

ASIA PACIFIC MATERNAL AND CHILD HEALTH CONFERENCE & INTEGRATED PLATFORM FOR RESEARCH IN ADVANCING MATERNAL & CHILD HEALTH OUTCOMES (IPRAMHO) INTERNATIONAL MEETING 2023

Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO)

17 & 18
February 2023

KK Women's and
Children's Hospital,
Singapore

Conference: Physical & Virtual Meetings
Scientific Posters Session

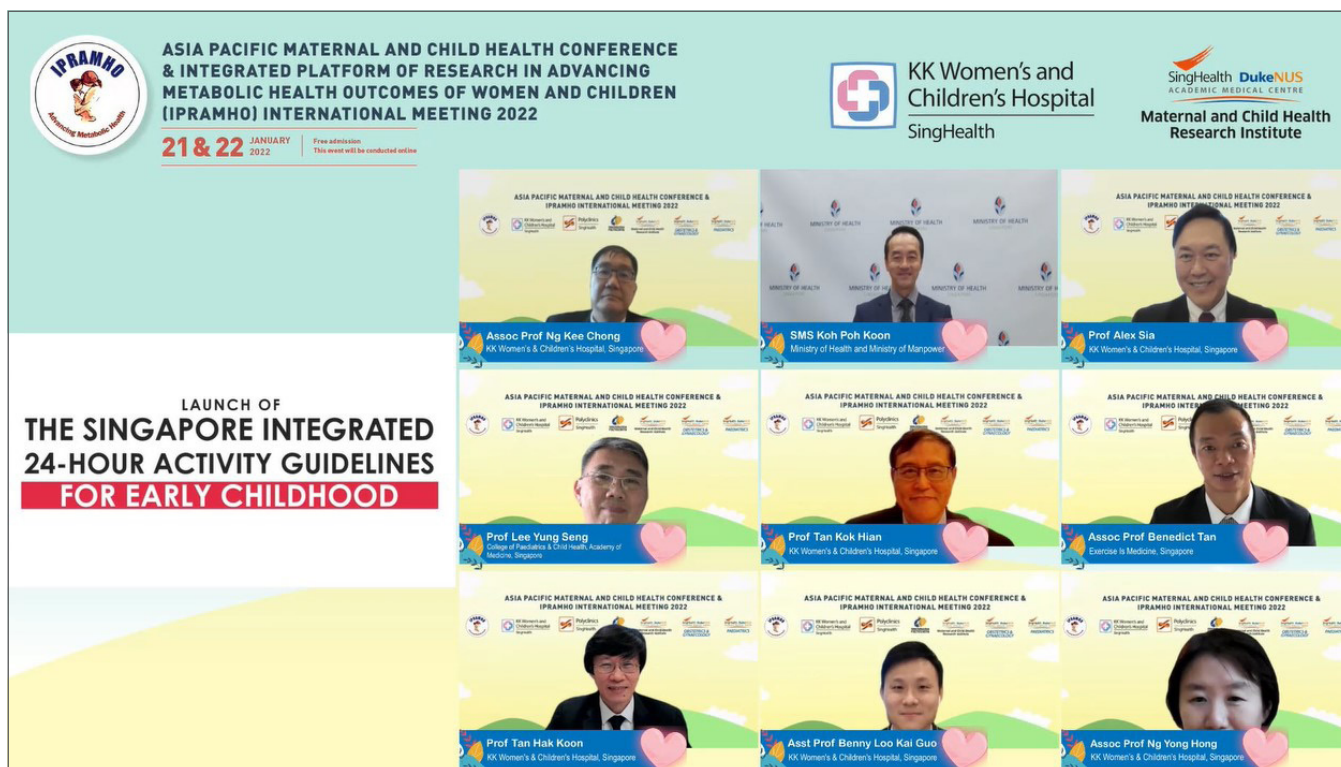
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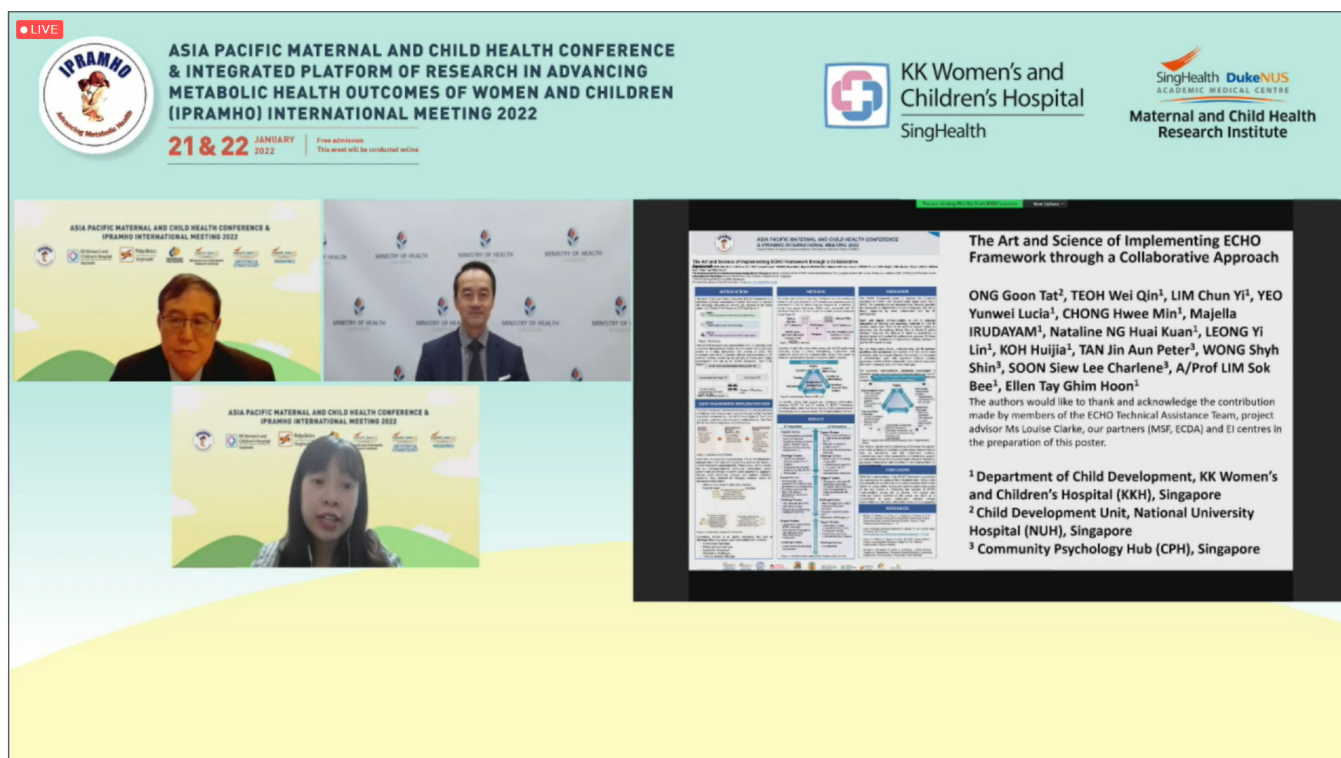
ASIA PACIFIC MATERNAL & CHILD HEALTH CONFERENCE & IPRAMHO INTERNATIONAL MEETING 2022



Launch of the Singapore Integrated 24-Hour Activity Guidelines for Early Childhood. 21 Jan 2022.

(Top row, left to right) A/Prof Ng Kee Chong, Senior Minister of State Dr Koh Poh Koon, Prof Alex Sia (Middle row, left to right) Prof Lee Yung Seng, Prof Tan Kok Hian, A/Prof Benedict Tan

(Bottom row, left to right) Prof Tan Hak Koon, Asst Prof Benny Loo, A/Prof Ng Yong Hong



Senior Minister of State Dr Koh Poh Koon and Prof Tan Kok Hian discussing with a poster presenter on ECHO.

Welcome Message



Dear Colleagues and Friends,

On behalf of the Organising Committee, I bid a warm welcome to all of you to the Asia Pacific Maternal & Child Health Conference and Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) International Meeting 2023, hosted at KK Women's and Children's Hospital (KKH), Singapore. The Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) has evolved from the original Integrated Platform for Research in Advancing Metabolic Health Outcomes of Women and Children, to focus comprehensively on various pressing issues (e.g., mental health) in maternal and child care, besides metabolic health.

This meeting brings together doctors, nurses and allied healthcare professionals to discuss on diseases for women and children in our Asia-Pacific region. The best preventive efforts start upstream from preconception and at conception in the womb to the early childhood years. The optimal strategy must necessarily begin with effective battles against diseases with lifestyle and obstetric and perinatal interventions at this early phase, using a life course approach.

We had a successful meeting in 2018 where the College of Obstetricians and Gynaecologists, Singapore Guidelines on the Management of Gestational Diabetes was launched. Through the meeting, we have also achieved and published the AFOG MFM Committee Consensus of GDM screening. We launched the Perinatal Society of Singapore Optimal Perinatal Nutrition Guidelines and also published the Asia Pacific consensus in perinatal nutrition in 2019. In 2020, we launched the Perinatal Society of Singapore Guidelines on Physical Activity & Exercise in Pregnancy and published the Asia-Pacific consensus on physical activity and exercise in pregnancy and the postpartum period. In 2021 we launched Singapore Integrated 24-Hour Activity Guidelines for Children & Adolescents and published the Asia-Pacific Consensus Statement on integrated 24-hour activity guidelines for children and adolescents. In 2022, we launched the Singapore Integrated 24-Hour Activity Guidelines for Early Childhood with strong support from various colleges and societies in Singapore and SingHealth Duke-NUS Maternal & Child Health Research Institute. In line with RIE2025, these activities aim to translate our research findings for active dissemination and implementation and to improve the health of women and children, enhancing early life-course moments from preconception onwards and optimising the health and human potential of every child born in Singapore and our region.

For 2023, the focus has gone beyond metabolic to mental health. The conference on Day 1 will discuss maternal and child health in the morning session, followed in the afternoon by IPRAMHO Education and Training Session on perinatal mental health for excellence in perinatal care. On Day 2, the programme will invite the Asia Pacific experts to reach consensus on the perinatal mental health as well as discuss about future research studies to address the current gaps in perinatal mental health in Asia-Oceania. Asia Pacific experts from Malaysia, Thailand, Indonesia, Hong Kong, Japan, Korea, China, India, Sri Lanka, Australia as well as practitioners and healthcare professionals from Singapore will be at consensus and also present their studies at this Conference.

We are happy again for the strong support for past five years by members of several key organisations - Perinatal Society of Singapore (PSS), College of Obstetricians & Gynaecologists, Singapore (COGS), Obstetrical & Gynaecological Society of Singapore (OGSS), SingHealth Duke-NUS OBGYN Academic Clinical Programme (ACP) and SingHealth Duke-NUS Paediatrics Academic Clinical Programme. We are also grateful for the support given by the SingHealth Duke-NUS Maternal & Child Health Research Institute & Federation of Asia and Oceania Perinatal Societies (FAOPS). We thank the sponsors and also the support of the NMRC (National Medical Research Council) collaborative centre grant - IPRAMHO involving KKH, SingHealth Polyclinics and National Health Group Polyclinics, KKH Centre Grant & OBGYN ACP grant. In particular, we thank Lee Foundation and Shaw Foundation for their education grant support.

We look forward to seeing you physically or virtually at this exciting the Asia Pacific Maternal & Child Health Conference and IPRAMHO International Meeting! We thank everyone for the support and wish everyone a fruitful learning experience.

Professor Tan Kok Hian

Chairperson, Organising Committee

Lead, NMRC/MCHRI Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO)

Head & Senior Consultant, Perinatal Audit & Epidemiology Unit, KK Women's and Children's Hospital

Benjamin Henry Sheares Professor in OBGYN, Duke-NUS

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Official Journal of the Obstetrical & Gynaecological Society of Singapore

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Acknowledgments:

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President, FAOPS

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

DAY 1 – 17 FEBRUARY 2023, FRIDAY

| | |
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| 8.30am | Registration |
| 9.00am | Welcome Address <i>Prof Alex Sia</i> <i>Chief Executive Officer, KK Women's and Children's Hospital, Singapore</i> |
| 9.05am | Welcome Address on Asia Pacific Collaboration for Maternal & Child Health <i>Prof Victor Samuel Rajadurai</i> <i>President, Federation of Asia and Oceania Perinatal Societies</i> |
| 9.10am | Opening Address <i>Guest-of-Honour: SMS Dr Janil Puthucheary</i> |
| 9.20am | SingHealth Duke-NUS Maternal and Child Health Research Institute (MCHRI) <i>A/Prof Ng Kee Chong</i> <i>Chairman, Medical Board, KK Women's and Children's Hospital, Singapore</i> |
| 9.30am | IPRAMHO Initiatives for Maternal & Child Health <i>Prof Tan Kok Hian</i> <i>Organising Chairperson, Asia Pacific Maternal & Child Health Conference & IPRAMHO International Meeting 2023</i> <i>Lead, IPRAMHO, Singapore and President, Perinatal Society of Singapore</i> |
| 9.40am | College of Obstetricians & Gynaecologists Singapore Initiatives for Maternal Health <i>A/Prof Tan Lay Kok</i> <i>President of the College of Obstetricians & Gynaecologists Singapore</i> |
| 9.50am | Singapore Perinatal Mental Health Guidelines <i>A/Prof Helen Chen</i> <i>Chairperson, Singapore Perinatal Mental Health Guidelines Workgroup</i> |
| 10.00am | Launch of the Perinatal Mental Health Guidelines |

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

| DAY 1 – 17 FEBRUARY 2023, FRIDAY | |
|----------------------------------|--|
| 10.30am | <p>SYMPOSIUM I Nurturing Healthy Behaviours to Promote Perinatal Mental Health <i>Chair:</i> <i>Prof Teoh Tiong Ghee, Director, Maternal & Child Global Health and Care Transformation, KKH</i> <i>A/Prof Lourdes Mary Daniel, Head & Senior Consultant, Department of Child Development, KKH</i></p> <ol style="list-style-type: none"> 1. Keynote Address: Minding the Five Trimesters Because It Matters <i>Dr Anne Rifkin-Graboi</i> <i>Head, Infancy and Early Childhood Research, OER Centre for Research in Child Development, NIE</i> 2. Addressing Depression and Anxiety in the Four Trimesters from Preconception through the Antepartum <i>Dr Chua Tze Ern</i> <i>Head & Senior Consultant, Women’s Mental Wellness Service, KKH</i> 3. Addressing Postnatal Depression and Anxiety to Ensure Healthy Outcomes <i>Dr Theresa Lee Mei Ying</i> <i>Senior Consultant, Women’s Mental Wellness Service, KKH</i> 4. Addressing the needs in Special Groups <i>A/Prof Helen Chen</i> <i>Head & Senior Consultant, Department of Psychological Medicine, KKH</i> 5. Panel Discussion Q&A |
| 12.10pm | Lunch Break & Poster Presentation |
| 1.00pm | <p>SYMPOSIUM II Maternal And Child Health Wellness <i>Chairs:</i> <i>A/Prof Chua Mei Chien, Head & Senior Consultant, Department of Neonatology, KKH</i> <i>A/Prof Sng Ban Leong, Head & Senior Consultant, Department of Women’s Anaesthesia, KKH</i></p> <ol style="list-style-type: none"> 1. CRADLE (Community-enabled Readiness-for-1000-Days Learning Ecosystem) <i>A/Prof Ng Kee Chong</i> <i>Chairman Medical Board, KKH</i> 2. Healthy Early Life Moments in Singapore (HELMS) - Life Course Approach for a Healthier & More Resilient Population <i>Dr Loy See Ling</i> <i>Junior Principal Investigator, Department of Reproductive Medicine, KKH</i> 3. Wearable Technology for the Maternal Population <i>Prof Tan Kok Hian</i> <i>Head & Senior Consultant, Perinatal Audit & Epidemiology, KKH</i> |

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

DAY 1 – 17 FEBRUARY 2023, FRIDAY

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| 2.30pm | <p>SYMPOSIUM III IPRAMHO EDUCATION SESSION: TRAINING PROGRAM FOR DOCTORS AND RESIDENTS ON PERINATAL MENTAL HEALTH FOR EXCELLENCE IN PERINATAL CARE</p> <p><i>Chairs:</i> <i>A/Prof Tan Lay Kok, Vice Chair (Education), OBGYN Academic Clinical Programme</i> <i>Dr Chua Tze Ern, Head & Senior Consultant, Women’s Mental Wellness Service, KKH</i></p> <p><i>This symposium will cover perinatal depression and anxiety in detail, so that practitioners will be able to recognise and manage milder cases, as well as to facilitate the access to care for those needing specialist attention, and more dedicated intervention</i></p> <ol style="list-style-type: none">1. Introduction to Mental Health in Perinatal Care <i>Dr Sandy Umboh</i> <i>Consultant, Women’s Mental Wellness Service, Department of Psychological Medicine, KKH</i>2. Understanding Perinatal Depression and Anxiety <i>Dr Hong Lin Feng</i> <i>Associate Consultant, Department of Psychological Medicine, KKH</i>3. Case studies: Approach to Managing Perinatal Depression and Anxiety <i>Dr Elizabeth Siak</i> <i>Consultant, Department of Psychological Medicine, KKH</i>4. Supportive Counselling in Perinatal Mental Health: What Women Prefer <i>Ms Chng Ying Chia</i> <i>Principal Clinical Counsellor, Department of Psychological Medicine, KKH</i>5. Approach to Addressing Maternal Mental Health Needs in Primary Health Setting <i>Dr Ng Lai Peng</i> <i>Family Physician & Senior Consultant, SingHealth Polyclinics - Tampines</i>6. Approach to Addressing Needs of the Dyad: What Matters for Infants <i>Ms Yasmin Hassan</i> <i>Senior Clinical Counsellor, Department of Psychological Medicine, KKH</i>7. Early Child Development: Getting It Right for the Little Ones <i>Dr Y Padmini</i> <i>Senior Consultant, Department of Child Development, KKH</i>8. Panel Discussion Q&A <i>Dr Chua Tze Ern</i> <i>Head & Senior Consultant, Women’s Mental Wellness Service, KKH</i> |
| 5.00pm | End of Programme |

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

DAY 2 – 18 FEBRUARY 2023, SATURDAY

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| 9.00am | <p>SYMPOSIUM IV (VIRTUAL)</p> <p>1. Update on IPRAMHO Collaborative Group - IPRAMHO Study Group Reports for Asia Pacific <i>Chairs:</i> <i>Prof Tan Kok Hian, Lead, IPRAMHO Asia Pacific Maternal & Child Network</i> <i>Prof Victor Samuel Rajadurai, President, Federation of Asia and Oceania Perinatal Societies</i></p> <p>a. Report on IPRAMHO Asia Pacific Vitamin D Collaborative Study <i>Dr Ryan Lee</i> <i>Consultant, Department of Maternal Fetal Medicine, KKH, Singapore</i></p> <p>b. Report on IPRAMHO Asia Pacific Children 24h Activities Collaborative Study <i>Dr Elaine Quah</i> <i>Senior Research Fellow, Division of Obstetrics and Gynaecology, KKH, Singapore</i></p> |
| 9.30am | <p>2. Perinatal Mental Health Management <i>CChairs;</i> <i>A/Prof Helen Chen, Head & Senior Consultant, Department of Psychological Medicine, KKH, Singapore</i> <i>A/Prof Tan Lay Kok, President, College of Obstetricians & Gynaecologists Singapore</i></p> <p>Perinatal Mental Health: Knowledge, Attitudes, Perceptions and Practices Among Perinatal Women and Healthcare Professionals in Singapore <i>Dr Elaine Quah</i> <i>Senior Research Fellow, Division of Obstetrics and Gynaecology, KKH, Singapore</i> <i>Dr Poo Zi Xi</i> <i>Associate Consultant, Department of Maternal Fetal Medicine, KKH, Singapore</i></p> <p>Early identification and management of perinatal mental health issues: why it is important to establish best practice and the barriers to doing so <i>Prof Anne Buist</i> <i>Chair, Women’s Mental Health, University of Melbourne, Australia</i></p> |
| 10.00am | <p>3. ASIA PACIFIC CONSENSUS WORKSHOP ON PERINATAL MENTAL HEALTH <i>Chairs:</i> <i>Prof Tan Kok Hian, Lead, IPRAMHO & Head, Perinatal Audit & Epidemiology Unit, KKH, Singapore</i> <i>A/Prof Helen Chen, Head & Senior Consultant, Department of Psychological Medicine, KKH, Singapore</i></p> <p>All Asia Pacific Perinatal Mental Health Collaborative Study Group including Singapore members, Prof Anne Buist, Australia Dr Madura Jayawardane, Sri Lanka Prof Prabha S. Chandra, India Asst Prof Supachoke Singhakant, Thailand Dr Endang Retno Surjaningrum, Indonesia Prof Shenghui Li, China Dr Muniswaran s/o Ganesham, Malaysia Asst Prof Kim Seo-Yeon, South Korea</p> |

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

DAY 2 – 18 FEBRUARY 2023, SATURDAY

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| | <p>Dr Amelia Hui, Hong Kong Prof Tiran Dias, Sri Lanka A/Prof D Boriboonhirunsarn, Thailand Dr Michiko Yamanaka, Japan Dr Ernerst Nora, Philippines</p> |
| <p>11.00am</p> | <p>4. Asia Pacific Countries on Studies of Perinatal Mental Health and its Management in Asia Pacific Countries <i>Chairs:</i> <i>Prof Tan Kok Hian, Lead, IPRAMHO & Head, Perinatal Audit & Epidemiology Unit, KKH, Singapore</i> <i>A/Prof Helen Chen, Head & Senior Consultant, Department of Psychological Medicine, KKH, Singapore</i></p> <p>Presentations by Group Members & Asia Pacific Partners</p> <p>Postnatal depression scale during COVID-19 pandemic in Hong Kong <i>Dr Amelia Hui</i> <i>Consultant, Department of Obstetrics & Gynaecology, Queen Mary Hospital, Hong Kong</i></p> <p>The Associations of Sleep with Maternal and Child Health: A Sleep Series Study in China <i>Dr Shenghui Li</i> <i>Professor, School of Public Health, Shanghai Jiaotong University, China</i></p> <p>Psychological Outcomes in COVID-19 positive pregnant mothers in the maternity isolation ward and postnatal mothers who have been positive for COVID-19 in the Professorial Unit of Colombo South Teaching Hospital <i>Dr Madura Jayawardane</i> <i>Consultant & Senior Lecturer, Department of Obstetrics and Gynaecology, University of Sri Jayewardenepura, Sri Lanka</i></p> <p>Survey on Perinatal Mental Care for Mothers in Korea and Proposal of the Feasible and Effective Perinatal Mental Care <i>Asst Prof Kim Seo-Yeon</i> <i>Assistant Professor, Department of Obstetrics and Gynaecology, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Korea</i></p> <p>Mental Health Issues in Pregnancy in Thailand <i>Asst Prof Supachoke Singhakant</i> <i>Vice Chair for Education, Department of Psychiatry, Siriraj Hospital, Thailand</i></p> <p>An Obstetrician-Led Perinatal Mental Health Services: The Malaysian Experience <i>Dr Muniswaran s/o Ganesham @ Ganeshan</i> <i>Maternal Fetal Medicine Specialist & Consultant Obstetrician & Gynaecologist, Women & Children's Hospital Kuala Lumpur (Hospital Tunku Azizah)</i></p> |

