Hospital ward run by robots to spare staff from catching virus

Sarah O'Meara

A NEW hospital ward run entirely by robots has opened in Wuhan, China, in a bid to protect medical staff from contracting the coronavirus.

On 7 March, about 200 patients exhibiting early symptoms of covid-19 were ushered into the new ward, which is in a converted sports centre in Wuhan, the city where the outbreak started.

The robots deliver food, drinks and drugs to the patients, and keep the ward clean. Some have a humanoid head, arms and upper torso but a wheeled base, while others look more like a box on wheels. The machines can move around autonomously but are under the observation and control of staff outside the ward.

The trial is a partnership between CloudMinds, a Beijing-based robotics firm, and mobile operator China Mobile, along with Wuhan Wuchang Hospital, an institution at the heart of early efforts to contain the virus. The hospital's director Liu Zhiming died of the disease last month.

The ward was established as a human-run clinic, but has now been turned over to the robots after a week-long upgrade. Engineers mapped the ward and uploaded the information to a cloud server to help the robots navigate the area.

CloudMinds CEO Bill Huang says the ward will be a pilot case. "This is China's first-ever entirely robot-led ward and an opportunity to test the capability of the technology and how we work together," he says.

Robots will look after patients who aren't acutely ill but who need basic medical care. If they recover, they will be sent home. If their health problems become more acute, they will be transferred to the human-run hospital.

During their stay, patients wear bracelets fitted with sensors to

Robots are being trialled in a hospital in Wuhan, China

measure their heart rates and temperatures. This information is displayed on a large screen outside the ward for doctors and nurses to access along with other health information. Medical staff can also use the screen to assign the robots their next task.

"The staff have a much better view of how things are going and can immediately find out if something isn't right. I think it's a very high-tech and new way of trying to run a hospital," says Huang.

Patients may also welcome the novelty, he says. "As we developed the plan, I talked to staff in the hospitals. They say the patients are very bored being isolated, so they love to see the robots."

Chenguang Yang at the Bristol Robotics Laboratory, UK, says this kind of experiment is promising but cautions that there may be difficulties. "There will be lots of people moving around in a hospital ward. It will be a major challenge for robots to work in such a dynamic place." ∎

Analysis Virus strains

There are two types of the new coronavirus What does that mean? Jessica Hamzelou explains

TWO strains of the new coronavirus are spreading around the world, according to an analysis of about 100 cases. But the World Health Organization (WHO) insists "there is no evidence that the virus has been changing". So how many strains are there, and does it matter?

Viruses are always mutating, especially RNA viruses like this one, the covid-19 virus. When a person is infected with the coronavirus, it replicates in their respiratory tract. Every time it does, about half a dozen genetic mutations occur, says Ian Jones at the University of Reading, UK.

When Xiaolu Tang at Peking University in Beijing and his colleagues studied the viral genome taken from about 100 cases, they identified two types of the virus: 72 were considered to be the "L-type" and 29 were classed as "S-type".

The work also suggests that the L-type was derived from the older S-type. The first strain is likely to have emerged when the virus jumped from animals to humans. The second emerged soon after that, says the team. Both are involved in the current global outbreak. The L-type being more prevalent suggests that it is "more aggressive" than the S-type, the team says (*National Science Review*, doi.org/ggndzn).

"There do appear to be two different strains," says Ravinder Kanda at Oxford Brookes University in the UK. "[The L-type] might be more aggressive in transmitting itself, but we have no idea yet how these underlying genetic changes will relate to disease severity," she says.

"The virus is as it was when it originally emerged. There is no evidence it is getting worse"

The differences between the two identified strains are tiny. In fact, they can't really be considered to be separate "strains", says Jones. And many of the genetic differences won't affect the production of proteins, so won't change the way the virus works or the symptoms it causes, he says. One is not more deadly than the other.

"In all practical terms, the virus is as it was when it originally emerged," says Jones. "There's no evidence it is getting any worse."

This sentiment is echoed by the WHO. The study by Tang and colleagues only suggests there is some genetic diversity of the virus – it doesn't mean it is changing, a representative told *New Scientist*. ∎