NUH turns to AI to track wait times for emergency patients

Judith Tan
Correspondent

Knowing ahead of time when there will be a surge of patients at the emergency department and whether there are beds available will allow the National University Hospital (NUH) to allocate manpower more effectively.

That is why the hospital’s Emergency Department is turning to Pathfinder, an artificial intelligence (AI) project that provides real-time insights into waiting time and bed occupancy rates, which can guide staff in decision-making within a dynamic emergency environment. Pathfinder tracks waiting time and predicts daily patient volume up to seven days in advance, said National University Health System (NUHS) deputy group chief technology officer Ian McKern.

Pathfinder is hosted on the health group’s Endavour AI platform, which provides live medical data of patients across NUHS hospitals and clinics.

“While AI helps streamline processes, reduce inefficiencies and improve patient care, it does not take over,” said Dr McKern, who is also a senior consultant in NUH’s department of emergency medicine.

According to the Ministry of Health website, the median waiting time for patients in the emergency department at public hospitals in Singapore was between two hours and 24 hours in the first week of September.

“This project empowers us to make more informed decisions about how best to allocate resources, including manpower, hospital bed utilisation and the coordination of essential support services, such as NUH@Home programs,” said Dr McKern.

NUH@Home is a programme that offers patients the option of receiving acute hospital care and services at home instead of the hospital.

Also hosted on Endavour AI is a new AI tool that helps predict when – high calcium levels in the blood – to doctors in real time, guiding quicker interventions for patients. Hypercalcemia is usually a result of excessive parathyroid glands, which control the body’s blood calcium levels.

If not treated in a timely manner, patients may suffer complications such as osteoporosis and fractures, kidney stones, and even potentially sudden cardiac death.

Caliche – short for calcium sensing – was developed by NUH to gather, process and display the results of patients’ blood tests.

“It has proven that regular prompt interventions across our network of hospitals, national specialty centres and polyclinics in real time, reducing the number of backlogged orders and expediting medical care,” said lead physician-officer Naggara Sriayan.

Associate Professor Naggara, who also heads the division of general surgery (thyroid and endocrine surgery) at NUH, said accurate data has shown that prompt care can reduce the symptoms of hypercalcemia and improve patient outcomes.

Caliche has shortened this. Construction supervisor Koh Chai Sheng, 46, from Caliche, had surgery to remove his kidney stone in January last year following two episodes of kidney stones and numbness in his legs.

Mr Koh was sent to the emergency department of NUH and later given an appointment with an endocrinologist for his kidney stone, during which Caliche detected a high calcium concentration in his blood. He was diagnosed with parathyroid cancer, a rare cancer of the glands located near the thyroid in the neck, and was recommended surgery.

“Should the intervention have been delayed, the speed of the disease would have been far more pronounced because there are little alternatives to medical or other surgery,” said his surgeon, Dr James Lee.

Between January and July 2023, a total of 26,006 blood tests on calcium levels were done at the different institutions under NUH, Caliche flagged 1600 of these as abnormal, leading to medical interventions.

Source: The Straits Times © SPH Media Ltd.
Permission required for reproduction