

Navigating health challenges: Singapore's National University Health System's approach to child and family well-being

Yee Keow Chiong*¹ MBBS (Singapore), Wanyun Lin*¹ MBBS (Singapore), Logan Manikam¹ PhD, Wei Ying Hai¹ MBA, Mat Shah¹ BEng, Jeannie Chiam¹ MN (Paediatrics), Mahesh Choolani¹ FRCOG, Yung Seng Lee¹ FRCPC

Dear Editor,

Singapore's progressive commitment to addressing child and family well-being is anchored in its forward-thinking public health agenda. Recognising that long-term population health outcomes are shaped by early-life interventions, Singapore has directed increasing attention towards addressing complex health challenges that emerge during childhood and across the family unit. These challenges are compounded by factors such as rapid urbanisation and rising cost of living, technological shifts and societal transitions that have exacerbated sedentary behaviours. With decreasing total fertility and birth rates, it is of utmost importance to realise each child's maximum potential as early as possible, beginning from preconception.

In response to these multifaceted challenges, Singapore's Ministry of Health developed the Child and Maternal Health and Well-being Strategy and Action Plan (2021), which takes a holistic, life-course approach that highlights the importance of early intervention, preventive care and inter-sectoral collaboration as cornerstones of improving health outcomes for families and children from preconception to adolescence.¹ It is critical to enhance the health, safety and development of children and families through integrated, community-based programmes that prioritise early detection, prevention and sustained health interventions across the lifespan.

Key health challenges

Childhood obesity. There is a worrying increase in the proportion of overweight students aged 6–18 years. In 2021, 16% of school-going youths were classified as overweight (body mass index-for-age ≥ 90 th percentile), a rise from 13% in 2017. A significant spike occurred between 2020 and 2021, likely due to the COVID-19 pandemic, which severely limited opportunities for physical activities in schools.²

This situation mirrors a global trend of rising childhood obesity. This poses significant risks

to long-term health, with conditions like type 2 diabetes, cardiovascular diseases and metabolic syndrome that may manifest in adulthood. Therefore, addressing childhood obesity in Singapore requires comprehensive community-based strategies that prioritise physical activity, promote healthy eating, and reduce sedentary behaviours from a young age.³

Screen time. Excessive screen time has been linked to a variety of negative outcomes, including poor sleep quality, obesity and developmental delays in learning and behaviour.^{4,7} Studies conducted in Singapore have revealed concerning trends regarding children's screen time. With the increasing availability of digital devices, children at a mean age of 13.8 months are engaging in passive screen time daily.^{6,7} Screen time tends to increase as children grow older, contributing to sedentary behaviours that undermine their physical and cognitive development. Research has shown that children with developmental disorders spend more time on screens compared to their peers, which further exacerbates their challenges.⁸

Global studies, such as one by Madigan et al., found that higher screen time at 24 and 36 months is associated with poorer developmental screening test performance at 36 and 60 months.⁹ These findings highlight the importance of reducing screen time and promoting healthier activities, such as interactive play, outdoor activities and face-to-face interactions.

Reducing screen time among young children requires a multi-pronged approach. This includes educating parents about the risks of excessive screen time, providing alternative engagement strategies for children, and working with schools and community organisations to offer more screen-free activities. In a world where digital devices are becoming increasingly integrated into daily life, regulating screen use is crucial for safeguarding the cognitive and social development of children.

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¹ Division of Community, Family and Child Health, National University Centre for Women and Children, National University Hospital, Singapore

* Joint first authors

Correspondence: Dr Logan Manikam, Division of Community, Family and Child Health, National University Centre for Women and Children, National University Hospital, NUHS Tower Block, Level 12, 1E Kent Ridge Road, Singapore 119228.

Email: lmanikam@nus.edu.sg

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Table 1. Theory of change based on workforce needs assessment at the National University Health System in Singapore.