SCIENTIFIC PROGRAMME

Theme: *Towards Better Maternal and Child Mental Health in the Asia Pacific*

| DAY 2 – 18 FEBRUARY 2023, SATURDAY | |
|---|---|
| | <p>Road to Establishing Maternal Mental Health Care in Primary Health Care (PHC) in Surabaya: The Role of Community Health Workers (Kader Posyandu) <i>Dr Endang Retno Surjaningrum</i> <i>Vice Dean for Research, Publication and Collaboration Affairs, Faculty of Psychology, Universitas Airlangga, Indonesia</i></p> <p>Perinatal Mental Health in Japan <i>Dr Michiko Yamanaka</i> <i>Chief, Department of Integrated Women’s Health & Director of Center for Medical Genetics, St Luke’s International Hospital, Tokyo, Japan</i></p> <p>New Initiatives and Best Practices for Perinatal Mental Health in India <i>Prof Prabha S. Chandra, MD, FRCPsych, FRCPE, FAMS</i> <i>Senior Professor of Psychiatry and Dean of Faculty, National Institute of Mental Health and Neurosciences, Bangalore, INDIA</i> <i>President, International Association of Women’s Mental Health.</i> <i>Past EC member of the International Marce Society for Perinatal Mental Health</i> <i>Past Chairperson of Perinatal Psychiatry TaskForce for Perinatal Psychiatry of the Indian Psychiatric Society</i></p> |
| 2.00pm | <p>5. Update on further collaborative studies in Asia Pacific for IPRAMHO Group – IPRAMHO Asia Pacific Perinatal Mental Health Survey 2023. <i>Prof Tan Kok Hian</i> <i>Organising Chairperson, Asia Pacific Maternal & Child Health Conference & IPRAMHO International Meeting 2023</i> <i>Lead, IPRAMHO, Singapore and President, Perinatal Society of Singapore, Singapore</i></p> <p><i>Dr Elaine Quah</i> <i>Senior Research Fellow, Division of Obstetrics and Gynaecology, KK Women’s and Children’s Hospital, Singapore</i></p> |
| 3.00pm | End of Programme |

Commentary

Perinatal Mental Health in Singapore – Nurturing Mothers Better and Raising Children Well Start with Pregnancy

Helen Chen

Head and Senior Consultant, Department of Psychological Medicine
KK Women's and Children's Hospital

Lay Kok Tan

Head and Senior Consultant, Department of Maternal Fetal Medicine
KK Women's and Children's Hospital

Kok Hian Tan

Head and Senior Consultant, Perinatal Audit & Epidemiology, Department of Maternal Fetal Medicine, KK Women's and Children's Hospital
Benjamin Henry Sheares Professor in Obstetrics and Gynaecology, NUS

Introduction

Over the past half a century, Singapore has made great achievements in maternal and child health – maternal, perinatal, infant and childhood mortality and morbidity rates have all dropped. However, there have been steep rises in the rates of obesity and related metabolic disease, as well as an emerging maternal and child mental health challenges. There is also a growing strong interest in use of a life course approach to maternal and child health and applying it for improvement (1,2).

The life course concept provides the best opportunities to prevent and control diseases at key stages of life from preconception through pregnancy, infancy, childhood and adolescence, through to adulthood. The approach focuses on a healthy start to life and targets fulfilling the needs of people at critical periods throughout their lifetime. It promotes timely health and social investments and implementation with a high rate of return for public health and the society and economy, by addressing the root causes, rather than the consequences of ill health.

While metabolic health issues have generated much attention, mental health issues are less attended to and only of late has there been increasing interest and awareness of it. The current efforts of improving maternal and child mental health in Singapore is a very welcome affirmative action to focus on maternal mental health, and to give this extremely important area the due attention and priority it deserves before, during and after pregnancy.

Prevalence of Perinatal Health Issues in Singapore

Perinatal depression and anxiety in Singaporean women are common. A number of studies have been done locally on perinatal mental health. An early 2004 study by Chen et al (3) in 'Depressive symptomatology in pregnancy - a Singaporean perspective', using 10-item Centre for Epidemiological Studies-Depression scale amongst pregnant women in KK Women's and Children's Hospital (KKH) showed the rate of significant depressive symptomatology that suggested both major and minor depression, was 19.7% in the antepartum. The risk factors in the antepartum included being young, history of smoking, having past and current obstetric complications, frequent alcohol use and having medical problems.

A study by Chee et al (4) on 'Confinement and other psychosocial factors in perinatal depression: a transcultural study in Singapore' in 2005 using a two-stage design, with a screening questionnaire and diagnostic interview, showed the prevalence of depression antenatally and postnatally was 12.2% and 6.8%, respectively.

In a study by Chen (5) from April 2008 to September 2009 where a total of 2,163 women were screened in a Postnatal Depression Intervention Programme in Singapore, 87% scored below 10 on the Edinburgh Postnatal Depression Scale (EPDS), with 5% having borderline scores of 10–12 and 8% were assessed to have probable postnatal depressive illness (EPDS score >12).

There is also consistent data from cohort studies in Singapore. For depression, Lim et al (6) showed estimated antenatal depression rate of 9.0% in the 2010 Neonatal & Obstetrics Risk Assessment (NORA) cohort (EPDS score 15 and above) while Law et al (7) showed an antenatal depression rate of 7.3% (EPDS score 15 and above) and Chong et al (8) showed a postnatal depression rate in another local 2008 cohort 'Growing Up in Singapore Towards Health Outcomes' (GUSTO) of 10.4% (EPDS score 13 and above)

Higher rates were found for anxiety. Chua et al (9) on 'Antenatal Anxiety: Prevalence and Patterns in a Routine Obstetric Population.' using State-Trait Anxiety Inventory (STAI) showed the prevalence and incidence of high state anxiety among 634 completers in NORA antenatal cohort study were 29.5% [95% CI 25.6% - 33.6%] and 13.9% [95% CI 9.9% - 18.0%], respectively. Anxiety was persistent in 17.0% [95% CI 14.3% - 20.2%] and transient in 26.3% [95% CI 23.1% - 29.9%].

In the Singapore Mental Health Study by Subramaniam et al (10) in 2020, the notable lifetime prevalence of major depression and generalized anxiety disorder were 7.7% - 9.2% and 1.9% - 2.2% amongst women of childbearing age.

A recent 2022 study in KKH (I-MUM, unpublished) showed high prevalence of depression and anxiety (11). The prevalence of high risk for probable depression in this 2022 study sample of 600 perinatal patients based on 10-item EPDS (score of >15 during pregnancy or >13 postpartum), were 11.9% during the antenatal period, and 28.8% during the postnatal period. The prevalence of high risk for probable anxiety in our study sample based on EPDS (score of >5 using items 3,4 and 5) was 48.6% during the antenatal period, and 57.4% during the postnatal period.

Consequences and Implications of Poor Perinatal Mental Health

Mental health issues in maternity period are important. They affect behavior and adherence to medical advice and care, and impact clinical outcomes both directly and indirectly. The latest 2022 MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK) revealed that mental health issues as a cause of direct and indirect maternal mortality have emerged as a leading cause, tying with cardiovascular disease as a cause of maternal mortality (12). It showed that deaths from mental health-related causes as a whole (suicide and substance abuse) account for nearly 40% of deaths occurring within a year after the end of pregnancy with maternal suicide remaining the leading cause of direct deaths in this period.

Chen highlighted the burden of maternal mental illness in Singapore society in her papers published in the Psychiatric Services (5) in 2011 and in Singapore Medical Journal (13) in 2012, where she showed that postpartum depression was a recognised public health concern affecting some 8% of local postpartum women and shared a psychiatric autopsy of a tragic local maternal death from suicide. Cha et al (14) showed adverse relationship between depression in pregnancy and sleep quality while Tang et al (15) showed that poor sleep is associated with higher blood pressure and uterine artery pulsatility index in pregnancy.

The implications of the first 1000 days in child health development is well evidenced. Our local birth cohort study GUSTO, a collaborative translational research project (of mothers delivering in KK Women's and Children's Hospital - KKH and some in National University Hospital) followed up over a thousand mother and infant pairs from the antenatal period through early childhood, and the evidence supports the close link between mother and child. Maternal antenatal depression and anxiety can impact on fetal brain development microstructurally (16,16) and functionally (18,19), with downstream effects on temperament (20), behavior (21) and school readiness (22). These findings mirror data that has been growing worldwide (23,24)

Even before the first 1000 days, the preconception period has now been increasingly recognised as a critical period when considering maternal and child health development. A follow-on cohort study on mothers before booking in KKH - the Singapore Preconception Study of Long Term Maternal and Child Outcomes (S-PRESTO) found that preconception mental health is indeed closely related to antenatal mental health (25). Given that antenatal mental health is one of the strongest determinants of postnatal mental health, there is a crucial need for early identification and intervention to ensure the best health outcomes for women and children. The evidence from GUSTO also suggests that lifestyle adjustments can be beneficial for antenatal wellbeing (26), so the approach should involve mothers, in sync with our focus on population health.

Moving Mental Life Course Approach Forward - Guidelines and Actions

We need to address these two following questions. How can we achieve good perinatal mental health for our local population, especially given the complexities of our healthcare system wherein women can seek help from different resources? How can we

communicate best practices to address perinatal depression and anxiety in our community so that collectively we can improve the care of mothers, and ensure child health development is optimized?

A common approach and common language can be helpful in creating greater awareness and understanding about perinatal mental health in our community – the village that nurtures our mothers and raises our children in Singapore.

Indeed, a contemporaneous I-MUM survey (preliminary results from 600 patients) showed while there was a high prevalence of antenatal and postnatal anxiety and depression amongst women, mental health literacy was suboptimal with 34.2% not knowing or were unsure of the signs and symptoms of mental health disorders, 22.5% not aware of the outcomes on pregnancy and child health and more than 60% reported having not received mental health assessments or education from their primary doctor (11). In a concurrent survey (I-DOC), the preliminary results from 42 doctors, 66.7% of doctors did not perform routine screening for mental health during the antenatal or postnatal period, and 35.7% were not aware of the adverse pregnancy and child developmental outcomes related to mental health. These findings indicated a need for perinatal mental health guidelines in Singapore to educate mothers (27).

Also, in line with the aims of the Interagency Taskforce on Maternal and Child Health to advance maternal mental health care, as well as the emphasis on improving population health, a workgroup comprising perinatal mental health specialists and clinical counsellors from KK Women's and Children's Hospital and relevant organisations were tasked by the College of Obstetricians and Gynaecologists Singapore to develop perinatal mental health guidelines. Our workgroup is supported by NMRC Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) now under the umbrella of SingHealth Duke-NUS Maternal & Child Health Research Institute. Our workgroup focused on the more prevalent conditions, depression and anxiety, during the preconception, antepartum and postpartum phases, and sought input from experts from KK Women's & Children's Hospital; and also National University Hospital and Institute of Mental Health, the other two public centers with perinatal mental health resourcing.

We also sought input from various professional bodies, such as College of Psychiatrists, College of Family Physicians, Perinatal Society of Singapore, Health Promotion Board, as well as held a consensus meeting on 30th November 2022 to improve on the guidelines. The final published version in this edition has been endorsed by key relevant stakeholders, and it is indeed hopeful that with wider understanding and ownership, we can create a community that works together to support maternal mental health and wellbeing. The language of the guidelines is also kept simple so that non-professionals, and the general public might also be able to understand and make sense of the recommendations.

In summary, the guidelines (28) lay out the importance of addressing the five trimesters (preconception, antenatal - 1st trimester, 2nd trimester & 3rd trimester, postnatal): -

- 1) preconception mental health needs – advocating for pregnancy planning, optimizing mental health and improving modifiable lifestyle factors;
- 2) antenatal mental health needs – recommending early detection and treatment, optimizing care, treatment and support for antenatal depression and/or anxiety
- 3) postnatal mental health needs - recommending early detection and treatment, optimizing care, treatment and support for antenatal depression and/or anxiety.

Special considerations are detailed to address the needs of women who have experienced severe obstetric adverse events, or women with special needs or adolescent mothers. A brief mention is also made to address the needs of infants, to bring attention to how maternal perinatal depression and/or anxiety can impact on mother-infant bonding, and the nurturing of children.

The guidelines do not spell out in detail recommendations for pharmacotherapy, nor cover the other major mental illnesses such as psychoses, obsessive compulsive disorder, post-traumatic stress disorder in relation to childbearing. The intention is to keep the recommendations simple and easy to follow-up, and thereafter adoptable and adaptable by the wider community as we shift towards better understanding of the mental health needs of mothers and their babies

Conclusion

It behooves all of us as members of the wider mental health care community to nurture our mothers better and raise our children well, starting with pregnancy and focusing on perinatal mental health. Based on these guidelines, the tasks now are to disseminate, familiarise and implement as widely as possible the recommendations of the guidelines.

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SINGAPORE PERINATAL MENTAL HEALTH GUIDELINES ON DEPRESSION AND ANXIETY

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INTRODUCTION

The lifetime prevalence of major depression and generalized anxiety disorder has been found to be 7.7 - 9.2% and 1.9 - 2.2% amongst women of childbearing age (Subramaniam et al 2020, Singapore Mental Health Study), whilst antepartum depressive states (both major and minor) occur in 12.2% and postpartum depressive states in 6.8% (Chee et al 2006). The neurodevelopmental impact of depression and anxiety on the growing fetus has been clearly evidenced in the Singapore population (GUSTO birth cohort study), with changes in microstructure, functional connectivity as well as epigenetic footprint. The adverse impact extends into the postpartum period, during which maternal depression and anxiety have been found to be associated with infant negative temperament, reduced maternal sensitivity, child behavioural problems, and decreased school readiness (www.gusto.sg). Given that preconception mental health has been found to be closely related to antenatal mental health, which in turn predicts postnatal mental health, there is a crucial need for early identification and intervention to ensure the best health outcomes for women and children.

These guidelines have been developed to provide guidance on addressing depression and anxiety, during the preconception, antepartum and postpartum phases. The target audience are: General Practitioners, Family Physicians, General Practitioners, Obstetricians & Gynaecologists, Paediatricians, Neonatologists, Nurses, Midwives, Social Workers and Counsellors, Psychiatrists, and other mental health professionals.

We aim to make this document readable not just for healthcare professionals but also to the wider public and non-healthcare lay community, as awareness and public education is a key factor to addressing maternal mental health at the population level. This guideline does not include the severe mental disorders such as schizophrenic and bipolar disorders, which will be covered in subsequent editions.

ADDRESSING PRECONCEPTION DEPRESSION AND ANXIETY

Advice on pregnancy planning

- i) Consider pregnancy planning or contraception for women and girls of childbearing potential with a past or current depressive or anxiety disorder as they are particularly vulnerable to the stress of an unplanned pregnancy.
- ii) Consider any previous history of depression or anxiety, as this is a well-established risk factor for antenatal depression or anxiety. (Biaggi 2016)
- iii) Plan well for pregnancy, as pregnancy unintendedness is a risk factor associated with perinatal depression. (Abajobir et al, 2016)

Preconception counselling on impact of maternal mental illness and treatment

- i) Provide information to women of childbearing potential with a severe depressive or anxiety disorder regarding how their mental health condition and its treatment might affect them or their baby if they become pregnant. (McCloskey et al 2020)
- ii) Tailor this information according to their individual needs, and illness pattern.
- iii) With information, women can make an informed decision about family planning, and make necessary arrangements to prepare for pregnancy. (McCloskey et al 2020)

Lifestyle adjustments to optimize preconception mental health

- i) Provide guidance to women of childbearing potential with pre-existing depressive or anxiety disorder to help them make lifestyle adjustments to optimize their mental wellbeing and general health. (van Lee et al 2022)
- ii) Recommendations include improving nutrition with whole foods diet, weight management, smoking cessation, alcohol abstinence and folate supplementation to promote maternal mental wellbeing, and fetal development. Physical activity, exercise and mindfulness practice can also help reduce symptoms of depression or anxiety and promote wellbeing. (Dennis et al 2022)
- iii) Tailor recommendations on lifestyle adjustments to pace individual needs.

Medication use in consideration of childbearing

- i) Consider carefully safe choices of psychotropic medication or mood stabilizer, particularly valproate, for women or girls of childbearing potential who might require long-term treatment for their mood disorder. (NICE 2014)
- ii) Restrict the use of valproate to when there are no effective or tolerated alternatives, and when pregnancy prevention plan is adequate, as valproate is teratogenic. (Shakespeare & Sisodiya 2020)

Holistic approach to preconception mental health

- i) Consider psychological therapies, and address social stressors, to optimize the control of pre-existing depressive or anxiety disorder, as this can help to minimize the dose of antidepressant medication needed; any cessation should be discussed in preconception care planning.
- ii) Aim to achieve minimum effective dose of psychotropic medication to maintain wellness during conception. Maternal mental health state tends to remain stable from preconception to pregnancy. (Kee et al 2021)
- iii) Addressing any conflicts to ameliorate the risk of depression perinatally as couple relationship strength is particularly important. (Westdhal et al 2012)

ADDRESSING ANTENATAL DEPRESSION AND ANXIETY

Screening for antenatal depression/anxiety

- i) Early screening for antenatal depression during obstetric visits provides an ideal opportunity for preventative care and treatment before delivery. (Marcus et al 2003)
- ii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:
“Over the last 2 weeks, how often have you been bothered by :
 - Little interest or pleasure in doing things?
 - Feeling down, depressed or hopeless?”Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment. (see Appendix 1 for full version of PHQ-2)
- iii) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS (Appendix 2), with follow-up actions according to clear referral and management protocols.
- iv) Consider that antenatal depression is more common than postnatal depression (Chee et al, 2005), and that antenatal depression and anxiety are significant risk factors for postnatal depression. (Norhayati et al 2015)
- v) Consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for antenatal anxiety. (Appendix 3)

Assessment of antenatal depression/anxiety

- i) Clinical diagnoses should be made based on criteria listed in DSM-5 (Appendix 4) or ICD-10.
- ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with unborn child
- iii) Consider assessing for risk of harm to self and others (including fetus).

Medication use in antenatal depression/ anxiety

- i) Antidepressants are recommended for women with moderate to severe illness, or at risk of clinically significant relapse, with careful consideration of potential benefits and risks of antenatal use of antidepressants. (NICE 2014)
- ii) Factors to consider include: symptom severity, risk of relapse/ worsening, impact of illness vs. medication on mother and fetus, patient’s response to previous treatment, stage of pregnancy, patient preference. (Yonkers et al 2009)

- iii) Clinicians should provide information regarding the risk of septal defects with selective serotonin reuptake inhibitors, such as Paroxetine (Pedersen et al, 2009), and discuss risk-benefit considerations. (Molenaar et al, 2018)
- iv) Good practices for prescribing safely include: lowest effective doses, divided over the day if necessary, avoiding first-trimester use if possible, frequent and regular reviews. (NICE 2014)
- v) Benzodiazepines, commonly used for anxiety, should be avoided in pregnancy as there is an increased risk of use of ventilatory support for the newborn. (Yonkers et al 2017)

Holistic approach to care for patients with antenatal depression/ anxiety

- i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynecologists, paediatricians, psychiatrists, nurses, midwives, social workers and counsellors (Yonkers et al 2009).
- ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care.
- iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant. (NICE 2014)
- iv) Lifestyle behavioural interventions targeting diet, sleep, physical activity, smoking and having social support helps to prevent and reduce antenatal depressive symptoms (van Lee et al 2020)
- v) Non-pharmacological interventions, such as supportive therapy, psychology therapy and group therapy, may be beneficial, in addition to pharmacological interventions. (Bowen et al 2014)

Monitoring and supporting women receiving care for antenatal depression/anxiety

- i) Regular monitoring of symptoms and response to treatment during the antenatal period is recommended (NICE 2014).
- ii) Consider referral to perinatal psychiatric services at KKH, NUH, IMH for women with severe depression or anxiety, or those not responding to treatment.
- iii) Having adequate social and emotional support from husbands/ partners and family in the antenatal period can help reduce depressive and anxiety symptoms (Schetter 2011).

ADDRESSING POSTNATAL DEPRESSION AND ANXIETY

Screening for postnatal depression and anxiety

- i) Early screening for postnatal depression during obstetric visits provide an ideal opportunity for preventative care and treatment. (ACOG Committee Opinion 2018; Chen 2011). Well child visits to the paediatrician or primary health practitioner are also an opportune time to screen the mother for postnatal depression (Earl 2010).
- ii) Screening is particularly important for women with risk factors of postnatal depression and anxiety, which include antenatal depression/ anxiety, recent stressful life events and inadequate social support (Beck 2001)
- iii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:

“Over the last 2 weeks, how often have you been bothered by:

 - Little interest or pleasure in doing things?
 - Feeling down, depressed or hopeless?”

Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment. (see Appendix 1 for full version of PHQ-2)
- iv) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS (Appendix 2), with follow-up actions according to clear referral and management protocols.
- v) Consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for postnatal anxiety. (Appendix 3)

Assessment of postnatal depression and anxiety

- i) Clinical diagnoses should be made based on criteria listed in DSM-5 (Appendix 4) or ICD-10
- ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with baby.
- iii) Consider assessing for risk of harm to self and others (including baby).

