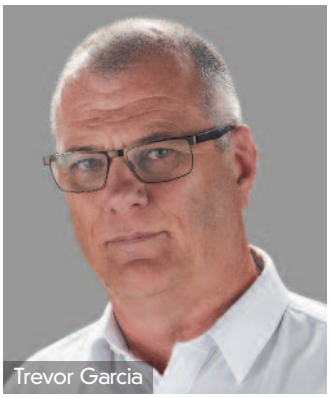
Installing a new washer disinfector

Following the development of a decontamination area within a new flexible endoscopy unit, discover how a new washer disinfector installation was managed in the Hospital Sterilisation and Decontamination Unit.


Trevor Garcia

The effective decontamination of reusable surgical instruments and flexible endoscopes is essential in minimising the risk of transmission of infectious agents. It involves a combination of processes which include cleaning, disinfection and sterilisation or high level disinfection.

Medical devices such as endoscopes, should be validated so that when decontamination is performed effectively, the device is safe to be used on patients and handled by staff. Washer disinfectors need to be compliant with ISO 15883 series to be capable of effective and efficient cleaning of medical devices prior to sterilisation, or, in the case of flexible endoscopes, capable of performing high level disinfection.

Key to ensuring efficacy is the choice of detergents used in the washer disinfector. It is essential that all levels of decontamination staff are trained and competent in their roles. The Institute of Decontamination Sciences is referenced in Health Technical Memorandum 01-01: Management and decontamination of surgical instruments (medical devices) used in acute care Part A: Management and provision (Staff roles and responsibilities P25) as providing the training programmes that should be followed.

Decontamination consultant Trevor Garcia has worked in decontamination sciences for over 35 years, and was the decontamination & sterile services manager at Surrey and Sussex Healthcare NHS Trust (SASH) for 16 years. He also held the position of director of education at the Institute of Decontamination Sciences (IDSc) until 2018.

Trevor had responsibility for all decontamination services, both in the Hospital Sterilisation and Decontamination Unit (HSDU) and the Endoscopy Decontamination Unit (EDU). He managed 42 staff, including supervisors and technicians involved in the provision of decontamination services. There are HSDUs and endoscopy reprocessing units at both the East Surrey and Crawley Hospitals.

Part of Trevor's role involved advising the Trust on decontamination issues and policies. He played a major role in the development of a specially designed decontamination area within a new flexible endoscopy unit at East Surrey Hospital (ESH), six years ago and also managed the installation of a new washer disinfector in the HSDU in 2018.

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Surrey and Sussex Healthcare NHS Trust (SASH) serves a growing population of over 535,000 people. At East Surrey Hospital, Redhill there are 697 beds which provide acute and complex services. In addition, a range of outpatient, diagnostic and less complex planned services are provided at The Earlswood Centre in Surrey, and at Crawley Hospital and Horsham in West Sussex. The East Surrey Hospital is the designated hospital for Gatwick Airport and sections of the M25 and M23 motorways and has a trauma unit, caring for seriously injured patients. The Trust employs 4,200 staff.

All reusable medical devices used in theatres, wards and clinics are reprocessed after use in the HSDU. The endoscopes are reprocessed within the endoscopy suite as the decontamination processes are very different, requiring different equipment and skills.

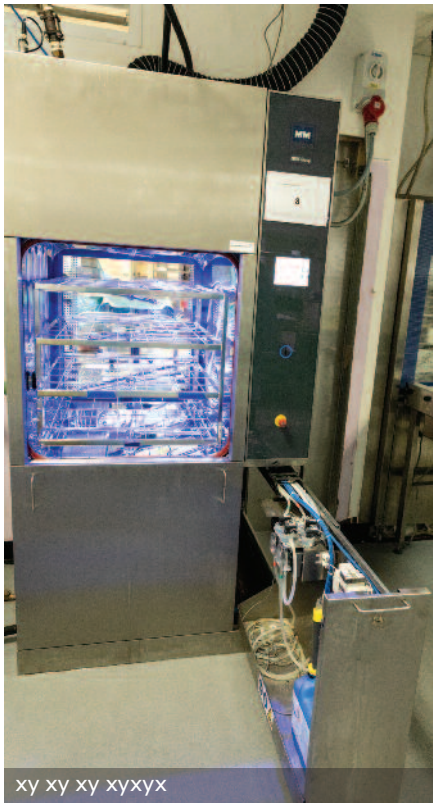
Staff working in decontamination are trained to work across both areas and are competent in meeting the demands of both HSDU and endoscopy. This ensures that there is always the correct skill set available to manage the demand, whilst also giving staff the opportunity to achieve competencies ▶

in two different types of decontamination processes. The HSDU and EDU operates seven days a week and process in excess of 400 endoscopes and 1500 instrument sets.

Although more surgical procedures are taking place, the number of instrument sets reprocessed in HSDU remained static over the previous three years. This is partly attributable to the increasing number of procedures where less reusable medical devices were used, as surgical techniques like keyhole surgery (requiring fewer instruments) become standard practice.

