BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Singapore launches National University Centre for Genomic Medicine (NUGEM)

April 2, 2026 | News | By Hithaishi C Bhaskar

At the second edition of the "NUHS Scientific and Innovation Summit" NUHS charts new era of personalised care with genomics and data-guided breakthroughs

The National University Health System (NUHS) unvieiled the **NUHS Scientific and Innovation Summit 2026** on 1-2 April in Singapore. This biennial flagship event serves as a platform to showcase Singapore's scientific and clinical research capabilities while facilitating the exchange of knowledge and best practices in medical science. Over **600 international and local healthcare professionals, scientists, and opinion leaders** will convene to shape the future of healthcare.

The National University Health System (NUHS) showcased how advances in genomics, data science and digital health are accelerating Singapore's shift towards predictive, personalised and precise healthcare at the cluster's biennial **Scientific and Innovation Summit**.

The Summit brought together clinicians, scientists and healthcare leaders across various disciplines to demonstrate how health is being reimagined – by detecting health risks earlier, tailoring interventions more precisely, and ensuring safer, more effective care for patients and the population at large.

Launch of the National University Centre for Genomic Medicine (NUGEM)

A key highlight of the Summit was the launch of the National University Centre for Genomic Medicine (NUGEM), marking a major step in NUHS's effort to embed genomics into everyday care. This will strengthen early diagnosis, enabling tailored therapies, and ensuring safer, more precise prescribing across the health system.

"From public health experts modelling risk trajectories using population data across the life course, to digital health teams advancing digitalâ??first preventive care through wearables and realâ??time monitoring, the Summit is highlighting how proactive, dataâ??driven insights are closing care gaps between hospital visits and enabling earlier action," said Professor Roger Foo, Co-Chair of the NUHS Scientific and Innovation Summit Organising Committee.

Clinicians and scientists also showcased breakthroughs in reshaping precision diagnosis and treatment. Oral frailty studies, for example, are revealing how oral health signals systemic health and opens the door to personalised care. Pathogen genome sequencing research by infectious diseases experts also helps to uncover hidden transmission patterns and cut diagnostic time more than fivefold to just 24 hours, strengthening infection containment efforts.

Hope made tangible

At NUHS, genomics is already making a real difference in the lives of patients by supporting them through various critical and deeply personal decisions. Each story reflects how genetic insights can change a patient's trajectory or offer clarity, certainty and hope when it matters most.

- **Lifeâ??saving diagnosis and treatment in fulminant infection:** Immunologic and genetic testing in the ICU uncovered a new immune defect affecting pathogen-killing in a young woman who was critically ill with a severe bacterial infection and had been non-responsive to conventional treatment over five weeks. The discovery enabled doctors to administer targeted immune augmenting therapy that brought her off life support in days, and she has since recovered.

- **Supporting patients across their life course:** A newly married young woman diagnosed with neonatal diabetes as a baby underwent updated genetic testing to confirm the gene variant she carried, enabling her and her husband to undergo in-vitro fertilisation (IVF) with pre-implantation genetic testing (PGTâ??M1). She welcomed a healthy baby girl in 2025.

- **Uncovering a hidden risk:** Genetic testing revealed a serious inherited kidney condition in an otherwise healthy mother after her first child was diagnosed at birth. With this knowledge, she was able to undergo IVF with PGT-M for her second pregnancy. She later welcomed a second child who does not carry the condition.
- **Ending a diagnostic odyssey:** After years without answers, new genetic testing technology may soon help a young man with suspected Alport syndrome – a hereditary kidney condition that can cause kidney failure and hearing loss – secure a definitive diagnosis. This will help guide treatment and clarify prognosis without the need for more unnecessary and painful tests, such as a kidney biopsy.

Making medicines safer

Another focus at NUHS is pharmacogenomics, which uses a patient's genetic profile to guide medication choice and dosage, helping doctors to prescribe more safely and 1 PGT-M refers to pre-implantation genetic testing for monogenic / single gene defects. effectively. With over 99 per cent of local patients carrying variants that influence drug response, early identification of these variants can help doctors avoid adverse drug reactions and ensure patients receive medications that are most effective for them.

NUGEM plans to expand preâ??emptive pharmacogenomic panel testing so that genetic insights can inform prescribing decisions before treatment begins. More than 2,000 patients have undergone pharmacogenomics testing at NUHS, with plans to scale towards preventive, populationâ??level use.

Bringing better insights to the patients

Within the next two decades, it is estimated that oneâ??third of clinic encounters across NUHS may involve conversations around genomics or precision medicine. NUGEM is the bridge that transforms and conveys the genomic or precision medicine insights from research and Singapore's National Precision Medicine Programme to the patients and families.

Beyond genomics, the Summit also highlighted NUHS's broader ecosystem of innovation, spanning population health research, digital preventive care, antimicrobial stewardship, ageing science and precision diagnostics.

"Behind every project shared at the Summit is a patient whose life can be changed for the better. As we scale genomics and other emerging tools across our system, our goal remains simple: to give every person the right care at the right time, guided by the best possible insight," said Associate Professor David Tan, Co-Chair of the NUHS Scientific and Innovation Summit Organising Committee.

Hithaishi Bhaskar