

Department of Sexual Health, Cardiff Royal Infirmary

Changing from single use plastic to reusable metal specula to decrease GHG emissions and waste generation.

Adaptation <input type="checkbox"/>	Communications and engagement <input type="checkbox"/>	Estates and facilities (energy, waste, water) <input type="checkbox"/>	Food, catering and nutrition <input type="checkbox"/>
Funding and financial mechanisms <input type="checkbox"/>	Medicines <input type="checkbox"/>	Research, innovation and offsetting <input type="checkbox"/>	Strategic ambition <input type="checkbox"/>
Supply chain and procurement <input checked="" type="checkbox"/>	Sustainable models of care <input checked="" type="checkbox"/>	Travel and transport <input type="checkbox"/>	Workforce, networks and system leadership <input type="checkbox"/>
Green/blue space and biodiversity <input type="checkbox"/>	Digital transformation <input type="checkbox"/>	Sustainability education <input type="checkbox"/>	
Other (please specify):			

Headline outcomes:

- The Department of Sexual Health (DoSH) has made re-usable metal rather than single-use plastic specula available for clinicians to reduce its environmental impact. In the first 5 weeks of making them available, nearly a third of vaginal examinations were undertaken with a metal rather than plastic speculum.
- If this level of usage continues, the department will save around 500kg Co2e in the first year. However, if the uptake of metal specula usage can be increased to 80% in the department, they will save around 1800kgCO2e in the first year.
- Clinician-reported acceptability, clinical utility and patient satisfaction was equivalent or better for metal compared to plastic specula.
- There was an initial upfront cost of £2500 to purchase 100 metal specula. Following this initial cost, the initiative is expected to be cost neutral with the cost of sterilisation per unit predicted to be equal to the saving from purchasing fewer plastic specula.

What was the problem?

Background:

Like many areas in healthcare, DoSH moved over to using single-use plastic specula for vaginal examination several decades ago because of perceived decreased cost and infection risk. However, single use plastic devices have been shown to be associated with increased greenhouse gas

emissions as well as worsening of other environmental impact factors, with no evidence of an increased infection risk, or worsened patient experience or clinical utility.

What was the solution?

What were the challenges?

Initiative

As DoSH no longer had stainless steel speculum available in the department, there was a requirement to purchase metal specula to enable this change in practice. DoSH can use up to 60 specula per day, depending on the type of clinics running. The turn-around time for sterilisation was advised by the HSDU to be around 24 hours. It was therefore felt that we would need 100 metal speculum to ensure consistent availability in clinic.

In July 2022, DoSH had a bid approved through the Welsh Government Health and Social Care Climate Emergency National Programme fund to purchase 100 metal speculum. The department was mindful of the carbon footprint and ethical considerations related to the manufacture and transportation of the specula which lead to some procurement issues and a delay in the devices arriving. In February 2023 100 small/medium metal specula arriving in the department at a cost of just under £2500.

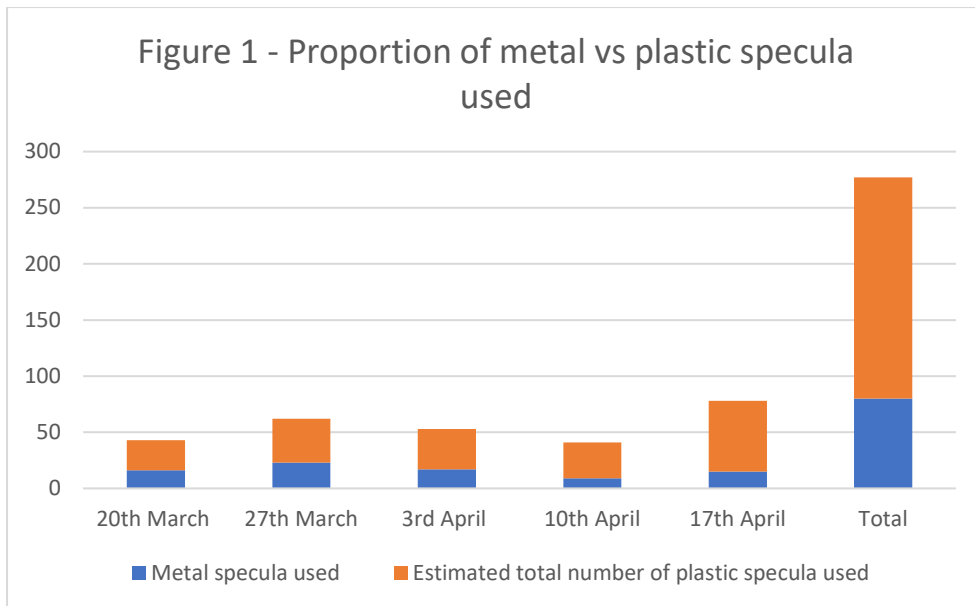
A staff training sessions were held explaining the rationale for the change being implemented, and patient information was displayed in the clinic (see appendix 1)

On week commencing 20th March 2023, the 100 metal specula were distributed amongst the coil procedure trolleys and general examination trolleys in the 10 main departmental examination rooms. Some small and medium plastic specula also remained in the trolleys for patient or clinician preference, as well as a small number of plastic specula of different sizes that are occasionally required.

