Route To An Efficient Endo Suite?

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Faculty/Presenter Disclosure

Presenter: Robert Bailey

Relationships that may introduce potential bias and/or conflict of interest:

- **Grants/Research Support:** Intercept Pharma, Tobira Therapeutic, Abbvie, Inventiva
- **Advisory Board Member:** Gilead, Abbvie, Takeda, Merck, Janssen

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What is Efficiency?

The (often measurable) ability to do things well, successfully, and with a minimum amount of waste, expense, or unnecessary effort.

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Philosophy of Endoscopy Efficiency

- Endoscopy must adapt to widespread reform with changes designed to streamline service, and to cut costs while maintaining quality.
- It's not just a business mandate . Remember quality imperative

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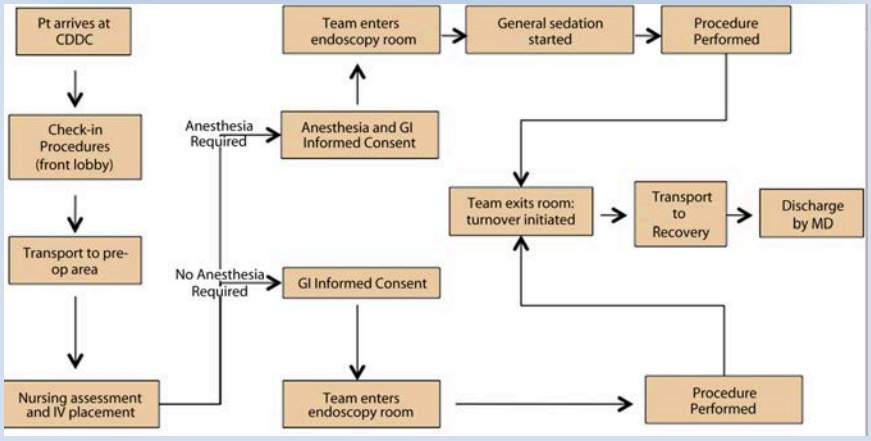
Efficiency Analysis Improved Performance



Gastrointestinal Endoscopy 2014

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Keep In Mind Data Is Essential

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The Aviation Industry Started Checklist In 1930s

Would you be happy flying with pilots not running through their checklist?

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Checklists in Endoscopy

- In 2009 a landmark study demonstrated positive effectiveness of checklists in the surgery setting which reduced mortality from 1.5% to 0.8%.
- Today there is no evidence of the use of checklists in endoscopy being effective in improving safety.
- Checklists, ie. data collection, can be seen as additional unjustified time.
- Under the right circumstances they can be seen as a motivator of teamwork and communication.

BMC Health Services Research 2011 Endoscopy 2018

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Improving Endoscopy Value And Efficiency - Metrics Are A Must

Collecting the necessary data is a key step.

Efficiency metrics can lead to developing an efficient effective workflow.

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Quality Indicators For Gastrointestinal Endoscopy Units

The consensus process identified 29 quality indicators related to the quality of an endoscopy unit among 5 domains that included patient experience, employee experience, efficiency and operations, procedure-related, and safety and infection control.

ASGE ENDOSCOPY UNIT QUALITY INDICATOR TASKFORCE-2017

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Conceptional Framework for Efficiency

Improving endoscopy efficiency should consider three divisions:

A) Structure

B) Process

C) Outcomes

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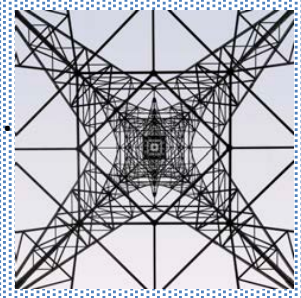
Consider Structure



Includes resources, organization, and staffing all which influence how well the unit operates.

