to be used operationally to evaluate:
  - Evaluate proposed surgical schedules
  - ICU patient parking in the PACU decisions
  - To encourage anesthesia to re-consider scheduling process
  - To minimize surgical ward bed unavailabilities
  - To otherwise improve peri-operative patient flow
Challenge

- One of the challenges that arose was to be able to predict, for the simulation, the Length Of Stay (LOS) in the PACU.
- While LOS could be estimated with a limited amount of data, it was desired to see whether a larger amount of data could be used to do so more accurately.
- This in turn would make it possible to increase the accuracy of the peri-operative simulation.
- Thus a decision was made to build a PACU bed tracking and analysis system.
Our SHS Presentation

- In our presentation at the conference we will discuss:
  - The current version of the PACU tracking system
    - User requirements
    - The data being collected
    - How collected data is being used
  - The second and third versions which together will:
    - Further minimize the data collection effort
    - Enhance OR <=> PACU <=> surgical ward communications
    - Facilitate operational decision making