Combating Covid-19: A birth of innovations

The pandemic has given rise to a slew of local inventions that optimise treatment, raise healthcare efficiency and prepare for future infectious disease risks. Shabana Begum highlights some of them.

Self-reliance with 3D-printed face shields

Developed by: Tan Tock Seng Hospital (TTSH) and the National Centre for Infectious Diseases (NCID)

- Goggles can be uncomfortable for healthcare workers and tend to fog up.
- To make protective gear more comfortable, both hospitals conceptualised and invented their own face shields using 3D printing.
- One was a disposable face shield, and the other had a spectacle frame.
- With minimum contact with skin, users are more comfortable. They do not need to wear goggles under the face shields.
- The locally produced face shields also reduce reliance on overseas suppliers, who may face shortage or import disruptions.
- The face shields are currently used in some departments within TTSH and NCID, which includes the NCID Screening Centre, emergency department and pandemic wards.

UV light box disinfects medical supplies

Developed by: Yishun Health and Republic Polytechnic

- The ultraviolet-C (UVC) light inside the box can disinfect and decontaminate the use of items such as stethoscopes, goggles, face shields and even surgical masks.
- UVC light kills around 99 per cent of bacteria and has been clinically proven to eliminate viruses.
- Most items are first cleaned with alcohol wipes before they go into the disinfecting box for three minutes.
- Once disinfected, the surgical masks and other protective gear can be reused throughout the whole work shift.
- The boxes were distributed to wards and departments across Khoo Teck Puat Hospital and Yishun Community Hospital.

Tele-audiology

Pioneered by: Ng Teng Fong General Hospital (NTFGH)

- Telemedicine has been thriving this year as more patients are opting for medical check-ups and rehabilitation from home.
- But tele-audiology—where specialists help patients virtually with hearing loss management, such as by adjusting their hearing aids—is a new entrant to tele-health in Singapore.
- NTFGH’s audiology department is believed to be the first to offer this service here.
- Through video consultation, audiologists can help patients with hearing difficulties or impairment use their hearing aids and optimise their residual hearing abilities.

Robots to the rescue

- Sengkang General Hospital is exploring the use of autonomous mobile robots in wards. The robots can deliver services and items inside the wards to assist the nursing and support staff.
- Confirmed and suspected Covid-19 patients at Alexandra Hospital receive their meals and medicine from a robot called BeamPro.
- From next month, a concierge and security robot will scan SafeEntry check-ins and record visitors’ and patients’ temperatures in NTFGH.
- SwabBot, which automates nasal swabbing to diagnose Covid-19, was developed by the National Cancer Centre Singapore, the Singapore General Hospital, Duke-NUS Medical School and Biobot Surgical.

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