Medication use in postnatal depression/ anxiety

- i) Provide counselling on the risk and benefits of starting pharmacological treatment, including potential consequences of untreated depression/ anxiety and adverse side effects of antidepressants. (Brown et al 2021)
- ii) Provide support for women in their decision about breastfeeding and be aware that antidepressant use is not an absolute contraindication to breastfeeding. (Brown et al 2021)

Holistic approach to care for patients with postnatal depression/ anxiety

- i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynecologists, paediatricians, psychiatrists, nurses, midwives, social workers and counsellors.
- ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care (Donker et al 2009)
- iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant. (Sioman et al 2019)
- iv) Lifestyle advice such as those related to healthy eating, physical activity and sleep hygiene could be provided to women, in consideration of the adjustment of these activities during the postnatal period. (Wilson et al 2017)
- v) Supportive counselling or structured individual psychological intervention, such as cognitive behavioural therapy or interpersonal psychotherapy, may improve depressive symptoms. (NICE 2015; Wilson et al 2017)
- vi) Consider interventions to improve mother-baby bonding if there are concerns with their relationship as women with depressive symptoms may experience challenges with bonding. (NICE 2015)

Monitoring and supporting women receiving care for postnatal depression/anxiety

- i) Regular monitoring of symptoms and response to treatment during the postnatal period is recommended.
- ii) Consider referral to perinatal psychiatric services at KKH, NUH, or IMH for women with severe depression or anxiety, or those not responding to treatment.
- iii) Having adequate social and emotional support from husbands/ partners and family in the postnatal period can help reduce depressive and anxiety symptoms. (Machado et al 2020)

SPECIAL CONSIDERATIONS

- Women who have experienced a severe maternal event - such as hemorrhage requiring massive transfusion and/or hysterectomy, severe hypertensive crises, eclamptic seizures, sepsis, thrombotic events and cardiovascular failure, miscarriage, stillbirth or intrauterine death – are particularly at risk of depression and anxiety, as well as post-traumatic stress disorder (Furuta et al 2014). Care and support should be provided for the patient, as well as the healthcare providers, who might experience emotional effects of severe adverse events (Morton et al 2021).
- Women with special needs (such as neurodevelopmental disorders or intellectual disability) will benefit from care delivery that is tailored to address their needs (D'Angelo et al 2020). Likewise, pregnant adolescents can be at higher risk of perinatal depression (Siegel & Brandon 2014). Additional effort to provide information and support for these vulnerable mothers can mitigate the development of depression and anxiety in their perinatal experience.
- Infants of mothers who are treated with antidepressant medications, such as SSRIs, through-out labour (without weaning off towards term) may have early onset respiratory distress due to persistent pulmonary hypertension, hypoglycaemia and drug withdrawal symptoms such as excessive crying, irritability, feeding and sleep disturbance during the first four weeks of life. Hence regular monitoring and interventions for such infants are recommended (Hudak & Tan, 2012).
- Infant neurodevelopment is related to the quality of caregiving. Maternal mental health can influence maternal attunement and sensitivity to infant needs (Rifkin-Gabroi et al. 2015), and maternal mind-mindedness (Bigelow et al 2018). Mothers are encouraged to spend quality time attending to and caring for their infants, by following baby's cues and keeping mindful of baby's needs. Research shows that mothers staying present, watching and wondering about their infants can improve maternal reflective capacity (Bakermans-kranenburg et al 2003). Red flags for dysfunction in mother-infant dyads include reduced maternal attunement, reduced child responsiveness to mother and restricted growth and development (Tsang et al 2019).

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This guideline summary, endorsed by College of Obstetricians & Gynaecologists Singapore (COGS), Perinatal Society of Singapore; The College of Family Physicians Singapore (CFPS); College of Psychiatrists; Singapore Psychiatric Association; Health Promotion Board, Singapore; and Singapore Medical Association acts as an educational aid and reference for healthcare professionals practicing in Singapore.

The guideline summary does not define a standard of care, nor is it intended to dictate an exclusive course of management. It presents recognized clinical methods and techniques for consideration by practitioners for incorporation into their practice. It is acknowledged that management may vary and must always be responsive to the need of individual patients, availability of resources, and limitations unique to the institution or type of practice. Launched on 17 February 2023.

APPENDIX 1

PATIENT HEALTH QUESTIONNAIRE 2-item (PHQ-2)

(Kroenke K, Spitzer RL, Williams JOB. The Patient Health Questionnaire-2: Validity of a Two-item Depression Screener. Medical Care, 2003;41:1284-92)

Over the last 2 weeks, how often have you been bothered by the following problems?

1. Little interest or pleasure in doing thing

| | |
|-------------------------|-----|
| Not at all | (0) |
| Several days | (1) |
| More than half the days | (2) |
| Nearly every day | (3) |

2. Feeling down, depressed or hopeless

| | |
|-------------------------|-----|
| Not at all | (0) |
| Several days | (1) |
| More than half the days | (2) |
| Nearly every day | (3) |

Interpretation :

- The authors have identified a score of 3 to be the optimal cut-off when using PHQ-2 to screen for major depression (or clinical depression).
- Patients who screen positive should be further evaluated and attended to accordingly.

APPENDIX 2

Edinburgh Postnatal Depression Scale (EPDS)

(Cox JL, Holden JM, Sagovsky R, British Journal of Psychiatry, June 1987, vol 150)

1. I have been able to laugh and see the funny side of things in the past one week.
0 As much as I always could
1 Not quite so much now
2 Definitely not so much now
3 Not at all
2. I have looked forward with enjoyment to things in the past one week.
0 As much as I ever did
1 Rather less than I used to
2 Definitely less than I used to
3 Hardly at all
3. I have blamed myself unnecessarily when things went wrong in the past one week.
3 Yes, most of the time
2 Yes, some of the time
1 Not very often
0 No, never
4. I have been anxious or worried for no good reason in the past one week.
0 No, not at all
1 Hardly ever
2 Yes, sometimes
3 Yes, very often
5. I have felt scared or panicky for no very good reason in the past one week.
3 Yes, quite a lot
2 Yes, sometimes
1 No, not much
0 No, not at all
6. Things have been getting on top of me in the past one week.
3 Yes, most of the time I haven't been able to cope at all
2 Yes, sometimes I haven't been coping as well as usual
1 No, most of the time I have coped quite well
0 No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping in the past one week.
3 Yes, most of the time
2 Yes, sometimes
1 Not very often
0 No, not at all
8. I have felt sad or miserable in the past one week.
3 Yes, most of the time
2 Yes, quite often
1 Not very often
0 No, not at all
9. I have been so unhappy that I have been crying in the past one week.
3 Yes, most of the time
2 Yes, quite often
1 Only occasionally
0 No, never
10. I thought of harming myself has occurred to me in the past one week.
3 Yes, quite often
2 Sometimes
1 Hardly ever
0 Never

Screening is considered positive if one or more of the following is met:

- Total score 15 or more for antenatal depression
- Total score 13 or more for postnatal depression
- Item score of 1 or more on item 10

APPENDIX 3

GENERALIZED ANXIETY DISORDER 2-item (GAD-2)

(Kroenke K, Spitzer RL, Williams JB, Mohana PO, Lowe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Ann Intern Med. 2006;146:317-325)

The brief General Anxiety Disorder 2-item (GAD-2) may be used to screen for symptoms of anxiety:

1. Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge?

| | |
|-------------------------|-----|
| Not at all | (0) |
| Several days | (1) |
| More than half the days | (2) |
| Nearly every day | (3) |

2. Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

| | |
|-------------------------|-----|
| Not at all | (0) |
| Several days | (1) |
| More than half the days | (2) |
| Nearly every day | (3) |

Interpretation:

A score of 3 or more has been suggested to be suggestive of generalized anxiety, and further assessment is warranted.

*Please note that GAD-2 has not been validated in Singapore, and its psychometric properties as a screening tool for perinatal anxiety has not been strong (Fairbrother et al 2019; Nath et al 2018). As such, the use of GAD-2 for public health screening is not yet clear, and a positive screen should be followed by assessment if clinically indicated.

APPENDIX 4

DSM V Criteria for Major Depression -peripartum onset

(American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (Fifth ed.). Arlington, VA: American Psychiatric Publishing. pp. 5–25. ISBN 978-0-89042-555-8. Arlington, Virginia: American Psychiatric Publishing; 2013)

Essential or cardinal symptoms:-

- 1) either depressed mood and/or
- 2) loss of interest or pleasure in nearly all activities

with any of these additional symptoms for a total of 5 symptoms

- 3) changes in appetite or weight,
- 4) sleep disturbance (insomnia or hypersomnia)
- 5) decreased energy or feeling fatigued
- 6) psychomotor agitation or retardation – feeling restless or lethargic
- 7) difficulty thinking, concentrating or making decisions
- 8) feelings or worthless or guilt, excessive self blame
- 9) recurrent thoughts of death or suicidal ideation, plans or attempts.

Duration: The symptoms must persist for most of the day nearly every day for at least 2 consecutive weeks.

Onset for peripartum episode: during pregnancy and within 4 weeks after delivery

The episode must be accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning.

SUMMARY STATEMENTS OF COLLEGE OF OBSTETRICIANS & GYNAECOLOGISTS SINGAPORE (COGS) SINGAPORE PERINATAL MENTAL HEALTH GUIDELINES

*COGS-IPRAMHO Perinatal Mental Health Study Group. 17 February 2023

1. Increase Awareness and Provide Advice of Preconception Mental Health

A. Provide advice on pregnancy planning

- i) Consider pregnancy planning or contraception for women and girls of childbearing potential with a past or current depressive or anxiety disorder as they are particularly vulnerable to the stress of an unplanned pregnancy.
- ii) Consider any previous history of depression or anxiety, as this is a well-established risk factor for antenatal depression or anxiety.
- iii) Plan well for pregnancy, as pregnancy unintendedness is a risk factor associated with perinatal depression.

B. Have preconception counselling on impact of maternal mental illness and treatment

- i) Provide information to women of childbearing potential with a severe depressive or anxiety disorder regarding how their mental health condition and its treatment might affect them or their baby if they become pregnant.
- ii) Tailor this information according to their individual needs, and illness pattern.
- iii) With information, women can make an informed decision about family planning, and make necessary arrangements to prepare for pregnancy.

2. Optimise Preconception Mental Health

A. Make lifestyle adjustments to optimise preconception mental health

- i) Provide guidance to women of childbearing potential with pre-existing depressive or anxiety disorder to help them make lifestyle adjustments to optimise their mental wellbeing and general health.
- ii) Recommendations include improving nutrition with whole foods diet, weight management, smoking cessation, alcohol abstinence and folate supplementation to promote maternal mental wellbeing, and fetal development. Physical activity, exercise and mindfulness practice can also help reduce symptoms of depression or anxiety and promote wellbeing.
- iii) Tailor recommendations on lifestyle adjustments to pace individual needs.

B. Evaluate medication use in consideration of childbearing

- i) Consider carefully safe choices of psychotropic medication or mood stabiliser, particularly valproate, for women or girls of childbearing potential who might require long-term treatment for their mood disorder.
- ii) Restrict the use of valproate to when there are no effective or tolerated alternatives, and when pregnancy prevention plan is adequate, as valproate is teratogenic.

C. Have a holistic approach to preconception mental health

- i) Consider psychological therapies, and address social stressors, to optimise the control of pre-existing depressive or anxiety disorder, as this can help to minimize the dose of antidepressant medication needed; any cessation should be discussed in preconception care planning.
- ii) Aim to achieve minimum effective dose of psychotropic medication to maintain wellness during conception. Maternal mental health state tends to remain stable from preconception to pregnancy.
- iii) Addressing any conflicts to ameliorate the risk of depression perinatally as couple relationship strength is particularly important.

3. Have Screening and Assessment for Antenatal Depression/ Anxiety

A. Provide screening for antenatal depression/anxiety

- i) Early screening for antenatal depression during obstetric visits provides an ideal opportunity for preventative care and treatment before delivery.

- ii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:
 "Over the last 2 weeks, how often have you been bothered by:
 - Little interest or pleasure in doing things?
 - Feeling down, depressed or hopeless?"
 Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment.
- iii) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS, with follow-up actions according to clear referral and management protocols.
- iv) As antenatal depression and anxiety are significant risk factors for postnatal depression, consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for antenatal anxiety.

B. Have assessment of antenatal depression/anxiety

- i) Clinical diagnoses should be made based on criteria listed in DSM-5 or ICD-10.
- ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with unborn child
- iii) Consider assessing for risk of harm to self and others (including fetus).

4. Optimise care, treatment & support for antenatal depression/ anxiety

A. Counsel on medication use in antenatal depression/ anxiety

- i) Antidepressants are recommended for women with moderate to severe illness, or at risk of clinically significant relapse, with careful consideration of potential benefits and risks of antenatal use of antidepressants.
- ii) Factors to consider include: symptom severity, risk of relapse/ worsening, impact of illness vs. medication on mother and fetus, patient's response to previous treatment, stage of pregnancy, patient preference.
- iii) Clinicians should provide information regarding the risk of septal defects with selective serotonin reuptake inhibitors, such as Paroxetine, and discuss risk-benefit considerations.
- iv) Good practices for prescribing safely include: lowest effective doses, divided over the day if necessary, avoiding first-trimester use if possible, frequent and regular reviews.
- v) Benzodiazepines, commonly used for anxiety, should be avoided in pregnancy as there is an increased risk of use of ventilatory support for the newborn.

B. Provide holistic approach to care for patients with antenatal depression/ anxiety

- i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynaecologists, paediatricians, neonatologists, psychiatrists, nurses, midwives, social workers, and counsellors.
- ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care.
- iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant.
- iv) Lifestyle behavioural interventions targeting diet, sleep, physical activity, smoking and having social support helps to prevent and reduce antenatal depressive symptoms.
- v) Non-pharmacological interventions, such as supportive therapy, psychology therapy and group therapy, may be beneficial, in addition to pharmacological interventions.

C. Provide monitoring and support for women receiving care for antenatal depression/anxiety

- i) Regular monitoring of symptoms and response to treatment during the antenatal period is recommended.
- ii) Consider referral to perinatal psychiatric services at KKH, NUH, IMH for women with severe depression or anxiety, or those not responding to treatment.
- iii) Having adequate social and emotional support from husbands/ partners and family in the antenatal period can help reduce depressive and anxiety symptoms.

5. Have Screening and assessment for postnatal depression/ anxiety

A. Provide screening for postnatal depression and anxiety

- i) Early screening for postnatal depression during obstetric visits provide an ideal opportunity for preventative care and treatment. Well child visits to the paediatrician or primary health practitioner are also an opportune time to screen the mother for postnatal depression.
- ii) Screening is particularly important for women with risk factors of postnatal depression and anxiety, which include antenatal depression/ anxiety, recent stressful life events and inadequate social support.
- iii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:
"Over the last 2 weeks, how often have you been bothered by:
 - Little interest or pleasure in doing things?
 - Feeling down, depressed or hopeless?"Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment.
- iv) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS, with follow-up actions according to clear referral and management protocols.
- v) Consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for postnatal anxiety.

B. Have assessment of postnatal depression and anxiety:

- i) Clinical diagnoses should be made based on criteria listed in DSM-5 or ICD-10
- ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with baby.
- iii) Consider assessing for risk of harm to self and others (including baby).

6. Optimise care, treatment and support for postnatal depression/ anxiety

A. Evaluate medication use in postnatal depression/ anxiety

- i) Provide counselling on the risk and benefits of starting pharmacological treatment, including potential consequences of untreated depression/ anxiety and adverse side effects of antidepressants.
- ii) Provide support for women in their decision about breastfeeding and be aware that antidepressant use is not an absolute contraindication to breastfeeding.

B. Have a holistic approach towards care for patients with postnatal depression/ anxiety

- i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynaecologists, paediatricians, neonatologists, psychiatrists, nurses, midwives, social workers, and counsellors.
- ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care.
- iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant.
- iv) Lifestyle advice such as those related to healthy eating, physical activity and sleep hygiene could be provided to women, in consideration of the adjustment of these activities during the postnatal period.
- v) Supportive counselling or structured individual psychological intervention, such as cognitive behavioural therapy or interpersonal psychotherapy, may improve depressive symptoms.
- vi) Consider interventions to improve mother-baby bonding if there are concerns with their relationship as women with depressive symptoms may experience challenges with bonding.

C. Provide monitoring and support for women receiving care for postnatal depression/ anxiety

- i) Regular monitoring of symptoms and response to treatment during the postnatal period is recommended.
- ii) Consider referral to perinatal psychiatric services at KKH, NUH, or IMH for women with severe depression or anxiety, or those not responding to treatment.

- iii) Having adequate social and emotional support from husbands/ partners and family in the postnatal period can help reduce depressive and anxiety symptoms.

7. Provide mental health support in severe maternal events and those with mental health needs

Women who have experienced a severe maternal event - such as haemorrhage requiring massive transfusion and/ or hysterectomy, severe hypertensive crises, eclamptic seizures, sepsis, thrombotic events and cardiovascular failure, miscarriage, stillbirth or intrauterine death – are particularly at risk of depression and anxiety, as well as post-traumatic stress disorder. Care and support should be provided for the patient, as well as the healthcare providers, who might experience emotional effects of severe adverse events.

8. Tailor perinatal mental healthcare for adolescents and women with special needs

Women with special needs (such as neurodevelopmental disorders or intellectual disability) will benefit from care delivery that is tailored to address their needs. Likewise, pregnant adolescents can be at higher risk of perinatal depression. Additional effort to provide information and support for these vulnerable mothers can mitigate the development of depression and anxiety in their perinatal experience.

9. Promote higher caregiving quality for perinatal and infant mental health needs

Infant neurodevelopment is related to the quality of caregiving. Maternal mental health can influence maternal attunement and sensitivity to infant needs, and maternal mind-mindedness. Mothers are encouraged to spend quality time attending to and caring for their infants, by following baby's cues and keeping mindful of baby's needs. Research shows that mothers staying present, watching and wondering about their infants can improve maternal reflective capacity. Red flags for dysfunction in mother-infant dyads include reduced maternal attunement, reduced child responsiveness to mother and restricted growth and development.

10. Aim to integrate the above recommendations into healthcare framework for the best results.

The healthcare community should aim to integrate well the above recommendations in preconception, pregnancy and postnatal periods into healthcare framework for the best results.

* Members of COGS-IPRAMHO Perinatal Mental Health Study Group are:

Helen CHEN, Tze-Ern CHUA, Elizabeth SIAK, Lin Feng HONG, Theresa LEE, Yasmin Bte MOHD HASSAN, Ying Chia CHNG, Cornelia CHEE, Yee Ming MOK, Vasuki UTRAVARTHY, Say How ONG, Victor Samuel RAJADURAI, Tiong Ghee TEOH, Kok Hian TAN, Lay Kok TAN

FACULTY BIOGRAPHIES – CHAIRPERSONS, PANEL MEMBERS & SPEAKERS (LIST IS IN ORDER OF APPEARANCE AT THE CONFERENCE)

Professor Alex Sia Tiong Heng

Prof Alex Sia is the Chief Executive Officer of KK Women's & Children's Hospital, whose mission is to deliver excellent, holistic and compassionate healthcare for women and children. He is concurrently Professor of Duke NUS Medical School and Clinical Professor of Yong Loo Lin School of Medicine. After completing his under-graduate study at NUS Faculty of Medicine, he achieved specialist accreditation in Intensive Care Medicine and Anaesthesiology before earning his Master of Business Administration from Singapore Management University under the Ministry of Health Holdings Hospital Administration Scholarship Scheme. As the immediate past Chairman of KKH's Medical Board, he is a strong advocate of better and safer care for all.

He firmly believes in the importance of joy at work and constant practice improvements to enhance the delivery of value-driven care. His pursuit of advancing safety and reliability of patient care has led to the development of closed-loop, automated and computer integrated administration of medications. He has been granted three patents by USPTO (United States Patent & Trademark Office) in this regard. He is also involved in the research of the pharmacogenomics of pain, particularly in relation to the safe use of opioids. 'Every life counts, every child matters' is the principle that has guided his professional journey in the last three decades.



Professor Victor Samuel Rajadurai

Professor Samuel Rajadurai is a Senior Consultant in the Department of Neonatology at the KK Women's and Children's Hospital, Singapore. He is an Adjunct Clinical Professor of Paediatrics at Duke-NUS and also a visiting Professor to Tianjin Central Hospital, China. He has had extensive experience in Neonatology for more than 35 years. Currently, he is the Vice President of the Perinatal Society of Singapore, President Elect of FAOPS and Chairman of the IPOKRATES Group in Singapore. He was the founding Director of the National Expanded Newborn Screening Programme. Prof Sam's research interests are perinatal asphyxia, PPHN, chronic lung disease of prematurity, neonatal nutrition, hypoglycaemia, and newborn screening. He has participated as a collaborator in a number of international multicenter randomized control trials. His publications include 5 chapters in books, 140 abstracts and over 130 articles in journals.



Associate Professor Ng Kee Chong

Assoc Prof Ng Kee Chong graduated from the Faculty of Medicine, National University of Singapore in 1989. He pursued specialty training in Paediatrics and joined KK Women's and Children's Hospital (KKH) in 1997. He was awarded a Ministry of Health (Singapore) fellowship in post-graduate training (1998-1999) at the Hospital for Sick Children in Ontario, in Paediatric Emergency Medicine. He earned his Master in Business in Business Administration in 2015 from Singapore Management University.

Assoc Prof Ng was Chair of the Emergency Preparedness Committee at KK Women's and Children's Hospital (KKH) from 1997 to 2016, setting up KKH's mass casualty response plans for both civil & Hazmat emergencies. He also led the hospital's disaster responses including the Indian Ocean tsunami in 2004.



He was Head of the Children's Emergency at KKH from 2005 to 2016, and co-chair of the Ministry Of Health Toxicology Clinical Practice Guidelines Workgroup from 2009 to 2011. With the setting up of the Paediatrics Singhealth Academic Clinical Programme (PAEDS ACP), Assoc Prof Ng was appointed as Chair of PAEDS ACP from 2011. He was a member of the Duke-NUS Medical School Admissions Committee till 2018.

Assoc Prof Ng was previously Chairman, Division of Medicine, KKH, from 2012-2017, and Campus Director of KKH Medical Innovation & Care Transformation from 2015 to 2017. He was appointed as Chairman Medical Board 1 May 2017.

He is a member of the Ministry of Health National Trauma Committee (NTC) & Co-Chair of the "Emergent Issues" subcommittee in NTC. He is currently Vice-President of the MOH Singapore Resuscitation & First Aid Council (SRFAC) and has been a member of the International Liaison Committee on Resuscitation (ILCOR) Pediatrics Life Support (PLS) Taskforce since 2011 and is currently Chair of the ILCOR PLS Taskforce.