In contrast, the number of endoscopy procedures increased by 25% in the past two years and this increase is predicted to continue. Much of the growth is due to the success of the UK National Screening Committee programme for bowel cancer screening, which is offered every two years to men and women aged 60 to 74. If the lower age limit is reduced to 50, which is widely predicted, this could lead to an even greater demand for endoscopy services. In addition, bowel scope screening is currently being rolled out to all men and women in England aged 55, and is a one-off test. This is likely to increase pressure on bowel screening services.

SASH has been recognised by JAG (Joint Advisory Group for GI Endoscopy) as providing high quality gastrointestinal endoscopy services and is a JAG accredited screening unit. The Trust's Endoscopy department has dedicated reprocessing facilities at East Surrey Hospital (ESH) and Crawley. Both are purpose built units that meet the highest environmental standards using state of the art equipment and delivering a comprehensive range of diagnostic and therapeutic services.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The choice of the most suitable detergent for use in the new WD was a key consideration as it is essential that the selected chemical is compatible with the range of medical devices being reprocessed, as well as with the washer disinfector.

Increased activity

The flexible endoscopy unit at ESH was built six years ago and has a specially designed decontamination area within the endoscopy complex. The decontamination unit has four BHT washer disinfectors (BHT UK Ltd, Leeds), each of which is capable of reprocessing four flexible endoscopes at a time. Due to the increase in activity there are occasions whereby an endoscope may be used up to three times in a single list (four hour period), but this is only possible with highly efficient reprocessing systems in place. Due to the high costs of endoscopes, purchasing additional endoscopes has a significant impact on the organisation's capital budget.

Since the new unit opened, thermosept ER (schülke, detergent) and thermosept PAA (schülke, peracetic acid, high level disinfectant) have been used in the washer disinfectors. thermosept ER is a pH-neutral, enzyme based detergent, suitable for sensitive materials like flexible endoscopes. thermosept PAA is effective against bacteria, mycobacteria, fungi, viruses and spores (including *Clostridium difficile* spores). It also has a short contact time of only five minutes at 35˚C – 37˚C which means shorter cycle times , enhancing throughput. The addition of corrosion inhibitors in thermosept PAA help prevent long term damage both to the endoscopes and the washer-disinfectors.

There are five instrument washer disinfectors and five steam sterilisers used in the HSDU across the two sites. The Trust agreed to install a new washer disinfector in September 2018. The highly efficient MMM UK Ltd (Leeds) Uniclean PL15-2 EL/FD washer disinfector is a single-chamber cleaning and disinfection system. It has a 15 DIN tray capacity and offers an additional capacity of an additional two to three cycles a day due to reduced cycle times. It is specifically designed for cleaning general surgical instruments, as well as items like bowls and basins.

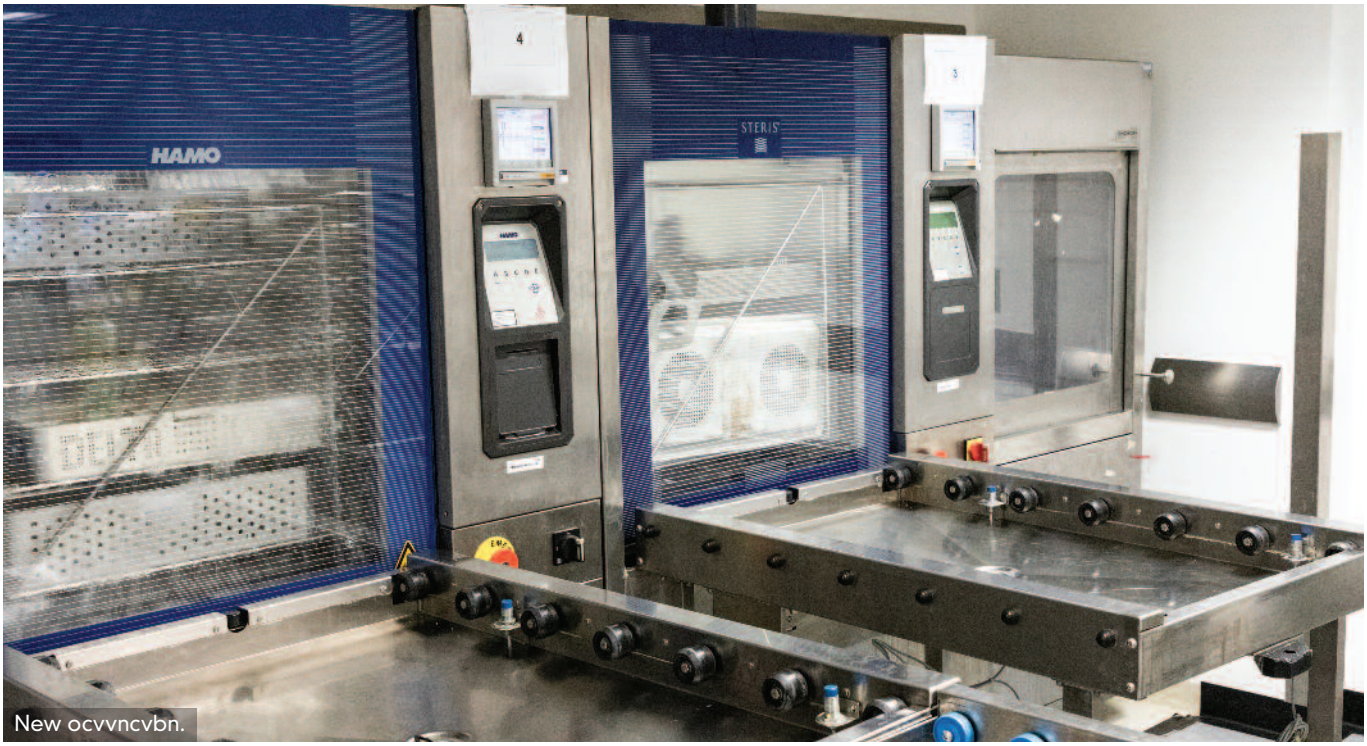
The choice of the most suitable detergent for use in the new WD was a key consideration as it is essential that the selected chemical is compatible with the range of medical devices being reprocessed, as well as with the washer disinfector. HTM 01-01 1.126 recommends 'that the cleaning formulation should have no long-term effects on the components of the washer-disinfector'.[2]