Details include:

- the Unit layout
- Number of on duty nurses, technicians, endoscopists, and sedation
- You need to know the use of each endoscopy room

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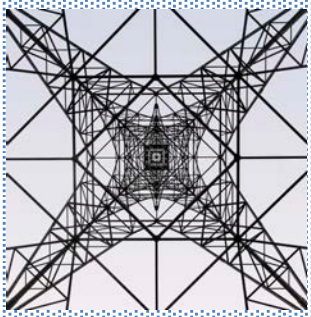
Consider Structure - Unit Layout



Rooms - preparation, procedure, recovery

Nurses - preparation, procedure, recovery

Endoscopists

Equipment

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Endoscopy Nurses

- Have special and important role in the provision of endoscopy services.
- Rules vary from technical expertise in diverse procedures to infection management, budgeting, stock accountability, all requisitions, staff training, audit and research.
- Formal training and regular update sessions are essential.

Gastrointestinal Endoscopy in Practice- Science Direct

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Endoscopy Unit Staffing- Pre-procedural: Nurses

At a minimum one nurse should be in the pre-procedural area to perform patient care and assessment before IV sedation and anesthesia.

SGNA 2012
AORN Journal. The Official Voice of Perioperative Nursing-2014

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Endoscopy Unit Staffing- Intraprocedure: Nurses

No sedation: One assistant– RN, LPN, other than the physician should be present.

Moderate sedation: RN should be present to assess, monitor and report the patient's overall status. RN may assist with interruptible tasks.

Deep sedation: Administered by anesthesiologist

RN or second staff is required to assist with the technical aspects of the procedure.

SGNA 2012
AORN Journal. The Official Voice of Perioperative Nursing-2014

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Endoscopy Unit Staffing- Postprocedure: Nurses

At a minimum one RN should be in the post procedural area to perform patient care and assessment during recovery from IV sedation

SGNA 2012
AORN Journal. The Official Voice of Perioperative Nursing-2014

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Improving Efficiency - Process Measures

First case start time	The time when the endoscopist begins the first case of the session.
Room turnover time	The time from patient discharge from the room until room is ready to accept the next station.
Preparation time	Time required to prepare the patient for the procedure including consent and intravenous line.
Sedation time	Time after medication is first given and when patient is ready for the procedure.
Procedure time	Time from procedure start to completion: includes insertion time and withdrawal time for colon.
Recovery time	Time from when one patient is received in recovery to the time when patient is ready for discharge.

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A Patient Flow Analysis: Identification of Process Inefficiencies and Workflow Metrics at an Ambulatory Endoscopy Unit

The mean duration spent in the endoscopy room was:

- 31.47 min for an esophagogastroduodenoscopy, (8 min procedure)
- 52.93 min for a colonoscopy (34 min procedure)
- 30.47 min for a flexible sigmoidoscopy (9min procedure).

The endoscopy room durations exceed the allocated times, reflecting the impact of non-procedure-related factors