Assoc Prof Ng is a Clinical Associate Professor with the Duke-NUS Medical School, Yong Loo Lin School of Medicine and is currently the President of the College of Paediatrics & Child Health, Singapore. He is an examiner for the Royal College of Paediatrics & Child Health in UK.

He has led various regional outreach teams to teach paediatric resuscitation using the train-the-trainer frameworks in Cambodia, Laos, Myanmar and in China. His interests include paediatric disaster response & planning; paediatric resuscitation; paediatric toxicology and regional clinical outreach and training.

Professor Tan Kok Hian

Prof Tan Kok Hian is Head, Perinatal Audit & Epidemiology and Senior Consultant, Maternal Fetal Medicine in KK Women's & Children's Hospital, Singapore. Prof Tan has active teaching faculty appointments in 3 medical schools (Duke-NUS as Professor; and both YLL-NUS & LKC-NTU medical schools as Adjunct Professor). He is the Benjamin Henry Sheares Professor in Obstetrics and Gynaecology since 2019. Prof Tan is the Lead for Gestational Diabetes Mellitus (GDM), SingHealth Duke-NUS Diabetes Centre and the Lead Principal Investigator, NMRC Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO). He is President of Perinatal Society of Singapore and Past President of the Obstetrical & Gynaecological Society (OGSS) of Singapore. He is Chairman of the Congress Trust Fund of OGSS.

Prof Tan initiated and led in the implementation of universal GDM screening and also introduced the new IADPSG criteria in KKH and SGH since January 2016. He is the champion of GDM universal screening, which has now been adopted in all hospitals in Singapore with obstetric service. As Chairperson of College of Obstetricians & Gynaecologists, Singapore GDM Committee 2017-2018 and Chairperson, Expert Group GDM Appropriate Care Guide of The Agency for Care Effectiveness (ACE), Ministry of Health 2017-18, he was instrumental in leading GDM management. He facilitated the Asia Oceania Consensus in Gestational Diabetes in January 2018; the Perinatal Society of Singapore guidelines on Optimal Perinatal Nutrition in 2019 and Physical Activity & Exercise in Pregnancy in 2020; and consensus for Optimal Perinatal Nutrition, and Physical Activity & Exercise in Pregnancy for the Asia Pacific region.

He is currently PI for the Integrated Hyperglycaemia Incentivised Postnatal Surveillance Study (IHIPS) which is a RCT on lifestyle and wearable interventions to prevent post-partum diabetes in Asian women with a history of GDM, under Singapore NMRC 2021-2025 LCG grant



Prof Tan received many awards for his academic & clinical contributions. These included World Health Organization - UAE Health Foundation Prize 2009 as KKH Integrated Perinatal Care Project Team Leader (project made innovative and outstanding efforts in the training & education for perinatal care) and the inaugural Singapore National Outstanding Clinical Quality Activist Award in 2010. He serves as a WHO consultant for Patient Safety and initiated the Global Action for Leaders & Learning Organizations on Patient Safety (GALLOPS) program to support the WHO Global Patient Safety Action Plan 2021–2030. He was awarded the Duke-NUS Golden Apple Generativity Award 2020 for his role in shaping the academic medicine culture in the SingHealth Duke-NUS Academic Medical Centre (AMC) and fostering a culture of learning and mentorship across institutions and professional groups.

Associate Professor Tan Lay Kok

Dr Tan Lay Kok is a senior consultant obstetrician and gynaecologist. He is the current Head of the Department of Maternal Fetal Medicine in KK Women's and Children's Hospital and also the President of the College of Obstetricians and Gynaecologists Singapore. He has a special interest in maternal medicine and set up and ran multidisciplinary obstetric medicine clinics including diabetic, cardiology, renal medicine, hematology and rheumatology obstetric clinics in Singapore General Hospital where he continues to be a visiting consultant. He has also been part of the IPRAMHO team since its inception. Dr Tan is also very involved in medical education and is the Vice-Chair (Education) for the SingHealth OBGYN Academic Clinical Programme. He is active in both undergraduate and postgraduate medical education, organizes courses in maternal fetal medicine and a regular speaker in local and regional conferences.



Associate Professor Helen Chen Yu

Dr Helen Chen is Senior Consultant Psychiatrist, and Head, Department of Psychological Medicine, KK Women's and Children's Hospital and Adjunct Associate Professor, Duke-NUS Graduate Medical School. She is also the Programme Director of the Postnatal Depression Intervention Programme, a MOH-funded project that aims to screen for Postnatal Depression amongst a cohort of recently delivered women for the purpose of early intervention. She completed her training in the area of perinatal psychiatry and women's mental health in UK at the Queen's Medical Centre, University of Nottingham, and has many years of clinical and experience working with women suffering from mental health difficulties related to childbearing. Her academic and research expertise has been related to emotional and psychological health issues in women, particularly in the context of motherhood.



Professor Tan Hak Koon

Prof Tan Hak Koon is the Chairman of OBGYN ACP, Duke-NUS Medical School and the Chairman of Division of Obstetrics and Gynaecology at KK Women's and Children's Hospital from 2020. He is also the Designated Institutional Official (DIO), of SingHealth Residency since 1 June 2018.

He was the Head of Department of Obstetrics and Gynaecology of Singapore General Hospital from 2010 to 2019 and he was also the President for College of Obstetrics & Gynaecology Singapore from 2013 to 2015.



Besides general obstetrics and gynaecology, he specialises in high-risk pregnancy and ultrasound scans.

Professor Teoh Tiong Ghee

Prof Teoh is a consultant obstetrician and specializes in maternal and fetal medicine. His main research interests are in the prevention of preterm labour and the use of AI in pregnancy. Prior to returning to Singapore in August 2022, he was the Director of Women's & Children's Services at Imperial College Healthcare, London where he led the awareness and transformation of maternal mental health services in the North West London.



Associate Professor Lourdes Mary Daniel

A/Prof Lourdes Mary Daniel is currently the Head of Department in the Department of Child Development, KKH. She is a pediatrician who is trained both in Neonatology and Child Development. She received her neonatal postgraduate training in Singapore and Australia and her child development training in the USA (Kennedy Krieger Institute [Johns Hopkins Hospital], Boston Children's Hospital and the Harvard Graduate School of Education). She has worked with high risk children in KK Women's and Children's Hospital from the antenatal period, through delivery, the Neonatal Intensive Care Unit, childhood and into primary school for the last 35 years.



Dr Anne Rifkin-Graboi

Anne Rifkin-Graboi, PhD (She/Her/Hers) is the Head of Infancy and Early Childhood Research at the National Institute of Education's Centre for Research in Child Development. Anne is part of a number of interdisciplinary projects. For example, she is: the PI of the BE POSITIVE cross-sequential cohort project, a collaboration with SingHealth Polyclinics; the PI of the CARE study, which investigates the impact of COVID related adversity on parent-child relationships and related outcomes; and has been an investigator in the Singaporean GUSTO cohort study since 2009. Anne is a certified intervener in the Video Intervention to Promote Positive Parenting and Sensitive Discipline (VIPP-SD), as well as a trainer for the Berkeley 6 Year Attachment Reunion Assessment, and coder for the Adult Attachment Interview and Frightening Caregiving systems. Anne is also an Associate Editor of Attachment and Human Development and on the Editorial Board of Infancy.



Dr Chua Tze Ern

Dr Chua Tze-Ern is a Senior Consultant and Head of Women's Mental Wellness Service, Department of Psychological Medicine, KK Women's and Children's Hospital. Her clinical special interests are mood disorders, particularly in women around the time of pregnancy. She is an active researcher, serving as department Research Lead and having published scientific papers and book contributions. She holds teaching appointments at local medical schools and has lectured at local and international conferences. She is an advocate for patient safety and mental health awareness.



Dr Theresa Lee Mei Ying

Dr Theresa Lee is a Senior Consultant of the Women's Mental Wellness Service, Department of Psychological Medicine, KK Women's and Children's Hospital. Her clinical special interests are mood disorders, women's mental health and psychotherapy. Besides clinical work, she is also actively involved in teaching and holds teaching appointments at local medical and nursing schools. She advocates for creating greater mental health awareness and sits on the board of directors of Clarity, a mental health charity.



Associate Professor Chua Mei Chien

Clin A/Prof Chua Mei Chien is a Senior Consultant and Head, Department of Neonatology; and Director, KK Human Milk Bank. Her special area of interest is in breastfeeding, early nutrition studies. She established Singapore's first donor human milk bank program in August 2017 and this was accorded multiple awards for clinical excellence and significant positive impact on outcomes of preterm infants.

Clin A/Prof Chua holds teaching appointments with all three local medical schools and is the President-elect of the College of Pediatrics and Child Health 2022-2023. She is currently exploring new models of care to improve the metabolic health of mothers, infants and young children to stem the tide of non-communicable disease in Singapore.



Associate Professor Sng Ban Leong

Dr Sng Ban Leong is a Senior consultant and Head of Department at Women's Anaesthesia, KK Women's and Children's Hospital (KKH). He is an Associate Professor at Duke-NUS Medical School Singapore. He is the Academic Vice Chair (Research) of SingHealth Anaesthesiology and Perioperative Sciences ACP.

Dr Sng received his medical degree from National University of Singapore School. He completed the Masters in Clinical Investigation and his specialist training in Singapore and pain fellowship at the Royal Perth Hospital. He has been awarded several clinical research grants including the NMRC Clinician Scientist Award, NHIC I2D and I2I Grants, NMRC Clinical Trials Grant, NMRC Transition Award, Centre Grant and Singhealth Foundation Clinical Trials Grant.

Dr Sng is a mentor and co-mentor of the Duke-NUS Year 3 student projects and teaching in the Anesthesiology Integrated Program. He has won the NUS Dean's Award for Teaching Excellence (2014). He is also the Clinician Scientist Mentor and Core Faculty in the SingHealth Anesthesiology Residency Program and coordinates the obstetric anaesthesia research elective for senior residents.



Dr Loy See Ling

Dr Loy is an Assistant Professor with Duke-NUS Medical School and working as a Senior Research Fellow in KK Women's and Children's Hospital. She attained her PhD in Human Nutrition in year 2014 and with special interest in life course epidemiology and nutritional epidemiology. She has received multiple international awards, fellowships and travel grants. Till date, she has published in more than 50 journals and is the journal reviewer for many international journals. She has been awarded the NMRC Young Individual Research Grant in 2018, aiming to investigating the effect of maternal chrononutrition on pregnancy outcomes. She is actively involved in various research studies (locally or internationally), particularly cohort studies related to mother-offspring health.



Dr Hong Lin Feng

Dr Hong is an Associate Consultant at the Department of Psychological Medicine in KK Women's and Children's Hospital. She received her medical degree in 2012 from Flinders University in Adelaide, South Australia. She completed her specialist training in 2020 under the National Psychiatry Residency Programme, Singapore. Her clinical interests include both women's and child & adolescents' mental health.



Dr Elizabeth Siak

Dr Elizabeth Siak is a Consultant Psychiatrist in the Department of Psychological Medicine at KK Women's and Children's Hospital. Her clinical interests include general adult psychiatry, women's mental health and adolescent psychiatry.

**Ms Chng Ying Chia**

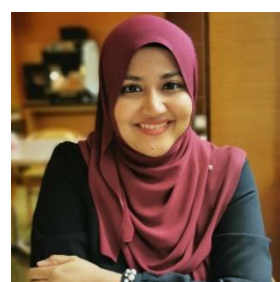
Ying Chia was a social worker in the community working in elderly and family services prior to joining KKH. She has a Masters degree in Social Work and a Postgraduate Diploma in Family and Systemic Practice. In the past 14 years, Ying Chia has been a clinical counsellor with the Department of Psychological Medicine at KKH, counselling women with perinatal mental health problems, and working with couples and families in coping with life transitions and challenges. She is the co- director of the Postnatal Depression Intervention Programme, that provides early identification and intervention of women with postnatal depression, and she leads a team of like-minded and passionate counsellors in mental health.

**Dr Ng Lai Peng**

Dr Ng is a Family Physician, Senior Consultant, at SingHealth polyclinic and a clinical core faculty member of the SingHealth Residency Family Medicine program. She has been the clinical workgroup lead for the SingHealth polyclinic women's health multidisciplinary workgroup. She oversees programs related to women's health in the polyclinic and develops training resources for primary care doctors.

**Ms Yasmin Bte Mohd Hassan**

Yasmin has been a clinical counsellor for 7 years. Prior to this, she was a senior medical social worker working in the crisis and trauma unit, protecting vulnerable women and children. Her main areas of interest includes working with perinatal women and children with mental and psychosocial issues.

**Asst Prof Yeleswarapu Sita Padmini**

Dr Padmini Yeleswarapu is a Developmental Paediatrician trained in UK and is currently a Senior Consultant in the Department of Child Development at KK Women's and Children's Hospital.

She is very passionate about addressing the needs of high risk families and using a family centred approach to support children and families with adverse childhood experiences., She was one of the trainers for the level 3 child protection training programme conducted by Alder Hey Children's hospital, UK. With this strong background in Child Protection, Dr Padmini is the program lead for the ANCHOR program that commenced in 2019- an initiative lead by KKH



and funded by Temasek Foundation that aims to support young children who have sustained maltreatment and their families.

She also has a keen interest in teaching and is the departmental educational lead, overseeing the DBP fellowship programme, as also the teaching and training of the medical students and residents posted to the department. She had helped develop various training resources to be used for the teaching sessions both within the department and also for medical students examinations.

Her other area of major interest is in development screening and she is a key member of the developmental arm of the Integrated Maternal and Child health initiative run by KKH and SingHealth Punggol polyclinic with support from Temasek Foundation.

Dr Ryan Lee

Dr Ryan Lee graduated from Imperial College London in 2008 with a Bachelor of medical sciences (Honours) and obtained (MBBS) (Distinctions) at St Bartholomews and the Royal London, University of London in 2009. He later obtained Masters of Medicine (O&G) and became a Member of the Royal College of Obstetricians and Gynaecologists (MRCOG) in 2015. He was awarded the NMRC health research scholarship in 2016 and graduated with a Masters of Clinical Investigation from the National University of Singapore in 2018. He is currently a consultant in the department of Maternal-Fetal medicine at KKH.

His main research interests are in epidemiological studies on interventional lifestyle changes including exercise and diet control to improve obstetric outcomes in pregnant women with gestational diabetes. He is a principal investigator of several research projects and was awarded an NMRC clinician scientist seed fund in 2017 for research in sub-fertile women with recurrent implantation failure. He was awarded the 2019 ASPIRE best international poster presentation for his research work on the immunological effect of endometrial injury in women with recurrent implantation failure.

Besides research, he has an incessant passion for teaching and was previously awarded the inspiring resident-educator award. He is currently appointed as a SingHealth residency physician facilitator and clinical tutor to students from Duke-NUS, YLL and LKC School of Medicine where he continues to receive commendable accolades from his students. Ryan is an IPRAMHO investigator (Exercise in Pregnancy; Vitamin D in Pregnancy).

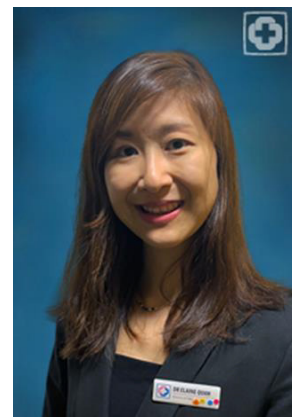


Dr Elaine Quah Phaik Ling

Dr Quah Phaik Ling, Elaine (PhD) is a Senior Research Fellow at the Division of Obstetrics and Gynaecology at KK Women's and Children's Hospital (KKH). Prior to this, Dr Quah was with the Agency for Science, Technology and Research's Singapore Institute for Clinical Sciences (A* STAR SICS), working with the Growing Up in Singapore Towards Healthy Outcomes (GUSTO) team.

She is the lead and co-lead of several observational and interventional studies that aims to improve maternal and child metabolic health outcomes. She is a key member of the workgroups for the development and publication of Singapore Integrated 24-Hour Activity Guidelines for Children and Adolescents in 2020-2021; and the Singapore Integrated 24-Hour Activity Guidelines for Early Childhood in 2022.

Dr Quah has extensive experience in clinical studies and epidemiology cohort studies, and project design and management; with over 30 peer reviewed international publications.



Associate Professor Dittakarn Boriboonhirunsarn

Associate Professor Dittakarn Boriboonhirunsarn is an obstetrician at the Department of Obstetrics and Gynaecology, Faculty of Medicine Siriraj Hospital. He is also an administrative member and the chairperson of Subcommittee on Research of The Royal Thai College of Obstetricians and Gynaecologists.

A/Prof Dittakarn and his colleagues are the pioneer in setting up a clinical practice guideline for GDM and a GDM patient care team in Siriraj Hospital. He and his team was involved in GDM care in Siriraj Hospital for almost 20 years. He is also a member of Siriraj Center of Excellent on Diabetes as a representative for the obstetric team.

A/Prof Dittakarn and his colleagues have regularly published researches related to GDM in national and international journals. Majority of the researches on GDM are related to clinical practice, including baseline clinical information, screening and diagnosis, risk identification, prevention and prediction of clinical outcomes, and care process improvement. He is an IPRAMHO International investigator.



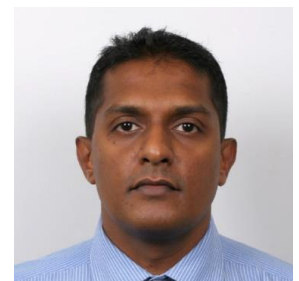
Dr Supachoke Singhakant

Dr Supachoke obtained his MD and the 2 Diploma from the Faculty of Medicine Siriraj Hospital and the MPE from the Washington University in St.Louis, MO, USA. After he returned from the USA in 2010, he has been appointed as the program director of the psychiatric residency program at Siriraj Hospital and become the vice chair for education of the psychiatric department since 2019.



Professor Tiran Dias

Professor Tiran Dias is currently working as a Professor in Fetal Medicine in the Department of Obstetrics and Gynaecology Faculty of Medicine University of Kelaniya. He is also an honorary consultant Obstetrician and Gynaecologist at North Colombo Teaching Hospital, Ragama. He is an accredited Fetal Medicine specialist. His research interests are in small for gestational age, fetal surgery, and multiple pregnancy. His clinical interests are invasive prenatal diagnosis/therapy, high risk pregnancy and medical problems in pregnancy. He has had his Fetal Medicine sub-specialty training in the United Kingdom. He is a member of the editorial team of the CMJ and he was the editor in chief of the Sri Lanka Journal of Obstetrics and Gynaecologists between 2013 and 2016. He has published 26 peer-reviewed articles and 2 book chapters. He is an IPRAMHO International investigator and has published jointly an international paper on GDM with IPRAMHO.



Professor Sachith Mettananda

Professor Mettananda is currently the Professor of Paediatrics and Head of the Department of Paediatrics at the University of Kelaniya and a Consultant Paediatrician at Colombo North Teaching Hospital, Ragama, Sri Lanka. He is a leading researcher in Paediatrics in Sri Lanka and has conducted several pre-clinical, translational and clinical research studies in collaboration with the Universities of Oxford and Cambridge in the UK. He has authored over



75 scientific publications, of which many are in high impact journals that include *Blood*, *Nature Communications*, *British Journal of Haematology* and *Nature Scientific Reports*. He has won many awards for outstanding research including President's Award for Scientific Publications in 2011, 2015, 2016 and 2018 and Ten Outstanding Young Persons Award in 2016. He is also an Associate Editor in *BMC Pediatrics* and an editorial board member in *Ceylon Medical Journal* and *Sri Lanka Journal of Child Health*.

His qualifications are: MBBS(Col), DCH(Col), MD-Paediatrics(Col), DPhil(Oxon), FRCPCH(UK), FRCP(Edin).

Professor Dr. Anne Buist

Anne Buist is the Chair of Women's Mental Health at the University of Melbourne, based at Austin Health, and has over 30 years clinical and research experience in perinatal psychiatry including being director of mother-baby units for much of this time. She was director of the beyondblue PND initiative and her research includes child abuse as a risk factor for perinatal depression, and drugs in breastmilk. She continues to work with Protective Services and the legal system in cases of abuse, kidnapping, infanticide and murder. She teaches, supervises a perinatal outreach service (PIMHI) and provides one off second opinions for management of perinatal disorders and opinions for the court on these matters.



Dr Amelia Hui PW

Dr Hui is a consultant in Department of Obstetrics & Gynaecology at Queen Mary Hospital and honorary Clinical Associate Professor of The University of Hong Kong. She graduated in 1998 and obtained her subspecialist certification in Maternal Fetal Medicine with Royal College of Obstetricians and Gynaecologists in 2009. She also received her Doctor of Medicine in 2015. Her areas of interest include complicated obstetrics and fetal intervention. Currently, she is in charge of the high risk obstetric team and runs the combined clinics with physicians. During the COVID-19, she has published to addressing specifically the psychological impact of the pandemic on pregnant women.



Professor Li Shenghui

Prof Li is the chief Professor of the Department of Maternal, Child and Adolescent Health, School of Public Health, Shanghai Jiaotong University.

She has been dedicated in sleep related research for more than 10 years. Her research team surveyed sleep characteristics among Chinese children and adolescents based on large epidemiological study; evaluated the impact of sleep on growth and development, especially on endocrine metabolic characteristics and neurobehavioral development. Currently, they focus on the evaluation of sleep parameters during pregnancy and their short- and long-term health impacts. In addition, Pro. Li and her research team are carrying out a multi-center clinical research to explore the role of environment - genetic interactions in embryonic development.



Prof Li has published more than 80 academic papers in professional journals, such as Sleep, Sleep Medicine, and Obesity as first author or corresponding author. She edited four textbooks for undergraduate and postgraduate students majoring in preventive medicine, and an academic monograph in the field of sleep "Encyclopeida of Sleep and Dream". As a chief-editor, Shenghui Li compiles a sleep science treatise "Focusing on Sleep--From the First 1000 Days of Life". Her series of studies of sleep won the 1st prize in science and technology of the ministry of education in 2011 and 2nd prize of national science and technology progress in 2012, respectively. Based on her productive work, she was rewarded as excellent discipline leader in field of public health by Shanghai municipal government.

