



Sustainability FAQs from Davies Veterinary Specialists webinar with Ellie West on 27th May 2020

The questions below were all asked at the live webinar. If you have any questions not covered already, please email them to: ellie.west@vetspecialists.co.uk

We will update the FAQ with any new questions received.

1. With the use of fabric masks increasing during the global COVID-19 pandemic, is there any evidence of benefit of using disposable masks instead of fabric masks in theatres? Can disposable masks be reused during the same day?

Measuring factors which cause surgical site infections, or indeed COVID transmission, can be challenging due to the multiple contributors to risk. This is not a straightforward topic!

For veterinary theatre use, reusable face masks (which filter variably according to fabric and design), will tend to filter less respiratory droplets than surgical-grade face masks (which comply with international standards for filtration, depending on grade), although studies are ongoing (Rubio-Romero (2020) Disposable masks: Disinfection and sterilization for reuse, and non-certified manufacturing, in the face of shortages during the COVID-19 pandemic. Safety Science 129).

The role of surgical facemasks in preventing surgical site infections is controversial; a 2016 Cochrane Review stated '*from the limited results it is unclear whether the wearing of surgical face masks by members of the surgical team has any impact on surgical wound infection rates for patients undergoing clean surgery*' (Vincent & Edwards (2016) Disposable surgical face masks for preventing surgical wound infection in clean surgery Cochrane Database of Systematic Reviews, 2016 (4)). Whilst the evidence is unclear for benefit, many operating room staff will continue to wear facemasks due to the high carbon and patient costs of treating infections. When saturated or moist, their efficacy may be reduced, although we are not aware of guidelines for maximum length of use.

Many countries are currently recommending use of facemasks to prevent transmission of COVID-19. This is currently not universally agreed (as of May 2020), although the WHO currently recommends they should certainly be used alongside other hygiene measures. There are some guidelines for medical staff on re-sterilisation for re-use, in particular for respirator facemasks (<https://www.ecdc.europa.eu/sites/default/files/documents/Cloth-face-masks-in-case-shortage-surgical-masks-respirators2020-03-26.pdf>).

In terms of environmental impacts over the lifecycle of the product, reusable medical gowns and drapes have less carbon emissions, water use, solid waste and natural resource use than single use textiles:

(Overcash (2012) A Comparison of Reusable and Disposable Perioperative Textiles: Sustainability State-Of-The-Art 2012. Anaesth Anal 114(5) pp1055-1066; <https://pubmed.ncbi.nlm.nih.gov/22492184/> AND Vozzola et al., (2020) An Environmental Analysis of Reusable and Disposable Surgical Gowns. AORN Journal Volume: 111 Issue 3).

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1. Continued...

There are many factors to consider when using reusable medical drapes and gowns; after repeated washing, disposable drapes can become permeable to wet bacterial strike-through, and they can have significant time and cost implications in preparation for re-use. Readily available and standardised testing for laundered textiles, and testing of individual types of textile (disposable and reusable) for strike-through may support changes in practice.

WHO guidelines on prevention of surgical site infections (<https://www.who.int/gpsc/ssi-guidelines/en/> 2016) suggest that *'either sterile, disposable non-woven or sterile, reusable woven drapes and gowns can be used during surgical operations for the purpose of preventing SSI'* but acknowledges moderate to very low quality evidence. A recent RCVS knowledge review found *'it is not possible to conclude that disposable drapes reduce the risk of surgical site infections (SSI) when compared to reusable drapes'* although the author stated that *'current literature on the risk of surgical site infection with disposable and reusable drapes in animals is limited'* (<https://www.veterinaryevidence.org/index.php/ve/article/view/251>). The author calls for further research.

For reusable hats, there is evidence that supports some types of disposable surgical hat have significantly higher microbial shed than reusable hats, which can contribute to infection risk (Markel et al, Use of Environmental Air Quality Indicators to Assess the Types of Surgical Headgear Typically Used in a Dynamic Operating Room Environment. Journal of the American College of Surgeons. October 2017. Volume 225, Issue 4, Supplement 2, Pages e29–e30; [https://www.journalacs.org/article/S1072-7515\(17\)31208-5/fulltext](https://www.journalacs.org/article/S1072-7515(17)31208-5/fulltext)).