Kingston Hotel Dieu 2016 Canadian Journal of Gastroenterology and Hepatology

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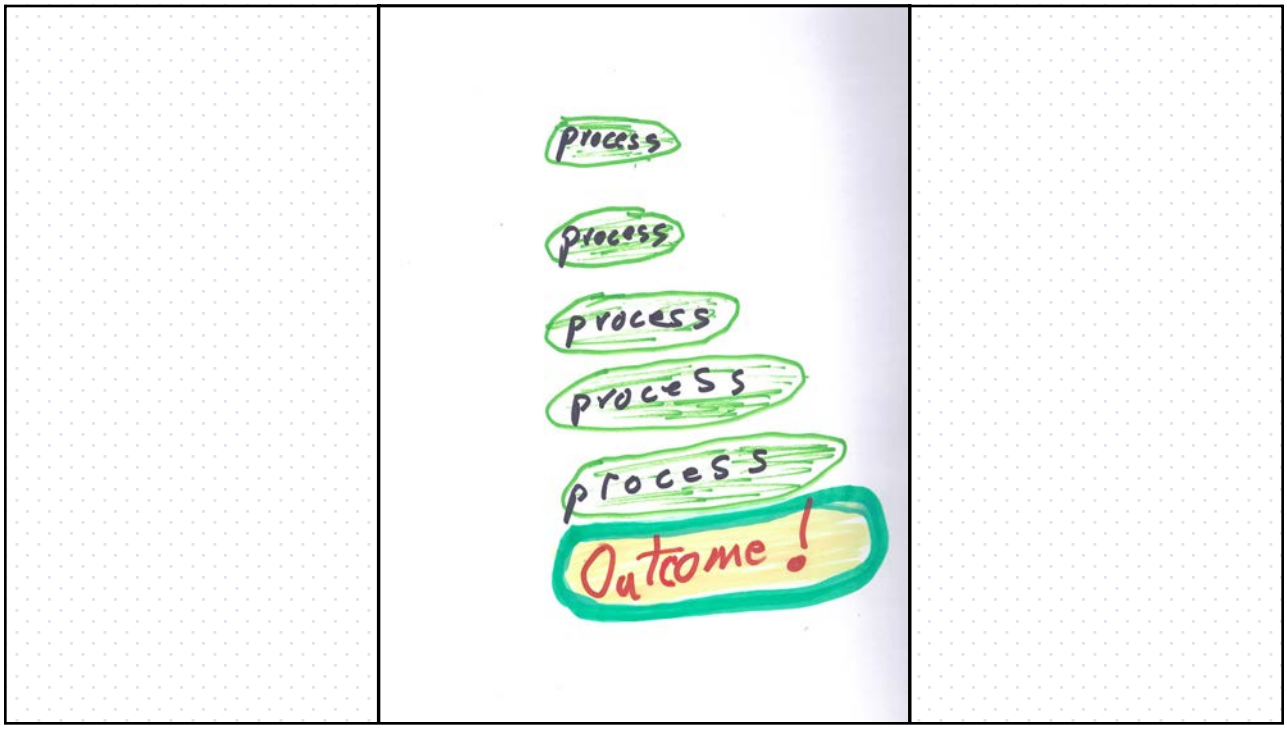

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Improving Efficiency
Outcome Measures

Outcomes are intended to accurately describe the desired results of a system

Efficiency of outcome measures may include patient waiting times, flow time, source use for procedures per room, per day, cost

These measurements are useful as they reflect the product and are reproducible for that period at that institution

They provide no information as to the cause of the deficiency or strengths

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Outcome Measurements

Patient waiting time
Flow time
Throughput
Resource utilization
Overtime
Cost

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Outcome Measures - Waiting Time

Waiting time:
non-value added time when the patient is waiting to be called to the preparation area past appointment time

Waiting for the procedure room after completing preparation

Waiting for sedation to start after patient is ready and in room

Waiting for discharge after medical coverage complete

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Outcome Measures - Flow Time

Length of time the patient is in the endoscopy unit:
Begins with entry to the preparation bay
Ends with discharge from the recovery area

Outcome Measures - Throughput

Unit level	Number of patients/ procedures completed per day
Room level	Number of patients/ procedures completed per room per day

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Outcome Measures - Cost

Patient level	expense per patient
Procedure level	expense per procedure

Outcome Measures - Resource Use

Nurse and Endoscopist
Proportion of time a resource engaged in patient care
relative to the length of time a resource is available

Overtime
Daily average length of time unit is operating costs its operating hours

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Improve Efficiency

In principle, endoscopy units need to become efficient in:

- staffing
- patient flow
- sedation
- scheduling
- management of uncertainties
  - e.g. no-shows, cancellation, poor preparation

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Efficiency metrics- The short version

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Three Keys To Improving Endoscopy Efficiency

1) Determine which metrics would be the most relevant and feasible to measure within one's organization.

2) Assessment potential areas where inefficiencies may exist - focus on patient flow, staffing, facility, and equipment.

3) Minimizing patient and procedure related delays, utilizing block scheduling, reducing room turnover time through clear communication and role definition, and considering the types of sedation.

Gastroenterology Research and Practice 201

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Metrics – A Prompt

Just as adenoma detection rate and withdrawal time have become quality metrics, other measurements should become quality metrics benchmarks.

