Rinsing: the most misunderstood step in reprocessing

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As we consider the reprocessing of medical devices, most facilities are diligent in following regulatory guidelines and manufacturer’s instructions for use for cleaning and sterilization of reusable medical devices. While most of the reprocessing in a facility takes place in a centralized department, there are many ancillary areas that perform the same functions e.g., Endoscopy, Respiratory, Anesthesia, Clinics, Outpatient Centers, etc. That being said, if you were to poll your departments and ask about the steps of reprocessing, would rinsing even be mentioned in the reprocessing cycle?

Industry standards
Most of us are familiar with ANSI/AAMI ST documents but how many are familiar with AAMI TIR (Technical Information Report) documents, in particular AAMI TIR34 2014 Water for the reprocessing of medical devices? As you build the resource library for your facility, this document should be included along with the ANSI/AAMI Guideline documents.

ANSI/ AAMI TIR34:2014 states, “The objective of this TIR is to provide guidelines to personnel involved in medical device reprocessing on the quality of water that should be used in various stages of medical device reprocessing. It is also intended to provide guidelines to water service maintenance personnel on establishing and monitoring water treatment systems.”

Water quality
Let’s think about the process and how often water is a component of everything we do: manual cleaning, automated cleaning, steam sterilization; and while equipment does have specific water requirements that should be followed, how many facilities focus on water quality for rinsing of medical devices? Most of us perform the rinse phase with little thought to rinsing being a critical phase in the reprocessing cycle. Let us take a look at the rinse phase and its importance in the reprocessing of medical devices.

In device reprocessing, water can impact patient outcomes and the life of medical instrumentation. We no longer have to just be concerned with improper cleaning causing adverse patient outcomes, but we also need to understand the impact of how improper water quality affects rinsing.

Some examples of how rinsing can impact outcomes are: instrument malfunctions during a patient procedure, due to water deposits causing instrument damage, impacting the correct functioning of the instrument; toxic effects and tissue irritation occurring from residuals left on devices due to inadequate rinsing; and patient infections, occurring from using contaminated devices, due to cross contamination from rinsing in the decontamination sink and/or area.

There are two categories of water quality that are important for medical device reprocessing and the level of water quality that may be needed: 1) utility water (tap water) which may require further treatment to achieve recommended specification, utility water is mainly used for flushing, washing and rinsing. 2) Critical water (extensively...
treated water) which could include a carbon bed, softening, deionized (DI), or reverse osmosis (RO). While tap water can be used for rinsing to ensure a large volume of water is used to remove loosened debris and detergents, the final rinse should be performed with treated water that does not contribute to staining or contamination of the instrument.

While utility water may be used for general reprocessing, it is critical that device manufacturer’s instructions be followed for appropriate rinse water recommendations. It is also critical to ensure you are following manufacturer’s instructions for equipment water recommendations e.g., washer decontaminators, automated endoscope reprocessors (AERs), etc., which may require the use of critical water for appropriate cleaning and rinsing.

**Importance of rinsing**

While decontamination in the Central Sterile Processing Department is considered the centralized area to perform cleaning and rinsing functions, it is important to identify all areas in the facility, including outpatient and clinic areas that perform these functions in your facility, to ensure there is a standardized process and that the same standards that are adhered to in the CSPD are adhered to in the outlying areas.

While there may be awareness in the CSPD of the importance of appropriate rinsing, we may need to provide education to other areas that perform cleaning tasks. As a component of a facility Quality Management System (QMS), a review of processes for standardization should include not only appropriate cleaning per manufacturer’s written instructions, but also appropriate rinsing.

There are multiple points in the process that require rinsing:

- **Point of Use Care & Handling**
- **Mechanical Washing**
- **Decontamination After Manual Cleaning**
- **After High-Level Disinfection**

At point of use the staff should be keeping devices free of gross debris and flushing lumens to prevent the formation of biofilm by allowing bioburden to dry on the devices. One of the challenges at the point of use is the type of solution that is used, saline is often the only solution opened onto the sterile field during a procedure. Staff need to be educated that saline is corrosive to the instruments and that sterile water should be the only solution used for point of use care and handling.

Decontamination of devices/instruments should be taking place in a room separate from the clean processes, or have spatial separation. Although decontamination is a dirty area, it is important to have a designated flow from dirty to clean to prevent cross contamination. Rinsing in the decontamination sink is a point of possible cross contamination; frequent cleaning and disinfection between cleaning of devices should be a routine process.