Assistant Professor Seo-Yeon Kim

Assistant Professor Kim obtained her Bachelor's degree in Science Education at Ewha Women's University, Korea in 2010. Subsequently, in 2014, she obtained her Master's degree in Medicine at Konkuk University. She is currently pursuing her PhD in Medicine at Konkuk University.

She is currently Assistant Professor in Department of Obstetrics and Gynaecology at Kangbuk Samsung Hospital, Korea.



Dr Muniswaran Ganeshan

Dr Muniswaran Ganeshan, is the current unit lead and Maternal Fetal Medicine Consultant at the Women and Children's Hospital Kuala Lumpur, also known as Hospital Tunku Azizah KL. He is also the visiting consultant to the National Heart Institute (IJN) since 2016.

He is a member of the Royal College of Obstetricians & Gynaecologist, and was awarded the gold medal for the Masters in O&G from University Malaya in 2011. Having completed his subspecialty training in maternal medicine in UK, he initiated and successfully leads the Maternal Medicine Clinic, dedicated to the management of mothers with complex medical diseases in pregnancy, which is the main referral hospital in Malaysia.

He is also the current president of the Malaysia Obstetric Medicine Society, established with the aim to create a network among healthcare professionals involved in the care of high risk pregnancies. He has authored numerous national guidelines in Malaysia, namely the PPH, VTE, COVID-19 and Vaccination and Booster guidelines and was also a member of the Confidential Enquiries of Maternal Deaths in Malaysia and COVID-19 in pregnancy.

Apart from an active clinical practice, he is very much involved in academic pursuits and has been the speaker and the scientific chair for various national conferences especially with regards to maternal medicine, high risk pregnancies and obstetric emergencies. He had authored five books, including the award winning "Handbook in Obstetric Emergencies".

He remains dedicated to his passion which is to establish Obstetric Medicine services in Malaysia and to improve the standards and quality of care for women with medical complications in pregnancy.



Dr Endang Retno Surjaningrum

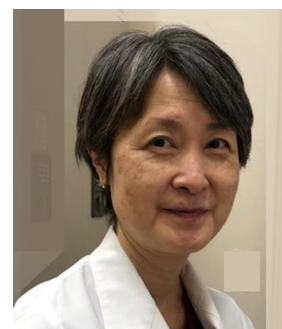
Dr Endang Retno Surjaningrum is an Associate Professor in Clinical Psychology at Universitas Airlangga. She is also the Vice Dean for RICD and Partnership in the Faculty of Psychology at Universitas Airlangga. She obtained her PhD in Health Sciences at the University of Melbourne.

Her research interests include community mental health, clinical psychology, mental health services, maternal mental health and global mental health.



Dr Michiko Yamanaka

Dr Michiko Yamanaka has been working as an Obstetrician and Medical Geneticist for 37 years. She also has been working as Councilor or Trustees of several Academic societies of Perinatal Medicine and Genetic Counseling. She has written some books about perinatal maternal care with birth defects babies, perinatal grief care, and prenatal diagnosis.



Professor Prabha S Chandra

Dr. Prabha S Chandra is Dean (Behavioral Science) and a Senior Professor of Psychiatry as well as past Head of Department at the National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore in India.

She is the President of the International Association for Women's Mental Health, a past EC member of the Marce International Society for Perinatal Psychiatry and has been heralded as a champion for women's mental health by Lancet Psychiatry. She is a co-author of the World Psychiatric Association curriculum on Intimate Partner and Sexual Violence. Dr. Chandra is an active researcher with 6000 citations and has edited several books including two major books on the mental health of women. Among other awards, she has received the Channi Kumar Oration Award in 2012 and the Marce Medal in 2022 for excellence in perinatal mental health awarded by the Marce Society.

She started the first dedicated comprehensive Perinatal Psychiatry Service in Asia for mothers with mental health problems. Maternal mental illness is known to have a high prevalence in low and middle income countries and severe mental illness is a mental health emergency with high risk for the mother and infant. The perinatal outpatient mental health clinic at NIMHANS in Bangalore was started in 2005 and has helped nearly 4000 women with mental illness during pregnancy and postpartum as well as in planning motherhood.

The Mother Baby inpatient unit, a 5 bedded unit, the only one of its kind in South Asia was started in 2009 and has supported nearly 1000 mothers with mental illness in their perinatal period, who are admitted to the unit with their infants. She and her multidisciplinary team provide treatment, care and support for mothers and infants as well as for grandmothers who provide care for the ill mother and for fathers. The unit has developed several culturally suitable treatment methods including helping grandmothers support the mother infant dyad as well as mother infant yoga



to improve bonding between the mother and infant. She has been promoting maternal mental health in the region and helped set up a similar service in Sri Lanka.

In the last 15 years, the service has been actively training psychiatrists, primary care doctors, nurses and CHWs in various aspects of maternal mental health. Through her active intervention as an expert member of the Indian Government's National Health Mission, she was able to bring maternal mental health into mainstream antenatal and postnatal care with several states in India now working on integrating mental health assessments and interventions into routine care. With her team, she started the first certificate course in perinatal mental health for mental health professionals in India and the Perinatal Mental Health course for obstetrics and gynaecologists in India. The latter started during the COVID 10 Pandemic, which has already trained 150 OB Gyns in the last 6 months and aims to train 1000 obstetricians and gynaecologists across the country.

Dr. Chandra's research work also focuses on suicide among women in the perinatal period and perinatal intimate partner violence. She has been a PI for 17 funded projects and is instrumental in starting the first birth cohort study in India that focuses exclusively on maternal and infant mental health in a low income urban community.

Professor Milind Shah

Dr Shah is a Consultant OBGYN at Naval Maternity & Nursing Home, India and Consultant OBGYN practicing in India since last 32 years. Apart from very extensive experience as clinician he has many organizational credentials like past President of ISOPARB (Indian Society of Perinatology & Reproductive Biology), past Vice President of FOGSI (Federation of all gynecological Societies of India), and Deputy Secretary General of FAOPS (Asia Oceania Federation of all Perinatal Societies).

He has teaching experience of last 32 years as Professor and HOD of department of OBGYN at GNRH Medical College. He is often invited by Government for his expert opinion while taking policy decisions. He has contributed many chapters in various textbooks and published a book on Hypertensive Disorders in Pregnancy & Pelvic Organ Prolapse. He is peer reviewer for Journal of Obstetrical & Gynecology of India.



SPEAKER ABSTRACTS

Asia Pacific Maternal & Child Health Conference & IPRAMHO International Meeting 2023

IPRAMHO Initiatives for Maternal & Child Health

Prof Tan Kok Hian

Lead, IPRAMHO, Singapore

Senior Consultant & Head Perinatal Audit & Epidemiology, KKH

President, Perinatal Society of Singapore

Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) is an expanded platform to develop a seamless integrated model of care through optimal translation, implementation and evaluation of effective population prevention strategies. It evolved from the original Integrated Platform for Research in Advancing Metabolic Health Outcomes of Women and Children. IPRAMHO started as a Singapore National Medical Research Council (NMRC) funded joint collaborative centre grant awarded to KK Women's and Children's Hospital (KKH), SingHealth Polyclinics (SHP) & National Healthcare Group Polyclinics (NHGP). This is a unique collaborative centre grant where both Singapore public primary health care providers (SHP & NGHP) have come together to work with KKH, the largest tertiary and main referral center for Paediatrics, Obstetrics and Gynaecology in Singapore, on collaborative health research in women and children, aligning with national goals. IPRAMHO have worked on metabolic health and is currently focusing on mental health of women and children.

Besides seeding grants to generate pilot data and nurturing healthcare research and implementation science professionals, IPRAMHO has been leading in building consensus for Singapore to improve health of mothers and children. Five local Guidelines initiated by IPRAMHO on GDM; Perinatal Nutrition; Physical Activity & Exercise in Pregnancy; and 24-Hour Activity for Early and Late Childhood are available:

1. Guidelines for the Management of Gestational Diabetes Mellitus. Tan KH, Tan T, Chi C, Thian S, Tan LK, Yong TT. College of Obstetricians and Gynaecologists, Singapore. Singapore Journal of Obstetrics & Gynaecology. 2018; 49(1):9-13
2. Guidelines for Optimal Perinatal Nutrition. Chua MC, Tan T, Han WM, Chong MFF, Ang SB, Rajadurai VS, Khin LW Chi C, Lee J, Tan KH. Perinatal Society of Singapore. Singapore Journal of Obstetrics & Gynaecology. 2019; 50(1):10-12
3. Guidelines on Physical Activity & Exercise in Pregnancy. Lee R, Thain S, Tan KH, Ang SB, Tan EL, Tan B, Aleste MN, Lim, I Tan LK. Perinatal Society of Singapore. Singapore Journal of Obstetrics & Gynaecology. 2020; 51(1):9-16
4. The Singapore Integrated 24-Hour Activity Guidelines for Children & Adolescents (7-18 Years). College of Paediatrics & Child Health of Academy of Medicine Singapore, January 2021. Integrated 24-Hour Activity Guidelines for Children and Adolescents Study Group. Ann Acad Med Singap. 2022 May;51(5):292-299. doi: 10.47102/annals-acadmedsg.202141.
5. The Singapore Integrated 24-Hour Activity Guidelines for Early Childhood Group. The Singapore Integrated 24-Hour Activity Guidelines for Early Childhood (Infants, Toddlers and Preschoolers). College of Paediatrics & Child Health of Academy of Medicine Singapore, January 2022

In addition, the IPRAMHO was involved in 5 Asia Pacific consensus statements correspondingly, of which all have been published:

1. Asia & Oceania Federation of Obstetrics and Gynaecology, Maternal Fetal Medicine Committee's consensus statements on screening for hyperglycemia in pregnancy. Tan TYT; Hyperglycemia in Pregnancy Consensus Working Group, Ounjai Kor-anantakul. J Obstet Gynaecol Res. 2018 Nov;44(11):2023-2024. doi: 10.1111/jog.13813. Epub 2018 Sep 19. PMID: 30230130.
2. An Asia Pacific Consensus on Perinatal Nutrition and Breastfeeding. Tan KH, Tan TYT, Chua MC, Kor-Anantakul O, IPRAMHO Study Group. Ann Nutr Metab. 2019;75(1):86-87. doi: 10.1159/000501192. Epub 2019 Jun 25. PMID: 31238321.
3. Asia-Pacific consensus on physical activity and exercise in pregnancy and the postpartum period. Lee R, Thain S, Tan LK, Teo T, Tan KH; IPRAMHO Exercise in Pregnancy Committee. BMJ Open Sport Exerc Med. 2021 May 17;7(2):e000967. doi: 10.1136/bmjsem-2020-000967. PMID: 34055384; PMCID: PMC8130752.
4. Asia-Pacific Consensus Statement on Integrated 24-hour Activity Guidelines for Children and Adolescents. Loo BKG, Okely AD, Pulungan A, Jalaludin MY; Asia-Pacific 24-Hour Activity Guidelines for Children and Adolescents Committee. Br J Sports Med. 2021 Nov 8;bjssports-2021-104527. doi: 10.1136/bjssports-2021-104527. Epub ahead of print. PMID: 34750119.

5. Asia-Pacific Consensus Statement on Integrated 24-Hour Activity Guidelines for Early Childhood. Asia-Pacific 24-Hour Activity Guidelines for Early Childhood Committee. The Lancet Regional Health - Western Pacific, 2022. 100641, ISSN 2666-6065, <https://doi.org/10.1016/j.lanwpc.2022.100641>.

There has been a lot of interest and concerns recently on population mental health. A recent IPRAMHO survey in 2022 was conducted on perinatal mental health literacy, in terms of knowledge, attitudes, and help-seeking among perinatal women and practices among healthcare professionals by Quah et al. This contemporaneous survey showed suboptimal knowledge, attitude and practices, and high levels of perinatal anxiety and depression. The study supports the urgent need for perinatal mental health guidelines to better guide and help our community.

The Singapore Perinatal Mental Health Guidelines on Depression and Anxiety under the auspices of College of Obstetricians & Gynaecologists Singapore, is indeed apt and well positioned to tackle the huge challenges of perinatal mental health in Singapore. The College of Obstetricians & Gynaecologists Singapore & IPRAMHO workgroup committee was timely convened by A/Prof Tan Lay Kok and ably chaired by A/Prof Helen Chen. The recommendations address the need for early intervention, with early screening, detection and treatment as well as the needs of vulnerable groups – particularly for women with special needs, adolescent mothers and those who have experienced severe obstetric adverse events. The dissemination, ownership & implementation of these guidelines can improve and make a positive impact on mental health for our population, enhancing and optimise the potential of every mother; and child born in Singapore and our region.

College of Obstetricians & Gynaecologists Singapore Initiatives for Maternal Health

A/Prof Tan Lay Kok

President, College of Obstetricians & Gynaecologists Singapore

Mental health has often been given relatively short shrift in maternity care, where previous efforts and resources to improve obstetrical outcomes were concentrated towards the obstetrical syndromes like pre-eclampsia, postpartum hemorrhage and gestational diabetes, and promulgating best practices in antenatal, intrapartum and postpartum care, while mental health was relegated to the domain of psychiatrists, psychologists and social workers. IPRAMHO's current theme of improving maternal and child mental health in the Asia Pacific is therefore a very welcome affirmative action to redress the neglect of maternal mental health and give this extremely important area the due attention and priority it deserves.

Mental health issues in maternity are important. They affect behavior and adherence to medical advice and care, and therefore impact clinical outcomes both directly and indirectly. They are also not uncommon. Indeed the latest MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and confidential Enquiries) clearly show that mental health issues as a cause of direct and indirect maternal mortality have emerged as a leading cause, tying with cardiovascular disease causing maternal mortality. Worryingly, it also showed that 40% of deaths occurring within a year after the end of pregnancy were attributed to mental health, mostly due to suicide. While we do not have statistics in Singapore, we have all encountered patients in the course of our obstetric careers with mental health problems of varying degrees of severity, including suicide. Dr Helen Chen, Head of Psychological Medicine in KK Women's and Children's Hospital, highlighted the burden of maternal mental illness in Singapore society in her papers published in the Singapore Medical Journal in 2012 and Psychiatric Services 2011 where she showed that Postpartum depression is a recognised public health concern affecting some 8% of local postpartum women and shared psychiatric autopsy of a tragic local maternal death from suicide.

The College of Obstetricians and Gynaecologists Singapore is delighted to have collaborated with Dr Chen and her team, together with the IPRAMHO Mental Health Study Group, to produce the Singapore Perinatal Mental Health Guidelines which will be launched at this IPRAMHO Meeting. These guidelines are very timely, particularly as we emerge from the COVID-19 pandemic during which time the health restrictions and isolation imposed would have triggered mental health conditions and relapses in vulnerable and affected women. These guidelines will go a long way to equip obstetricians and midwives, and indeed all who look after pregnant women, with the necessary guidance to identify and manage mental health problems in their patients. The coverage is expansive and comprehensive, extending from the pre-conception to the postpartum periods, and highlights the importance of multidisciplinary and inter-professional management. It is the college's hope also that these guidelines will increase awareness of the prevalence of mental health issues among obstetricians, particularly when managing their patients who have suffered a pregnancy loss, be it termination, miscarriage, stillbirth or neonatal loss as there is good evidence that these events are associated with adverse mental health. Many affected women are unwilling to disclose symptoms of mental

health, and even fewer have had a formal, clearly diagnosed mental health condition, so obstetricians as front line clinicians meeting these women have an important role to play in identifying, treating and facilitating access to providers of specialist perinatal mental health expertise for early intervention and the development of a therapeutic professional relationship.

The Development of the Singapore Perinatal Mental Health Guidelines on Depression and Anxiety

A/Prof Helen Chen

Chair, COGS Perinatal Mental Health Guidelines for Depression and Anxiety

Maternal depression is a public health problem with adverse outcomes for both mother and child including the tragic risk of suicide. Evidence from the local birth cohort study, Growing Up Towards Healthy Outcomes in Singapore (GUSTO) shows that maternal depression imprints on offspring neurodevelopment, affecting brain regions that prime for emotional dysregulation and mental health problems downstream. Likewise, maternal anxiety can influence offspring neurodevelopment, resulting in a greater likelihood for infant internalizing problems.

Findings suggest the adverse impact lasts beyond early childhood, supporting our efforts to develop guidelines on perinatal depression and anxiety to improve health outcomes for both mothers and children. Addressing perinatal depression and anxiety can help to break the cycle of intergenerational transmission of risks, and can shift the trajectory for their children in a way that translates to better population health.

Current recommendations are for early intervention, with early detection through screening at well child visits or during routine obstetric visits, or with greater awareness through public outreach efforts. These should be paired with ready access to care, as well as opportunistic guidance on lifestyle adjustments to keeping well mentally. The approach should also be tailored to address vulnerable groups – particularly for women with special needs, adolescent mothers and those who have experienced severe obstetric adverse events.

SYMPOSIUM I – NURTURING HEALTHY BEHAVIOURS TO PROMOTE PERINATAL MENTAL HEALTH

Keynote Address: Minding the Five Trimesters Because It Matters

Dr Anne Rifkin-Graboi

Head, Infancy and Early Childhood Research, OER Centre for Research in Child Development, NIE

Supporting women's psychological and interpersonal well-being before, during, and after pregnancy is important- not just for the women themselves, but also for their children. In this talk I will review local research examining the impact of maternal well-being through the perinatal and early postnatal phase upon offspring neurocognitive and emotional development. I will then link this evidence to the international literature and consider the mechanisms through which such transmission may occur both antenatally and postnatally. In this context I will also discuss associations between maternal well-being and parenting, and the role that insensitive care may also have on children's development.

Addressing Depression and Anxiety in the Four Trimesters from Preconception through the Antepartum

Dr Chua Tze Ern

Head & Senior Consultant, Women's Mental Wellness Service, KKH

Antenatal depression and anxiety are public health concerns that are associated with adverse maternal and child health outcomes. The link with preconception mental health is clear, with pre-existing illness predicting for perinatal recurrence. Strategies to reduce risk and improve health outcomes can and should be implemented for maternal and child wellbeing. This should include whole health approach, addressing medical needs, as well as psychological, social, nutritional and physical aspects.

Addressing Postnatal Depression and Anxiety to Ensure Healthy Outcomes

Dr Theresa Lee Mei Ying

Senior Consultant, Women's Mental Wellness Service, KKH

Postnatal depression and anxiety are often unnoticed by healthcare professionals because of the overlap of mood symptoms with that of general symptoms in the postnatal period and the reluctance of mothers to seek help. If untreated, this can lead to adverse outcomes in both mother and child. Maternal depression and anxiety have been found to be associated with reduced maternal sensitivity, infant negative temperament, child behavioural problems and decreased school readiness. Strategies for early detection and management and coordinated care amongst the agencies should be implemented to ensure better outcomes for both maternal and child well-being.

Addressing the needs in Special Groups

A/Prof Helen Chen

Head & Senior Consultant, Department of Psychological Medicine, KKH

The traumatic experience of severe maternal adverse events such as pre-eclampsia, postpartum hemorrhage, stillbirth, etc, can lead to higher risk of depression and trauma related distress, as well as anxiety which can complicate a subsequent pregnancy. Women with special needs and adolescents also require care that is tailored to address their mental health needs. Infants are particularly vulnerable as maternal depression and anxiety bear significant impact on their neurodevelopment, temperament, behaviour and cognitive functioning. Addressing the needs of these special populations can mitigate for risks and improve health outcomes.

SYMPOSIUM II – MATERNAL AND CHILD HEALTH WELLNESS

Healthy Early Life Moments in Singapore (HELMS) – Life Course Approach for a Healthier & More Resilient Population

Dr Loy See Ling

Junior Principal Investigator, Department of Reproductive Medicine, KKH

Although the preconception, pregnancy and postpartum periods present critical windows of opportunity during early life to address intergenerational obesity and mental health problems in society, the current maternal and child health system is ill-equipped for the purpose. A structured care model that guides women to optimise their health before, during and after pregnancy is lacking. There is also minimal emphasis on establishing and shaping healthy nutrition and lifestyle habits in their children from birth. We propose an integrated life course model in a care continuum that encompasses preconception optimization, pregnancy participation, and postpartum synchronization of maternal-child health services in the first two years of life, namely the Healthy Early Life Moments in Singapore (HELMS). HELMS was conceived in 2019 and launched in 2022 at the Singapore KK Women's and Children's Hospital, to address both metabolic and mental health challenges to achieve the goal of a thriving, healthy nation. At each life course phase, specifically, HELMS aims to optimise (1) reproductive outcomes during preconception; (2) obstetric outcomes during pregnancy; and (3) postpartum physical and mental well-being, and healthy feeding habits and growth during infancy. Women planning to conceive are invited to participate in HELMS, followed through pregnancy, and during the first 18 months after delivery. The intervention is delivered using a mobile health application, to provide anticipatory guidance, raise awareness, and guide goal-setting on lifestyle behaviours that include diet, physical activity, mental wellness, and sleep hygiene from preconception to postpartum. This new model-of-care is designed to secure a population with healthy life cycles, by influencing each life course, early-in-life, to provide the best start for generations to come.

CRADLE (Community-enabled Readiness-for-1000-Days Learning Ecosystem)

A/Prof Ng Kee Chong

Chairman Medical Board, KKH

The early stages of life from conception to 2 years has a critical role in shaping the development and long term health of an individual. The first 1000 days presents a unique opportunity to journey with the pregnant women to optimize the child's growth, development and emotional health.

CRADLE or the "Community Enabled Readiness for First 1000-Days Learning Ecosystem" Project seeks to improve the parenting self-efficacy and overall health (nutrition & wellbeing) of first-time families.

Our key hypothesis is that the use of an integrated choice architecture in a self-learning eco-community, with calibrated & targeted nudges with group interactions in the first 1000-days for first-time families will improve parenting self-efficacy.

First time parents were recruited from 1st and 2nd trimester and followed up to the first 2 years of the child's life (ie the first 1000 days).

