
Water Quality in Hospital Device Processing: ECRI's Recommendations



Water plays a pivotal role in the intricate process of cleaning and sterilising medical devices within hospital settings. Understanding the nuances of water quality and its implications on device processing is crucial for maintaining patient safety and operational efficiency. In a note published on its website, ECRI delves into the various facets of water usage in hospitals and outline essential considerations for ensuring optimal outcomes.

Key Water Categories and Quality Metrics for Effective Medical Device Processing

Three primary categories of water are utilised in medical device processing: utility water, critical water, and steam. Each category serves distinct purposes, ranging from point-of-use treatment to final rinsing after high-level disinfection. Utility water, though not of drinking quality, is suitable for most processing stages, while critical water undergoes stringent purification processes to meet specific quality measurements. Steam, produced by central boilers, is integral for sterilisation and requires rigorous quality testing. Several metrics come into play to gauge water quality effectively, including pH, alkalinity, water hardness, bacteria levels, endotoxin content, total organic carbon, and conductivity. These measurements provide insights into the suitability of water for device processing and help identify potential risks such as corrosion, contamination, or ineffectiveness of cleaning agents.

Water Category Selection and Treatment Methods for Optimising Medical Device Cleaning

The choice of water category depends on the stage of the cleaning process. While utility water suffices for initial treatment, critical water is indispensable for final rinsing to ensure thorough disinfection. Mechanical cleaning equipment, such as washers and ultrasonic cleaners, necessitate specific water parameters to optimise performance and prevent damage to delicate instruments. Pre-treatment and purification techniques are instrumental in enhancing water quality prior to use. Pre-treatment methods, including filtration and pH adjustment, mitigate impurities and ensure compatibility with subsequent purification processes. Purification methods such as reverse osmosis, deionisation, and distillation further refine water, removing contaminants to achieve desired purity levels. Once treated, water undergoes distribution and storage before final use. Additional treatments, such as UV irradiation or chemical disinfection, may be employed to maintain water integrity during storage and distribution. Reverse osmosis emerges as a prevalent purification method, effectively eliminating dissolved solutes and microbial contaminants.

Addressing Unique Challenges and Maintaining Standards

Hospitals must remain vigilant in addressing unique circumstances that may impact water quality and processing operations. From resuming activities post-construction to navigating boil-water alerts, proactive measures and quality assurance checks are imperative to uphold standards of safety and efficacy.

Prioritising water quality in medical device processing is indispensable for safeguarding patient well-being and upholding healthcare standards. By adhering to established protocols, hospitals can ensure their sterilisation processes' reliability and effectiveness, fostering a culture of excellence in patient care.

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