Safe use of anaesthetic equipment & prevention of cross-infection

Anaesthetic equipment discussed in this document relates to tracheal tubes, catheter mounts, bacterial/viral filters and anaesthetic breathing circuits both reusable and those marked "**single use only**". Anaesthetic breathing circuits have the potential to transmit infection to subsequent patients.

Evidence supporting a range of timeframes for the safe ongoing use of circuits is being produced, and some suppliers of anaesthetic circuits now document a recommended duration for this to occur. Both the Australian and New Zealand College of Anaesthetists[1] and the Association of Anaesthetists of Great Britain & Ireland[2] recognise that breathing circuits, whether marked reusable or "single use only", are commonly used safely for up to seven days provided that a new bacterial/viral filter is used with every patient.

Anaesthetic equipment must always be used in consultation with the manufacturer's instructions for use (IFU), including any warnings or symbols printed on the packaging. Where manufacturers indicate a safe period of use for anaesthetic equipment, the user is responsible for determining whether this period is intended for use on one patient only (Single Patient Use) or if the equipment may be used on different patients throughout that time. Any procedures for the safe use of the equipment during that time must be specified in the IFU and must comply with relevant national standards.

The Australian Regulatory Guidelines for Medical Devices[3] states that reuse of single use devices (SUDs) constitutes remanufacture. This is a defined term and indicates that reprocessing or modifying the intended purpose of the device has occurred. New actions by the user may also be required to maintain the intended level of safety. Therefore, devices designated as SUDs by the manufacturer should not be reused. The following steps relating to continues use of anaesthesia breathing circuits are supported by published evidence[4,5,6]:

1. Anaesthetic breathing circuits may be safely used for a period of up to seven days as per manufacturer's IFU. However, if visibly contaminated or used for high-risk infectious cases (e.g. tuberculosis) the circuits should be discarded once the procedure is complete.[2]

2. A bacterial/viral filter **MUST** be positioned between the circuit and the catheter mount/airway device (patient end of circuit). The bacterial/viral filter **MUST** be discarded after each case and a new filter fitted for each patient.

3. All medical devices in direct contact with the patient **MUST BE CHANGED AFTER EACH CASE** i.e. tracheal tubes and catheter mount.

    a) items labelled "single use only" are to be discarded after the episode of use.

    b) multiple use products are to be reprocessed (cleaned, high-level disinfected or sterilised) as recommended by the manufacturer between each patient. This includes any tubing or device that is in contact with a patient.

4. Bacterial/viral filters placed at the machine end of the circuit should be changed weekly in accordance with the manufacturer's IFU.

5. External surfaces of all anaesthetic equipment, including circuits **MUST** be wiped over with detergent and water between cases, or a suitable disinfectant as indicated.

Note: Hand hygiene by the anaesthetist and anaesthetic assistants remains one of the most important infection control measures to reduce the risk of health care associated infections linked to anaesthesia, and must be carried out in accordance with the 5 Moments of hand hygiene.[7,8]

References

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2. Association of Anaesthetists of Great Britain & Ireland. 2020. Infection Prevention & Control. Available at: https://anaesthetists.org/Home/Resources-publications/Guidelines/Infection-prevention-and-control-2020

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5. Hübner NO, Daeschlein G, Lehmann C, Musatkin S, Kohlheim U, Gibb A, Assadian O, Kobayashi H. Microbiological safety and cost-effectiveness of weekly breathing circuit changes in combination with heat moisture exchange filters: a prospective longitudinal clinical survey. GMS Krankenhaushyg Interdiszip. 2011;6(1):Doc15. DOI: 10.3205/dgkh000172

6. McGain, F., Algie, C. M., O'Toole, J., Lim, T. F., Mohebbi, M., Story, D. A., & Leder, K. (2014). The microbiological and sustainability effects of washing anaesthesia breathing circuits less frequently. Anaesthesia, 69(4), 337–342. https://doi.org/10.1111/anae.12563

7. World Alliance for Patient Safety. WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care is Safer Care. World Health Organisation; 2009 http://www.who.int/gpsc/5may/tools/9789241597906/en/

8. National Hand Hygiene Initiative. https://www.safetyandquality.gov.au/sites/default/files/2020-05/nhhi_user_manual.pdf

Other Sources of information:

> SA Health Fact Sheet – Single Use Medical Devices
> https://www.sahealth.sa.gov.au/wps/wcm/connect/70411000411d3ae484e2cc189ce06e0d/FactSheet-single-use-devices-v1.4-ics-20200331.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-70411000411d3ae484e2cc189ce06e0d-n79FyyP

> Australian/New Zealand Standard 4187: *Reprocessing of reusable medical devices in health service organizations*

For more information

Infection Control Service
Communicable Disease Control Branch
Telephone: 1300 232 272
www.sahealth.sa.gov.au/infectionprevention
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www.ausgoal.gov.au/creative-commons

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