2. Could clients return used pill pots for re-use with the same, repeat medications for the same patient? Would this be legally allowable given the containers would potentially be contaminated from the previous medications?

This could be legally allowable, but controls would have to be in place due to the regulations surrounding dispensing and disposal of pharmaceutically-contaminated waste. Such controls may reduce the number of owners for whom this could be applied, and therefore have minimal benefit. Perhaps another way to tackle waste would be to consider short-duration trial prescriptions, to reduce pharmaceutical waste in patients who are trialling a medication, and using recycled plastic pots / cardboard packaging where appropriate.



3. Please could you clarify why volatile agents have a disproportionately large contribution to global heating?

The following extract is from a free VAA article (Jones RS & West E (2019) Environmental sustainability in veterinary anaesthesia. *Veterinary Anaesthesia and Analgesia* 46, 409-420.

[https://www.vaajournal.org/article/S1467-2987\(19\)30018-2/fulltext](https://www.vaajournal.org/article/S1467-2987(19)30018-2/fulltext)):

“Although anaesthetic gases contribute a relatively low amount to global carbon emissions, and are present at vastly lower concentrations than carbon dioxide, they are disproportionately effective as GHGs since they absorb infrared radiation at around 10 μm . This overlaps with an infrared spectral range or atmospheric window of approximately 8–14 μm where absorption of radiation by any naturally occurring GHG is relatively minor. This atmospheric window is an important mechanism by which the Earth can cool itself.”

Further information is available in the free article: Atmospheric science, anaesthesia, and the environment (2014) Campbell, Pierce, *BJA Education*, Volume 15, Issue 4, August 2015, Pages 173–179
<https://academic.oup.com/bjaed/article/15/4/173/305822>

4. Do you have any tips for engaging your corporate group and management teams?

The key to engagement is to start a conversation and find out what matters most to the people you want to engage. You may be surprised! You can then reframe the problem, and find a win-win solution. In general, you should be trying to agitate, rather than irritate. There are so many benefits to sustainable working, that it should be possible to expose the opportunities.

There are interesting talks on this topic from May's free Sustainable-ish Online Festival (<https://www.asustainablelife.co.uk/the-sustainable-ish-online-festival/>) run by ex-vet Jen Gale. Talks here included “*How to engage with people on sustainability at work*” and “*Behaviour change in ourselves and others*”. There are also resources available for non-members on the IEMA website (<https://www.iema.net/events>).





5. What changes do you think have the biggest impact and are most worth suggesting to your management team?

In terms of carbon emissions and potential for financial savings, reducing energy use is always a big win. This can be done using green technologies such as air source heat pumps, or by simple 'turn-off' stickers by light switches. The Carbon Trust has lots of ideas and resources (<https://www.carbontrust.com/>).

There are many quality improvement benefits to lower carbon anaesthesia, including using capnography to improve patient safety, and Davies have a number of resources to help you achieve this in practice.

<https://vetspecialists.co.uk/blog-post/reducing-anaesthetic-gas-for-environmental-benefit/>

<https://vetspecialists.co.uk/services/anaesthesia/understanding-capnography/>

<https://vetspecialists.co.uk/oxygen-conservation/>

Management teams are increasingly aware of the benefits to recruitment and retention of staff, as well as supporting stakeholder confidence in the governance of the organisation. Sustainability schemes will also help with mental and physical health, which are both so important.

6. Do you use a green energy provider, and is there a difference for business use?

Green electricity tariffs, that can certify 100% renewable energy used, are available through many business electricity suppliers. Each can offer a deal that you, as the user, can choose from. Some companies only offer renewable energy, but you need to contact the individual supplier to find out whether they will supply businesses. Groups like <https://www.greenenergyswitch.co.uk/> (run by the charity PECT, who also run Investors in the Environment) can help you to compare companies.

