Inpatient Endoscopy Throughput: A Quality Improvement Initiative

David Hudson, Ziad Hindi, Christopher Lavalle, Mohammed Alsager, Abdulaziz Alajmi
Division of Gastroenterology
Centre for Quality, Innovation, and Safety, Schulich School of Medicine & Dentistry,
Western University, London, ON, Canada

AIM Statement: By July 2022, we will increase endoscopy throughput by a least 1 procedure per day to reduce the utilization of on-call/weekend endoscopy

PROBLEM DEFINITION

Gastroenterology and supports teams are frustrated with the low throughput/completion of endoscopic procedures via the in-patient endoscopy suite at University Hospital, London Health Sciences Center.

Currently, only 65% of scheduled procedures are completed via the inpatient endoscopy suite (avg. 4.5 of 7 total scheduled procedures)

Inefficiency of in-patient endoscopy leads to increased utilization of on-call/weekend teams for "catch-up" and is associated with an increase in patient length of stay – either GI ward or GI consult patients.

AM Physician Handover Duration (Time Completed)	First procedure start time (Average)	Average number of procedures completed in a morning	Efficiency (Schedule created for 7 scopes)
35 minutes (Completed at ~08:22 am)	08:51 am	4.5 procedures	4.5/7 = 65%

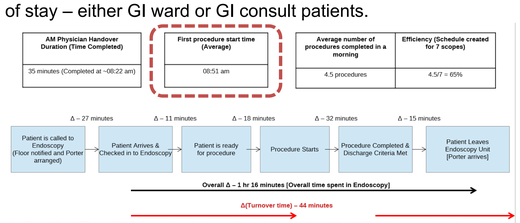

Figure 1: Baseline Time Study to obtain baseline data for Inpatient Endoscopy (University Hospital). Identified significant concerns with endoscopy start time as causative agent for decreased throughput

ROOT CAUSE ANALYSIS

Developing a process flow diagram was critical to determine patient throughput and associated providers roles required to execute inpatient endoscopy

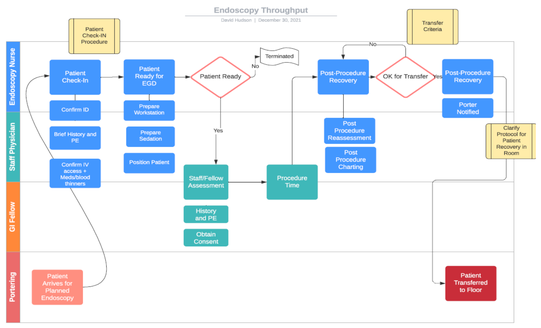

Figure 2: Process Flow Diagram for Inpatient Endoscopy (University Hospital)

Stakeholder Interview(s): Completed via Anonymous Survey/Google Forms:

See: https://docs.google.com/forms/d/e/1FAIpQLSe-PDL31ClU8g-BChdBoBYhPoBhGBZVmlToTTZJnYKIEHz-GQ/viewform?usp=sf_li

Concerns:
- Inpatient procedure list not consistently being completed prior to starting endoscopy
- Physician handover in the morning can cause significant delays in starting inpatient endoscopy
- Concern patient/porter transfer related delays

- Identified concerns were then evaluated using a Pareto Chart to identify and present the observed frequency concern/defect **(**See: **Figure 4**)
- Driver Diagram was utilized to identify primary and secondary drivers of endoscopy throughput delay and develop associated change ideas **(**See: **Figure 5**)

"You can't manage what you can't measure"

W. Edward Deming

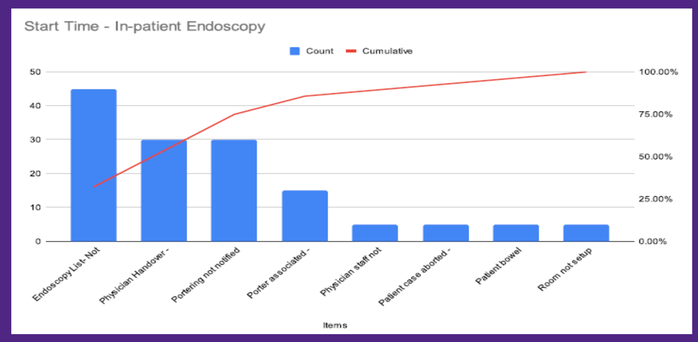

Figure 4: Pareto chart utilized to identify high yield interventions/change ideas

