



KK Women's and  
Children's Hospital  
SingHealth

KKH Celebrates

165  
Years

Shaping the future of  
Women and Children

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# Special De*li*very

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PATIENTS. AT THE HEART OF ALL WE DO.®



# Riding the Tech Wave Personalising Care through Healthcare Innovation

KK Women's and Children's Hospital (KKH) is leveraging technology for innovative clinical care, research and education to meet the unique health needs of patients and families.

## Revolutionising a patient's journey at KKH

Each person's health journey is unique. At KKH, smart automated systems coupled with care transformation are helping to fast track the delivery of predictive and anticipatory care, and treatments personalised to every patient.



### Automated AI-enabled triaging for neuroimaging in children

Children with a low probability of significant brain abnormality are automatically identified by an artificial intelligence (AI)-powered programme to undergo ultrafast magnetic resonance imaging brain screening.

The process, developed by KKH radiologists, requires less time than conventional MRI, which helps to reduce scan-associated anxiety for the child.

### Child-friendly diagnostic imaging for musculoskeletal conditions

The EOS Connect Imaging System enables high-quality full-body diagnostic imaging for children, using half the radiation dosage and examination time of conventional X-ray. This makes the process safer and more comfortable for young children.

### Personalised, precise surgical planning with 3D printing

3D printing technology is used to reconstruct anatomically accurate limb models for assessment, planning, family counselling, and surgical simulation and intervention for children with complex and rare lower limb conditions, at the KKH paediatric Lower Limb Discrepancy and Deformity Clinic.

For more information about how KKH is leveraging technology to advance health, visit [www.kkh.com.sg/innovation](http://www.kkh.com.sg/innovation).

### AI-powered spinal landmark identification system

Developed by KKH and partners, the uSINE® AI-powered ultrasound guided automated spinal landmark identification system helps women achieve successful spinal anaesthesia at the first attempt during childbirth.

Success rates are up to 92 per cent, a significant improvement compared to conventional manual identification.

### VR-assisted management of pain and pre-operative anxiety

Virtual reality (VR)-assistance helps to manage patient pain and anxiety during clinical care procedures.

Of close to 60 children who participated in a trial with VR goggles, a majority found it beneficial in managing their pain. Of 108 women who used VR for pre-surgery therapy, a majority found it beneficial in reducing pre-operative anxiety.

### Transforming the hospital experience with interactive AR wall murals

KKH is the first hospital in Asia to feature Disney-themed interactive augmented reality (AR) wall murals aimed at providing comfort and inspiration for children and families.

Collaborating with The Walt Disney Company, the murals are integrated into paediatric clinics and operating theatres, which aid in reducing the anxiety of a hospital visit or stay.

### Round-the-clock, remote care with smart vital signs monitoring

A continuous vital signs monitoring trial using wireless wearable devices, instantly conveys changes in patients' vital signs to clinicians and nurses for timely attention.

### Child-friendly contactless monitoring

A pilot of contactless vital signs monitoring in children is also under way. Patients' faces are scanned and analysed using a camera and mobile application to measure health indicators such as heart rate and blood oxygen levels. This avoids skin injuries arising from prolonged direct probe contact and overcomes challenges in young patients who are active and fearful of wired monitoring.

### Personalising the care journey with a click

Patients play an active role in shaping their care journey using the novel Nursing Software Suite introduced in all KKH wards in 2022.

Using a bedside mobile tablet and dedicated mobile applications, patients and caregivers can conveniently access their health information, medication and rehabilitation needs, and resources for long-term health management following discharge.

### Radiation-free, image-guided spine surgery

Surgeons at KKH are guided by real-time positioning software to perform intricate procedures with greater efficiency and accuracy during surgical intervention for children with complex cases of spinal deformities.

The 7D Machine-vision Image Guided Surgery (MvIGS) system has been in use at KKH since 2020.

### Hospital-level care in the comfort of the home

The KKH@Home pilot programme enables clinically stable patients with common conditions to receive hospital-level care at home, enhancing their well-being. Patients as young as infants receive round-the-clock care through remote vital signs monitoring, teleconsultations and home visits.

Read more about KKH@Home.



### Lifting physical barriers through teleconsultation

Teleconsultation is offered by nearly 50 medical subspecialties in KKH, to meet evolving population needs and strengthen accessibility to care.

The KKIVF Centre has also introduced virtual-based, confidential consent-taking and counselling for couples embarking on assisted reproductive procedures.

A virtual visitation trial at the Neonatal Intensive Care Unit is underway for caregivers to interact with their babies virtually, supporting family-integrated care and parent-child bonding.

Read more about how teleconsultation is extending KKH services into the community.



# Nurturing health within the community

As Singapore embarks on Healthier SG for lifelong health management and disease prevention, KKH is leading the way through family-integrated, technology-led models of care.



### Convenient access to KKH care anytime, anywhere

AI-powered chatbots provide 24-hour virtual access to KKH for public, patient and healthcare professional needs:

- KKH U-PAL offers caregivers advice for common conditions in children such as fever, cough, diarrhoea, vomiting and common injuries.
- KKH EduBot is a one-stop resource for healthcare

professionals to get practical, evidence-based advice in managing children's conditions.

- KK HelpBot provides round-the-clock assistance for queries relating to billing and medical reports.

Find out more about KKH chatbots.



### Health information at patients' fingertips

Families can take charge of their health using women and child health services by KKH in the SingHealth HealthBuddy mobile application:

- The Pregnancy and Baby Care module offers pregnancy and child development health tips and advice on child immunisation.
- Using SPaRK, women are recommended KKH specialists who can provide antenatal care based on their health needs and pregnancy risks.

- The Diabetes in Pregnancy module supports pregnant women with gestational diabetes mellitus via a blood glucose tracker, and dietary and health tips for lifestyle changes towards better mother-child health.

