

Glendale Adventist Hospital Incremental Cost of Reprocessing Reusable Laryngoscopes Blades & Handles

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Study Focus

The below calculations show the incremental costs of cleaning reusable laryngoscope handles & blades in the central sterile department of Glendale Adventist Hospital. These costs are not meant to reflect total cost, but rather the incremental costs strictly associated with reusable laryngoscope cleaning as a portion of what is already being done. Therefore, no costs such as space, management overheads, hiring, etc. are included. Only the costs that would be saved if the hospital were to stop reprocessing both reusable laryngoscope blades and handles.

Study Methodology

Careful attention was paid to review each step of the cleaning process of reusable laryngoscope blades and handles within the hospital. This study was completed by methodically tracking laryngoscopes from the time of use to the time of return. Each step of the process was documented. Information about product costs, labor costs, vendor costs, and otherwise, were gleaned from hospital staff, purchasing, and 3rd party service providers. The costs were then calculated based on total costs absorbed.

Outcome

As a result of the study, it was found that Glendale Adventist Hospital is incurring \$129,854 in reprocessing costs directly associated with reusable laryngoscope blades and handles annually. With an estimated 5,000 intubations per year, this results in an average cost/intubation of \$25.97. Table 1 on the following page shows a breakdown of the costs found within this study.

Furthermore, this does not include the potential impact from reducing the occurrence of hospital acquired infections. In addition to patient care issues, this financial liability has been conservatively estimated at \$40,000 per hospital acquired infection occurrence. Assuming that even one reduction in hospital acquired infection is prevented by utilizing single-use laryngoscopes, this offers an additional savings of \$8 per intubation for Glendale Adventist Hospital.

Conclusions

After evaluating the cost ramifications of cleaning reusable blades and handles, the costs of reprocessing laryngoscope blades and handles exceed the costs of utilizing Flexicare's single-use laryngoscope blades and handles. Furthermore, the single-use items offer the hospital the following benefits beyond the financial savings:

- No risk of cross-contamination leading to better patient care and reduced financial liability
- Brighter illumination leading to better success in intubation
- Consistent quality without the damage and loss that occurs with reusable laryngoscopes
- Current reusable devices have a failure rate in use of between 20-30%, this would not occur with new single-use product each time.
- All single-use blades and handles come sterile single packaged and in compliance with Joint Commission guidelines.

Based upon the above, it is my recommendation that Glendale Adventist make the change from utilizing reusable laryngoscope blades and handles to utilizing the single-use blades and handles from Flexicare.

Table 1 – Cost of Cleaning Reusable Laryngoscope Blades & Handles

	Annual Savings
<u>Soaking/Cleaning</u>	
Time to process total soaking, instruments, cleaner, etc. (blades only)	8,333
Time to process, disassemble, clean, soak, etc. (handles only)	5,000
Cleaning Bucket is used an average of 30X	625
Instruments cleaned by Instru-Klenz by Steris (2oz/gal)	1,367
Average brush or wipe time is 1min/blade or handle (25% are scrubbed with brush)	2,083
Brush is used an average of 20X before disposal (25% are scrubbed with a brush)	938
	18,346
<u>Washing</u>	
5-10 washes per day with the average # of cycles at 7.5/day on average include laryngoscopes. If laryngoscopes were not cleaned and sterilized, cycles could be reduced to 4 per day.	
75% of cycles run with other items	780
25% of cycles run by themselves	650
Transfer to Washer while Wet	1,040
45 Minute Cycle - Cost/Cycle is \$2.74 (sterile water, detergent, etc.) + \$1 equipment wear/tear and the number of cycles could be reduced from average of 7.5 to 4/day	3,403
	5,873
<u>Sterilization</u>	
Total Time/Blade for Sterilization Preparation	33,333
(Dry wet items with towel, batteries and lights tested, bagged, add strip, transfer, etc.)	
Bag Cost	3,125
Sterile Strip Cost	938
1 Towel/load	975
Sterrad Sterilization - # of sterilization cycles to be reduced from 7.5 to 4.	
Cost/Load	12,740
Energy/Load	320
Labor Time	728
Machine Wear/Tear Per Load	6,894
	59,053
<u>Final Preparation (Total Time)</u>	
Processing Time/Blade (Transfer, Dry, Test, Assemble, Bag, Replace Batteries, etc.)	41,667
	41,667
<u>Loss During Entire Process</u>	
Failures - 5% bulb failure at cost of \$2.16/bulb	2,700
6 Trays/Year	210
3-4 Handles/Month	630
5-10 Blades/Month	990
12-20 Batteries Per Month (C Batteries)	384
	4,914
Total Annual Cost to Utilize Reusable Laryngoscope Blades & Handles	129,854
Cost/Intubation	25.97

* Costs only include 5 days/week and does not include weekend activities which are incremental costs to the above.

** Costs do not include general wear and lack of performance in reusable blades/handle over time. Eventually all need to be replaced.