Reuse and recycling of surgical instruments

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Beyond Infectious Waste

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Introduction

❖ Scope
  ❖ Single Use Instruments
  ❖ Multiple use instruments
  ❖ Reuse and Reprocess

❖ Financial and Environmental Opportunities

❖ Transportation
  ❖ Single use as waste/recycling
  ❖ Multiple use for sterilisation and re-use
Single Use Instruments

- Permitted for one patient during a single procedure
- Reprocessing prohibited
- Single use instruments are clinical waste
- DofH Safe Management of Healthcare Waste (V2) provides guidance on disposal but not on scrapping or recycling.
Current reuse constraints:

- DofH 1999: ‘Devices designated for single episodes of use must not be re-used under any circumstances whatsoever’
- NICE Guidelines 2006: Recommendations for single use instruments in high risk settings
- MHRA guidance 2006 & 2011: “A device designated as ‘single-use’ must not be reused”...And those “who prepare single-use devices for further episodes of use, may be transferring legal liability for the safe performance of the product” from manufacturer to themselves/their employer.
Law & Essential Standards

- H&S at Work Act 1974
- Consumer Protection Act 1987
- General Product Safety Regulations 2005
- Medical Devices Regulations 2002

CQC Essential Standards 2010 – Outcome 11F

- Ensuring medical devices are not reused if manufactured for single use only
- Disposed of or recycled, safely and securely.
MHRA Guidance

Reuse can be unsafe because of risk of:

- cross-infection
- endotoxin reaction
- patient injury
- chemical burns or sensitisation
Instruments for multiple use

- Equipment and devices for reuse in their existing form
- Usually industrial scale sterilisation (CSU)
- Bench top autoclaves for dentistry (LSU)
- Endoscopes usually cleaned on site

- Majority on the roads, surgical sets and trays
NHS Carbon Reduction Strategy

- 21 million tonnes CO$_2$ equivalent a year
NHS Carbon Strategy

Breakdown of NHS England 2004 procurement emissions, NHS Sustainable Development Unit
“Every organisation should monitor, report and set targets on its management of domestic and clinical waste, including minimising the creation of waste in medicines, food and ICT and review its approach to single use items versus decontamination options.”
Hierarchy

- Prevent - Reduce the need
- Substitute - change materials used (LCA)
- Minimise - Reduce waste (planning)
- Reuse - Reuse items (where permitted) after suitable reprocessing
- Recycling - Recycle surgical steel after sterilisation
Carbon Saving

- Almost all single-use instruments used in the UK are made in Pakistan
- Multiple-use devices tend to be made in Germany or shipped from Pakistan to Germany for further processing
- Supply chain impacts (transport, ethics, H&S)
- Reflected in the carbon intensity of disposable items.
Instruments for recycling

- Single use instruments or reusable instruments that have reached the end of their life cycle
- Can be sent for recycling – sterilisation then smelting or other recycling process
- This is recovery (R Code), though not the same as sterilisation or re-use
- Waste management rules apply.
Recycle

- SRCL
- Butlers
- SITA Healthcare

- All currently providing a surgical instrument recycling service – sterilisation and smelting of steel single use surgical instruments.
Surgical instruments that are not single use may be transported for sterilisation and reuse.

ADR 2013 details how surgical instruments should be transported - 2.2.62.1.5.7.

Medical devices or equipment potentially contaminated with or containing infectious substances carried for disinfection, cleaning, sterilisation, repair or equipment evaluation are not subject to ADR.
Instruments for reuse - ADR

- Must be in packagings designed and constructed in such a way that, under normal conditions, they cannot break, be punctured or leak their contents.

- Packagings must be marked “USED MEDICAL DEVICES” or “USED MEDICAL EQUIPMENT”.

- No other Carriage law implications.
Single use instruments

- Classified as **waste** and should be transported as such.

- UN 3291 clinical waste, unspecified, n.o.s.
- Transport document required
- Hazardous waste consignment note required
- Consignee returns required
- Compliant packaging required.
Summary

- Specialist recycling markets DO exist for single-use & end-of-life multiple use instruments
- Scope for on-site sterilisation & use of general scrap merchants (H&S risks)?
- DoH guidance needs to reflect opportunities for segregation and recycling of surgical instruments
- Different materials for cutting edges?
- Limited opportunities to challenge the re-use decision? H&S risks (sharps, infection control) vs environmental and cost impacts.
Thank you

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