Clinical Gastroenterology and Hepatology 2016

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Lets Look at Sedation

Control sedation with propofol seems to be the preferred option due to shorter action prompt awakening fewer side effects.

Dis Colon Rectum 2017

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Propofol

- Propofol administered by endoscopists compared with anesthesiologists is really safe.
- There was no difference in serious adverse events.
- With anesthetists there was an unexpected 33% increase in the chance of the serious adverse event.
- Time for a change. Anesthetist are not always required for propofol. They add additional costs. Their role in endoscopy should be treating patients with severe comorbidities.

Hassan, Gastrointestinal Endoscopy 2017

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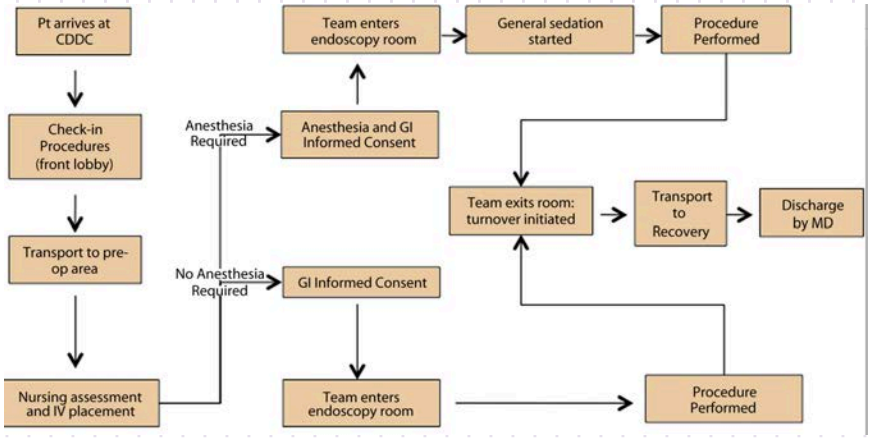
Efficiency Analysis Improved Performance University California Los Angeles



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Average time benchmarks for MAC/GA versus moderate sedation cases, phase I and phase II

	Monitored anesthesia care/general anesthesia				Moderate sedation			
	Phase I	Phase II	Δ	*P* value	Phase I	Phase II	Δ	*P* value
Arrival before scheduled procedure time (min)	68.4	74.1	5.7	.016	44.4	52.1	7.7	< .001
Scheduled procedure time to in-room time (min)	31.2	15	-16.2	< .001	29.6	18.2	-11.3	< .001
Time in room to start of sedation (min)	5.4	8.6	3.1	< .001	19	19.6	0.6	.49
Start of sedation to scope entry (min)	11.7	12.2	0.5	.42	12.8	14.1	1.3	.006
Average procedure duration (min)	38.2	38.4	0.2	.92	32.6	31.2	-1.4	.15
Scope removal to room exit (min)	15.5	13	-2.5	< .001	11	9.4	-1.6	< .001
Recovery time (min)	68.3	65.2	-3.1	.29	40	37.3	-2.7	.036
Room turnover time (min)	39.3	40.7	1.4	.74	28.8	26.5	-2.3	.24
% on-time starts	29.30%	43.90%	14.60%	< .001	27.20%	41.90%	14.70%	< .001
Mean delay (min)	50.8	38.2	-12.6	< .001	44.7	43.5	-1.2	.54
True completion time (min)	102.1	87.2	-14.9	< .001	105	92.6	-12.4	< .001

MAC/GA, Monitored anesthesia care/general anesthesia.

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What did they Do To improve Efficiency?

- Moved patients to the endoscopy room as soon as the room was free. Pre-procedural steps were completed in the room.
- First patients of each day were taken directly to the endoscopy room to bypass the pre-procedural area.
- Patients arrived earlier to optimize staff readiness.
- Nursing staff received a quarterly bonus if the performance improved.