With the successful experience of schülke products for a six year period within the reprocessing unit, it was agreed that schülke's new thermosept X-tra detergent would be used. This product is specially formulated for use with automated instrument washer disinfectors and is on MMM's recommended list of approved compatible detergents.

A study undertaken by the University Hospital, Basel demonstrated that 25% less thermosept X-tra can be used compared to other similar enzymatic detergents, without any decrease in efficacy.

According to the research, even at low doses it removes organic contaminants, such as blood, proteins and tissue residues as well as mucus and fatty impurities due to the combination of enzymes, surfactants and mild alkalinity.

This is of particular importance when department budgets are squeezed and under constant scrutiny. In addition, the product literature demonstrated



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good material compatibility including sensitive materials such as anodised aluminium and non-ferrous metal.[1] This is vital when reprocessing medical devices. HTM 01-01 1.138 states that 'for most applications, where compatible, alkaline detergents in the pH range 8.0–11.0 are preferred'[2] and thermosept-Xtra has a pH of >10, meaning it falls within the recommended levels of alkalinity.

While there has been considerable debate about using an enzymatic compared to a neutral detergent, on balance and after considering the published data, the Trust agreed that a detergent containing enzymes is likely to be the most effective. thermosept X-tra may be considered to be a new generation detergent as it is slightly alkaline (less likely to damage sensitive instruments), but contains enzymes. The enzymes (with additional surfactants) give an enhanced cleaning performance by aiding the removal of proteins, which is likely to be more effective than using a neutral detergent.

Although the Health & Safety Executive (HSE) has issued safety guidance about the use of enzymatic detergents, this refers to use in an open area. HTM 01:01 1.160 states that: 'Many of the compounds that are most effective as disinfectants are potentially human health hazards. Employers are required by law to do everything that is reasonably practicable to protect the health of their workers. The safe use of these compounds is covered by the Control of Substances Hazardous to Health (COSHH) Regulations.'[2] The policy at SASH is to feed the detergent directly into the machine, using all agreed PPE procedures, meaning that staff are never directly exposed to the enzymes.

When making major changes, it is essential to work with reliable companies known to the Trust and to ensure all staff are trained and understand the new equipment, devices and procedures. The decontamination team already had a good working relationship with schülke, who have been supplying thermosept ER for cleaning and thermosept PAA for disinfection for six years in the endoscopy decontamination department. It was also helpful that schülke and MMM work in close cooperation together. schülke purely specialise in chemicals which is why they are experts in this area.

They undertook an intensive training programme for all staff working in decontamination before thermosept X-tra came into use. This ensured that our team felt fully involved with and committed to the changes being made. In addition, it gave confidence in using and safely handling the new product. They were able to ask the schülke trainers any questions well in advance of using thermosept X-tra. Every six months, schülke arranges a training session to update experienced staff and train new members of the team.

Conclusion

After almost a year's use, an evaluation of the machine's performance (including the use of thermosept X-tra) has shown that failed cycles have reduced by over 50%. Any rejects from the washer disinfectors are monitored by a tracking system on a weekly basis, the figures have always been low, but with the new machine, they have reduced further.

Surrey and Sussex Healthcare NHS Trust have recognised that decontamination is an essential service, on which demands are constantly increasing. So far, all staff are positive about using the new machine and new detergent, due to the training and support received from the manufacturers of both. Staff training is an essential part of the culture at SASH and will continue to be so. ■

References

1 Comparative Study of Mechanised Cleaners in Practical Use at the University Hospital Basel – Background. Professor Widmer, Medical Director and Head of the Hospital Epidemiology department, Mr Schnurbusch, Head of CSSD, University Hospital, Basel
2 HTM Health Technical Memorandum 01-01: Management and decontamination of surgical instruments (medical devices) used in acute care Part D: Washer-disinfectors, July 2016