NATIONAL HOSPITAL SURABAYA - Seamlessly integrated

Connection is key at the Indonesian facility

National Hospital Surabaya celebrated its 12th anniversary in December with the theme "Seamless," reflecting its commitment to providing integrated, modern, and high-quality health services.

In line with this theme, the hospital also launched its new National Hospital Apps, a digital platform that facilitates patient access to various health services in an integrated manner, from registration and online consultation to monitoring laboratory and radiology results. National Hospital Apps is designed to integrate diagnosis, treatment, and patient recovery all in one efficient system.

"National Hospital Apps ensures an integrated patient journey, from vaccination schedules to long-term health management, and it can be accessed in one platform," National Hospital's Director Dr Hendera Henderi, Sp,OG, MPHPM explained during the launch.

The new system is expected to improve service efficiency and ensure patient comfort, reinforcing National Hospital's role as a leading healthcare facility that is ready to provide modern and holistic health services.

National Hospital is no stranger to technological adaptation. For example, its neurosurgery facility is equipped with an array of state-of-the-art medical equipment, from Deep Brain Stimulation (DBS) devices to da Vinci surgical robots. In July 2024, it opened a new Fetomaternal Ultrasound service with AI technology, the first 4D Real-Time Ultrasound Screening able to read and translate a foetus' developmental conditions as well as check for signs of genetic abnormalities, organ formation problems, premature birth, and the risk of miscarriage.

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Leveraging the post COVID-19 pandemic

During COVID-19, the Indonesian government put much effort into ensuring healthcare access for all its citizens. The country was ranked as the 17th most at-risk economy during the outbreak, based on both medical and non-medical factors. Although telemedicine had already taken root in the country prior to COVID-19, the pandemic served as a key catalyst in accelerating its adoption by both patients and doctors.

While maintaining its patient-centric status, National Hospital is now focused on the next steps that will lead it to full digitalisation. It began the process with its National Hospital Apps, a digital platform that offers patients and doctors a number of key features including:

- Appointment Scheduling and Queueing Information
- Teleconsultation
- Laboratory and Radiology Information Results
- Billing and Payment
- Child Vaccination Information
- Genomic Information and Health Information
- VIP Member Community

Next came the integration of the hospital's electronic medical records (EMR) system, to be followed by its next big investment, an integrated hospital-wide AI system.

Internet of Medical Things (IoMT) at present

Speaking to *Global Health Asia-Pacific*, National's CEO Ang Hoey Tiong explained that the core vision for their IoMT's is for healthcare and patients to be connected synergistically. "There are endless benefits to adopting new technologies and digital transformation. We look into improved patient care, increased efficiency, and enhanced safety. We start with providing comprehensive training and support to staff members. This helps in addressing any concerns and facilitates a smoother transition to new technologies," Ang explained.

National's current digital adoption includes:

Patient monitoring

In-Room Sensors in patient rooms can monitor environmental factors like temperature, humidity, and air quality, ensuring optimal conditions for patient recovery.

Ang Hoey Tiong, CEO

Smart Beds can be adjusted to patient sleeping positions, track sleep patterns, and even detect falls.

Smart Ambulances are connected to the emergency department which is able to monitor patients' conditions and arrival times.

Smart Infus Pumps are linked to the EMR, enabling nurses to monitor drug prescriptions and record them.

Drug Interaction Monitoring is connected to the prescription information system and automatically alerts doctors and pharmacists if there are any drug interactions.

Inventory management

Inventory Management monitors the inventory levels of medical supplies and medications, ensuring timely restocking and preventing shortages with a min-max system.

Environmental control

Smart HVAC Systems optimise energy consumption by adjusting temperatures and humidity levels based on occupancy and patient needs.

Smart Lighting controls lighting levels to enhance patient comfort and reduce energy consumption.

Security and safety

Access Control Systems control access to restricted areas within the hospital, enhancing patient safety and security.

Surveillance Systems monitor patient areas and public spaces to ensure safety and deter crime.

Data Security involves taking robust cybersecurity measures that are crucial to protect sensitive patient data.

Cyber security

When asked how National Hospital was managing its cybersecurity and data protection, Ang explained to *Global Health Asia-Pacific*: "It has been our top priority measure, and it is pivotal for our people to understand the importance of data privacy, especially in this unprecedented time of change. Our key focus lies in three major areas: one, the data privacy and protection that comply with the government's regulations; two, cybersecurity protection, i.e., firewalls, antivirus software, endpoint detection, apps sealing; and three, regular reviews for our security software and the upgrade and migration of our security technologies. It's a concerning issue, and we are taking all possible measures to protect us and our patients."

Digitisation continues to evolve

In Ang's view, Indonesia's healthcare system has already undergone significant evolution in its integration of digitalisation, such as the growth in telemedicine, greater use of EMR, and government initiatives like SATU SEHAT (One Health) to create a unified national health information system, which has the potential to revolutionise data sharing and improve healthcare delivery.

The growing number of digital health startups who are developing digital health solutions, such as AI diagnostics, remote patient monitoring, and personalised medicine, is also another sign of Indonesian healthcare's promising future.

Future investments

Adding to its existing technological infrastructure, National Hospital is budgeting for further digitalisation advancements:

1. AI: The hospital will focus on predictive analysis and image recognition to improve medical images and more accurate diagnoses, while robot-assisted surgery, such as surgical robotics and hip-knee robotics, will improve patient outcomes and reduce recovery times.
2. Precision Medicine and Genomics: Genetic testing will enable personalised medicine and help develop gene therapy, including using stem cells and targeted therapies.
3. Remote Patient Monitoring
4. Upgraded Cybersecurity and Data protection
5. Robotic Process Automation: This involves automating repetitive administrative tasks and supports appointment scheduling, insurance claims processing, data entry, pharmacy dispensing, and other similar tasks.

In September 2024, National Hospital was recognised by Jawa Pos with the 7th Most Popular Brand of the Year 2024 Award. Dr Hendera Henderi, Sp.OG, MHPM said that his team continues to strive to provide world-class health services to its patients.

In an interview with Ketik.co.id, he said: "We focus on how to provide the best service to our community. Whether the cost of treatment is cheap or expensive is relative. Abroad treatments per se, the hospitals there may seem cheap, but that's still gross costs. All cost accounted, you'll probably end up paying more".

In other words, National Hospital is offering top medical care at reasonable costs.

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