Domain	Gaps identified	Processes	Outputs	Outcomes
Fragmentation	- System fragmentation - Duplication of efforts - Drop-out rates when referred on - Short-term funding	- Pathway mapping - Seek long-term funding	- Improved access to services in the community and tertiary hospital - Long-term funding for the division	Improved integration of care systems between primary and tertiary care, and health and social systems with health system re-design
Skills-mix/training	- Clinical-focused model - Lack of care navigator roles - Drip effect with repeated drilling of the same message - Lack of motivational interviewing skills	- Skill-mix building teams, recruit non-clinical roles for patient engagement - Provide motivational interviewing skills training for staff - Ensure every contact matters with checklists in place to screen for conditions, i.e. child safety, screen time, sleep, etc.	- Increase hiring of employees in non-clinical roles for patient engagement - Increase number of staff with motivational interviewing skills - Increase detection of previously undiagnosed issues with sleep and screen time with appropriate referrals to relevant partners	- Increased stakeholder engagement through establishment of partnerships with Singapore's healthcare clusters - Improved co-creation and co-production with community partners to enable successful establishment of ground-up and top-down initiatives
Community engagement	- Lack of community engagement - Non-compliance with programmes - Reliance on parents to use literature - Cultural/generational influences instead of evidence-based information	- Carry out focused group discussions to obtain insights into target populations - Recruit community champions - Develop peer support models	- Increase in programmes with co-production and co-creation of initiatives with the community - Increase in participation rate in programmes from the community - Increase in peer support networks, i.e. in breastfeeding, parent support groups	
Health equity	- Relies on parents attending appointments or polyclinics - Parental compliance low if from households that are focused on meeting basic needs. Drop-out rates when referred on	- Collaborate with programmes working with these families focused on meeting basic needs - Work with ministries to allow these families to be directly seen at NUH	- Decrease appointment default rates - Increase parental compliance to appointments	Improved health equity
Safeguarding of children	- No real evidence of staff taking a safeguarding approach - Lack of screening for social determinants of health, domestic abuse and ACE	- ACE awareness training for health staff - Clear safeguarding protocols and training	Increase use of ACE checklist at primary care level	
Data	Lack of insight into current health profile of population other than from the GUSTO study	- Have a central database for measuring KPIs and outcomes across the project - Maintain a service performance outcome dashboard of quality indicators in the hospital and community	- Increase insights into health gaps in the population - Improve programmes based on their KPIs and achieved outcomes	Data repository of child and family health indicators in the Western cluster

ACE: adverse childhood experiences; GUSTO: Growing Up in Singapore Towards healthy Outcomes; KPIs: key performance indicators; NUH: National University Hospital

Maternal mental health. While Singapore has made significant strides in reducing maternal and infant mortality, new challenges have emerged concerning maternal mental health. Factors that affect maternal mental health include maternal sleep and breastfeeding.⁴ Approximately 1 in 10 women experience depression before, during or after pregnancy. This figure is consistent with global data, highlighting the pervasiveness of perinatal mental health disorders. However, these mental health challenges extend beyond depression, encompassing anxiety, stress, and the psychological impact of maternal obesity, all of which can increase the risk of complications during pregnancy and adverse developmental outcomes for offspring.⁵

Singapore has launched several maternal mental health programmes, but there remains a need to scale up support, particularly for mothers in vulnerable or lower-income groups. The stigma associated with seeking help for mental health issues still presents a barrier to care. Addressing maternal mental health issues also involves creating supportive environments for mothers. This includes promoting mental wellness through education, offering peer support groups and ensuring that healthcare professionals are trained to recognise and manage early signs of maternal distress. These efforts can lead to better outcomes for both mothers and their children.

Approach to key health challenges

It is essential to understand the existing processes of community-based programmes, and map them out using a life course framework. As there are multiple existing programme drivers that are targeting different key health challenges, it is important to consolidate, coordinate and support these programmes in order to align programme goals with the overall preventive health strategy for family and child and reduce duplication of efforts. A workforce needs assessment was carried out to understand the strengths of programmes and barriers in their implementation by the National University Health System (NUHS), which forms the Western cluster of healthcare institutions in Singapore (Table 1). This then formed the basis for a theory of change and logic model for health systems transformation at NUHS.

Challenges in implementation and future directions

Implementation is challenging with issues ranging from cross-sector collaboration to resource allocation, and tackling cultural and social barriers. Singapore is transforming through the HealthierSG

movement, which shifts healthcare delivery from a hospital-centric model to a community-focused approach, emphasising value-based care and addressing broader health determinants. This national trend towards holistic healthcare reform shows the importance of addressing fragmentation and promoting alignment within the healthcare system.¹⁰

Future plans involve improving healthcare access through digital health integration, life course approach, telemedicine, data analytics, cross-sector collaborations and developing programmes for at-risk youths, focusing on precision public health. These approaches, while tailored to the Singapore context, may offer valuable insights for addressing similar public health challenges in other regions.

Ethics statement

Not applicable

Declaration

The authors declare they have no affiliations or financial involvement with any commercial organisation with a direct financial interest in the subject or materials discussed in the manuscript. In compliance with disclosure guidelines, Grammarly was employed solely for verification purposes during this work's creation to assist with grammar and plagiarism checking. The content itself remains the sole work of the authors.

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