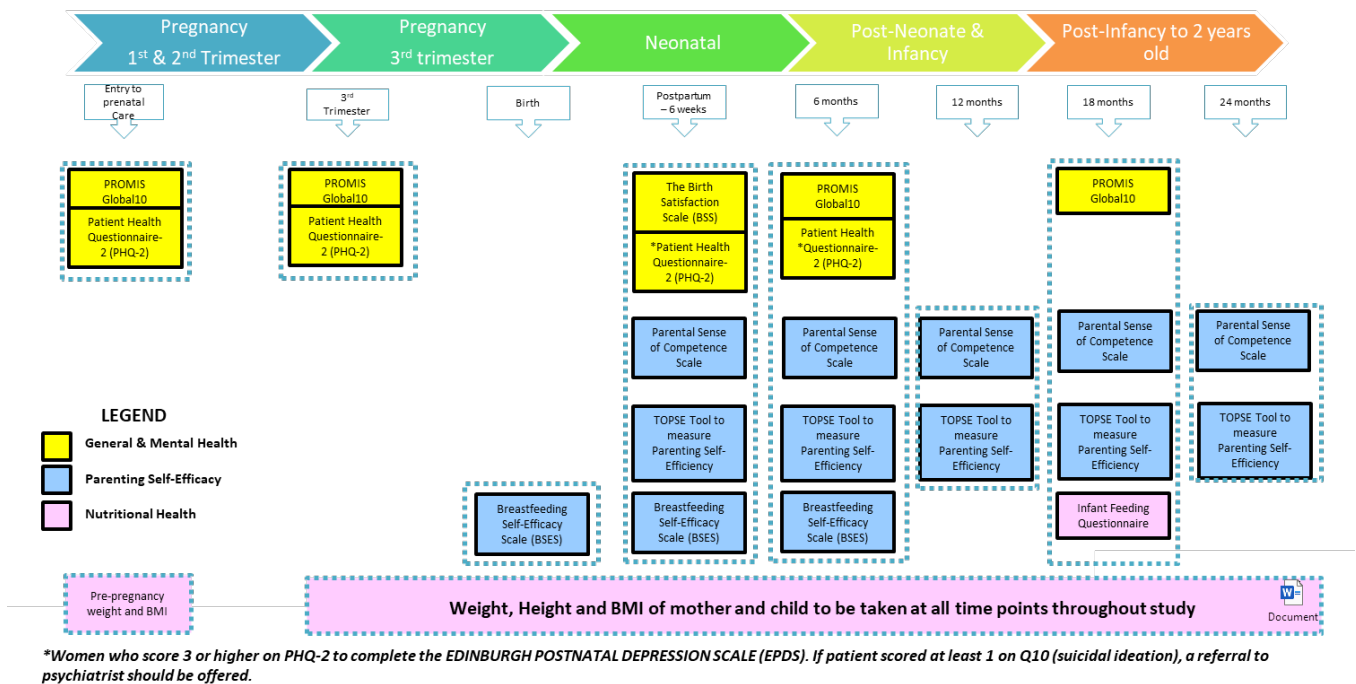
This is a randomised control trial and interventional cohort study with three arms -

- Arm 1 : Routine care / control group
- Arm 2 : Smart nudges & behavioural intervention with a sharing platform on Facebook
- Arm 3 : Community Intervention -Engagement by KKH Midwives during antenatal and postnatal period

All 3 arms were invited to ongoing 6 monthly webinar talks given by KKH Medical Professionals.

A total of 548 first-time parents were recruited with equal distribution in each of the 3 arms with recruitment over a 3-year period - from July 2020 and ending in December 2021.

Participants were followed-up with rigorous assessment measurement tools and surveys at designated time points.



Wearable Technology for the Maternal Population

Prof Tan Kok Hian

Lead, IPRAMHO, Singapore

Senior Consultant & Head Perinatal Audit & Epidemiology, KKH

Wearable technology, known as "wearables," are electronic devices that can be worn as accessories, embedded in clothing, implanted in the user's body, or attached on the skin. The devices are hands-free gadgets with practical uses, powered by microprocessors with wireless or internet capability. The rapid adoption of wearable technology has placed it an important area

for healthcare and research. Factors affect the acceptance of wearable technology in the mainstream: wearability, ease of use, design, functionality, and price.

The growth of mobile & Wi-Fi networks enabled the rapid development of wearable technology. Fitness activity trackers, wristwatch screen, Bluetooth headsets, smartwatches & rings, and web-enabled glasses allow people to easily collect, transmit & receive data on the go. The gaming industry adds more wearables, with virtual reality and augmented reality headsets.

The global wearable pregnancy device market is growing rapidly and transforming healthcare for pregnant women. Uses in pregnancy and postpartum period include physical activity awareness & trackers, heart rate, temperature & vital signs monitoring, pulse oximetry, continuous glucose monitoring, sleep monitoring, screening for sleep disordered breathing in pregnancy, home fetal monitoring, cardiotocography monitoring, and preterm monitoring using electrohysterography. Neuromodulation device worn on the wrist has been used to generate electrical pulses to modulate the brain's anti-nausea feedback mechanisms. Research is ongoing of using wearables to help detect depression.

IN KKH, there are a number of trials on going using wearable devices. Continuous glucose monitoring (CGM) wearable device is being studied in Integrating the Use of Calibration-Free Continuous Monitoring for Pregnancy Glucose Profiling: I-Profile Study (I-PROFILE <https://clinicaltrials.gov/ct2/show/NCT05123248>) for its uses of predicting the development of GDM. In Integrated Hyperglycaemia Incentivised Postnatal Surveillance Study (I-HIPS <https://clinicaltrials.gov/ct2/show/NCT05081037>), the use of CGM and physical activity trackers are used to assess how they can impact on the risk of T2DM. The study, Integrating Smart Ring Wearable Technology in Pregnancy Health Monitoring (I-SMART) assesses the applicability and uses of smart rings in pregnancy.

SYMPOSIUM III – IPRAMHO EDUCATION SESSION: TRAINING PROGRAM FOR DOCTORS AND RESIDENTS ON PERINATAL MENTAL HEALTH FOR EXCELLENCE IN PERINATAL CARE

Understanding Perinatal Depression and Anxiety

Dr Hong Lin Feng

Associate Consultant, Department of Psychological Medicine, KKH

This talk will allow clinicians to learn about the epidemiology, etiological factors, signs and symptoms, course, assessment, common comorbidities and treatment approaches of depression and anxiety conditions during the peripartum period.

Case studies: Approach to Managing Perinatal Depression and Anxiety

Dr Elizabeth Siak

Consultant, Department of Psychological Medicine, KKH

The speaker will present several case vignettes to illustrate principles guiding the management of perinatal depression and anxiety. Cases with varying care needs will be discussed to equip participants with an understanding of how a range of cases may be managed across different settings.

Supportive Counselling in Perinatal Mental Health: What Women Prefer

Ms Chng Ying Chia

Principal Clinical Counsellor, Department of Psychological Medicine, KKH

The prevalence of antenatal depression is as common as about 12%, and about 7% for postpartum depression in Singapore. Although anti-depressant treatment remains the main stay of treatment for depression, women in pregnancy and the postpartum period are often hesitant to accept anti-depressants, due to concerns over the effects of medication on the fetus and in breastfeeding. This presentation aims to describe the role of supportive counselling for women with perinatal mental health problems, and discuss what women has found helpful in their journey towards recovery.

Approach to Addressing Maternal Mental Health Needs in Primary Health Setting

Dr Ng Lai Peng

Senior Consultant, SingHealth Polyclinics – Tampines

Maternal mental health is closely linked to a child's neuro-behavioural development. Mothers experiencing mood disorders often feel inadequate and tend not to seek help. Family physicians and primary health care workers have multiple encounters with the mother in the postpartum period when the child comes for neonatal jaundice checks and well-child visits.

Postnatal depression screening incorporated at well-child visits provides opportunities for at-risk mothers to be identified. In a busy primary care setting, a two-step screening can be employed during the child's 8-week visit for vaccination. A brief 2-question screening tool can be administered to all, followed by 10-point Edinburgh Postpartum Depression Screening (EPDS) for patients who screened positive.

This can be administered by primary care nurses who can also provide brief supportive counselling and encourage mothers to seek help. Mothers with mild symptoms can receive support from the community mental health team with a follow-up visit with the family physician. Patients with persistent symptoms or clinical diagnosis of mood disorder can be referred to specialist care promptly.

Approach to Addressing Needs of the Dyad: What Matters for Infants

Ms Yasmin Mohamed Hassan

Senior Clinical Counsellor, Department of Psychological Medicine, KKH

This talk will allow clinicians to have an understanding of maternal mental health and its impact on mother's engagement with their Infants. In order to improve maternal well-being and infant mental health, we will look into the detection, prevention, and treatment focusing on the mother-infant dyad.

Early Child Development: Getting It Right for the Little Ones

Dr Padmini Yeleswarapu

Senior Consultant, Department of Child Development, KKH

Early childhood is the time when the brain rapidly develops and when it's maximally plastic. Hence providing with a window of opportunity when caregivers can provide a stimulating environment to support the child's early development. The speaker will highlight the importance of the first 1000 days and what the caregivers can do to 'get it right' for the little ones.

SYMPOSIUM IV – ASIA PACIFIC COUNTRIES ON STUDIES OF PERINATAL MENTAL HEALTH AND ITS MANAGEMENT IN ASIA PACIFIC COUNTRIES

Clinical practice of Vitamin D screening and supplementation in pregnancy in Asia-Pacific Countries: a survey review

Dr Ryan Lee Wai Kheong

Consultant, Department of Maternal Fetal Medicine, KKH

Background: Vitamin D deficiency is common in pregnant women. There are varying clinical knowledge gaps and different perceptions on Vitamin D screening and supplementation in pregnancy among healthcare professionals with no current survey review in the Asia-Pacific region. We performed a survey review among international health care professionals who are part of the Integrated Platform for Research in Advancing Metabolic Health outcomes of Women and Children (IPRMAHO) international study group on their understanding and perception of Vitamin D screening and supplementation in pregnancy.

Methods: The cross-sectional survey comprised 4 main sections on demographics, existing policies in their own practice, nutrient supplementation in pregnancy and various practices on screening, treatment and perceptions comprising a total of 22 questions. 16 surveys were completed by clinicians and academic attendees from eleven participating Asia-Pacific countries.

Results: Majority of the surveyed hospitals (11/16, 68.75%) did not have a national policy or regional guideline regarding Vitamin D screening and supplementation in pregnancy. Majority of respondents (13/16, 81.3%) indicated that their hospital did not screen for Vitamin D deficiencies in pregnancy, even amongst high risk pregnant women. In addition, majority of respondents expressed that their own centre did not have any written protocol (12/15, 80.00%) or were unsure if a protocol existed (2/15, 13.33%). Nevertheless, majority of respondents indicated a need (15/16, 93.75%) for a guideline or consensus regarding Vitamin D screening and supplementation in pregnancy.

Conclusion: Further research needs to be undertaken regarding the benefits and risks of universal screening and supplementation of Vitamin D in Asia Pacific region. This study review promotes collaboration among international healthcare professionals and enhances our understanding of global health perspectives on the effects of Vitamin D screening and supplementation in pregnancy for the benefit of pregnant women in the Asia-Pacific.

Progress update on the international 24-hour activity survey studies (ESAP & ISAP)

Dr Quah Phaik Ling, Elaine

Senior Research Fellow, Division of Obstetrics and Gynaecology, KKH

Providing updates on the progress of the Integrated 24-hour activity survey on Asia Pacific Children and Adolescents (ISAP) and the Early Childhood Integrated 24-hour activity survey in Asia Pacific (ESAP) to study collaborators.

Early identification and management of perinatal mental health issues: why it is important to establish best practice and the barriers to doing so

Prof Anne Buist

Chair, Women's Mental Health, University of Melbourne, Australia

This session will review current best practice in identification and management of perinatal mental illness and using the experience of the beyondblue postnatal depression program in Australia and its aftermath to illustrate some of the barriers and challenges. Perinatal mental illness is common and with clear implications for infant outcomes, but costs, staffing, attitudes, science and politics all play a part in navigating the best solution which may vary between countries and health services within each country, requiring leadership with clear goals and communication.

Postnatal depression scale during COVID-19 pandemic in Hong Kong

Dr Amelia Hui

Consultant, Department of Obstetrics & Gynaecology, Queen Mary Hospital, Hong Kong

Alert of COVID-19 was first announced in Hong Kong on 4 January 2020. Childbirth companion suspended since 25 January 2020. It was periodically resumed but no hospital visiting was allowed as of 31 Oct 2022. We evaluated Edinburgh Postnatal Depression Scores (EPDS) and factors contributing to high EPDS. A higher level of depression was seen in pregnant women who delivered during COVID-19 pandemic, especially for women without childbirth companion.

The Associations of Sleep with Maternal and Child Health: A Sleep Series Study in China

Dr Shenghui Li

Professor, School of Public Health, Shanghai Jiaotong University, China

Background: For a variety of reasons, either by societal changes or due to lifestyle choice, chronic sleep loss and sleep disturbance are increasingly common among both adults and children. Studies among adults have revealed that disrupted sleep is implicated in the pathogenesis of numerous co-morbidities, including type 2 diabetes, hypertension, coronary heart disease, dyslipidemia, endothelial dysfunction, and metabolic syndrome. However, compared to adults, little is known about sleep and its health effects among special population, such as children, adolescents, and pregnant women.

Methods: A sleep series epidemiological study was designed to obtain insight into sleep health among special population, including children, adolescents and pregnant women. Part I Study among Children and adolescents: 1) sleep patterns and their distribution in a large national cross-sectional survey; 2) a longitudinal associations of sleep with school performance, metabolic status, and neurobehavioral development in a prospective cohort study; 3) the effectiveness of a school-based sleep intervention scheme using a comparative cross-sectional analysis of pre- and post-intervention surveys. Part II Study among pregnant

women: 1) the trajectories of sleep quality and their associations with maternal BMI gain speed during pregnancy based on a maternal sleep cohort study; 2) the association between periconceptual poor sleep and the risk of congenital heart disease, and to examine if daytime napping could to some extent change the association.

Results and conclusions: The prevalence of daytime sleepiness was 64.4% in school-aged children and approximate 80% in adolescents. Sleep problems, daytime sleepiness, and in some cases, short sleep duration were significantly associated with impaired academic achievement, mental health problems, and childhood obesity. School schedule could be considered as a target for sleep intervention.

Poor sleep quality during pregnancy was associated with advanced BMI gain speed in pregnant women. Poor maternal sleep around periconceptual period seems to be an independent risk factor for congenital heart disease. The concurrence with daytime nap could to some extent reverse the effect.

Psychological Outcomes in COVID-19 positive pregnant mothers in the maternity isolation ward and postnatal mothers who have been positive for COVID-19 in the Professorial Unit of Colombo South Teaching Hospital

Dr Madura Jayawardane

Consultant & Senior Lecturer, Department of Obstetrics and Gynaecology, University of Sri Jayewardenepura, Sri Lanka

Background: The current pandemic has significantly affected the mental wellbeing of pregnant mothers owing to the fear of contracting the virus and thus the fear of having an unsafe pregnancy. Also, various restrictions imposed to curtail the spread of COVID-19 have become an added burden to good mental health of mothers during their pregnancy.

Objective: To determine the level of anxiety and depression in mothers who had active infection and managed at the maternity isolation ward and to compare the difference in the level of their anxiety and depression upon their discharge from the isolation ward after being treated. To determine the association between levels of anxiety and depression and obstetric factors

Study Design: A cross sectional descriptive study that recruited maximum possible mothers (79) who were admitted to the maternity isolation ward at Colombo South Teaching after being tested positive for Covid by any accepted mode of testing. This was done over a period of 3 months.

Method: Socio demographic details, details pertaining to current and past pregnancies, COVID-19 status and management were collected via Interviewer Administered Questionnaire. Psychiatric assessment was done via Hospital Anxiety Depression Scale (HADS) upon admission and discharge on COVID-19 positive mothers who were managed at the Colombo South Teaching Hospital Maternity Isolation Ward.

Results: Most of the patients (72.2%) were not at all anxious upon admission to the isolation ward. 6.3% were anxious upon admission. However, none of the parameters such as the age of patients, severity of illness, associated medical disorders, blood group of patient showed any significant association with the level of anxiety. This anxiety didn't persist in patients who remained at the isolation ward till the completion of their quarantine period, because 97.8% on discharge were not at all anxious. Majority of the patients (78.5%) were normal for depression on admission to the isolation ward. 7.6% were depressed on admission. None of the obstetric or socio demographic factors showed a statistically significant association except for anaemia during pregnancy ($p=0.028$). Majority (95.6%) of patients who were discharged following their accepted days of quarantine were normal and not depressed.

Conclusion: Majority had no anxiety and depression according to the Hospital Anxiety Depression Scale. Irrespective of the trimester at which they contracted the disease, severity of COVID-19 infection and other obstetric factors, the majority remained normal for both anxiety and depression. The anxiety and depression was among those were found to be transient as majority were recovered at the time of discharged.

There was a statistically significant association between the level of depression and anaemia in pregnancy, however further study on this is required to explain the association.

Survey on Perinatal Mental Care for Mothers in Korea and Proposal of the Feasible and Effective Perinatal Mental Care

Asst Prof Kim Seo-Yeon

Assistant Professor, Department of Obstetrics and Gynaecology, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Korea

Both pregnancy and birth are rightly happy and precious moments. However, maternal biochemical changes during pregnancy and stressful events during pregnancy, such as a lack of support from family or society, can cause depressive mood changes in perinatal period. The change also presents as behavioral symptoms, such as anxiety, insomnia, poor concentration and irritability. It is called as 'Maternity blue' and more severe form is 'Perinatal depression'.

Perinatal depression is a comprehensive term that includes both antepartum depression and postpartum depression, each of which means a major depression disorder that occurs during pregnancy and within 12 months after delivery. Antepartum depression is known to occur in 9% of all pregnant women, and postpartum depression in 10% of all women in puerperium. According to a study conducted on Korean mothers in 2014, however, the prevalence of antepartum depression was 26%, higher than previously known.

When perinatal depression is neglected, it has devastating effects not only on mothers, but also on infants and her families. Thus, the American College of Obstetricians and Gynecologists (2018) recommends the followings: (1) First, care providers need to assess maternal risk factors of perinatal depression at the first prenatal visit. (2) Second, care providers need to screen patients for depression and anxiety using a validated tool at least once during pregnancy and once in postpartum visit. (3) In addition, if there is a risk of suicide or homicide, care providers should immediately initiate medical treatment and refer patients to a specialized counseling center.

It is important not only to diagnose and intervene perinatal depression, but also to prevent such mental illnesses. Therefore, care providers should take care of perinatal mental care. Unfortunately, perinatal mental care is often overlooked because of its difficulties to implement in clinical practice. Moreover, maternal affection and sense of responsibility as a parent have been considered more important than mothers' mental health in Korean society. For these reasons, Korean mothers are often reluctant to express their mood changes during pregnancy.

We analyzed previous studies on perinatal mental care and subsequently investigated current perinatal mental care in Korea. We also reviewed perinatal mental care in other countries and evaluated its strengths and limitations. In addition, we examined the status of maternal mental health such as the prevalence of perinatal depression in Korea, and did a detailed survey targeting care providers, mothers, and her family members to find out their attitudes and needs toward perinatal mental care in Korea.

In conclusion, in addition to sharing the Korean perinatal mental care data, we would like to discuss the feasible and effective way of perinatal mental care based on the Korean and Federation of Asia and Oceania Perinatal Societies (FAOPS) member countries' data.

Mental Health Issues in Pregnancy in Thailand

Asst Prof Supachoke Singhakant

Vice Chair for Education, Department of Psychiatry, Siriraj Hospital, Thailand

Mental health problems during pregnancy are among various challenging aspects in health care system in Thailand. The content of this talk will focus on the current situation of the mental health problems among pregnant women in Thailand including prevalence of each problem, screening and management in various settings.

An Obstetrician-Led Perinatal Mental Health Services: The Malaysian Experience

Dr Muniswaran s/o Ganesham @ Ganeshan

Maternal Fetal Medicine Specialist & Consultant Obstetrician & Gynaecologist, Women & Children's Hospital Kuala Lumpur (Hospital Tunku Azizah)

The impact of perinatal mental health is extremely significant and forms an integral component of maternal medicine. Although the awareness on the importance to screen, diagnose, manage and to treat apart from the safety of available interventions are progressively on the rise; there are still numerous challenges and barriers with needs to be addressed by the experts within the fraternity as to ensure that mothers get optimal care and that their mental health needs are holistically addressed.

The mental health services have traditionally been provided by counselors and psychiatrists; but since 2018, a dedicated obstetrician lead combined perinatal mental health clinic was established within the maternal medicine clinic at the Women and Children's Hospital Kuala Lumpur as an endeavor to provide a one stop compressive holistic care for these patients.

This talk aims to highlight the importance and experiences from having such dedicated subspecialty clinics within the obstetric unit as it aims to remove stigma and barriers related to women seeking mental health needs and also to establish an evidence based comprehensive care with encompasses both physical and mental health well-being. The services, networks, challenges, and lessons learned will be highlighted in a systematic manner with the aim to improve the quality of perinatal mental health services.

Road to Establishing Maternal Mental Health Care in Primary Health Care (PHC) in Surabaya: The Role of Community Health Workers (kader posyandu)

Dr Endang Retno Surjaningrum

Lecturer, Faculty of Psychology, Airlangga University, Indonesia

Since 2009 the Indonesia government has set a community-based mental health care, however maternal mental health service has not been established in primary health care (PHC). The speaker will introduce the development of research regarding the role of community health workers called kader posyandu in Surabaya to identify mothers' mental health. Kader posyandu are volunteers recruited from the community to assist community health centre or Puskesmas in maternal health care. Puskesmas is a government health service which is established in a subdistrict area and it is supported by community-based health service in every small area called post pelayanan terpadu or "posyandu" (integrated service post) which mostly focus on maternal and child health care. Women from the community are recruited and trained in providing the service and they called kader posyandu. A government document states the role of kader posyandu also includes identifying mental health of pregnant and postpartum mothers. This presentation will describe the potential of establishing an integrated maternal mental health care in PHC in Surabaya through the role of kader posyandu, from case identification to referral, based on research has been done between 2015-2021. It will show what has been done and what need to do next to realizing the idea.

Perinatal Mental Health in Japan

Dr Michiko Yamanaka

Chief, Department of Integrated Women's Health & Director, Center for Medical Genetics, St Luke's International Hospital, Japan

For perinatal mental health care, it is important to cooperate between the medical institutions in charge of pregnancy and childbirth and the community. Also, it requires a smooth transition and continuation of support from childbirth to childcare. In Japan, the Ministry of Health, Labor and Welfare has played a central role in promoting the "Healthy Parents and Children 21" national movement in which all related people and organizations work together to promote the improvement of maternal and child health since 2001. Among them, "Seamless health measures for expectant and nursing mothers and infants" and "Measures to prevent child abuse start from pregnancy period" are the issues of the perinatal period. The maternal and child health services that have been established for a long time are developing into more substantial ones through this movement.

