



# Cost-Effectiveness of 90-Day Single-Use Flexible Cystoscopy Trial: Single Center Micro-Costing Analysis

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## BACKGROUND

- Flexible cystoscopy = invaluable for evaluation and management of hospital based urologic care (ED, Intraop, Inpatients)
- Reusable scope \$ = upfront purchasing, processing & service costs
- Recent advances in single-use flexible cystoscopes (ex. AMBU® aScope™ 4 cysto) provide alternative option

## OBJECTIVES

**Primary:** 90-Day cost effectiveness evaluation of utilizing single-use flexible cystoscopy at tertiary care center

**Secondary:** Examine urology team assessment of single use cystoscopy

## METHODS

- 90-Day trial (Nov 1, 2020 – Jan 29, 2021)
- Urologic care provided with single use disposable cystoscopy (reusable only if single use failed/unavailable)
- Micro-costing analysis examining per case cost of reusable (including servicing & processing) vs. cost of single-use
- Per-use provider (PA-C, residents, fellows, urologists) surveys along with interval surveys examining product
- 10 point Likert scale (1 worse, 5 equivalent, 10 better): visual quality, deflection quality, ease of working channel, overall satisfaction vs. baseline reusable

### 90-Day Usage:

- 84 total cases (78 operative, 5 inpatient, 1 ED)
- 78/84 (93%) completed successfully with 1 single-use cystoscopy
- 6 Failures (4 intraop, 2 inaccessible scope/monitor)

Table 1: Per-use processing costs for reusable cystoscopy

PPE for Decontamination	\$2.00
Cleaning Brush	\$13.58
Salary for 30 minutes	\$12.25
Sterrad Indicator	\$0.07
Underguard	\$0.57
Sterilization Wrapper	\$1.39
Sterrad Tape	\$0.09
Salary for 30 minutes	\$12.25
Cyclesure Biological	\$11.08
Cassette of Hydrogen Peroxide	\$11.47
Salary for 15 minutes	\$6.12
<b>Total</b>	<b>\$70.87</b>

**+** Annual Reusable Scope Service Costs

**Total Annual Uses**  
\* Average from 3 consecutive years

**Reusable = \$272.41/use**  
\* Not including initial scope purchases or monitor maintenance

**Single-use Disposable = \$185.00/use**  
\* Not including mobile monitor(s) purchase cost

Assuming an average 3-month case volume of 140 uses (average for past 3 years) and a single-use cystoscopy failure rate (requiring a reusable cystoscopy) 3x/month, with all failures utilizing a single-use scope first, annual cost savings of transitioning to primarily single-use disposable cystoscopy at our center = **\$39,142.84 saved annually**

## RESULTS

Table 2: 3-Month Cost Extrapolation by Case Volume and Failure Rate

	Cost for 110 cases within 3month period	Assuming all times reusable scope was used a single-use was tried first	Assuming 75% of the time reusable scope was used a single-use was tried first
Reusable cystoscopes only	29965.10	n/a	n/a
Single-use cystoscopes only	20350.00	n/a	n/a
Single-use + backup 2/mon reusable	20874.46	21984.46	21706.96
Single-use + backup 3/mon reusable	21136.69	22801.69	22385.44
Single-use + backup 4/mon reusable	21398.92	23618.92	23063.92
Single-use + backup 10/mon reusable	22972.30	28522.30	27134.80

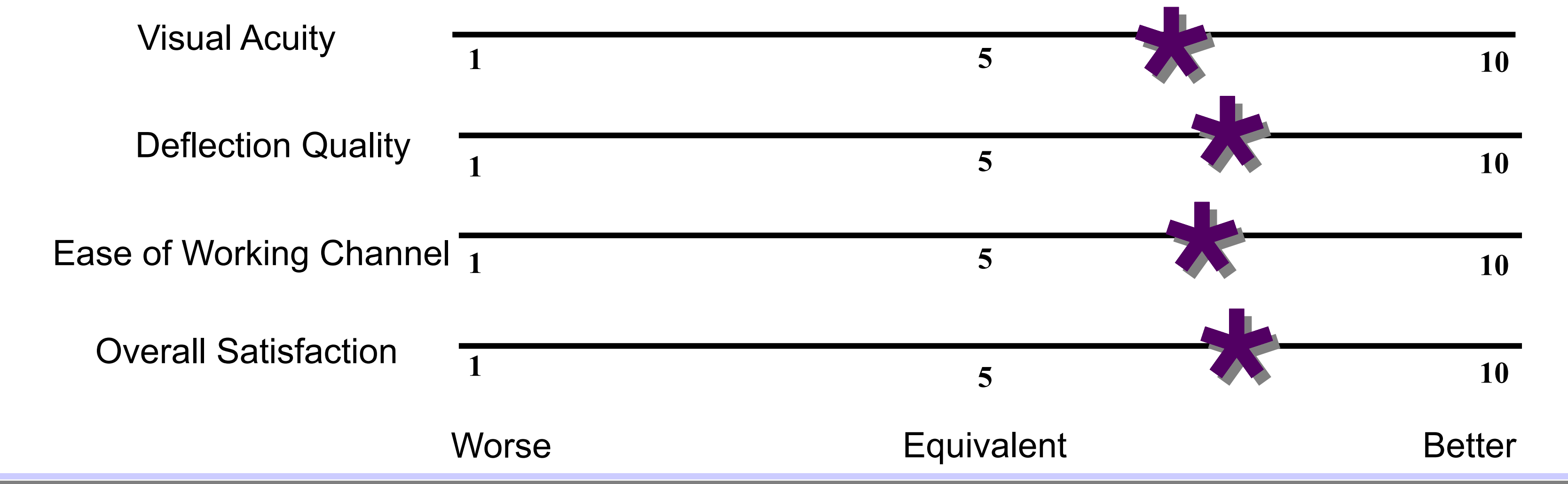
	Cost for 140 cases within 3month period	Assuming all times reusable scope was used a single-use was tried first	Assuming 75% of the time reusable scope was used a single-use was tried first
Reusable cystoscopes only	38137.40	n/a	n/a
Single-use cystoscopes only	25900.00	n/a	n/a
Single-use + backup 2/mon reusable	26424.46	27534.46	27256.96
Single-use + backup 3/mon reusable	26686.69	28351.69	27935.44
Single-use + backup 4/mon reusable	26948.92	29168.92	28613.92
Single-use + backup 10/mon reusable	28522.30	34072.30	32684.80

Favors Transition to Single-use Flexible Cystoscopy

As long as 3-month case volume is >37 cases and failure rate <5/month, even with all failures utilizing a single-use cystoscopy first, there is cost savings transitioning to disposable.

### Urology Team Use Surveys

- 73 per-use surveys (87% of uses)



## CONCLUSIONS

- This single center 90-Day trial of single-use flexible cystoscopes identified that based on our micro-costing analysis, **per-use costs favor the single-use flexible cystoscopy.**
- Majority of urology team providers identified improvements compared to baseline reusable scope in all 4 domains, including overall satisfaction.