# IMPACT OF ENDOSCOPE CHOICE ON NURSE TIME IN GI SURGICAL PROCEDURES: A PROSPECTIVE STUDY IN A DANISH UNIVERSITY HOSPITAL

Nielsen, Kirsten; Russell, Rasmus Vinther; Adamsen, Sven

### OBJECTIVE

Healthcare staff shortage presents an ongoing and increasing challenge. The scarcity of nurses strains healthcare delivery, may lead to longer waiting times, reduced access to care, and compromise patient safety. This study investigated the incremental time-of-use specifically related to reusable endoscopes spent by nurses in a gastrointestinal operating theatre with decentralized reprocessing.

#### CONCLUSION

The substantial personnel-dependent handling time of 38 minutes per procedure, of which 62% is related to cleaning, indicates that a single-use endoscope setup could alleviate nurse shortage due to workflow optimization. This would

#### **METHODS**

Prospective data was collected from a gastrointestinal surgical department of a Danish University Hospital over 12 days in March 2021. Nurse time expenditure for endoscope handling, reprocessing, maintenance, and procedure preparation was systematically recorded. Time spent on additional activities like sending tubes for sterilization, filling reprocessing equipment, handling the automated endoscope reprocessor fault reports, and ordering reprocessing equipment was also included. Missing data points were imputed by means. The Mann-Whitney U test was used to compare reprocessing time variations between gastroscopes and colonoscopes

## allow the nurses to use time more efficiently for other tasks in the workflow.

With a profound shortage of nurses, interventions are crucial to mitigate its impact on healthcare delivery and to optimize work conditions. Therefore, focusing on nurses' workflow and implementing strategies to optimize efficiency and resource allocation is essential. Such measures can help alleviate the challenges caused by the nurse shortage and enhance healthcare delivery in the face of limited resources.

## RESULTS

There was no difference in nurse time spent between colonoscope (n=9) and gastroscope (n=6) handling (P>0.05).

The average nurse time spent per procedure was 38 minutes and 24 seconds, IGR: [36:14-39:01], and distributed as follows:



Prepare pre-cleaning 10%, Transport 6%, Pre-cleaning 8%, Prepare manual cleaning 7%, Manual cleaning 37%, Documentation 1%, Storage handling 14%, and Additional time 16%

Additional time includes sending tubes to sterilization, handling of AER fault reporting, ordering and filling of reprocessing equipment.





(incl. manual leakage test, external and internal cleaning, brushing and filling the In the separated washing machine) reprocessing room Documentation of cleaning (registration of scope id, pt id etc.) Storage in drying cabinet finished machine wash

Indicates a personnel/nurse-dependent task

Graph 1: Distribution of the average personnel dependent reprocessing time of a reusable gastroenteric setup

Graph 2: Steps of reprocessing of a reusable endoscopy setup compared to a single-use endoscopy setup at a Danish University Hospital with decentralized reprocessing.