

A COMPARISON OF USER SATISFACTION WITH SINGLE-USE FLEXIBLE BRONCHOSCOPES

Ajay Wagh¹, Majid Shafiq², Jonathan Kurman³, Audra Schwalk⁴, David Hoffman⁵, Christina Cool⁵
 1. University of Chicago 2. Brigham and Women's Hospital 3. Medical College of Wisconsin 4. University of Texas Southwestern 5. Ambu USA

INTRODUCTION

Single-use flexible bronchoscopes (SUFB) were first introduced in 2009 and while newer versions are available, residual scrutiny exists around the performance of these scopes when compared to reusable flexible bronchoscopes (RFB), specifically related to image quality, maneuverability, and overall performance. Given the evolution of these scopes over the past 14 years, this study aimed to evaluate the performance of the latest generation SUFBs.

METHODS

Seven interventional pulmonologists performed two bronchoalveolar lavages (BALs) on low fidelity lung models to evaluate five SUFBs

- SUFBs used:
 - Ambu aScope 5 Broncho
 - Ambu aScope 4 Broncho
 - Boston Scientific Exalt-B
 - Olympus H-SteriScope
 - Verathon B-Flex
- Ambu scopes used an integrated sampling system while the others used a Lukens trap
- After BAL completion with each scope, each participant answered a nine-question survey evaluating scope performance (1 = unacceptable, 3 = satisfactory, 5 = excellent)



A) Low Fidelity Lung Model
 B) Endotracheal Tube
 C) Reservoir

RESULTS

Average Rating of Single-Use Bronchoscope Metrics

Survey Question	Ambu aScope 5	Ambu aScope 4	Boston Scientific Exalt-B	Olympus H-SteriScope	Verathon B-Flex
Overall comfort/ergonomics	4.7	3.7	3.9	3.1	2.6
Overall ease of use	5.0	4.4	4.3	3.7	2.3
Ease of reaching the suction button	5.0	4.7	4.7	4.6	4.6
Image quality - Field of view	5.0	4.1	4.7	4.1	3.7
Image quality - Depth of field	4.9	4.0	3.7	3.9	3.6
Maneuverability during airway inspection	5.0	4.0	4.3	3.9	3.1
Maneuverability into difficult segmental airways	4.9	4.1	4.6	4.3	3.3
Perception of efficacy	4.9	4.0	4.4	3.9	2.6
Overall performance assessment/score	5.0	4.1	4.1	3.1	2.7
Average	4.9	4.1	4.3	3.8	3.2



BAL with integrated sampling system



BAL with Lukens trap

DISCUSSION

- All SUFBs were rated as at least satisfactory (3/5) in image quality, maneuverability, and performance
- The Ambu aScope 5 received an overall performance score of excellent (5/5) from all participants in the study
- The aScope 5 Broncho scored the highest in all categories measured
- Additional studies should continue to evaluate the difference in these scopes with a larger sample size including clinicians from different backgrounds

CONCLUSION

This analysis reviewed image quality, maneuverability, and performance and rated all but one SUFB as at least satisfactory, with one scope being rated as excellent. The latest generation of SUFBs may provide comparable operating characteristics to RFBs and are likely acceptable for more complex bronchoscopic procedures.