When a pregnancy is confirmed, "Maternal and Child Health Handbook" which record the child's growth and health from before birth is issued by the local government. This issuance will be the first touch point between the community and pregnant women, and support for expectant and nursing mothers and childrearing by the community will start. Expenses for prenatal checkups, including postnatal checkups, are subsidized by local governments. About 400,000 JPY will be paid for childbirth expenses from medical insurance. Within 28 days after the birth of a child, public health nurses or midwives visit each home to provide guidance on the growth, nutrition, living environment, disease prevention, etc. of the newborn. In addition, there is a "Home Visit Project for Infants (Hello Baby Project)," in which public health nurses or midwives visit all homes with babies up to the

age of 4 months to discuss concerns and worries about raising children. The Japanese version of the Edinburgh Postpartum Depression Questionnaire (EPDS) is widely used as a postpartum mental health check. The Ministry of Health, Labor and Welfare recommends comprehensively assessing the mental state using objective tools, not limited to EPDS. It also promotes the use of postpartum care facilities, which were not widely used in Japan. For families in need of assistance and advice, local public health centers, child and family support centers, child welfare facilities, child guidance centers, etc. work together to prevent child abuse and provide family support. For pregnant women with problems, there is also a system in which medical institutions and local governments work together to watch over and support them from the pregnant periods.

However, the lack of facilities with both psychiatric and obstetric departments that can treat pregnant women with mental disorders is often a problem, and there are reports that suicide is the number one cause of death among pregnant and puerperal women. Even if the local administrative system is completed, the future task is to improve the soft aspects related to it.

New Initiatives and Best Practices for Perinatal Mental Health in India

Professor Prabha S. Chandra

Dean of Faculty (Behavioural Sciences) & Senior Professor of Psychiatry, National Institute of Mental Health and Neurosciences, India

The presentation will focus on the integration of mental health into routine maternal and child care in several states in India and the implementation of the WHO framework. It will also address training of health professionals in perinatal mental health and the running of an inpatient Mother Baby Unit.

LIST OF POSTER ABSTRACTS

APMCH001 Learning Needs of Trainees Posted to Department of Diagnostic and Interventional Imaging

Phua Hwee TANG¹

¹ Department of Diagnostic and Interventional Imaging, KK Women's and Children's Hospital, Singapore

APMCH002 Clinical factors associated with admission for paediatric patients with respiratory symptoms seen in the Children's Emergency department

HAN Nian-Lin Reena¹, Chong Shu-Ling², Tang Phua Hwee³

¹ Division of Clinical Support Services, KKH

² Department of Children's Emergency, KKH

³ Department of Diagnostic and Interventional Imaging

APMCH003 Integrated Hyperglycaemia Incentivised Postnatal Surveillance (I-HIPS) Study: Preliminary findings from the 6P online tool for improving diet and eating behaviours

Quah PL¹, Razali NS¹, Chai MHS¹, Han WM², Lim JKE², Fadzully F³, Bakar MAA³, Lee WKR⁴, Ku CW^{5,6}, Chan JKY^{5,6}, Yap F^{6,7,8}, Loy SL^{5,6}, Tan KH^{4,6}

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APMCH004 Effectiveness of personalized lifestyle interventions in reducing risk factors for Type 2 Diabetes Development in Asian women with history of Gestational Diabetes Mellitus- Preliminary findings in the initial batch

Rubanandhini Nagajothi¹, Phaik Ling Quah², Ryan Lee³, I-HIPS Study Group^{4,5}, Kok Hian Tan^{3,6}

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APMCH005 Improving Psychosocial Health of Adolescents with Diabetes (I-PAD) in KKH

Soo Ting Joyce Lim¹, Amos Kok Ann Lim², Xiang Feng Tan², Pei Kwee Lim¹, Yuen Ching Angela¹, Lois Ling'en Teo³, Rashida Farhad Vasanwala⁴

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APMCH006 Assessing the Effectiveness of Midwife Engagement during Antenatal Period of First-Time Mothers

Nurul Khairani Binte Abdul Razak¹, Chan Sze Wern¹, Thilagamangai¹, Joyce Teo², Chay Oh Moh³, Ng Kee Chong² ¹Division of Nursing, KK Women's and Children's Hospital, Singapore

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APMCH007 Building Parental Confidence among First-Time Mothers in Singapore through Regular Health Education Webinars

Joyce Teo Xinyun¹, Ingah Loo Miaw Shin³, Winny Tan Mei Ling², CRADLE Study Team, Oh Moh Chay⁴, Kee Chong Ng^{1,4}

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APMCH008 Improvement in Parental Self-Efficacy in First-Time Mothers in Singapore- An Interim Analysis

Joyce Teo Xinyun¹, Rehena Sultana⁴, Sze Wern Chan³, Nurul Khairani Binte Abdul Razak³, Thilagamangai³, CRADLE Study Team, Oh Moh Chay², Kee Chong Ng^{1,2}

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APMCH009 Trends in patient-reported outcomes from pregnancy to six months post-delivery- a study involving first-time mothers in Singapore

Joyce Teo Xinyun¹, Rehena Sultana⁴, Sze Wern Chan³, Nurul Khairani Binte Abdul Razak³, Thilagamangai³, CRADLE Study Team, Oh Moh Chay², Kee Chong Ng^{1,2}

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APMCH010 Vitamin D screening and supplementation in pregnancy: Knowledge, Attitude and Practice in Asia-Pacific Countries

Ryan Wai Kheong Lee¹, Alicia Li Bin Chng², IPRAMHO International Study Group³, Kok Hian Tan¹

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Wu Ting, Chengdu Women's and Children's Central Hospital, Chengdu; China

Swe Swe Myint, Central Women's Hospital, Yangon; Myanmar

Raden Tina Dewi Judistiani, Dr Hasan Sadikin Central General Hospital, Bandung; Indonesia

Milind Shah, Naval Maternity & Nursing Home; India

Liza Madulid-Sison, Veterans Memorial Medical Center; Philippines

Beth Andres-Palencia, Lady of Lourdes Hospital, Daet Camarines Norte; Philippines

Elizabeth Pagilagan-Palma, Medical Center Taguig; Philippines

Laila Arjumand Banu, Labaid Specialized Hospital; Bangladesh

Dittakarn Boriboonhirunsarn, Siriraj Hospital Mahidol University; Thailand

Prof Tiran Daminda Dias, University of Kelaniya; Sri Lanka

APMCH011 Establishing a SingHealth Maternal Medicine Network (SMMM) – A multidisciplinary specialist care service for high risk obstetric patients

Toh Wuen Lynn¹, Ryan Lee Wai Kheong², Serene Thain Pei Ting², Tan Lay Kok²

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APMCH012 A Family-Centred Music Therapy Programme for Hospitalized Premature Infants

Wong K.C., Sim, J. Y. Z., Ng, M. M. K., Nair, T., Garg, N., Chua, M. C., Yip, W. Y

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APMCH013 Parental experience of participating in an online intervention for overweight children in Singapore

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APMCH014 Experiences of postnatal mothers during COVID-19 pandemic: A descriptive qualitative study

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APMCH015 The role of Mums2Mums in Battling Symptoms of Postpartum Depression: A Qualitative Report

Peng Hong Min¹

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APMCH016 Building Adult and Paediatric Swabbing Capability at SingHealth Polyclinics

Ang Li Ping¹ (Nurse Manager), Lam Woan Ching² (Assistant Director of Nursing), Zhuo Xiaoying³ (Nurse Manager), Jolie Chia⁴ (Executive), Tan Ai Meng⁵ (Assistant Director of Nursing)

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APMCH017 Associations between screen-time, temper tantrums and developmental scores in a sample of toddlers in Singapore

Koh Hwan Cui, Goh Shu Juan, Nurhafizah Binte Mohd Zambri, Alyssa Yap Su Lyn, Vanessa Tee Ting Fang, Wong Chui Mae, Pratibha Keshav Agarwal, & Lourdes Mary Daniel

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APMCH018 Administering Suicide and Self Harm Screening in Women's Service

EH Lu¹, Julie Tay², Priscilla Chua¹, XN Zhong¹, NY Poon³, JY Lee⁴, SN Chia², Alvin Chang⁵, Jeslyn Neo⁶

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APMCH019 Perinatal Mental Health: Knowledge, Attitudes, Perceptions and Practices Among Doctors

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APMCH020 Perinatal Mental Health: Knowledge, Attitudes, Perceptions and Practices Among Perinatal Women

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APMCH021 Capturing the value of Enterprise Risk Management (ERM) for the set-up of KKH COVID-19 Vaccination Centre

Hoon Siew Jong¹, Yin Ya Mone Phyo¹, Kam Kai Qian², Lim Jun En Sheryn¹, Lee Kim Nai¹, Muhammad Ridhwan Bin Mohamad Nurdin³, Louis Teo Zhang Yi³, Chow Hwee Yin⁴, Janice Lim Chai Huang⁴, Sally Oh Lee Ling⁵, Annellee Camet⁶

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APMCH022 A Baseline Analysis of Gestational Diabetes Mellitus (GDM) Indicators for Population Health

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APMCH023 Improving emotional and mental well-being of postnatal mothers in primary care setting

Nur Dalilah Binte Jani, Joanna Tan Lee Lim, Idayu Binte Kiamel, Wang Weican

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APMCH024 24-hour activity guidelines in children and adolescents: A prevalence survey in Asia-Pacific cities

Phaik Ling Quah¹, Benny Kai Guo Loo², Sachith Mettananda^{3,4}, Senuri Dassanayake³, Michael Chia⁵, Terence Chua⁵, Teresa Shu Zhen Tan⁶, Poh Chong Chan⁶, Betty Wai-Man But⁷, Antony Chun-Cheung Fu⁸, Shirley Man-Yee Wong⁷, Nobuhiko Nagano⁹, Ichiro Morioka⁹, Shyamal Kumar¹⁰, Muttathu KC Nair¹⁰, Kok Hian Tan^{1,11}

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APMCH025 Mean amplitude of glycemic excursion (MAGE) and standard deviation (SD) in early pregnancy may predict a subsequent diagnosis of gestational diabetes

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APMCH026 Safe and Effective Administration of Childhood Subcutaneous Vaccinations in Sengkang Polyclinic

Stella Sim, Deng Shubin, Kala D/O Ramasamy, Yeo Xiang Yun, Qiu Xiaoli, Ng Peiyun, Wong Pang Nee Frida, Ang Liping
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APMCH027 A Qualitative Review and Perinatal Audit of Drug Abuse Care Management in Singapore

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APMCH028 The KKH Perinatal High Risk Consult – Fetal-Neonatal Conjoint Management

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POSTER ABSTRACTS

APMCH001 Learning needs of trainees posted to Department of Diagnostic and Interventional Imaging

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Background

Department has started having medical officers in addition to radiology residents to cope with increasing clinical imaging requirements.

Objectives

To determine learning needs of trainees in paediatric plain radiographs and computer tomography (CT) scans.

Methods

Quiz of 10 paediatric plain radiographs and 10 paediatric CTs showing a variety of abnormalities encountered in clinical practice was given to trainees (medical officers and radiology residents) doing posting in Department of Diagnostic and Interventional Imaging, KK Women's and Children's Hospital from 2021 to 2022.

Each trainee was to determine if the image was normal or abnormal and to define the abnormality seen for abnormal images.

Results

37 radiology residents and 4 medical officers completed the quizzes in years 2021 and 2022.

Overall performance of trainees was 6.2 for plain radiographs and 6.7 for CTs, not significantly different ($p=0.22$).

Radiology residents scored 6.4 for plain radiographs, better than the 3.8 scored by medical officers ($p<0.01$).

Radiology residents scored 7.1 for CTs, better than the 3.0 scored by medical officers ($p<0.01$).

Radiology residents performed better on CTs than on plain radiographs ($p=0.3$).

Medical officers did not show significant difference in their poor performance on plain radiographs and CTs ($p=0.47$).

Top diagnoses missed on plain radiographs by >50% of trainees was pneumomediastinum followed by paediatric skull vault fracture.

Top diagnoses missed on CTs by >50% of trainees were mediastinal fluid collection, pulmonary embolism and suprapubic abscess.

Conclusions

Medical officers will benefit from training in paediatric plain radiograph and CT interpretation.

Pneumomediastinum and paediatric skull vault fractures are pathologies for trainees to focus on for plain radiographs.

Mediastinal fluid collection, pulmonary embolism and suprapubic abscess are pathology for trainees to focus on for CT.

APMCH002 Clinical factors associated with admission for paediatric patients with respiratory symptoms seen in the Children's Emergency department

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Background

Children with respiratory symptom is the leading cause of presentation to the Children's Emergency Department at KKH.

Objective

The objective of the present study is to determine the most significant predictors for admission for paediatric patients with respiratory symptoms presenting to the Children's Emergency department.

Methods

This was an Institution Board approved retrospective study of paediatric patients with respiratory symptoms seen at Children's Emergency Department in KKH during January to June 2016. The patients were divided into 2 groups, those admitted and those who were discharged. Variables captured included patient demographics, vital signs, duration of fever, triage class, laboratory white cell count and X-Ray indicator.

Results

From January-June 2016, of the 10074 paediatric patients with respiratory symptom, 6336 were discharged and 3738 were admitted to KKH or transferred to another hospital. Average age, gender distribution and body temperature were similar in both groups. Duration of fever was 4.3 days for those discharged and 4.6 days for those admitted, not significantly different ($p=0.1$). Greater proportion of children who were admitted were assigned P1 and P2 status. Children who were admitted or transferred had statistically significant ($p<0.001$) slightly lower SpO₂ (98.2 vs 97.8), higher respiratory rate (28.6 vs 32.5), greater respiratory distress and abnormalities on CXR requiring possible or definite further action (35.5% vs 47.8%). A larger proportion of patient who were admitted had laboratory white cell count performed (3.7% vs 13.1%).

Multivariate regression results indicate the strongest associations with being admitted are having triage class of P1 (odds ratio 25.7), followed by X-Ray indicator "Further action needed" (odds ratio 3.6) and having triage class of P2 (odds ratio 1.8).

Conclusion

Top factors associated with paediatric patients requiring admission are being assigned P1 at triage and having CXR classified as "Further action needed".

APMCH003 Integrated Hyperglycaemia Incentivised Postnatal Surveillance (I-HIPS) Study: Preliminary findings from the 6P online tool for improving diet and eating behaviours

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⁸ Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

Background

Intervention group participants in the Integrated Hyperglycaemia Incentivised Postnatal Surveillance (I-HIPS) study trial received individualized goal setting workshops using a validated online assessment tool called the 6P. The 6P was designed based on the concept of developing a healthy mindset for women to improve their nutrition and lifestyle behaviours that comprised of 6 components: P1(Portion), P2(Proportion), P3(Pleasure), P4(Phase), P5(Physicality), P6(Psychology). The I-HIPS study is the first to utilize the online assessment 6P platform in a randomized controlled trial for post-partum women with a history of gestational diabetes mellitus (GDM) to encourage health weight loss, and to subsequently reduce the rates of Type II Diabetes conversion.

Methods

The 6P assessment tool is self-administered, and comprises three parts (quantitative component, qualitative component and a self-reported weight log). In the I-HIPS study, the 6P online assessment tool was administered at three timepoints in the study between baseline up to 6 months. Participants would have to complete the 6P online tool at the baseline of the study, 3 months and at 6 months. A repeated measures analysis of variance (ANOVA) for continuous variables and McNemar's test for categorical variables was used to examine the changes in the 6 components and composite percentages across the 3 timepoints.

Results

A total of 13 participants have completed the 6P tool from baseline until the 6-month follow-up. There were no significant changes in mean weight [67.2kg (SD:8.4) vs. 66.5kg (SD:8.0), $p = 0.36$] or in mean BMI [25.8 kg/m² (3.6) vs. 25.6 kg/m² (3.5), $p = 0.38$] at baseline and 6 months. There was a significant improvement in the P3 dietary component where the frequency of snack and beverage intakes decreased after 6 months from baseline [median 3(IQR0.5) vs median 2(2), $p=0.01$]. There were no significant changes in physical activity or motivational levels ($P>0.05$). Trends of lower mean composite percentages were seen for P1(Portion) [(50%) (SD21.3) vs 31.2(24.9)] and P3(Pleasure) [(48.1%) (SD11.8) vs 39.1(11.5)], $p<0.01$.

Conclusion

Preliminary findings show improvement in the overall trends of controlling portion sizes of food intake, and a significant reduction in the frequency of snack and beverage consumption. The 6P is a promising assessment tool for use in lifestyle intervention RCTs.

APMCH004 Effectiveness of personalized lifestyle interventions in reducing risk factors for Type 2 Diabetes Development in Asian women with history of Gestational Diabetes Mellitus- Preliminary findings in the initial batch

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Background

Gestational diabetes (GDM) is associated with an increased risk of developing type 2 diabetes mellitus (T2DM) in later life. A novel intervention programme involving personalized lifestyle interventions targeting reductions in body mass index (BMI), weight, body fat and waist circumference measures as well as cardiometabolic health markers (fasting glucose, glycated haemoglobin (HbA1c) and fasting lipids) may help reduce risk for T2DM conversion in women with a history of GDM.

Objective

To compare the effectiveness of personalized lifestyle interventions (diet and exercise) including the use of wearable devices versus standard care in reducing anthropometric measures in early postpartum women with a history of GDM.

Methods

The intervention arm will follow a program with the use of wearable devices to monitor glucose and physical activity levels (Wearable Care - WC) while the control arm will follow scheduled care (Scheduled Care - SC). In this on-going trial, 42 patients have been recruited and 20 have finished their 6-month follow-up. Pre- and post-intervention (6 months) mean differences in anthropometric and metabolic markers were compared between the two study arms using independent T-tests and Wilcoxon-rank-sum tests. $p < 0.1$ is reported as a trend.

Results

Among the 20 initial participants, mean [SD] baseline BMI was 26.15kg/m² [3.70]. Results from our intervention programme showed that in the first 6 months, participants in the WC group had a mean [SD] BMI loss of -0.06 kg/m²[0.98] compared to the SC group which had a mean [SD] BMI gain of 5.05kg/m²[13.3] ($p=0.06$). There were no significant differences in body fat, waist circumference and cardiometabolic markers such as glucose levels and fasting lipids between the 2 groups.

Conclusion

There was a trend of BMI maintenance in the WC group as opposed to BMI gain in the SC group. This can be beneficial in future prevention of T2DM in GDM women. Improvements in cardiometabolic markers may be seen with time.

APMCH005 Improving Psychosocial Health of Adolescents with Diabetes (I-PAD) in KKH

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Background

Mental health conditions are frequently encountered in adolescents with diabetes. Early recognition of diabetes distress, defined as negative emotions arising from daily burden of self-management, could prevent adolescents from adverse mental health conditions.

Objective

To assess the suitability of self-reported Diabetes Distress Screening (DDS) scale for adolescents with diabetes and explore the effectiveness of psychological intervention.

Method

This project adopted KKH's 3-Step Quality Improvement Model with 149 adolescents pre-identified based on age 13 and above on self-reporting diabetes distress. High risk adolescents were sent for counselling in joint clinic by Advanced Practice Nurse (APN) and Psychologist. The moderate risk group will receive phone calls from Diabetes Nurse Educators (DNE). Post intervention DDS was conducted along with a feedback evaluation (8-items on patient perspective of effectiveness of Joint Clinic and DNE calls) to analyze sustainability and impact of interventions.

Results

59% (n=97) had moderate to high DDS. Among the high distress group, 17 were seen in the joint clinic and post intervention DDS significantly reduced by 70.6% ($p<0.05$). 39 in the moderate distress group received DNE phone calls and their DDS was reduced by 61.5% ($p<0.05$). From the evaluation on adolescents' perspectives on effectiveness of both interventions, they were glad to speak to nurses about their personal matters outside of medical aspect and able to discuss solutions to their problems.

Conclusion

The screening of diabetes distress with intervention at Joint Clinic and DNE calls were effective in improving the overall adolescents' psychosocial health. Ongoing self-reported DDS will be used at annual review clinic for early screening of distress in all adolescents with diabetes. The project closed by publishing an information booklet titled 'Together, a healthier body and mind' that illustrates the importance of the body, mind, spirit and heart as a holistic approach to a well-balanced and meaningful lifespan.

APMCH006 Assessing the Effectiveness of Midwife Engagement during Antenatal Period of First-Time Mothers

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Background & Objective

The current midwife-led clinic offers consultation for low-risk antenatal patients, through a customised plan for each patient including education, counselling and assessment of maternal and foetal health during the antenatal phase. First-time expectant mothers under the midwife care provided feedback that they have greatly benefited from the engagement by midwives, given that they are usually uncertain about the demands of pregnancy and early parenting. Currently, only approximately 1% of eligible patients have had the opportunity to experience midwife engagement due to manpower limitations. We aim to assess the effectiveness of midwife engagements at KKH in order to deliver care which can potentially benefit more patients in need.

Methods

A simple survey consisting of questions on critical areas during pregnancy was given to inpatients who are first-time mothers, for completion at the end of the antenatal period. Areas covered were nutrition, exercise, emotional wellness, breastfeeding, labour-preparedness, newborn care, as well as the reliability and frequency of the midwife engagement sessions.

Results

A total of 83 patients responded to the survey, with 50.6% who have interacted with midwives. It was noted that >90% of the patients found the information delivered by the midwives reliable, and majority of the patients with midwife engagement reported higher levels of preparedness and understanding in all areas listed. These first-time mothers were well-informed of the needs to optimise their pregnancy.

Conclusion

The results suggest that midwife engagements can be an effective tool to enhance the experience of first-time mothers, leading to the improved health of mother and child. The midwifery team will look into developing a sustainable model of care to reach out to more patients.

APMCH007 Building Parental Confidence among First-Time Mothers in Singapore through Regular Health Education Webinars

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Background and Objective

First-time parents are usually apprehensive about coping with the demands of pregnancy and motherhood and the growth and development of their child. The Community enabled Readiness for the first 1000-Days Learning Ecosystem (CRADLE) study seeks to develop a self-learning eco-community from pregnancy to early childhood to encourage parenting self-efficacy (PSE) and improve health outcomes for first-time parents. 548 pregnant women from KK Women's and Children's Hospital were recruited. These first-time mothers are supported through two interventions (1) regular behavioural nudges and engagement via social media platforms, or (2) engagement with midwives from pregnancy until six-months post-delivery. In addition, half-yearly CRADLE Health webinars are made available to all participants. The primary outcome is PSE, while secondary outcomes include health and birth experience.