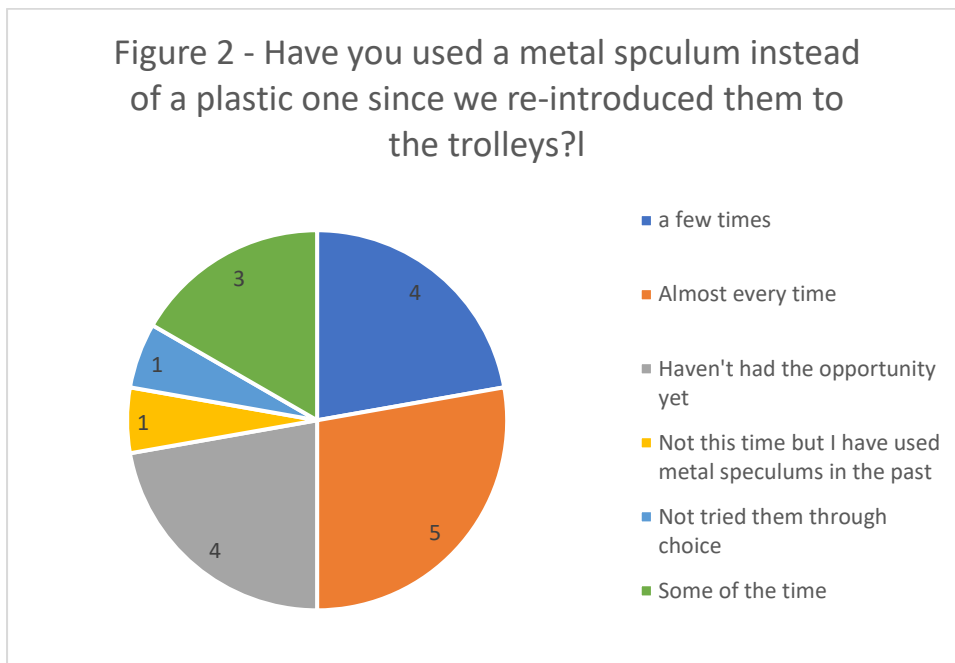
What were the results/Impact?

Measurements

A record was kept of the number of specula sent for sterilisation on a daily basis. Over the first 5 weeks period, 80 metal specula were recorded as sent for sterilisation. From a review of the patient attendances to the service during this time, it is estimated that around 280 patients had a speculum examination during this time, meaning that a metal speculum was chosen over a plastic one only 29% of the time – see figure 1.

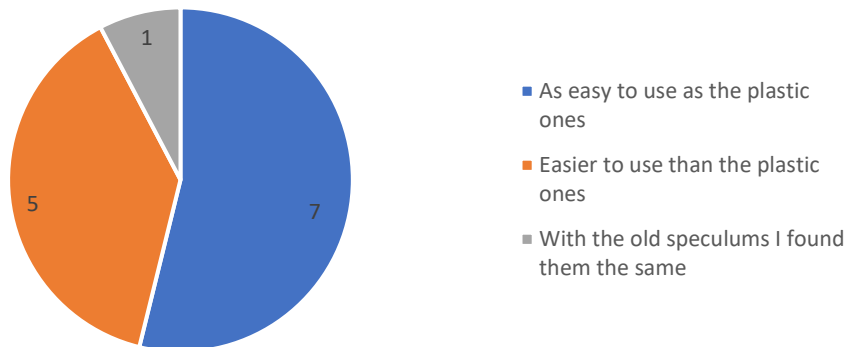


In order to assess the impact in clinic of the change and how to improve uptake, an anonymous survey was sent to all clinicians undertaking speculum examinations in the department. 18/26 (69%) clinicians in the department responded. All reported that they had been given enough information about why the change was being made. 5/18 (27%) said they had used a metal speculum most of the time since the change was implemented. However 6/18 (33%) many hadn't tried them yet— see figure 2.



