Tidsskriftet Tidsskrift for Den norske legeforening

Sustainable infection control – gloves off

OPINIONS

CHRISTIAN BORGEN LINDSTAD

cblindstad@gmail.com
Christian Borgen Lindstad, MD and senior adviser at the Norwegian Directorate of Health.
The author has completed the ICMJE form and declares no conflicts of interest.

TORNI MYRBAKK

Torni Myrbakk, specialist in medical microbiology and senior consultant in infection prevention and control at the University Hospital of North Norway, Tromsø.
The author has completed the ICMJE form and declares no conflicts of interest.

METTE FAGERNES

Mette Fagernes, PhD, nurse and senior advisor at the Norwegian Institute of Public Health.
The author has completed the ICMJE form and declares no conflicts of interest.

HANNE-MERETE ERIKSEN-VOLLE

Hanne-Merete Eriksen-Volle, head of Section for Resistance and Infection Prevention, Department of Infection Control and Preparedness, Norwegian Institute of Public Health.
The author has completed the ICMJE form and declares no conflicts of interest.

ERLEND TUSETH AASHEIM

Erlend Tuseth Aasheim, head of department in the Norwegian Directorate of Health, and associate professor at the Centre for Sustainable Healthcare Education, University of Oslo.
The author has completed the ICMJE form and declares no conflicts of interest.

The health and care services can prevent infections just as effectively with a lower climate- and environmental footprint. The consumption of disposable gloves is an important place to start.

The healthcare sector has a significant impact on nature and the environment, and accounts for around 5 % of the global carbon footprint (1). In order to reduce this, the Norwegian Directorate of Health recently drafted a roadmap for a sustainable, low-emission health and care sector (2). Reducing the healthcare services' climate footprint means reducing both unnecessary consumption and activities, and preventing illness. The regional hospital trusts have decided, therefore, that the reduction of healthcare-associated infections is one of their climate and environmental goals in the years up to 2030 (3). However, infection prevention as currently practised in the healthcare services entails a high consumption of equipment. In this article, we discuss how the climate- and environmental impact can be reduced while maintaining infection control and quality in the healthcare services, for example by reducing the consumption of disposable gloves.

Disposable gloves are an important contributor to the carbon footprint

A UK study found that the carbon footprint of personal protective equipment (PPE) is considerable (4). Disposable gloves comprised the largest proportion of this.

> ***«We estimate that the Norwegian healthcare services have an unnecessary consumption of between 70 and 175 million disposable gloves each year»***

Based on procurement figures, it was estimated that 300 million latex and nitrile gloves were used in the Norwegian healthcare services in 2019 (5). International studies and a small observational study carried out at Norwegian nursing homes found that in 24–58 % of the situations where gloves were used, there were no indications for glove use (6–9). Given a total consumption of 300 million disposable gloves, we estimate that the Norwegian healthcare services have an unnecessary consumption of between 70 and 175 million disposable gloves each year. This is equivalent to up to 1225 tons of superfluous waste annually.

We can also make a rough estimate based on procurement figures for hospitals in the South-Eastern Norway Regional Health Authority that the total procurement of gloves for the primary and specialist health services rose from 300 million in 2019 to 400 million in 2023. We assume that this post-pandemic increase entails even greater over-consumption, as it cannot be explained by changes in guidelines.

> ***«Studies also show that overuse of gloves leads to reduced compliance with hand hygiene and consequently a decline in patient safety»***

PPE must be used when necessary to prevent the transfer of infection. However, the overuse of PPE such as gloves constitutes unnecessary use of resources and is an environmental burden. Studies also show that the overuse of gloves leads to reduced compliance with hand hygiene and consequently a decline in patient safety (6, 10). As well as focusing on the over-consumption of gloves in relation to current guidelines, the Norwegian Institute of Public Health is planning to conduct a critical review of indications for all PPE. The goal is to identify the potential for reducing use without increasing the infection risk.

