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SUSTAINABLE PRACTICE

Sustainable practice: Switching to reusable vaginal speculums

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What you need to know

- Three and a half million speculum examinations occur in the UK every year for cervical screening alone—mostly using single use plastic speculums
- Following the first few uses, using a stainless steel speculum is associated with lower greenhouse gas emissions than a single use plastic one.
- The first step towards making change is to speak to colleagues and patients—both should be engaged at all stages of change

Switching from single use to reusable vaginal speculums could improve the sustainability of healthcare delivery by reducing waste streams and greenhouse gas emissions. This article explores these potential benefits and offers pointers for how to go about making the switch to reusable speculums.

Why change is needed

Using reusable medical devices is one way to improve the sustainability of healthcare delivery, and the healthcare sector needs to consider opportunities to switch to reusable items when this will reduce net emissions and is safe and acceptable to patients. Speculums are used for vaginal examinations in a range of healthcare settings, and around 3.5 million speculum examinations occur in the UK every year for cervical screening alone.[1] Single use plastic speculums are used as standard in most healthcare settings in the UK and are usually incinerated as clinical waste after use.

Evidence for the solution

Two life cycle analyses have been published, both from the US, comparing the environmental impact of reusable stainless steel speculums with single use acrylic versions,[2 3] taking into consideration all aspects of their manufacture and ongoing use including sterilisation. Both studies showed a clear environmental benefit of reusable speculums over time. Although the greenhouse gas emissions from initial production of stainless steel speculums are higher than for plastic, after two to three uses the greenhouse gas emissions have equalised. Further use is associated with an environmental benefit, with one of the life cycle analysis studies reporting an estimated carbon saving equivalent to 38 gallons (173 litres) of petrol after 500 uses of a metal speculum instead of plastic.[2] The life cycle analyses included assumptions that a small proportion of electricity used for sterilisation comes from renewable sources, and the carbon savings are likely to be higher in countries that use more renewable energy. The findings for speculums mirror those found in a systematic review of life cycle analyses comparing various single use and reusable medical instruments,[4] where use of reusable products was associated with a reduction in potential greenhouse gas emissions of 38-50%. As well as a favourable impact on reducing global warming potential, the review found that reusable items were associated with a lowering of waste, ozone depletion, ecotoxicity, resource depletion, and improvements in air quality and human health, though a slight increase in water usage.

An alternative to acrylic or metal is renewable biomass material such as sugarcane, but no published life cycle analyses compare their environmental impacts. Speculums made from bioplastics are likely to have a reduced environmental impact associated with their manufacture compared with acrylic or metal and will be biodegradable. However, any product requiring incineration after a single use is unlikely to have a lower carbon footprint when compared with a reusable item over its entire life cycle.

Concerns about risk of infection with reusable medical instruments may be cited as a reason for favouring single use items. However, disinfection and sterilisation are effective methods of microbial inactivation,[5] and no reports in the literature describe iatrogenic infection from reusable medical instruments. Furthermore, all biological material is removed during sterilisation, thus eliminating the risk of retained proteinaceous compounds that could potentially lead to false positive results from highly sensitive nucleic acid amplification tests for *Chlamydia trachomatis* or *Neisseria gonorrhoeae*.

Evidence is lacking regarding patient and clinician experience of metal compared with plastic speculums. Anecdotally, warming metal devices is thought to improve patient comfort, but little in the literature supports this. The vagina is not a sterile environment and the risk of introducing infection from warming the instrument with tap water is minimal. For procedures where the vagina is washed with antiseptic solution, the speculum could also be washed with antiseptic solution after warming, or warmed while still in the sealed package, if required.

The move away from single use items is supported by patients and staff. A survey by the Health Foundation of 1858 UK adults in 2021 showed that 58% supported the use of reusable sterilised medical equipment to reduce waste in healthcare, with a further 22% being indifferent to the change.[6] A small survey of 31 clinicians in the UK reported that 83%

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said they would be happy to switch to metal speculums for reasons of sustainability.[7] In terms of clinical utility, a literature review of different speculum designs reported no studies comparing these different materials.[8]

What you can do

Decisions on switching to reusable speculums may not be within the immediate control of frontline clinicians, but there are actions they can take. As a first step, we recommend talking to colleagues and/or patients to gauge their reactions to switching to metal speculums and highlighting the potential benefits of doing this. Engaging with the local procurements and supplies department as well as sterilisation services will help determine the feasibility of this change in a particular clinical setting. Below are some considerations that may facilitate these discussions for those looking to implement this change.

Purchasing metal speculums

Many healthcare settings have previously disposed of their reusable speculums and would therefore need to purchase new ones. This will be associated with an upfront cost as the price of a metal speculum is around 10 times higher than for plastic. This cost would be offset over time by procuring fewer plastic speculums, as well as reduced incineration, but other ongoing costs related to sterilisation may present a barrier to prioritising this change in areas without onsite sterilisation services (see below).

Although purchasing a range of speculum sizes will increase upfront cost and may lead to fewer uses and therefore a reduced carbon saving, a choice of speculum size can be useful to ensure good visualisation of the cervix and optimise patient comfort.

Explore sterilisation options

Access to sterilisation services will incur a financial cost, and healthcare providers that do not have access to an autoclave on site will need to consider transportation, which leads to further financial and carbon costs. Local guidance on sterilisation processes varies. Maximising machine loading in autoclaves and sterilising items in packs rather than individually have been shown to make carbon and financial savings.[9]

The published life cycle analyses compared metal and plastic speculums where the healthcare provider had access to sterilisation on site, and their findings may not be translatable to areas without this. However, given the environmental benefit of switching to reusable medical instruments other than speculums, institutional and political buy-in may be forthcoming, helping realise economies of scale when increasing access to sterilisation locally.

Involve patients and colleagues in the discussion

Patient and staff engagement in this process is paramount—for example, using staff training sessions or patient information posters. Clear patient information regarding the reasons for change is likely to help mitigate concerns but be mindful to avoid using images in posters and leaflets that may increase a patient's anxiety prior to the examination. Further work is needed to evaluate the true impact on patient and clinician experience.

How patients were involved in the creation of this article

Two patients attending a sexual health clinic for procedures involving speculum examinations kindly agreed to review the manuscript during its development. Their suggestions regarding consideration of patient comfort and wellbeing (for example speculum size, use of images in patient posters or leaflets, warming speculums, and concerns about infection risk), were incorporated into the article.

Education into practice

- How would you ask your patients about their views on switching to reusable speculums?
- Which members of your clinical and managerial team could you approach to discuss the possibility of switching to reusable speculums?

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