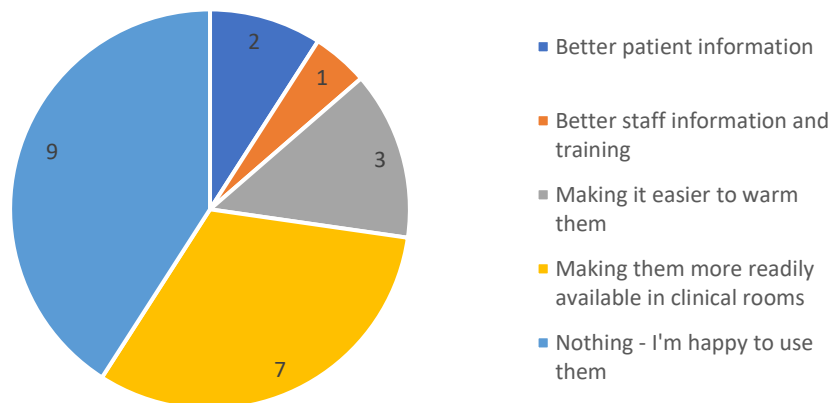
All staff who had used the metal speculums found them as easy or easier to use than plastic specula – see figure 3

Figure 3 - How have you found the metal speculums?



Making them more available in clinic rooms, and better patient information were identified most commonly as ways to encourage use of metal specula – see figure 4.

Figure 4 - What could encourage you to use metal speculum more?



4/13 (31%) reported that they found patient feedback to be largely positive, and 9/13 (69%) reported it as neither positive or negative. No clinician reported they had found patient feedback largely negative.

Based on the above, I intend to look at ensuring metal speculum are available in the examination rooms most commonly used for female genital examinations, and improving availability of patient information.

Expected Environmental benefits, costs and social impact

To estimate the projected environmental impact of this project, I referred to a life cycle analysis (LCA) published in 2020 which assessed the GHG emission saving per usage of a metal instead of plastic speculum¹.

If the uptake of metal specula usage in the department remains the same as during the initial 5 weeks i.e. 29% of total specula used, we would predict that they would be used approximately 900 times in total over one year, with an average of 9 uses each. The estimated carbon saving after 9 uses of a metal speculum is 5kgCO₂e. Therefore, the total carbon saving for the 1st year for this initiative would be 500kg CO₂e.

However, if we can increase uptake of metal specula usage in the department to 80%, we would predict that they would be used approximately 2500 times in total over one year, with an average of 25 uses each. The estimated carbon saving after 25 uses of a metal speculum is 18kg Co₂e. Therefore, the total carbon saving for the 1st year for this initiative would be 1800kg CO₂e.

Carbon savings would continue to increase year on year, and with increasing usage.

As well as decreasing the carbon footprint of the service, this change will also generate a decrease in clinical waste.

The initial survey undertaken of clinicians after 5 weeks of use shows that clinical utility and patient satisfaction is equal or improved from this change in practice and that an increase in usage should be possible.

With regards to financial cost, the cost of a plastic speculum is approximately £1 per unit. The cost of sterilisation of a metal speculum has been given as approximately £1 per item by HSDU – however, this cost will not be felt directly by the department as is covered by our SLA. Therefore, this initiative is likely to be cost saving for the department but cost neutral for the organisation after the upfront cost of purchasing the specula.

Next steps

Scalability

I plan to continue to run PDSA cycles to maximise the usage of metal specula, and consequently the carbon saving in DoSH.

I have presented this project to colleagues working in sexual health in other areas of Wales and it has generated an interest in taking forward a similar initiative.

My understanding is that single-use plastic specula are frequently used in other areas of the UHB, such as obstetrics and gynaecology and this change could potentially be scaled up to other areas.

Resources and references

1. Donahue et al. A comparative carbon footprint analysis of disposable and reusable vaginal specula. *American Journal of Obstetrics and Gynecology*, 2020 08 01, Volume 223, Issue 2, Pages 225.e1-225.e7

Want to know more?

Contact 1:

- Name: **Dr Rachel Drayton**,
- Role: **Clinical Director**
- Email: rachel.drayton@wales.nhs.uk
- Location & NHS Region if within the UK: Wales, Cardiff
- Partner organisations involved: Welsh Government Health and Social Care Climate Emergency National Programme fund provided the money for the new specula
- Has this project or story been made public in any form before? No

Appendix 1 – Patient information poster

Cardiff and Vale Department of Sexual Health Switch away from single use plastic speculums



- During your visit today, the doctor or nurse may need to insert a speculum into the vagina. In our efforts to decrease the carbon footprint of the department, our normal practice now is to use a sterilised stainless steel speculum.
- Sterilised stainless steel speculum have a lower carbon footprint than disposable plastic ones and are therefore better for the environment.
- Some patients find the metal speculum initially feel cold when inserted but there is no evidence they are more uncomfortable than plastic ones.
- The metal speculums are fully sterilised after use so there is no risk of infection.
- Please note that it may be necessary for the doctor or nurse to use a plastic speculum in certain situations
- Your doctor or nurse would be happy to discuss this further with you if you wish. Additionally, if you would like to leave any feedback, please let them know.