Reducing low risk of transmissible infection in duodenoscopes: at what cost to the planet?

We read with interest the paper by Bang *et al* on the equivalence of single-use duodenoscopes compared with conventional reusable duodenoscopes to prevent transmissible infections.[1] We congratulate the authors for their study demonstrating the economic, technical and safety equivalence of single-use duodenoscopes to conventional reusable duodenoscopes for endoscopic retrograde cholangiopancreatography (ERCP).

The drive toward single-use endoscopes was generated by the incidence of duodenoscope-related infections in the USA, prompting the Food and Drug Administration in 2019 to recommend that healthcare providers and manufacturers transition to disposable components in duodenoscopes to reduce transmissible infections. A systematic review and meta-analysis of the rate and impact of duodenoscope infection involved 15 studies with over 13 000 duodenoscope analysis and found a 15.25% rate of contamination from preprocessed patient-ready duodenoscopes.[2]

It must be stated that the risk of transmissible infections by other types of endoscopic procedures, like gastroscopy and colonoscopy, is extremely low, especially with effective high-level decontamination. Most instances of transmission of infections with gastroscopy and colonoscopy are associated with decontamination practices not being followed rigorously.[3]

The British Society of Gastroenterology has produced guidance highlighting the importance of manual cleaning of the duodenoscope with specific instructions regarding the removal of the bridge mechanism at the distal tip prior to brushing. This is likely to reduce the risks of bacterial transmission via duodenoscopes, thereby reducing strength of the case for single-use endoscopes.[4]

As members of Green Endoscopy (Twitter, @Green Endoscopy), we champion environmental sustainability in GI endoscopy and are raising awareness of the carbon footprint of endoscopy.[5] We note that Bang *et al* have not addressed the environmental impact of single-use duodenoscopes in their paper, and we highlight the significant potential environmental harm from increasing plastic waste through the use of single-use endoscopes. A significant amount of waste is already generated from an endoscopic procedure (up to 1.5 kg) of which only a fraction is recyclable with the rest going to landfill or being incinerated. The disposal of a single-use bronchoscope is equivalent to 349 g of household waste.[6] The increasing availability of single-use plastic disposable endoscopes in Europe and the USA (Exalt duodenoscope, Boston Scientific Corp) will add to this waste. There are approximately 500 000 ERCPs carried out in the USA and over 50 000 procedures in the UK annually. It is unthinkable that each and every one would be conducted with a single-use scope, notwithstanding the substantial increase in the healthcare costs of these procedures. A comparative study of the environmental impact of reusable and single-use bronchoscopes has reported on the need to compare the cost of disposing a single-use plastic bronchoscope to that of sterilising a reusable bronchoscope with the labour, disinfecting equipment and consumable costs.[7]

There is also the risk that the development of single-use duodenoscopy gets translated into other routine endoscopic procedures which have even more negligible contamination risk. We propose that all stakeholders need to consider environmental safety and environmental cost effectiveness in developing and adopting new endoscopes and endoscopic devices.[5] There is a need for research into the assessment of the environmental impact of all new endoscopic technology as well as developing upfront processes for minimising environmental harm so that we as a GI community can do all we can to reduce the impact of healthcare on climate change.[8]

The endoscopy community must jointly lead initiatives on climate change being developed by all industries by advocating, educating, amplifying, promoting and organising sustainable endoscopy practices. This needs to be underpinned by research quantifying the carbon cost effectiveness of endoscopic equipment and procedures to reduce our carbon footprint.

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