Water quality for instrument reprocessing during extreme seasonal fluctuations

**Issue**

Water supplies from areas that have been affected by flood or drought that is provided to healthcare facilities can vary in quality. During extreme seasonal fluctuations the water quality used for instrument reprocessing needs to be closely monitored to minimise the risk of healthcare associated infection, instrument and equipment damage.

**Recommendations**


AS 1410:2003 page 39, has suggested limits for contaminants in sterilizer feed water for steam generation.

Liaise with the hospital/facilities engineering department or local council to ensure the quality of the water provided to areas within your facility that reprocess instruments remains of the quality required for the washing process, washing/ decontamination/sterilization equipment and the chemicals currently in use.

There may be other machines that filter water and a decrease in water quality may require more frequent maintenance, for example, water softener regeneration schedules may need to be reviewed, water filtration units such as RO plants and other systems utilizing filters may require filter and or membrane changes above and beyond the regular maintenance schedules.

Automatic flexible endoscope reprocessors (AFER’s) should undergo daily filter pressure monitoring and documentation. Filter changes may be required more frequently at this time due to the possible increase in water particulates.

Water hardness is determined by the amount of calcium and magnesium ions present in the water and can be easily tested with test kits available from most chemical manufacturers. Water should be considered "soft" when the total magnesium and calcium ions dissolved in the sample can be measured to be less than 10ppm.

High water hardness will leave a white-grey coloured residue on all types of surfaces, which in the case of instruments will shorten their life span, but more importantly, these contaminants may pose a risk to patient safety. Water hardness also affects the activity of the detergent, requiring increased concentrations."

Fluctuations in chlorine levels are also quite common during disruptions to or changes in our reticulated water supplies. Low chlorine levels can result in increased bacterial levels in water filtration units. Increased bacterial levels are exacerbated in these water filtration systems because the final filtration stages of the system will remove chlorine. Given the lack of chlorine, build up of biofilm can occur in the system, therefore, a preventative maintenance program should be in place for the water supply system including filtration system and interconnecting pipes to the machine. All pipe work may need to be cleaned and sanitized.

If high levels bacteria are found, the machine using this filtered water should not be used until the system is cleaned, sanitized, and retested with confirmation of negative results. Equipment manufacturer should be able to assist with the above process, and procedures. For facilities using water without any additional onsite treatment there is a need to be especially diligent to monitor the quality of their incoming water. Daily monitoring may be required. Infection Control in Endoscopy (3rd Edition 2010) page 42 provides guidance for the interpretation of positive cultures from AFER’s and Endoscopes.

**Principal Guidelines**

AS/NZS 4187:2003 Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities

AS/NZS 4815:2006 Office-based health care facilities— Reprocessing of reusable medical and surgical instruments and equipment, and maintenance of the associated environment

AS 1410:2003 Sterilizers - Steam - Pre-vacuum

Infection control in endoscopy 3rd ed. Victoria: Gastroenterological Society of Australia; 2010

For additional information and other readings please visit http://www.health.qld.gov.au/chrisp/resources/advisories.asp

**Suggested actions**

- Ascertain water quality and determine types and frequency of water testing. Check with your engineering/maintenance department or local council for the source and quality of the water in use.
- Direct all reprocessing staff to visually monitor instruments and reprocessing equipment and report anomalies.