

Endoscopy Rinse Water Testing: 5 Years Experience

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Introduction

- Endoscopes are the most frequently reported medical device associated with cross-infection events
- This is thought to be due to a number of factors which include; inability to tolerate thermal disinfection or sterilization processes, difficulties in accessing contaminated long narrow lumens for cleaning, inspection and disinfection, maintenance in an aseptic state following disinfection and cross-infection from the endoscope cleaning/disinfecting devices (endoscope washer disinfectors (EWD)).
- The penultimate stage in endoscopy reprocessing is the final rinse with water following terminal disinfection and it is essential that this process does not re-introduce contamination. This requires a degree of microbiological and chemical control of the final rinse water.

Discussion

- Rather than adopt a rigid approach to national guidelines we have developed alert and action limits based on longitudinal data.
- The use of trend analysis for TVCs has been suggested by Willis (Willis, 2006). Alert levels are based on x2 standard deviations and action levels x4.
- We have maintained a zero tolerance approach to contamination with *Pseudomonas aeruginosa*.
- We found endotoxin levels correlate poorly with TVCs and have removed this from our testing protocol.
- Recording of adverse results would result in a resumption of weekly testing and appropriate actions

Conclusions

- The use of trend analyses has allowed us to reduce the testing frequency for TVCs from weekly and depending on suitable trend results we believe further cost savings can be made by further extending the test interval.
- Recording of adverse results would result in a resumption of weekly testing and appropriate actions
- The amalgamation of our old units and services into a more centralised system provided us with an opportunity to assemble an appropriate quality control system for endoscope rinse water.
- The success of this programme depends critically on close teamwork and co-operation between estates department, endoscope units, microbiology departments and infection control staff.

Methods

- Endoscope reprocessing in Glasgow was reviewed in 2007-08 in the face of increasing demands and facilities were rationalised and centralised to a smaller number of endoscope reprocessing facilities. We describe our experiences of managing the quality of final endoscope rinse water at these sites.
- The frequency and laboratory testing protocols can be seen in Tables 1 and 2.
- Figure 1 shows the total viable counts (TVCs) over time from one of the EWDs in one of the sites.

Table 1 – Summary of laboratory testing protocols

Organism/Test	Lab Testing Protocol
Total viable count	100 ml filtered, Cultured on TSA (Oxoid), 35°C for 48hrs
<i>Pseudomonas spp.</i>	100ml filtered, Cultured on Pseudomonas C-N selective agar (Oxoid), 35°C for 48hrs, Presumptive colonies ID using Vitek MS
Endotoxin testing	10 ml water, Pyrosate Endotoxin test kit (L.I.N.C medical)
Conductivity testing	Inbuilt conductivity meter on endoscope washer disinfectant
Environmental mycobacteria	100ml filtered into maximum recovery diluent, Centrifuged deposit added to supplemented MGIT tube (BD).
<i>Legionella spp.</i>	200ml sample, Centrifuged deposit resuspended into three samples, 1 heat treated at 50 °C for 30mins, one acid treated with HCl/KCl. Culture on GVPC (Oxoid) 10 days at 36 °C

Table 2 – Summary of rinse water sampling carried out, frequency and alert and action levels

Organism/Test	Frequency Alert and Actions levels
Total viable count	Weekly, alert of 34-68 cfu/100ml and action limit of >68 cfu/100ml for the RO units and an alert of 41-82 cfu/100ml and action limit of >82 cfu/100ml for the EWD baths
<i>Pseudomonas spp.</i>	Weekly, The alert and action limits are both 0 cfu/100ml
Endotoxin testing	No longer tested, suitable actions and alert levels not identified.
Conductivity testing	Weekly, the alert and action levels are both 30 µS.cm ⁻¹
Environmental mycobacteria	Annual, alert and action levels are both >0/100ml
<i>Legionella spp.</i>	Annual, the alert and action level s are both >0cfu/L

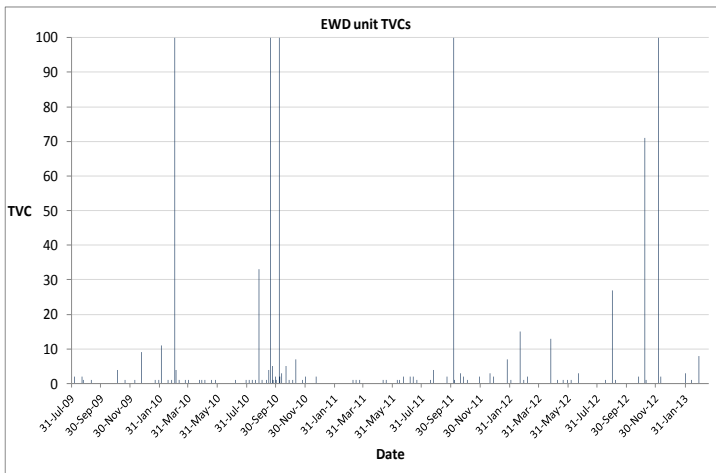


Figure 1 - TVCs over time

Disclosure

Nil.

References

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