Gastrointestinal Endoscopy 2014

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The Patients Have a Thing or Two to Say

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Patient Information

- Patient information is key for a high quality service, particularly for obtaining consent.
- Written leaflets should be clear, balanced, and easy to understand.
- The nature of the procedure alternatives and risks should be explained.
- Information provided should include contact telephone numbers for queries before and potential problems which may arise afterwards.
- The needs of ethnic minorities and those with disabilities should be taken into account.

Gastrointestinal Endoscopy in Practice- Science Direct 2019

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Endoscopy 2015

1) 3% patients not satisfied with explanations before the procedure or answers to their questions
2) pain and discomfort-5%
3) 2% considered comfort or intimacy in the recovery room pool
4) 2% of patients not satisfied with waiting time before procedure

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Patient Survey - 2019

- 1) **Communication:** Satisfied with explanation before the procedure or with answers to the questions ?- 3% dissatisfied
- 2) **Pain and discomfort:** 5% related to colonoscopies. Female, anxiety, low sedation, longer procedures, equals higher pain score.
- 3) **The environment:** Intimacy in the recovery room is poor- 2%.
  Waiting time before the procedure is unsatisfactory-2%.
- 4) Distraction inside the endoscopy room was perceived as poor nursing care
- 5) Team skills: Poor 2%

Current health science journal 2019

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Appointments were canceled:

- usually in those unmarried
- psychiatric and substance abuse diagnoses
- no personal history of polyps
- longer appointment leading time

Clinical Gastroenterology and Hepatology 2016

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The role of a nurse telephone call to prevent no-shows in endoscopy

- A nurse telephone call to the patients 7 days pre procedure was compared to a mail reminder.
- There was a 33% reduction no show visits.

Gastrointestinal Endoscopy 2016

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Interventional Endoscopy Efficiency Metrics At A Tertiary Academic Medical Center- Benchmarks To Improve Efficiency

- Measurements included
- 1) First case start time delay - anytime the first patient of the day entered the endoscopy room after the scheduled time: 54%
- 2) Nonprocedural time: 67% total day
- 3) Time from one patient departing the endoscopy suite until next next patient arrived in the room. 37 minutes-54% of total time

Endoscopy International open 2016

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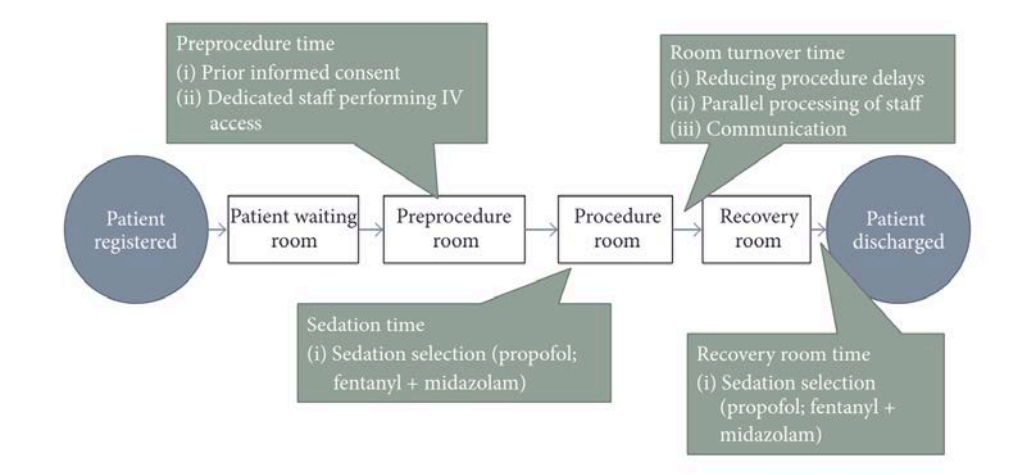
Factors that can streamline endoscopy center workflow processes and improve efficiency.



Gastroenterology Research and Practice 2015

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The Take Home From Today

COMMUNICATE
COMMUNICATE
COMMUNICATE

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Many thanks to the Ward staff, the endo RNs and LPNs, the service aides, and the clerical staff for ideas and hints.

We should start with a few metrics at home!

RJB

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And Do You Have An Idea Or Two?

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