Can J Anesth/J Can Anesth (2017) 64:771–772
DOI 10.1007/s12630-017-0890-4

CORRESPONDENCE

Anesthesia bronchoscopes and CSA Standard Z314.8-14

Andrew Walker, PhD · Michael Coutts, RRT · Jan M. Davies, MSc, MD, FRCPC

Received: 19 December 2016 / Accepted: 18 April 2017 / Published online: 4 May 2017

To the Editor,

Over the past four decades, the Canadian Standards Association (CSA) has been an invaluable resource for anesthesiologists, especially with respect to the safety of anesthesia machines and gas delivery systems. In 2014, a new CSA Standard, Z314.8-14, "Decontamination of reusable medical devices", was released.[1] On reviewing the new Standard, we became concerned with respect to certain reusable medical devices, specifically the bronchoscopes used by anesthesiologists to effect airway access. We were concerned with two notes and one special requirement (Table). Surprisingly, supporting references provided by CSA were absent or limited. We conducted searches of the pertinent literature, which yielded no studies supporting the CSA statements in the Table. However, we did find publications that supported our current practice, which is not to reprocess bronchoscopes before use and to preassemble the bronchoscopes (Appendix available as Electronic Supplementary Material for an annotated bibliography).

Table Notes and special requirements of concern in relation to reusable medical device from CSA Z314.8-14, "Decontamination of reusable medical devices"[1]

Note/Special Requirement	Description	Supporting Reference(s)
Point 2, Note to CSA Special Requirement 11.8.1	"Most of the documented cases of infection by flexible endoscopes are related to bronchoscopes. Bronchoscopes and cystoscopes enter sterile body cavities (i.e., lung and bladder) and during use there is a substantial amount of liquid that is flushed through the biopsy and irrigation ports directly into the sterile body cavity."	None
Point 3, Note to CSA Special Requirement 11.8.1	"If sterilization of bronchoscopes is not possible, bronchoscopes should at a minimum be reprocessed by high-level disinfection prior to patient-use if stored 12 hr or more since last being reprocessed."	Clinical Update. Infection Control in Endoscopy.[2] (See Appendix available as Electronic Supplementary Material)

This letter is accompanied by a reply. Please see Can J Anesth 2017; 64: this issue.

Electronic supplementary material The online version of this article (doi:10.1007/s12630-017-0890-4) contains supplementary material, which is available to authorized users.

A. Walker, PhD · M. Coutts, RRT
Department of Anesthesia, Calgary Zone, Alberta Health Services, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

A. Walker, PhD · M. Coutts, RRT · J. M. Davies, MSc, MD, FRCPC (✉)
Department of Anesthesia, Foothills Medical Centre, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada
e-mail: jdavies@ucalgary.ca

J. M. Davies, MSc, MD, FRCPC
Department of Anesthesia, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

Table continued

Note/Special Requirement	Description	Supporting Reference(s)
CSA Special Requirement 11.8.2	"If a bronchoscope is kept in inventory for emergency procedures, it shall be sterilized and stored in an appropriate sterilization container to be readily available."	None

CSA = Canadian Standards Association

We reviewed our anesthetic practice in Calgary with respect to the sterilization/disinfection of bronchoscopes used by anesthesiologists to effect airway access and not to perform biopsies or bronchoalveolar lavage. After each use, all Calgary Zone Department of Anesthesia bronchoscopes are manually cleaned and then sterilised or undergo high-level disinfection (HLD), according to Alberta Health Services (AHS) Infection Prevention and Control (IP&C) standards. The scopes are not reprocessed every 12 hr. Bronchoscopes are used so frequently that each scope is used and cleaned about every seven days. With respect to patient safety and financial/human resources, if we were to process our bronchoscopes every 12 hr by HLD, it could have a significant, negative effect on patient care. During the additional cleaning times for sterilization/HLD disinfection, bronchoscopes would not be available to anesthesiologists because of the long processing turnaround times and lack of general inventory of these expensive items. Also, additional sterilization/HLD disinfection could have a significant, negative effect on bronchoscope availability due to increased scope breakage from additional handling during processing and increased "wear and tear" on the scopes from multiple processing cycles. Average repair costs are CAD 7,000. In the event a scope cannot be repaired, a new scope must then be purchased at a cost approaching CAD 25,000.

The current storage practice in three of four adult hospitals in the Calgary Zone Department of Anesthesia is to have the bronchoscopes preassembled by an anesthesia respiratory therapist. Some of the scopes are hung in a special cabinet in the operating room storage area. Other scopes are on a dedicated Difficult Airway Management Cart. This practice ensures that an anesthesiologist has a bronchoscope fitted with the correct connectors and working (light, focus, suction), ready for use in an emergency.

Recently, AHS IP&C has required that we implement the CSA recommendations in 11.8.2. This poses two problems: 1) space is limited on the difficult airway management cart for sterile bronchoscope containers and 2) assembly of the bronchoscope is impractical in an emergency if clinical support by an anesthesia respiratory therapist is not available. The latter point is of concern, given the difficulty and time required for assembly by an anesthesiologist whose attention is focused on maintaining a patient's difficult/challenging airway. To address AHS's requirement, we have proposed the availability and use of disposable bronchoscopes at an added start-up cost to the department of CAD 11,800.

Alberta Health Services' adoption of the CSA recommendations suggests that patients are currently at risk of harm from current practices.[3] We are still actively pursuing evidence-based conclusions that support changing to the CSA recommendations.

Conflict of interest The authors disclose that their only funding sources in support of this submitted work were from the University of Calgary (Jan M. Davies) or from Alberta Health Services (Andrew Walker & Michael Coutts). None of the authors (Jan M. Davies, Andrew Walker, or Michael Coutts) has any commercial or non-commercial affiliations, or any other associations, such as consultancies, that are or may be perceived to be a conflict of interest with the submitted work.

Editorial responsibility This submission was handled by Dr. Gregory L. Bryson, Deputy Editor-in-Chief, *Canadian Journal of Anesthesia.*

References

1. *American National Standards Institute*. Decontamination of Reusable Medical Devices. CSA Standard Z314.8-2014, 4th Edition. Rexdale: Canadian Standards Association; 2014.
2. *Gastroenterological Society of Australia and Gastroenterological Nurses College of Australia.* Clinical Update - Infection Control in Endoscopy - Third Edition, 2010. Mulgrave, Victoria. Available from URL: http://membes.gesa.org.au/membes/files/Clinical%20Guidelines%20and%20Updates/Infection_Control_in_Endoscopy_Guidelines_2014.pdf (accessed January 2017).
3. *Stahl DL*, *Richard KM*, *Papadimos TJ*. Complications of bronchoscopy: a concise synopsis. Int J Crit Illn Inj Sci 2015; 5: 189-95.