

Sustainability guidelines to reduce single-use items in ENT outpatients

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ENT surgery generates significant waste, with single-use instruments and packaging as key contributors. This article outlines recommendations on sustainable practice that can be adopted into ENT departments.

Climate change is one of the greatest threats to human health in the 21st century. The NHS is responsible for 4% of our national carbon emissions, and clinical waste (which is frequently incinerated) makes up a significant proportion of this. In several instances there is an over-reliance on single-use equipment, often driven by local policy or practice, and often from unwarranted fears of infection transmission.

As part of the Future Leaders Programme (affiliated to the Royal College of Surgeons of Edinburgh), we collaborated with ENT UK and the Infection Prevention Society to produce guidelines for sustainable practice for use of equipment in ENT outpatients, which were published recently. Our evidence-based approach focused on high volume outpatient procedures with an aim to reduce single-use item usage. Here, we highlight some key aspects of the work.

Wax microsuction

In England, around 330,000 microsuction procedures are performed in the NHS annually [1]. A recent survey of microsuction practice in the UK showed that 79% of ENT UK members change suction tubing at the end of a clinic session or at the end of the day, but others will change this between patients, producing unnecessary waste. In addition, many wear gloves for microsuction, which is inappropriate.

There is no evidence of risk of patient harm from contamination if the suction tubing and liner is not changed between patients, as the risk of backflow in low-volume suction tubes is minimal. Backflow only occurs if pressure in the tube is higher than the area suctioned, the position of the suction tube is higher than the patient, or if there is concurrent use of high-volume suction [2]. In addition, the microbiology of healthy wax is similar to that of healthy skin, so if wax does come into contact with skin, it is low risk: comparable to shaking someone's hand.



Reusable metal ENT instruments in tray.

Our guidelines recommend the Zoellner sucker is changed between every patient, but recommend changing suction tubing and liners only once at the end of the day (they may be washed or changed more

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UV-C light decontamination unit.

often if blood or pus has been suctioned). There is no need to wear gloves or aprons when performing this procedure, and hand hygiene through washing or applying alcohol gel to hands is safer than wearing gloves.

Outpatient instruments

A survey at the ENT UK Spring Meeting 2024 showed that 46% of UK ENT units use only single-use instruments, 11% reusable instruments only and 43% a combination of both.

Switching to reusable metal instruments decreases the overall ecological impact by 80% compared to disposable (except for the water used for cleaning, assuming the instruments undergo autoclave) [3].

Reusable instruments in ENT usually undergo reprocessing in autoclaves

because such technology is readily available, but in general, ENT instruments only need to be disinfected rather than sterilised. Preparing instruments in tray sets helps improve efficiency in machine loading of the autoclave, saving energy and water use. After cleaning, the instruments can be kept in their trays and individual instruments picked out of the tray and used as needed. Instruments do not need to be kept sterile or individually wrapped: sterility is only required where instruments breach the skin or mucosa. Keeping used instruments away from the 'clean' tray will prevent cross-contamination.

Flexible nasoendoscopy

An average UK ENT surgeon performs around 700–1000 flexible nasoendoscopies (FNE) per year [5]. There are a number of single-use items associated with nasoendoscopy that lack evidence to support their need. These include single-use nasoendoscopes and supplementary items such as gloves, plastic aprons, masks, local anaesthetic spray, lubricant gel and an alcohol wipe to demist.

Effective decontamination of nasoendoscopes is critical to patient safety. The gold standard decontamination method is an endoscope washer disinfectant (EWD) [6], but each cycle uses 100-136 L of water, 320 mls of chemicals and 0.62-6.13 kWh of electricity. Ultraviolet-C (UV-C) light decontamination requires no chemicals, just a cloth dampened with tap water to remove debris and only 0.01 kWh of electricity per cycle. This represents a significant waste reduction in comparison to an EWD or the use of the Tristel Wipes system (which generates clinical waste from the wipes used).

“Switching from EWDs to UV-C light decontamination could generate significant cost savings by reducing annual usage of electricity by 36,720 kWh, water by 816,00 L and chemicals by 1920 L”

For an average-sized ENT unit with six consultants, switching from EWDs to UV-C light decontamination could generate significant cost savings by reducing annual usage of electricity by 36,720 kWh, water by 816,00 L and chemicals by 1920 L. Additionally, UV-C is gentler on endoscopes, reducing the need for costly repairs – for instance, the Royal Sussex County Hospital in Brighton is saving over £70,000 per year in repairs alone.

Conclusion

In summary, the new ENT UK guidance suggests:

For wax microsuction:

- We recommend suction tubing and liners are changed daily rather than per patient or per clinic.
- Rarely, tubing may need to be washed through or changed earlier if, for example, contaminated with blood or pus.
- There is no indication to wear gloves or aprons for wax microsuction.

For ENT outpatient instruments:

- We recommend using reusable metal instruments.
- We recommend preparing, reprocessing and using ENT outpatient instruments in tray sets.
- There is no indication for use of gloves in ENT examination except when there is risk of exposure to blood, body fluid or non-intact skin.

For flexible nasoendoscopy:

- We recommend only using reusable flexible nasoendoscopes.
- We do not recommend routine use of local anaesthetic spray.
- We do not recommend routine use of anti-fog.
- We do not recommend routine use of lubricant gels.
- Nasoendoscopy can be safely performed without gloves.
- Ultraviolet-C light is the preferred method for decontamination of flexible nasoendoscopes.

The guidance (and the evidence underpinning it) can be seen on the ENT UK website. We know that guidance in itself does not lead to change in practice, but we hope that it enables it. We also hope that ENT surgeons across the world will act to support translating this guidance into action in their departments. Our team is also piloting mechanisms to evaluate adoption of this and other best practice across the NHS in England.

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