00435 Smart Sanitizer System for Infection Prevention

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Aims: Hand hygiene (HH) is a cornerstone of infection prevention, and monitoring HH practices is common in healthcare facilities. We aim to develop a prototype, the Smart Hand Sanitizer (SHS) system, that can measure the hand hygiene (HH) compliance rate amongst Healthcare Workers (HCW). This could be an alternative solution to manual HH audits, and improve HCW awareness of good HH practices.

Methodology: The SHS system was developed by integrating force sensors & wireless technologies with the hand-rub dispenser holder. It is able to count the use of alcohol hand-rub bottles attached to patient beds. The SHS was installed in Ward 73 room 9 of Singapore General Hospital in January 2018.

In the multi-bedded room, a before-and-after comparison of HH rates was conducted in July 2017 and January 2018 respectively, with each session running from 8.00am to 3.00pm. In both phases, students directly monitored staff and measured HH rates with the WHO HH audit form. Sensor counts collected during implementation of SHS in the ward were compared with direct observation counts to determine accuracy of the system.

Result: The device captured 90% of direct observations(n=42). There were also HH moments captured by the prototype(n=4) that missed observation by students.

There was an increase in overall HH compliance from 42% to 72% after implementation of SHS in the room.

Of this measurement, allied health staff observed an increase from 45% to 60%. For nurses, this increased from 61% to 78%. The largest increase in HH compliance was observed amongst doctors, with a rise from 18% to 56%.

Conclusion: The SHS system corresponded to direct HH observation 90% of the time. Monitoring HH compliance through the SHS prototype increased HH rate to 72% in the room it was installed in. More studies are needed to investigate if habituation to the device will maintain this HH rate.