

Help for healthcare workers



VIRTUAL REALITY IN AGITATION MANAGEMENT AND DESICCANT FILM

National University of Singapore

National University of Singapore (NUS) is rolling out two inventions that improve the level of medical care for patients and the safety of medical professionals. One is a safe way to deal with aggressive patients. The other is a high-tech film (above) that prevents heat exhaustion in medical workers.

The Virtual Reality in Agitation Management (VRAM, right) curriculum was developed by the NUS Yong Loo Lin School of Medicine for medical and nursing students.

The compulsory programme was rolled out earlier this month for fourth-year medicine and second-year nursing students as part of a module on managing aggression. Work on the curriculum started in March 2020 and went on trial in August last year, with 65 medical and nursing students given headsets for immersive VR interaction.

Assistant Professor Cyrus Ho from the department of psychological medicine says the pandemic has affected people's mental health and there has been an increase in violence towards healthcare workers.

He and Assistant Professor Shawn Goh from NUS' Alice Lee Centre for Nursing Studies said workers have been spat at, kicked and verbally abused by patients.

"We trialled the VR prototype on five rotations of students who came through our psychiatry posting," says Prof Ho.

The VRAM programme is a safe space to learn, as a wrong decision does not cause harm. This allows students to pick up skills to manage real-life scenarios.

"We should always try to understand the concerns of the patient and what triggered the agitated reaction," says Prof Ho. "This will allow us to address the patient's needs and verbally de-escalate the situation



PHOTOS: LIANHE ZAOBAO, NATIONAL UNIVERSITY OF SINGAPORE

empathically and sensitively. We also have a staff protection programme at the National University Hospital that helps equip medical staff with the know-how to respond and de-escalate staff abuse situations."

At the NUS College of Design and Engineering, Assistant Professor Tan Swee Ching from the Department of Materials Science and Engineering has developed a "desiccant film" that lowers the perceived or "felt" temperature inside personal protective equipment (PPE) by accelerating the evaporation of sweat. In humid tropical climes such as Singapore's, it is harder for one's sweat to evaporate, making the surroundings feel hotter than they are.

Prof Tan was concerned about healthcare workers who endured a felt temperature of about 60 deg C while wearing PPE for long periods. Over eight months, he led a team of NUS researchers to develop a film that lowers these temperatures to about 40 deg C by boosting sweat evaporation.

The moisture-trapping film is non-toxic; composed of metallic salt, rubber and several chemicals; and reduces trapped heat for up to two hours at a stretch. It costs about \$2 to produce in the lab, but will be cheaper when produced in large quantities. The team plans to commercialise it in about a year.