



Digital hygiene monitoring gives new insights into hand hygiene behaviour

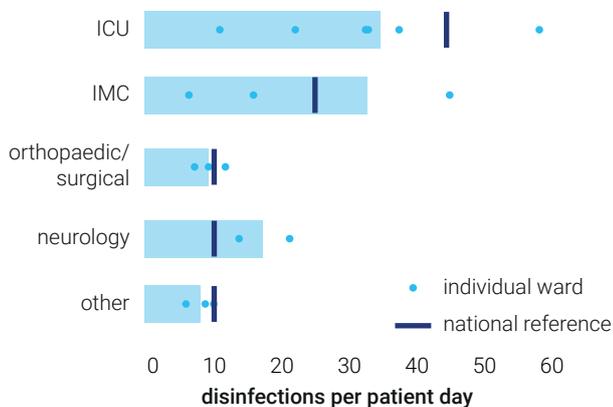


Monitoring hand hygiene with sensors

Hand hygiene is generally regarded as the most important measure in the prevention of healthcare-associated infections. And as the starting point of any disinfection, hand rub dispensers are particularly well placed to collect information on hand hygiene. This is particularly the case when using sensors that can track every single disinfection around the clock.

Together with an academic partner and GWA Hygiene GmbH (Stralsund, Germany), the HARTMANN SCIENCE CENTER set out to analyse 931,446 disinfections recorded by NosoEx[®] from 17 wards in nine German hospitals. We analysed the frequency, volumes used and dispenser location.

How often are hands disinfected?

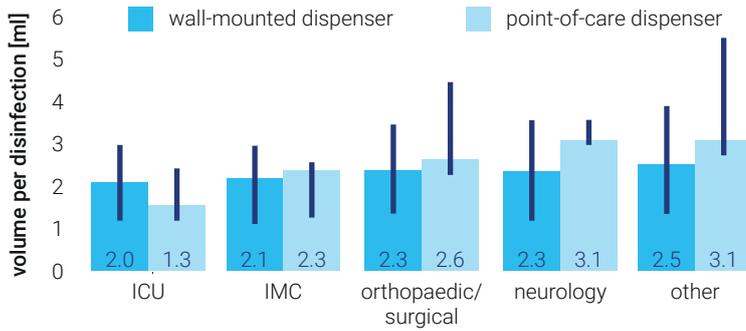


With 35 disinfections per patient day, most disinfections were on average recorded for intensive care units (ICUs), followed by intermediate care (IMC), neurological, orthopaedic/surgical, and other wards.

NosoEx[®] recorded a specialisation-specific number of disinfections that is very similar to the reports of the German National Reference Centre, which are based on direct observations.

Number of disinfections per patient day by ward type. Both average values (bars) and individual ward values (points) are shown. For comparison, the specialty-specific averages of the German National Reference Centre for the Surveillance of Nosocomial Infections are given.

How much hand rub is used?



Volume of hand rub in mL used per disinfection. Medians (bars and numbers) and the volume range covering 50% of all recorded disinfections (vertical lines) are shown. Bright blue indicates wall-mounted dispensers and light blue indicates point-of-care dispensers.

On average, the lowest volumes per disinfection were used in ICUs, while the highest volumes per disinfection were used in other wards, which had the lowest number of disinfections per patient day.

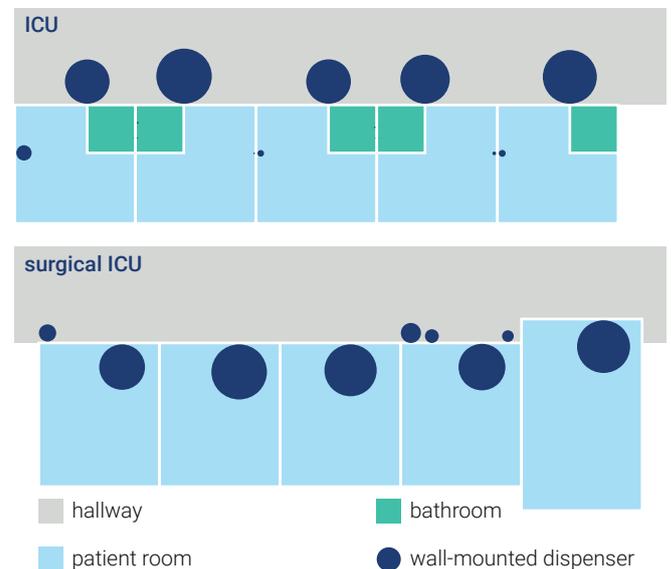
In general, healthcare workers used more rub per disinfection from point-of-care dispensers than from wall-mounted dispensers.

Where are the most frequently used dispensers?

While in normal ICUs hand rub dispensers are most commonly used in hallways, in surgical ICUs they are more often used in patient rooms.

While patient room doors are closed, there are few indications for hand disinfection in hallways. However, hand rub dispensers in hallways can be conveniently used on the fly.

Frequent hand disinfection in patient rooms in surgical ICUs may be due to common intensive care activities, such as contact with open wounds.



Location dependent use of hand rub dispensers. Shown are ward layouts of an ICU and a surgical ICU. Room types are indicated by colour and wall-mounted dispensers are indicated by dots and touch the wall on which they are mounted. Larger dots indicate more frequent use.

Our analysis of 931,446 hand disinfections showed that the use of hand rub dispensers is influenced by ward type and workflow. While hand disinfection is most frequent in ICU and IMC wards, these wards also use the least amount of rub per disinfection.

Where wound care or other aseptic procedures are a primary activity, dispensers should be located close to the patient.

The use of sensor-based monitoring systems such as NosoEx® can provide otherwise inaccessible insights into hand hygiene behaviour by recording each hand disinfection.

