

Decontamination of Surgical Instruments

a report by

Darryn Kerr

NHS Estates Project Director, Decontamination Programme, NHS Estates Engineering



Darryn Kerr is the NHS Estates Project Director for the Decontamination Programme. He is Head of NHS Estates Engineering and has over 20 years of experience working in the NHS. Mr Kerr chairs a number of national panels in the fields of engineering and decontamination. He is also chairman of the recently formed Medical Gas Association.

This article describes the work being undertaken in England on establishing the highest standards of decontamination in acute hospitals. National Health Service (NHS) Estates, an executive agency of the Department of Health, has completed the first ever comprehensive survey of decontamination practices in central sterile services departments (SSDs) in England.

Background

Decontamination is a combination of processes, including cleaning, disinfection and/or sterilisation, used to render reusable surgical instruments safe for further use.

Failure to decontaminate surgical instruments properly can lead to post-operative infection and other problems such as spreading the disease. Failure to maintain decontamination equipment and sustain proper working practices can raise health and safety issues for staff.

The level of decontamination required varies according to the equipment itself, the procedure being carried out and the environment in which it is performed. For example, some equipment simply needs to be washed and disinfected, whilst invasive equipment needs to be washed, sterilised and then protected from further contamination.

In the UK, surgical instruments are generally sterilised using a standard high-temperature steam cycle. Some instruments that cannot withstand high temperatures are processed using alternative methods such as ethylene oxide sterilisation. Other instruments, particularly flexible endoscopes, cannot be steam-sterilised and are therefore disinfected using chemical solutions.

A Holistic Approach

The effectiveness of decontamination is determined by all elements of an equipment life-

cycle, which includes purchase of equipment, transport and storage and eventual disposal (see *Figure 1*). All aspects of the life-cycle need to be controlled and managed if decontamination is to be fully effective. For example, poor purchasing decisions can result in needless expenditure or inadequate decontamination.

The NHS was given guidance on target areas for improving decontamination services through a number of Department of Health bulletins issued in 1999 and 2000. Copies of all current decontamination guidance (over 26 volumes) were also issued to the NHS (free of charge) on CD-ROM.

Survey

In autumn 1999, NHS Estates undertook a 'snapshot' survey covering the current state of decontamination across the NHS and the private sector.¹ Teams of professionals visited 19 NHS trusts to review decontamination facilities and undertake a high-level technical analysis of their reprocessing of surgical instruments. Instances were found where decontamination processes fell significantly short of current standards; in some cases, practice was unacceptably poor.

The survey described current practices in the decontamination of medical devices and the extent to which existing guidance and standards were being implemented.

Following the sample survey, a comprehensive survey of the NHS in England commenced in October 2000. This full survey is being used as the basis for assessment of what needs to be done in each hospital.

Both the sample survey and the comprehensive report have now been published and are available at <http://www.decontamination.nhsestates.gov.uk> along with further guidance documents on decontamination practices.

1. Decontamination Review, *Report on a survey of current decontamination practices in healthcare premises in England*, available at <http://www.decontamination.nhsestates.gov.uk>

Assessment of Centres

Following analysis of self-assessment information, assessment teams, drawn mainly from the NHS under the leadership of NHS Estates, have undertaken over 475 visits to NHS hospitals in England. These inspection teams comprised over 150 trained assessors. The assessment programme was carried out in two stages, prioritising those hospital SSDs in greatest need of immediate improvement.

Action plans were developed for immediate action to improve the standard of their decontamination wherever necessary. Assessments have also been undertaken of local reprocessing units. These are units where routing reprocessing of surgical instruments is managed within hospitals at ward/clinic level and not sent to an SSD.

Work is continuing to set in place mechanisms for the longer-term assessment of centres so that standards can be maintained and the latest research taken into account in the future.

Strategy

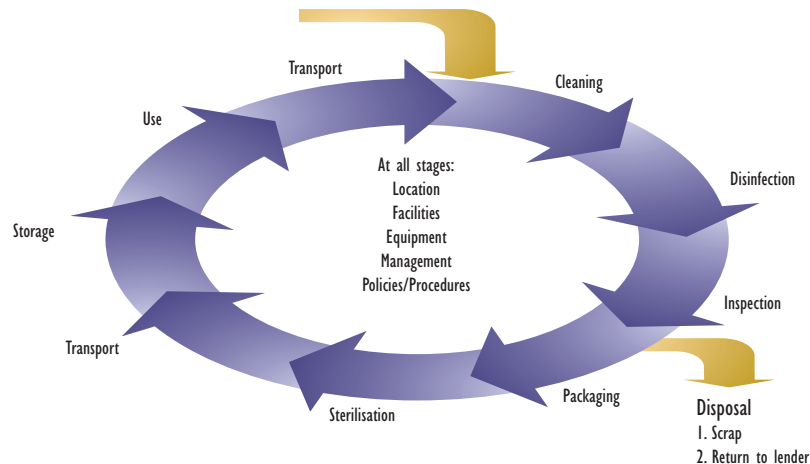
The immediate and short-term programmes are focused on ensuring that no current reprocessing centres in acute NHS hospitals are operating below acceptable standards. The short-term approach has been to:

- raise awareness in NHS management as well as technical staff;
- revise and reissue guidance and provide enabling tools;
- ‘carry’ the professions; and
- improve the standard of decontamination throughout the NHS, targeting first those hospitals in greatest need of immediate improvement.

Funding and Investment

In January 2001, the Department of Health announced that the government would spend £200 million on improving decontamination in the NHS in England by 2003. This will be invested in new equipment and facilities that will decontaminate surgical equipment to the highest standards. It will establish the baseline from which the future service provision can be planned. A future programme of work will include providing NHS trusts with continuing support and ensuring that decontamination standards are met throughout the NHS.

Figure 1: Life-cycle of Reusable Surgical Instruments



Further private sector funding will be required to provide a total solution. This will be explored in conjunction with the longer-term strategic options.

Longer-term Strategic Approach

The Department of Health is currently undertaking an option appraisal of alternative capital and public private partnership (PPP) approaches to address the longer-term models. This will include examining significant private sector involvement – either as part of PPPs for redeveloping facilities or as providing decontamination/sterilisation services under contract. Getting the balance right between NHS providers and the private sector will be a key issue.

Discussions have taken place with the independent healthcare sector about the need for them to have access to improved decontamination facilities. They have undertaken to adopt the same standards as the NHS and have established a decontamination committee to work closely with the Department of Health.

Tools to Facilitate the Change Process

Process Assessment Tool

Health Service Circular (HSC) 2000/032, “Decontamination of Medical Devices” – issued in October 2000 – requested NHS trusts to:

“ensure that a comprehensive review is carried out of all aspects of the overall process of decontamination; and use this to complete a baseline self-assessment.”

A process assessment tool (PAT) was issued to the service to facilitate this process. It is an audit tool based on harmonised European standards and

Department of Health advice and guidance. It is intended to encourage local ownership of the issues by the application of a self-assessment inquisitive survey; it is not intended as a desk-based paper exercise.

Decontamination Organisational Review Information System

HSC 2000/032 also set out other requirements to implementing change as follows.

- Short-term – The review of vulnerability to immediate risk issues may require provider organisations to make some immediate investment in order to avoid disruption to the delivery of patient care. It is expected that such investment will normally be managed within existing resources.
- Medium and long-term – Further information will be required in order to establish service-wide requirements, consider the relative merits of central and local provision of decontamination services and develop detailed feasibility plans and costs. Medium and long-term investment, where necessary, will be based on a strategic review of the optimum method of providing decontamination services, potentially across an extended geographical area. Implementation arrangements will be decided in the light of the review's findings.

The latest version of Decontamination Organisational Review Information System (DORIS) was launched in September 2001 on the DORIS website, <http://www.doris-nhs.com>

The website provides:

- a database repository for the information collected by using the PAT documents;
- correction and amendment of current data;
- complete organisational profile of service delivery;
- interactive 'board report' of performance and actions to mitigate risks;

- 'risk identification' process at local and organisational level;
- action plans with costs, timescales, person responsible for actions and the new performance score that the action will achieve; and
- on-going performance reporting to show 'demonstrable improvement' in decontamination practices.

The use of DORIS is vital to the provision of effective management control systems for the overall decontamination process and the effective delivery of patient care. It will provide the tools to support effective management systems, spanning a range of disciplines and locations within one organisation in addition to the management of third-party providers of decontamination services if they are used.

DORIS is also essential to the development of sound investment options for improvement in services at trust and national level.

With the service profile and delivery mechanisms identified, investments options that achieve best value can be addressed within the scope of the regional and national strategies.

Commitments

The NHS plan focuses on the delivery of high-quality services in a modernised NHS, tailored to the needs of patients. This builds on progress achieved so far on renewing the estate, for example through targeting investment to improve facilities and reduce backlog maintenance.

The modernisation of NHS decontamination services is a long-term process, not a one-off event. There is a commitment throughout the NHS to ensure that the momentum to raise standards continues and that appropriate precautions, based on evidence and scientific advice, are taken to ensure patient safety.

The comprehensive review that has been completed recently is not the beginning of the end, merely the end of the beginning. ■