Reuse of PPE

Reducing unnecessary use is the most effective measure, but the climate- and environmental footprint can also be reduced by changing from disposable to reusable products where feasible. For example, can today's disposable gowns be replaced with reusable gowns? Some studies show that reusable gowns have a significantly lower climate- and environmental footprint than disposable gowns (11, 12). Nonetheless, a transition to reusable gowns requires that these have the same barrier rating as disposable gowns. In addition, logistical and reprocessing challenges must be solved. The reuse of PPE has also been explored in other settings (4), but more knowledge is needed on this.

Greater competence

Healthcare personnel's general competence in infection prevention and control needs to be strengthened. This will help reduce healthcare-associated infections and the over-consumption of PPE. Moreover, it will mean that resource- and equipment-intensive infection control measures, such as isolating patients, are not implemented unless absolutely necessary.

Even at present, healthcare personnel can help reduce the carbon- and environmental footprint in the healthcare services by adhering to current infection prevention and control guidelines, and identifying practices that can be changed.

The reduction of unnecessary glove use is a simple, easily achievable measure that is long overdue.

REFERENCES

1. Sherman JD, MacNeill AJ, Biddinger PD et al. Sustainable and Resilient Health Care in the Face of a Changing Climate. Annu Rev Public Health 2023; 44: 255–77. [PubMed][CrossRef]

2. Helsedirektoratet. Veikart mot en bærekraftig lavutslipps helse- og omsorgstjeneste - høringsutkast. https://www.helsedirektoratet.no/horinger/veikart-mot-en-baerekraftig-lavutslipps-helse-og-omsorgstjeneste Accessed 19.8.2024.

3. Grønt sykehus. Rammeverk for miljø og bærekraft i spesialisthelsetjenesten. https://www.helse-sorost.no/siteassets/documents/Miljo/21-01308-5-Vedlegg-1-Rammeverk-for-miljo-og-barekraft-i-spesialisthelsetjenesten.pdf Accessed 19.8.2024.

4. Rizan C, Reed M, Bhutta MF. 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. J R Soc Med 2021; 114: 250–63. [PubMed][CrossRef]

5. FHI. Markering av håndhygienedagen 5. Mai 2024. https://www.fhi.no/sm/handhygiene/markering-av-handhygienedagen-5.-mai-2024 Accessed 19.8.2024.

6. Girou E, Chai SH, Oppein F et al. Misuse of gloves: the foundation for poor compliance with hand hygiene and potential for microbial transmission? J Hosp Infect 2004; 57: 162–9. [PubMed][CrossRef]

7. Kristiansen PC, Bastien S, Debesay J et al. How and why do healthcare workers use gloves in two Norwegian nursing homes? J Hosp Infect 2024; 146: 134–40. [PubMed][CrossRef]

8. Loveday HP, Lynam S, Singleton J et al. Clinical glove use: healthcare workers' actions and perceptions. J Hosp Infect 2014; 86: 110–6. [PubMed] [CrossRef]

9. Wilson J, Bak A, Loveday HP. Applying human factors and ergonomics to the misuse of nonsterile clinical gloves in acute care. Am J Infect Control 2017; 45: 779–86. [PubMed][CrossRef]

10. Flores A, Pevalin DJ. Healthcare workers' compliance with glove use and the effect of glove use on hand hygiene compliance. Br J Infect Control 2006; 7: 15–9. [CrossRef]

11. Baker N, Bromley-Dulfano R, Chan J et al. COVID-19 Solutions Are Climate Solutions: Lessons From Reusable Gowns. Front Public Health 2020; 8. doi: 10.3389/fpubh.2020.590275. [PubMed][CrossRef]

12. Vozzola E, Overcash M, Griffing E. Environmental considerations in the selection of isolation gowns: A life cycle assessment of reusable and disposable alternatives. Am J Infect Control 2018; 46: 881–6. [PubMed] [CrossRef]

Publisert: 10 September 2024. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.24.0343
Received 18.6.2024, first revision submitted 16.8.2024, accepted 19.8.2024.