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Lessons from COVID-19

Changing the healthcare sector's throwaway mentality

Dorota Napierska, Health Care Without Harm Europe, Brussels (B)

The healthcare sector needs to reduce its environmental footprint and lead the green recovery from COVID-19. Increasing the reuse of healthcare products to reduce waste and overproduction is crucial.

The current COVID-19 crisis has made us even more aware that human health is intrinsically linked to the environment. Recognising the parallels between COVID-19 and the climate crisis, the growing health impacts of environmental damage are increasingly concerning. Nearly 25% of global deaths in 2016 (13.7 million) were attributed to environmental stressors, including 12–18 % of all deaths in the WHO

Europe Region.[1] Exposure to ambient air pollution, specifically fine particulate matter (PM2.5), is the single largest environmental health risk in Europe and is associated with heart disease, stroke, lung disease, and lung cancer,[2] and might exacerbate morbidity and mortality rates from COVID-19.[3] Exposure to hazardous chemicals is also a key concern,[4] and the role of healthcare in exposing individuals to such chemicals is grossly underappreciated.[5]
How we currently produce, use, and dispose of healthcare-related products is emblematic of our linear economy and presents a significant source of pollution. Supply chains drive 75% of carbon emissions within the EU healthcare sector.[6] The healthcare sector has become more reliant on single-use items and products with a lot of packaging, the volume of healthcare-related products and consequent waste is rising steadily.

Throwaway mentality in healthcare today

The use of disposable items in healthcare is nothing new - single-use IV tubing, for example, has been in use since the 1960s. This trend has been growing within the last 30 years, there has been a gradual transition from reusable non-plastic products to disposable plastic products in healthcare. Disposable surgical drapes have been used for the last 20 years, with disposable medical instruments being the latest in the single-use trend.[7] Many single-use items of sterile surgical equipment e.g. forceps, scissors, clamps, and spoons are made of stainless steel,[8] but often end-up in waste incineration, losing the opportunity to recover the chromium steel.
The gradual shift to disposables has been primarily driven by safety and hygiene concerns, accelerated in the 1980s over fears surrounding HIV. Another important factor in the growth of single-use culture is the growing availability of plastics. The versatility of plastics materials, combined with low cost, has enabled mass production of single-use healthcare products that are both functional and hygienic.
The exact volume of plastics used in healthcare is not known, but studies have been estimated that plastics account for 30% of all healthcare waste. Recycling rates within the sector healthcare also remain very low, with incineration being the preferred disposal method – a significant source of further pollution, greenhouse gases, and exposure to hazardous substances.

The impact of COVID-19 on single-use products

The COVID-19 pandemic has generated a huge spike in demand for disposable personal protection equipment (PPE), primarily surgical masks, respirators, gowns, aprons, gloves, and visors. The UK healthcare sector alone has seen demand for facemasks grow by 4,700% - up to 85-90 million per month. Similarly, the consumption of single-use aprons and gloves has grown 550% and 200% respectively.[9] Life cycle assessments estimate that the PPE distributed to health and social care in

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[1] WHO (2018). Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks. https://www.who.int/publications/i/item/9789241565196
[2] https://www.eea.europa.eu/themes/air/health-impacts-of-air-pollution/
[3] Barnett-Itzhaki and Levi (2021). Effects of chronic exposure to ambient air pollutants on COVID-19 morbidity and mortality-A lesson from OECD countries. *Environmental research*, *195*, 110723.
[4] https://www.eea.europa.eu/themes/human/chemicals
[5] HCWH (2019). Non-toxic healthcare: Alternatives to phthalates and bisphenol A in medical devices (2nd edition). https://noharm-europe.org/sites/default/files/documents-files/6154/2019-12-03_HCWH_Non_Toxic_Healthcare_2_WEB.pdf
[6] HCWH (2019) Health care climate footprint report. https://noharm-europe.org/ClimateFootprintReport
[7] https://healthydebate.ca/2016/08/topic/hospital-medical-waste/
[8] https://www.promecon-medical.com/en/products/single-use-surgical-instruments
[9] The UK Department of Health & Social Care (2020). Personal Protective Equipment (PPE) Strategy: Stabilise and build resilience.

England during the first six months of the COVID-19 pandemic, produced daily CO_2 emissions 27,000 times higher than the average individual's carbon footprint .[10] The greatest contributions were associated with gloves, aprons, face shields, and Type IIR surgical masks.
During the COVID-19 pandemic we have seen unprecedented amounts of single-use consumables used by the healthcare sector for mass testing and vaccination. Many single-use consumables and PPE are made from plastics. During the pandemic, proper segregation of waste and established recycling schemes have often been put on hold, further increasing the rate of incineration.

