INTRODUCTION

Flexible cystoscopy is a minimally invasive procedure performed to diagnose and treat conditions impacting the bladder and urethra. Single-use cystoscopes such as the Ambu[®] aScope[™] 4 Cysto eliminate the need for reprocessing and ensure that a new, sterile cystoscope is available at all times for every patient. By transitioning from a reusable to single-use platform you are also doing your part to reduce flexible endoscopy's environmental impact.



OBJECTIVE

The objective of this study was to compare the hands-on labor time differences between flexible reusable cystoscopes versus single-use cystoscopes at a large urology Ambulatory Surgery Center (ASC).

MATERIALS AND METHODS

- Procedures were shadowed between Feb. 1-7 and March 22-24, 2021
- Timestamps were collected for the following: preparation of the cystoscope and tray (Reusable, RU=31, Single-use, SU=20)
- Pre-cleaning of reusable cystoscopes (RU=20), and tray breakdown and disposal of single-use cystoscopes (RU=20, SU=20)
- Time for reprocessing of reusable cystoscopes was measured for a subset of scopes (RU=4).
- Timestamps for each aforementioned step were averaged, then summed, to arrive at a total hands-on time required for reusable and single-use cystoscopes.
- T-tests were calculated to compare the differences between each cohort.



A diagram outlining the flow of the cystoscope procedure can be found below. The darker blue boxes highlight where timestamps were collected:



WORKFLOW EFFICIENCIES FOR FLEXIBLE CYSTOSCOPY: Comparing Single-Use vs. Reusable Cystoscopes

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RESULTS

Single-use cystoscopes required less hands-on time for tray preparation (173.7s vs. 96.8s; p<0.001), cystoscope breakdown (120.1s vs. 45.3s; p<0.001), and reprocessing (421.8s vs 0.0s; p=0.003). The total average hands-on time needed for reusable flexible cystoscope preparation, breakdown of the tray, and pre-cleaning of the cystoscope and reprocessing was 80.1% more than the total average hands-on time needed for the same steps with single-use cystoscopes (715.6s vs. 142.1s).

LIMITATIONS

This study took place at an at an Ambulatory Surgery Center that strictly focuses on urologic procedures and conditions; therefore, these results may not be generalizable. Increases in steps and time for reprocessing have been recommended by AORN and AAMI, therefore we would expect the differences in savings time between single-use and reusable scopes to increase, especially for the time observed for reprocessing. This study included a sample size of more than 20 total cystoscopies with each endoscope type. Future research should be performed with a larger and more generalizable population.

CONCLUSION

Through this finding, the facility was able to minimize patient wait times, decrease total time related to reprocessing, and freed up time for nursing staff by eliminating the need to transport scopes. The time savings outlined in this study, on average, of 2 minutes and 31 seconds per cystoscopy via pre-procedure preparation and post-procedure breakdown (without time necessary for reprocessing, or downtime waiting for scopes) translates to roughly 20 additional minutes gained per day, based on an 8 procedures per day volume.

In addition, given the updating guidelines for reprocessing we would expect even greater differences as facilities implement the new guidelines. By improving such workflow efficiencies, facilities may see in increase in patient throughput and total annual procedure volumes.

Procedure Step	Reusable Mean (95% CI)	Single-use Mean (95% Cl)	P-value
Cystoscope & Tray Preparation	173.7s (157.7-189.7)	96.8s (77.5-116.0)	<.001
Cystoscope Breakdown	120.1s (97.3-142.9)	45.3s (38.8-51.7)	<.001
Cystoscope Reprocessing	421.8s (240.45-603.1)	0s	0.003
Total	715.6s	142.1s	

HSD40



Single-use cystoscopes significantly reduced hands-on labor time required for cystoscope preparation and breakdown compared to reusable cystoscopes.