

# A case Study: Utilization of ATP Bioluminescence assay in monitoring medical device cleaning process, related equipment , hand hygiene and environment in CSSD

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## 1. Medical Devices



**INTRODUCTION:** Technological advancement in medical device reprocessing requires similar updated monitoring systems in CSSDs cleaning process, equipment, environment and hand hygiene can be monitored effectively for better outcomes. The current CCSD monitoring are qualitative interpretations. Adenosine triphosphate ATP bioluminescence assay measures micro contamination on surfaces expressed in relative light units (RLU) to assess surface cleanliness of reusable medical devices or RMDs, equipment, environment and hand hygiene. This provides a quantitative measurement as a clearer interpretation of surface cleanliness

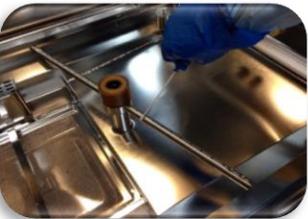
**METHODS:** Processed RMDs are strategically sampled daily on both cleaning utilising an ATP swab sampling. This study will base a  $\leq 50$  RLU as the acceptable limit. Environmental surface and related equipment will be monitored weekly with a pass  $\leq 250$  RLU. Study will base a  $\leq 50$  RLU as limit on related equipment's internal surface. Hand sampling will done pre and post World Health Organization (WHO) Hand Hygiene (HH) Protocol. A  $\leq 50$ RLU as limit post WHO hand hygiene protocol.

**RESULTS:** RMD surface monitoring indicate a consistent pass on all surface sampling from the automated and manual cleaning method. Most readings are  $\leq 20$  about 93% and the rest is within limit. This resulted to lower the limit to  $\leq 25$  RLU. The environmental monitoring provided to change the current environmental wipe. The readings indicate well above recommended  $\leq 250$  RLU as high as 1,689 RLU. The switch resulted in readings within  $\leq 37$  RLU. Pre HH readings as high as 1687 RLU, post records below 98 RLU. Acceptable limits adjusted to  $\leq 100$  RLU.

**CONCLUSION:** As a singular risk hospital area, CSSD requires a clear and concise monitoring result that provides data to decide on rectifying issues as required. A singular simplified system of quality and risk compliance also enables staff engagement. Straightforward information to determine the level of surface cleanliness in CSSD, in this case a quantitative based data. This provides decisive information necessary for immediate rectification.

Preventing Healthcare-Associated Infections by Monitoring the Cleanliness of Medical Devices and Other Critical Points in a Sterilization Service  
Veiga-Malta 2016 NCBI

## 2. Equipment



BS EN ISO 15883-1-2006. Washer Disinfectors. Recommends protein as marker for washer-disinfectant validation, but leaves room for other markers to be used for routine cleaning verification

## 3. Hand hygiene



Acquisition of proteinaceous contamination through the handling of surgical instruments by hospital staff in sterile service departments - Howlin et.al. 2009 EHU

## 4. Environment



Evaluation of ATP bioluminescence swabbing as a monitoring and training tool for effective hospital cleaning  
Willis et. al. 20007 JIP Vol 8 Issue 5 2007