Time for re-evaluation

At the peak of the early outbreak, our reliance on a steady supply of disposable items was exposed; serious disruptions in the supply of medical protective clothing and medical equipment highlighted the vulnerabilities inherent in our current supply chains. In trying to fix these supply issues, hurried sourcing from new supply routes often led to billions of purchased items failing to meet the necessary quality standards.[11] During shortages, many healthcare workers have had no choice but to reuse items designed for single-use. Out of necessity, they have found ways to decontaminate equipment.
Reflecting on the instability of some supply chains and the potential for reusable items, there are now growing calls from the healthcare sector to safely reuse equipment and recycle non-infectious hospital waste, such as plastic packaging, in an effort to make the sector more resilient and reduce its environmental footprint. The main historical argument in favour of single-use items in healthcare is the oversimplification that they reduce contamination risk whilst reusable products increase it. Recent studies challenge this assumption and demonstrate the potential to reduce, reuse, and recycle healthcare products at a much higher rate.[12] Importantly, infection risk is highly dependent on the product and decontamination procedure and progress in reducing surgical site infection rates is not necessarily associated with disposables, but rather with care standardisation and enhanced host defence mechanisms. Furthermore, the perceived higher infection risk associated with reusable items is either not demonstrated or extremely small.[13]
Initiatives promoting reusable products and reduction of waste are already underway. Many healthcare facilities have adopted reusable gowns,[14] while the NHS started a pilot project in the UK to introduce reusable IIR certified face masks.[15] The healthcare sector can leverage its influence to promote more demand for reusable products in a market otherwise dominated by disposables. The NHS's bold, system-level commitment to net-zero emissions by 2040 importantly includes the reuse of single-use devices as one solution to address the significant carbon emissions generated throughout

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921787/PPE_strategy_v4.5_FINAL.pdf

[10] Rizan et al. (2021). Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic. Journal of the Royal Society of Medicine, 114(5), 250-263.

[11] UK House of Commons. 2021. Committee of Public Accounts Report: Initial lessons from the government's response to the COVID-19 pandemic.
https://committees.parliament.uk/publications/6954/documents/72751/default/

[12] Chauhan, MN. et al. (2019) Use of Plastic Products in Operation Theatres in NHS and Environmental Drive to Curb Use of Plastics. World Journal of Surgery and Surgical Research, Volume 2, Issue 1088 .

[13] MacNeill et al. (2020). Transforming The Medical Device Industry: Road Map To A Circular Economy: Study examines a medical device industry transformation. Health Affairs 39.12: 2088-2097.
https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.01118

[14] https://cleanmedeurope.org/wp-content/uploads/2021/03/Susanne-Backer_Sustainable-medical-textiles.pdf

[15] https://cleanmedeurope.org/wp-content/uploads/2021/03/Alexis-Percival_Reusable-facemasks-Greener-NHS.pdf

supply chains.[16] The Royal College of Surgeons of England pledges to shift more to reusable products in operation theatres.[17]

The way forward

The COVID-19 crisis has helped many of us realise that 'business as usual' is certainly no longer an option. It is vital that we rethink the healthcare sector's dependency on single-use items and work towards more sustainable long-term solutions - building resilient health systems that effectively care not only for patients but also for the planet.

In adopting a circular economy model, the healthcare sector needs to move away from accepting medical waste as a necessity and instead consider the avoidance and reduction of healthcare waste as a crucial component of high quality healthcare.

By taking action to reduce its own environmental impact and its contribution to practices that damage health, the healthcare sector can truly embrace its healing mission. Furthermore, as trusted leaders within society, doctors and other health professionals have an important role to play in fostering wide-scale behaviour change and leading the transition to a more sustainable healthcare system globally.

Dorota Napierska holds a PhD in Biomedical Sciences. She is responsible for HCWH Europe's work on chemicals of concern in healthcare, raising awareness and identifying priorities and opportunities for substitution. Dorota also oversees EU advocacy strategy on chemical regulation, with the overall goal to eliminate hazardous substances.
europe@hcwh.org
www.noharm-europe.org

[16] https://www.england.nhs.uk/greenernhs/publication/delivering-a-net-zero-national-health-service/
[17] https://www.rcseng.ac.uk/news-and-events/events/webinars/