In the past it was common and probably still today to perform high-level disinfection, either manual or automated in the decontamination area. The challenge then becomes how do you remove and rinse the device without recontamination? When removing a device from manual high-level disinfection the device must be rinsed prior to patient-use and storage, if the high-level disinfection takes place in the decontamination area where do you rinse the device? If you rinse in the decontamination sink you have recontaminated the device, if you use a separate soak basin in the decontamination area, is the basin covered and the lid disinfected to prevent cross contamination through aerosolization? While most automated reprocessors have a rinse cycle, there is still a risk of recontamination if removing the device in the decontamination area.
In mechanical washing the rinse phase is automated, and typically there is a dual rinse with the last rinse being a thermal rinse to achieve thermal disinfection. It is important to understand the washer disinfector’s requirements for what type of water should be used to achieve the best outcomes for the instruments. Water quality differs in all locations. If you see staining, rusting etc. on your instruments as they exit the washer check to ensure the water source meets the required quality, that it is connected and turned on, and that tanks (if applicable) are not empty. Any residual left on a device or instrument is potential for irritation, inflammation, and/or infection when the device or instrument is used in a procedure.

**Device design and point of care**

There may be some devices such as flexible endoscopes that provide cleaning challenges due to the design of the device. Device design not only plays a role in cleaning but also in rinsing. All devices must have manufacturer’s written instructions for use available. Staff must be inserviced and competency assessed for appropriate cleaning. The competency should include appropriate rinsing. There are other instruments such as ophthalmology instruments that require a rinse with sterile or distilled water. If you do not have clear and concise manufacturer’s written instructions for cleaning and rinsing the facility should contact the manufacturer for clarification.

A review of the cleaning processes should be performed in all areas of the facility that perform cleaning. That review should include appropriate rinsing, especially for those specialty devices that require special rinse water, or procedures. A simple auditing tool will assist in verifying compliance. Some examples of inappropriate rinsing include: rinse basins/tubs labeled “change water daily” when water should be changed after every rinse; questioning staff on how many rinses the high-level disinfectant requires and how many are actually performed; and staff stating they change the rinse water when they change the high-level disinfectant which can be from 14 days to 21 days.

**Support of quality management systems**

Staff does not always know what they don’t know. Are there tools and resources available to assist in appropriate cleaning and rinsing of devices? Having the manufacturer’s written instructions, ANSI/AAMI Documents, facility work instructions, policy and procedures and competencies are all key components of staff education, but if the tools are locked in a manager’s office or outdated are they truly tools accessible to the staff? Get creative. Assign staff a guideline of the month to research and present, have staff review manufacturer’s instructions for use and present key points during staff meeting. Education should be ongoing not just a monthly in-service, staff should feel comfortable using the tools to enhance their performance and provide a positive outcome to all customers. 

**References:**

3. AAMI Chemical Sterilization and High-Level Disinfection in Healthcare Facilities – ST58:2013, Arlington, VA AAMI.
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Circle the one correct answer:

1. What resource document is available that discusses rinse water for the reprocessing of medical devices?
   a. ANSI/AAMI ST79
   b. ANSI/AAMI ST58
   c. TIR 34
   d. ANSI/AAMI ST91

2. Poor rinsing can cause:
   a. Instrument damage
   b. Cross contamination
   c. Tissue irritation
   d. All of the above

3. Types of treated rinse can include:
   a. Tap water
   b. Deionized water
   c. Reverse Osmosis water
   d. b & c

4. Utility (tap) water may be used for flushing, washing and rinsing?
   a. True
   b. False

5. The following manufacturer’s written instructions should be followed:
   a. Device
   b. Materials Management
   c. Equipment
   d. a & c

6. Point of use customers should be performing:
   a. Flushing of lumens
   b. Soaking in saline
   c. Keeping devices free of gross contaminant
   d. a & c

7. After High-level Disinfection the rinse water should be changed:
   a. Daily
   b. When HLD is changed
   c. Once per shift
   d. After each rinse

8. A proper work flow includes:
   a. Placing clean devices in the soiled drop off area
   b. A separation of clean and dirty
   c. Rinsing in the decontamination sink
   d. Cleaning in a sub sterile room

9. Tools and resources can include:
   a. Work instructions
   b. Manufacturer’s written instructions for use
   c. Posters
   d. All of the above

10. All departments that perform reprocessing should be audited
    a. True
    b. False

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