

MEDIA RELEASE

22 July 2025

SINGAPORE LAUNCHES ASIA'S FIRST ALLERGIC RHINITIS DATABASE TO TRANSFORM CHRONIC EAR, NOSE AND THROAT (ENT) CARE

SINGAPORE – Ng Teng Fong General Hospital (NTFGH) has launched Project ENTenna, which will establish Asia's first population allergy database focused on Allergic Rhinitis (AR). This artificial intelligence (AI)-driven, multi-year programme aims to enhance the diagnosis and long-term management of AR, a condition that affects 39% of Singaporeans. Led by NTFGH and supported by National University Hospital (NUH), Tan Tock Seng Hospital (TTSH), Changi General Hospital (CGH), and the Agency for Science, Technology and Research (A*STAR), the programme tracks up to 6,000 patients over three years, from 2024 to 2026, using real-world data to guide clinical decisions and support the transition of care from hospitals to the community.

Project ENTenna is implemented with support from the Ministry of Health's Health Innovation (MHI) Fund and the JurongHealth Fund. Project ENTenna integrates patient-reported data with AI analytics to personalise treatment, improve medication adherence, and reduce unnecessary hospital visits. AI-generated insights currently support clinicians in real time, incorporating system prompts that identify patients suitable for discharge and right-siting to primary care. In NTFGH, this has contributed to a 45% increase in discharges from specialist outpatient care to primary care, improving clinical efficiency, care transition planning, and optimising resource use. While Project ENTenna also supports managing other conditions such as giddiness and tinnitus, its current focus is on AR – the anchor condition driving this initiative. The care model has the potential to be adapted for other chronic conditions in future.

The programme leverages WhatsApp chatbots, AI-powered symptom trackers, and behavioural nudges to improve patients' self-management of their AR condition. These interventions are demonstrating a potential up to 25% improvement in medication adherence. A foundational AI model is also being developed to enable more interactive and scalable tools for patient communication and further enhance clinical decision-making in future phases of the project.

"This is possibly the most advanced model of Ear, Nose and Throat (ENT) care tapping on AI and smart communication technology in Asia," said Adjunct Associate Professor Ng Chew Lip, Senior Consultant, Department of Otolaryngology - Head & Neck Surgery (ENT), and Associate Chairman Medical Board (Care Transformation), NTFGH, who is the principal investigator of Project ENTenna.

"We are building a comprehensive, data-driven ecosystem that enables personalised, timely, and scalable care. This will not only transform the management of AR but also serve as a foundation for future chronic disease management models," said Dr Ng. A vision of the ENTenna model of care has been published in the journal *Allergy*, which is the top journal in allergy research. (Ng CL, Wang Y. Person-centred care in allergen immunotherapy in a digital era. *Allergy*. 2024 Aug;79(8):2034-2036.)

The programme also features a research collaboration with the A*STAR Singapore Immunology Network (A*STAR SigN), which will undertake molecular-level investigations to identify new therapeutic targets and explore why patients experience differing responses to the same treatments — insights that could unlock future drug discovery.

Early findings from the programme have been mapped, revealing environmental trends that may influence AR symptoms across different parts of Singapore. Such insights can support the development of future clinical management guidelines, laying the groundwork for national standards in AR management.

Dr Tan Jian Li, Consultant, Department of Otorhinolaryngology (Ear, Nose, Throat), TTSH, and Dr Oh Hong Choon, Deputy Director, Department of Health Services Research, CGH, are co-principal investigators on the project, working closely with NTFGH to advance ENT care across healthcare clusters.

“Using this AI-driven platform, we aim to build a robust, data-driven care model that can transform how we manage chronic ENT conditions, starting with allergic rhinitis — one of the most prevalent yet often under-recognised diseases,” said Dr Tan.

“The marriage of chatbot technology with AI risk prediction models can potentially offer a paradigm shift in chronic disease management. By better understanding the varying experiences of patients living with allergic rhinitis through the chatbot, and translating this information into actionable insights using the AI model, Project ENTenna can enable clinicians to move towards proactive care strategies and early interventions to enhance patient outcomes,” said Dr Oh.

Ryan Lim, 21, has spent years managing allergic rhinitis, often waking up congested and fatigued. “Allergic rhinitis is so common, yet many don’t realise its impact – or even that they have it,” said Ryan.

“As a patient, I appreciate how this study prioritises real patient needs like accessibility and education. The use of AI to personalise medication reminders and symptom tracking really makes a huge difference,” he added.

Future plans for the project include expanding into paediatric care and enhancing outreach to vulnerable groups such as migrant workers. These efforts will build on the programme’s core goal of improving continuity of care across Singapore’s healthcare system. A cost-effectiveness evaluation is also planned to support scalability and potential adoption across other healthcare institutions.

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Chinese Glossary

Ng Teng Fong General Hospital (NTFGH)	黄廷方综合医院
National University Hospital (NUH)	国立大学医院
Tan Tock Seng Hospital (TTSH)	陈笃生医院
Changi General Hospital (CGH)	樟宜综合医院
Agency for Science, Technology and Research (A*STAR)	新加坡科技研究局
Adjunct Associate Professor Ng Chew Lip Senior Consultant Department of Otolaryngology - Head & Neck Surgery (ENT) Ng Teng Fong General Hospital	黄秋立 高级顾问医生 耳鼻咽喉头颈外科 黄廷方综合医院
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About the National University Health System (NUHS)

The National University Health System (NUHS) aims to transform how illness is prevented and managed by discovering causes of disease, development of more effective treatments through collaborative multidisciplinary research and clinical trials, and creation of better technologies and care delivery systems in partnership with others who share the same values and vision.

Institutions in the NUHS Group include the National University Hospital, Ng Teng Fong General Hospital, Jurong Community Hospital and Alexandra Hospital; three National

Specialty Centres – National University Cancer Institute, Singapore (NCIS), National University Heart Centre, Singapore (NUHCS) and National University Centre for Oral Health, Singapore (NUCOHS); the National University Polyclinics (NUP); Jurong Medical Centre; and three NUS health sciences schools – NUS Yong Loo Lin School of Medicine (including the Alice Lee Centre for Nursing Studies), NUS Faculty of Dentistry and NUS Saw Swee Hock School of Public Health.

With member institutions under a common governance structure, NUHS creates synergies for the advancement of health by integrating patient care, health science education and biomedical research.

As a Regional Health System, NUHS works closely with health and social care partners across Singapore to develop and implement programmes that contribute to a healthy and engaged population in the Western part of Singapore.

For more information, please visit www.nuhs.edu.sg.

About the Ng Teng Fong General Hospital

JurongHealth Campus is a part of the National University Health System (NUHS) group, serving the community in the western region. JurongHealth Campus comprises Ng Teng Fong General Hospital (NTFGH) and Jurong Community Hospital (JCH) which were designed and built together as an integrated healthcare hub, with more than 1,000 beds, to complement each other for better patient care, greater efficiency and convenience.

NTFGH and JCH were envisioned to transform the way healthcare is provided, and together with the National University Hospital, National University Polyclinics, Jurong Medical Centre, family clinics and community partners, to better integrate healthcare services and care processes for the community in the west.

About the JurongHealth Fund

Established in 2011, JurongHealth Fund (JHF) is a grant-making organisation that supports programmes mooted by JurongHealth Campus for the benefit of patients, community and staff.

JHF aims to elevate healthcare standards and quality, by promoting medical and health-related services that are exclusively charitable and for the benefit of the Singapore community.

Governed by a Board of Directors, JHF is a registered charity and an approved Institution of a Public Character (IPC).