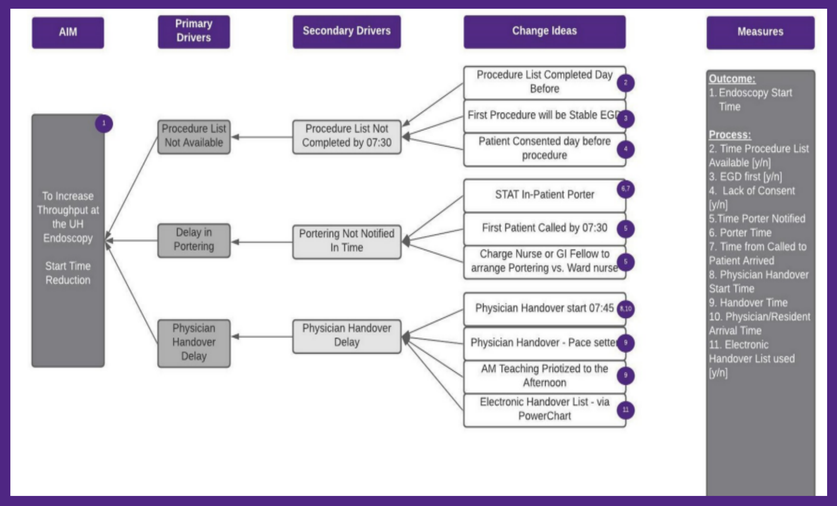

Figure 5: Driver Diagram further exploring the root causes identified via stakeholder analysis

IMPLEMENTATION

Cycle 1: Emphasize Porter Endoscopy (STAT)
Completed – not effective [Limited influence on Portering Services]

Cycle 2: Earlier Physician Handover Time
Start 7:45 am
Completed – not effective [Nonadherence, dependent process]

Cycle 3: Endoscopy List Completed by 07:30 am and First Procedure is stable EGD

Cycle 4: First Patient Called to Endoscopy Suite by 07:30 - 07:45 am
Anticipate: 30-35 min porter delay

Cycle 5: Physician Handover Optimization
Online Power chart Handover/Action List
SBAR format (situation, background, action) + Pace Setter
Prioritize teaching to afternoon rounds

MEASUREMENT & RESULTS

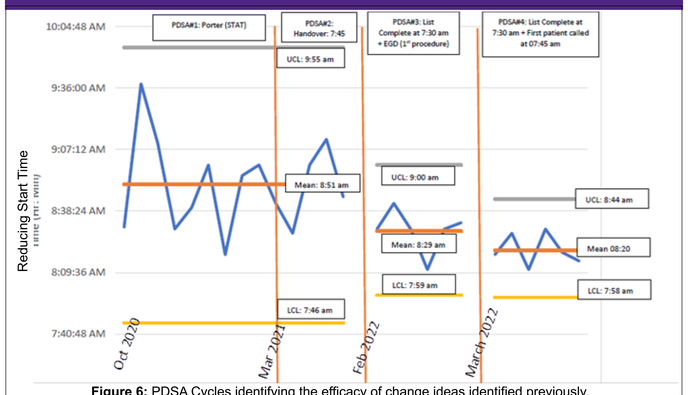

Figure 6: PDSA Cycles identifying the efficacy of change ideas identified previously.
Note: Physician Handover/PDSA Cycle 5 (currently pending further investigation)

REDUCTION OF START TIME BY ~30 minutes
Equal to the completion of 1 addition Esophagogastroduodenoscopy

SUSTAINABILITY

- Project Instrumental in changing culture for QI.
  - 2 Addition RNs hired to facilitate earlier start time
- *The QIIPS of the GI division* will monitor inpatient endoscopy, start time and continue to innovate
- Drafted Standard Operating Procedure to be integrated at the managerial level to prevent regression.
- Routine Time Studies to be repeated q-monthly to monitor