Access the KKH-led HealthBuddy health services.



# Hospital of the future

Embracing healthcare digital innovation, KKH is paving the way for efficient and accurate data-driven models of care to optimise patient and staff safety and well-being.



## Next-generation, immersive healthcare training

Virtual, augmented and mixed reality training is a game-changer in training and education at KKH. Healthcare professionals hone their skills using simulated immersive environments and scenarios to deliver high quality care in the clinical setting.

These include guiding teams in providing epidurals for women, performing pelvic examinations, planning and preparing for complex brain surgeries, sharpening embryo transfer skills, and emergency communication and response in clinical care.



## Efficient service delivery with AI-guided smart task distribution

The e-Portering Task Management System at KKH leverages AI to automatically assign transport tasks based on the expertise, experience and availability of porters for efficient service delivery.

### Mechanical porter services

Automated guided vehicles transport food, linen, waste and documents seamlessly across all levels of the hospital, so that staff can focus on value-driven and patient-centred care.

## Enhanced security and navigation for an improved hospital experience

KKH has deployed AI-powered surveillance systems to boost patient and staff safety within the hospital premises. Facial and objects recognition systems rapidly and accurately detect individuals and items for timely medical attention and safety response.

Traffic control and security patrol robots are also being piloted to enhance round-the-clock hospital safety, with plans for a wayfinding system to enhance the hospital navigation and experience for patients.



## Automated, streamlined processes for enhanced accuracy

At KKH, accurate and efficient movement of hospital equipment and instruments is driven by a real time tracking system using radio frequency identification. This drives the responsive allocation of resources across the hospital for safe and timely patient care.

Robotic Process Automation is also utilised in repetitive, rule-based tasks such as billing, scanning of medical records and generation of quality assurance reports. KKH staff work hand-in-hand with these programmes and software bots to safeguard against human error, and improve accuracy and efficiency.



**FAMILY-INTEGRATED CARE**

# Singapore Book of Records triple mention for KKH Kangaroo-Care-A-Ton

Held in honour of Prematurity Awareness Month, KKH Kangaroo-Care-A-Ton has scored a triple mention in the Singapore Book of Records (SBR). The cuddly challenge saw 41 teams of parents and their babies clock a record 305 hours and nine minutes of kangaroo care.

“The small action of holding a baby to one’s bare chest with skin-to-skin contact enhances newborn neurodevelopment and the parent-child bond. For mums, this can help to improve and maintain her breast milk supply. The benefits are hugely impactful. We continue to advocate for kangaroo care for every newborn at KKH,” said Associate Professor Chua Mei Chien, Head and Senior Consultant, Department of Neonatology, KKH.

The event clinched SBR certificates for ‘First month-long Kangaroo Care programme for Premature Babies’, ‘Longest cumulative duration for a Kangaroo Care for Premature Babies in a month’ and ‘Longest cumulative duration for Kangaroo Care for a Single Premature Baby in a month’.



*KKH is presented with awards from the Singapore Book of Records on World Prematurity Day 2023.*



**MCHRI Presents**

## ASIA PACIFIC MATERNAL AND CHILD HEALTH CONFERENCE & INTEGRATED PLATFORM FOR RESEARCH IN ADVANCING MATERNAL & CHILD HEALTH OUTCOMES (IPRAMHO) INTERNATIONAL MEETING 2024

Optimising Perinatal Nutrition for Better Population Health

23 February 2024, 9.00am to 5.00pm • 24 February 2024, 9.00am to 3.00pm

Free Admission • KKH Auditorium (Training Centre), Women's Tower, Level 1 (Day 1) and Zoom (Day 2)

**PROGRAMME HIGHLIGHTS**

- ✔ Launch of the Singapore Feeding and Eating Guidelines for Infants and Young Children
- ✔ Global, regional and local perspectives in maternal and child health
- ✔ IPRAMHO - International research network meeting in maternal and child health
- ✔ Asia Pacific Consensus Workshop on perinatal nutrition
- ✔ Education sessions on maternal and child health
- ✔ Scientific poster exhibition



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Scan the QR Code or visit [www.kkh.com.sg/events](http://www.kkh.com.sg/events) for more details.

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## New KK Menopause Centre provides holistic mind-body support for women



A new KK Menopause Centre is offering one-stop treatment and support for the holistic well-being of mature women transiting through menopause.

Launched in October 2023, the new centre at KKH offers multi-specialty services including gynaecology, family medicine, dermatology and mental wellness.

Patients can benefit from personalised advice on treatment options, and active ageing and preventative health tips based on their own health journey.

“With the right support, transiting through menopause can be transformative. Lifestyle adjustments and therapy — hormonal and non-hormonal — can empower women undergoing menopause to better meet their health needs and continue to lead a fulfilling life following menopause,” said Associate Professor Rukshini Puvanendran, Co-Lead, KK Menopause Centre, KKH.

Through timely detection and intervention, the Centre also aims to prevent postmenopausal issues such as osteoporosis and cardiovascular disease.

## ITE-KKH sign MOU for preventive health and active living



Memorandum of Understanding ceremony at the ‘Think Health’ Seminar held at ITE College West.

Forging an alliance to advance national health, KKH and the Institute of Technical Education (ITE) have signed a Memorandum of Understanding to cooperate in exercise science, preventive health and active living.

“With this strengthened connectivity between education and healthcare, we look forward to new opportunities to co-develop competency frameworks, industry standards and training avenues to drive community-based healthcare and health promotion,” said Professor Alex Sia, Chief Executive Officer, KKH.

The five-year agreement aims to mobilise educators, professionals and students as champions for proactive and preventive care, and healthier lifestyles among the population. 🌸

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