Methods

All study participants are invited to the half-yearly CRADLE Health webinars since January 2021. Four webinars have been held as of July 2022, covering 16 targeted and focused topics relating to pregnancy, childbirth and early childhood development. To make the event more relevant and meaningful, the organising committee selected presentation topics based on the feedback given by participants, which were consolidated at the end of each session. Webinars were interactive; questions were posed by the audience and answered live by the expert panelists, thus actively engaging the participants throughout the session. The webinars were recorded and disseminated to participants for viewing post-event. These were also made accessible to newly recruited participants.

Results

A total of 249 feedbacks were received, with approximately 99% who gave the webinar an overall rating of 'Good' and 'Excellent'. Attendees were also asked to rate their confidence levels before and after attending the webinar. It was noted that 6.4% were 'Not at all confident' as first-time parents before they attended our webinar. After attending the event, none indicated that they were 'Not at all confident'. There was a significant increase of the respondents who indicated that they were 'highly confident' or 'confident', from 39.4% to 76.7%.

Conclusion

Regular CRADLE health webinars may be a low-cost engagement forum to improve the confidence level of first time mothers in Singapore.

APMCH008 Improvement in Parental Self-Efficacy in First-Time Mothers in Singapore – An Interim Analysis

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Background and Objective

Improved parenting self-efficacy (PSE) contributes to positive health outcomes of parent and child. Most First-time mothers are particularly need of support to improve their early PSE and experience. Presently in Singapore, there is a lack of effective and sustainable programmes to improve PSE for first-time parents. The Community enabled Readiness for first 1000-Days Learning Ecosystem (CRADLE) programme seeks to develop a self-learning eco-community from pregnancy to early childhood, to encourage PSE and improve health outcomes for first-time mothers. The randomised controlled trial recruited 548 pregnant women from KK Women's and Children's Hospital. Participants are randomly assigned to receive (1) standard routine care; (2) behavioural nudges through short text messages and engagement via social media; or (3) continuity care involving engagement

with midwives from pregnancy until six-months post-delivery. All participants are invited to biannual education seminars. The primary outcome is PSE, while the secondary outcomes include health and birth experience. Participants are followed-up from recruitment until child turns two years old, through the measurement of health and nutrition domains using patient-reported outcome measures. At the end of the study, effects of the interventions across all arms will be evaluated.

Methods

The Parenting Sense of Competence (PSOC) is a 16-item scale that measures parental satisfaction (the extent to which parents are satisfied with their role as a parent) and parental self-efficacy (the extent to which parents perceive they are able to manage the role of being a parent). A higher score indicates a higher parenting sense of competency. Participants were requested to complete the questionnaire at 6-weeks, 6-months and 12-months post-delivery. 43 participants had completed all 3-point of the survey.

Results

A significant improvement in parenting self-efficacy was observed between 6-weeks post-delivery (64.4 points) and 6-months post-delivery (69.3 points, p -value = $<.0001$) and 12-months postpartum (68.9%, p -value = 0.0003).

Conclusion

Based on the preliminary analysis, an improvement in parenting self-efficacy is noted over time, which may be attributed to the interventions provided by CRADLE. With more data, the results will be confirmed at the end of the trial in 2024. Nonetheless, the initial findings provide an encouraging indication that various methods of engagements with these first-time mothers in the first 1000 days of life improve their parental self-efficacy, which may lead to improved maternal and child health.

APMCH009 Trends in patient-reported outcomes from pregnancy to six months post-delivery- a study involving first-time mothers in Singapore

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Background

First-time mothers are usually apprehensive of the requirements to optimise their pregnancy and lack the experience in parenting in the early days post-delivery. Currently in Singapore, there is a lack of sustainable community maternal and child health programmes which provides guidance to first-time mothers.

Objective

The Community enabled Readiness for first 1000-Days Learning Ecosystem (CRADLE) programme aims to establish a self-learning eco-community of first time mothers, from pregnancy to early childhood, to improve parenting self-efficacy (PSE) and health outcomes for first-time mothers. The randomised controlled trial recruited 548 pregnant women from KK Women's and Children's Hospital. Participants are randomly assigned to receive (1) routine care; (2) regular behavioural nudges through short text messages and engagement via social media; or (3) continuity care involving one-to-one engagement with midwives from pregnancy until six-months post-delivery. Participants are followed-up from recruitment until child turns two years of age, through the measurement of health and nutrition domains and patient-reported outcome measures. At the end of the study, effects of the interventions across all arms will be evaluated.

Methods

Patient-Reported Outcomes Measurement Information System (PROMIS) measures were administered to participants. 181 participants had completed 3 measurements: at antenatal stage (≤ 28 weeks and ≥ 29 weeks), and six-months post-delivery. The survey included questions on two domains, which are physical and mental health. This is a preliminary analysis of the 181 participants.

Results

Responses for each domain were scored on a T-score metric with a mean of 50 and a standard deviation of 10 based on the original PROMIS reference sample of US adults. Participants' physical health at <28 weeks' pregnancy was at 46.9, compared to a lower score of 45.4 in the third trimester. An increase was noted at the six-month post-delivery time-point (T-score 48.4, *p*-value 0.0001). Mental health scores were 48.9 at <28 weeks gestation and 48.8 in the third trimester. A significant drop in mental health scores were observed at 6 months post-delivery, at 47.4.

Conclusion

It was noted that participants' physical health improved during the postpartum period, a downward trend in mental health was noted from <28 weeks to six-months post-delivery. More data will be collected towards the end of the study in 2024 for a more conclusive result.

APMCH010 Vitamin D screening and supplementation in pregnancy: Knowledge, Attitude and Practice in Asia-Pacific Countries

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Background

Vitamin D deficiency is common in pregnant women. There are varying clinical knowledge gaps and different perceptions on Vitamin D screening and supplementation in pregnancy among healthcare professionals with no current survey review in the Asia-Pacific region. We performed a survey review among international health care professionals who are part of the Integrated Platform for Research in Advancing Metabolic Health outcomes of Women and Children (IPRMAHO) international study group on their understanding and perception of Vitamin D screening and supplementation in pregnancy.

Methods

The cross-sectional survey comprised 4 main sections on demographics, existing policies in their own practice, nutrient supplementation in pregnancy and various practices on screening, treatment and perceptions comprising a total of 22 questions. 16 surveys were completed by clinicians and academic attendees from eleven participating Asia-Pacific countries.

Results

Vitamin D was rarely prescribed in pregnancy when compared to other nutrient supplements such as folic acid and iron. More than half of all surveyed hospitals were (9/15, 60.00%) were unsure of the percentage of women seen with Vitamin D deficiencies each year and Vitamin D dosage prescribed to pregnant women with (9/16, 56.25%) or without (6/15, 40.00%) Vitamin D deficiency. Concerning Vitamin D deficiencies, there was generally no consensus regarding the cut off value to determine Vitamin D deficiency ranging from 10-40 umol/L.

Conclusion

Further research needs to be undertaken regarding the benefits and risks of universal screening and supplementation of Vitamin D in Asia Pacific region. This study review promotes collaboration among international healthcare professionals and enhances our understanding of global health perspectives on the effects of Vitamin D screening and supplementation in pregnancy for the benefit of pregnant women in the Asia-Pacific.

APMCH011 Establishing a SingHealth Maternal Medicine Network (SMMM) – A multidisciplinary specialist care service for high risk obstetric patients

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Background

Rising maternal morbidity and mortality rates are consequential of complex medical disorders often exacerbated during pregnancy. Furthermore, we are currently seeing an increasing number of high-risk pregnancies with a gamut of medical conditions. This is consistent with the older average age of pregnant women, increasing prevalence of overweight, obesity and diabetes, uptake of assisted reproductive treatment, and advances in medicine allowing women with chronic and congenital medical conditions to reach reproductive age.

Currently, there are clinics combining Obstetrics and Internal Medicine (IM) like STORK (one-stop obstetric high-risk centre) and CHiRP (centre for high-risk pregnancies) that provides multidisciplinary care for pregnant patients with chronic medical conditions. While this arrangement has worked very well for outpatient management in the pre-pregnancy, prenatal and postnatal settings, there is a need to expand this model to encompass a wider coverage including inpatient and acute care. These high-risk conditions such as massive pulmonary embolism, diabetic ketoacidosis, amniotic fluid embolism require prompt recognition and intervention with multidisciplinary input, and often require inter-hospital transfer when interventions such as renal dialysis, extracorporeal membrane oxygenation (ECMO) or complex surgeries are required.

Objectives & Methods

Our primary objective is to establish a SingHealth Maternal Medicine Network (SMMM) which will be an integrated service to complement Obstetrics by incorporating multidisciplinary services from various subspecialties including IM, Anaesthesia, Critical Care, Interventional Radiology, Neonatology etc. from various hospitals in Singapore. The aims are 1) Facilitate coordinated joint-care for women with complex medical conditions before, during and after pregnancy 2) Provide local clinical leadership on the identification and management of women with complex medical conditions. 3) Establish joint collaboration among specialists to formulate recommendations/guidelines on complex medical disorders.

Conclusions

It is anticipated that the SMMN will provide a safety network to support pregnant women and optimize their health throughout various stages to achieve the best outcomes in their pregnancy.

APMCH012 A Family-Centred Music Therapy Programme for Hospitalized Premature Infants

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Background

Premature infants have a high risk of mortality, morbidity, disability, and neurodevelopmental disorders and delays (Bieleninik et. al., 2016). Many are admitted to the Neonatal Intensive Care Unit where both infants and parents commonly experience a variety of challenges and stresses (van Dokkum et. al., 2020). The lack of contact between parents and infants can inhibit the bonding experience, which is crucial for positive infant outcomes (Pineda et. al., 2018). Music Therapy provides a non-pharmacological approach that can support infants in their development, address parents' stress and anxiety, and facilitate increased bonding between parents and baby.

Objectives

While there has been growing knowledge in music therapy work for this population, it has mostly been reported by international sources. The locally funded programme, Temasek Foundation Music, Baby and Me (TF-MBM), seeks to understand the nuances of a Family-Centred Music Therapy service for premature infants in the local context of Singapore

Methods

Parents whose infants were assessed as suitable by the medical team to receive this service were invited to be a part of the TF-MBM programme. The programme comprised of 3 components: the music therapist (MT) working 1-1 with the infant, The MT working together with the parents and infant, and the MT working directly with the parents in a parent support group. Descriptive analysis for two families in the programme was applied.

Results

Family A

A familial song was identified with parents. The MT supported and validated parents in establishing their confidence to sing to infant, which provided a nurturing environment for enhanced bonding as a family unit while in the wards. The MT also applied the familial song when working 1-1 with baby, mimicking parents voice quality when singing to the baby to create a familiar sound environment to aid in optimizing infant's developmental outcomes. Father attended the parent support group and reflected that the session was helpful to him (1) for having "a song for (his) baby" (2) to "release (his) stress and make (him) comfortable" (3) to "make (him) stronger and better (4) in encouraging parents to "sing in this programme".

Family B

As no familial song was identified with parents, the MT applied a common lullaby that research had shown to help infants have increased regulation during 1-1 work between the MT and infant. Mother attended the parent support group and reflected that the session was helpful to her (1) in learning music strategies "to calm the baby" (2) "to express (her) feelings" during the music-making experience (3) in empowering her to try using music strategies (4) as a "great experience to remind the parents to relax and don't be so tense."

Conclusions

Parents found Music Therapy to be helpful in encouraging them to use music with their baby and for expressing their own feelings to help them feel better. Overall, this Family-Centred Music Therapy programme has been well received and more observations across more families will allow for further understanding in how this programme is beneficial in the local context of Singapore.

APMCH013 Parental experience of participating in an online intervention for overweight children in Singapore

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Background

In Singapore, the prevalence of children who are overweight has increased from 13% to 16% from 2017 to 2021 due to the COVID-19 pandemic. We adapted a US-based clinic-community model of childhood obesity treatment to address a gap in availability of community-based childhood obesity interventions in Singapore. Parental perception of the online community childhood obesity programme would be needed to assess feasibility of such intervention here.

Objectives

We aim to understand families' experiences, weight-related lifestyle behaviours as well as facilitators and barriers to engagement in the online intervention.

Methods

Qualitative interview-based study was conducted with 18 parents one to two months after completion of the intervention. Interviews were transcribed verbatim and thematically analysed with peer debriefing for validity.

Results

The convenience of the online platform is an important facilitator for engagement in the programme. Barriers identified to participation include competing priorities such as parental work commitments. Parents observed several positive weight-related lifestyle behaviours among children such as improvement in their child's stamina and interest in physical activity. There were also improvements to their child's eating habits such as increase in fruits and vegetable intake and reduction towards age-appropriate meal portions

Conclusions

An online community-based childhood obesity programme can improve weight-related lifestyle behaviours. Use of an online platform is an important facilitator of engagement. Barriers to participation need to be addressed to enhance engagement in interventions.

APMCH014 Experiences of postnatal mothers during COVID-19 pandemic: A descriptive qualitative study

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Background

The COVID-19 pandemic has posed unique stressors and exacerbated the already challenging life transition in every woman's postpartum period. In Singapore, safe management measures such as social distancing and visitor restrictions have affected women's access to postpartum support.

Aim

This study aimed to explore the experiences of postnatal mothers during the COVID-19 pandemic in Singapore, to give us a better understanding of how pandemic restrictions have impacted postnatal women.

Design

A descriptive qualitative study design was used.

Method

The study took place from November 2020 to April 2021 at a maternity hospital in Singapore. A purposive sample of 15 mothers were interviewed in this study. The audio-recorded phone interviews were conducted 4 to 6 weeks into the postpartum period using a semi-structured interview guide. The recordings were then transcribed verbatim and data was thematically analysed.

Results

Four main themes and 12 subthemes emerged from the analysis. The main themes were namely, "The mother's ordeal during COVID-19", "Adjusting to the new normal", "Blessings in disguise", and "Counting blessings". Respectively, the themes illustrated pandemic-related issues that were experienced by mothers, how mothers adjusted to motherhood amidst the pandemic, the benefits that mothers enjoyed despite the pandemic, and the support that mothers received during this challenging time.

Conclusion

Even though the COVID-19 restrictions have brought about inconvenience to our postpartum mothers, some have enjoyed benefits such as more quality rest and family time. Recommendations such as allowing their spouse or support partner to be present at every healthcare appointment, and incorporating artificial intelligence chatbots in informational resources, may help to support a healthy postpartum emotional wellbeing during an infectious disease outbreak.

APMCH015 The role of Mums2Mums in Battling Symptoms of Postpartum Depression: A Qualitative Report

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Background

Postpartum depression (PPD) is a global phenomenon which can result in detrimental effects to families. Numerous aspects of PPD management have been well studied in numerous papers. However, few have considered how support groups alleviate the harmful symptoms of PPD.

Objectives

Hence, this paper aims to study the role the Mums2Mums (M2M) support group plays in the recovery of Singaporean mothers suffering from PPD.

Methods

Consenting mothers with mild to moderate PPD who participated in M2M were given the choice to partake in qualitative interviews with a set template of questions regarding their experiences in the facilitated support group. The primary outcome was the overall positive impact M2M had on the mothers' trajectory of improvement in their own respective recovery journeys.

Findings

Regarding this paper, the main PPD symptom being focused on is a depressed mood, contributed by the psychosocial effects of isolation and helplessness. Proposed findings elucidate finding a communal sense of connection amongst mothers via the support group, as well as receiving emotions of validation; both of which were advantageous. Furthermore, M2M has been found to confront the feeling of maternal helplessness with a stepwise approach: this involves initial stages of motivation, followed by processing of thoughts and emotions, and ultimately, as desired, an empowerment of push to action. This will be further explained in the report.

Conclusions

Therefore, overall findings bode potential regarding the role of M2M in alleviating the symptoms of PPD. In conjunction with other measures, pharmacological or non-pharmacological in nature, M2M proves itself as a mainstay in the lines of defence against the battle of maternal depression in the upcoming future.

APMCH016 Building Adult and Paediatric Swabbing Capability at SingHealth Polyclinics

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Background

SHP nurses and swabbers had started performing COVID-19 swabbing for adult patients since early 2020. With the significant relaxation of COVID-19 restrictions in 2022, there were higher incidences of paediatric COVID-19 infections. Coupled with the absence of paediatric COVID-19 vaccination, the early identification of suspect cases was imperative.

Objectives

The swab training sessions aimed to equip SHP nurses, locum nurses and swabbers with knowledge and skills to perform adult and paediatric COVID-19 swabbing. With this training, COVID-19 Vaccination Hub (CVH) nurses comprising SHP nurses as well as locum nurses could be redeployed to perform swab services to optimally support the upsurge of COVID-19 cases.

Methodology

To minimise contact and increase training accessibility and opportunities, three training sessions were conducted virtually. The first two sessions were conducted by SHP team, while the third session was conducted by a Nurse Clinician and an Advanced Practice Nurse from KKH Children's Emergency. A total of 361 staff attended the three sessions. The trainings covered the various techniques of swabbing, anatomy of nasal passage, preparation of caregiver and child prior to swabbing, swab process, tips to distract child during procedure and sharing of experiences of handling children for swab.

Results

30 participants were randomly picked to provide their feedback through an online survey. Staff felt that the demonstration on positioning of baby is most beneficial. Training sessions were also detailed with clear explanations and skills enhancements. Real time feedback and sharing of case studies by the trainers during the virtual training had benefited the trainees. A total of 93,725 swabs were completed from Feb to July 2022, out of which 10,727 were performed on paediatric patients. The training sessions has played a vital role in building swabbing capability in our staff, this has also contributed to overall efficiency and effectiveness in clinic operations, and disease outbreak management.

APMCH017 Associations between screen-time, temper tantrums and developmental scores in a sample of toddlers in Singapore

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Background

Excessive screen-time has been linked to physical, developmental, emotional and behavior problems in children, although there is lesser empirical evidence supporting these relationships in younger children.

Objectives

This presentation examines whether toddlers with screen-time above the recommended daily limit (i.e., ≥ 1 hour) by the Singapore Integrated 24hr Activity Guidelines for Early Childhood, show differences in their developmental scores and tantrums, compared to toddlers with less screen-time.

Methods

Parent-child dyads were part of a larger research study – TIDBIT, and recruited from the community and the authors' hospital. TIDBIT's main aim is to evaluate the clinical utility of the Singapore Child Health Booklet checklists for identifying developmental delays at 18-months-old and 30-months-old. Hence, parents of 239 18-month-olds, and 266 30-month-olds completed a developmental screening tool – the ASQ-3, and questionnaires about their children's screen-time, tantrums and sleep-hours.

Results

32% of 18-month-olds and 45% of 30-month-olds reportedly had daily screen-time ≥ 1 hour. 18-month-olds with daily screen-time ≥ 1 hour showed significantly lower ASQ-3 communication scores, and more had frequent and intense tantrums, than 18-month-olds with less screen-time. 30-month-olds with daily screen-time ≥ 1 hour showed significantly lower ASQ-3 fine-motor and personal-social scores, than 30-month-olds with less screen-time. There was no significant association between daily screen-time ≥ 1 hour and tantrums for these 30-month-olds. Additional analysis found a significant association between daily screen-time ≥ 1 hour, and less than the recommended daily amount of sleep-hours at 30-months-old, but not at 18-month-old.

Conclusions

Daily screen-time ≥ 1 hour was associated with poorer developmental scores, frequent and high-intensity tantrums and lesser sleep, in this sample of toddlers. Due to the cross-sectional nature of the data, causal relationships cannot be established. Nevertheless, clinicians can use this information to advise parents to develop a range of daily activities for their toddlers, to facilitate better outcomes for their children's development, physical and mental health.

APMCH018 Administering Suicide and Self Harm Screening in Women's Service

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Background

Suicide is a sentinel event. The hospital presents a unique combination of risk factors. Hence, it is critical for the hospital to implement screening and assessments to identify patients at risk, to minimize the likelihood of suicide and self-harm attempts through early interventions.

Objectives

This project is to implement a validated screening tool for healthcare providers to identify adult inpatients who are at risk of suicide and self-harm and to ensure early and timely clinical/ non-clinical interventions and follow-up and continuity of care.

Methods

A multi-disciplinary workgroup was formed to develop a suicide and self-harm screening form which was adapted from an existing validated suicide risk screening tool - "Ask Suicide-Screening Questions". Face and content validity were conducted with the patients and healthcare providers to ensure that the questions asked are contextualized to local setting. Questionnaire and workflow was piloted at one cubicle for all O&G inpatient wards; refinement was made to workflow. The "Train the trainer" method was used for nurses' and doctors' training. The finalized screening form was rolled out full-fledged on 1st November 2021.

Results

The workgroup monitored the compliance and effectiveness of the screening tool and process by randomly auditing 30 patients each month. Results from December 2021 to December 2022 showed an average compliance rate of 77%. Results also showed that nine patients required in-depth assessment, of which two patients with known psychological history had a positive screening. No patient required immediate intervention from psychologists.

Conclusions

Pregnancy is a period when women may be more vulnerable to self-harm and suicide. With the introduction of the suicide & self-harm screening tool, it presents a good opportunity for assessment of risk, prevention and prompt escalation of care to the relevant healthcare providers.

APMCH019 Perinatal Mental Health: Knowledge, Attitudes, Perceptions and Practices Among Doctors

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Introduction

Frontline healthcare professionals who provide regular care to women in the antenatal and postnatal period play a critical role in the early detection and management of maternal perinatal mental health. This study aimed to assess the knowledge, attitudes, perceptions and practices towards perinatal mental health amongst obstetrics and gynaecology doctors.

Methods

Using an online survey, data was collected from thirty doctors who participated in the Doctor's Knowledge, Attitudes and Perceptions of Perinatal Mental Health (I-DOC) study. The survey questions assessed the knowledge, attitudes, perceptions and practices of perinatal mental health amongst healthcare professionals. Descriptive data was presented as mean and standard deviation (SD), or frequency and percentages.

Results

There were (13) 44.4% residents, (11) 37.0% associate consultants/consultants and (6) 18.5% senior consultants who participated in this survey. More than 90% reported that patients only rarely or sometimes report mental health issues or symptoms during the antenatal period (92.6%), and the postnatal period (96.3%). There were 62.9% and 80.9% of doctors in the antenatal and postnatal period respectively, who reported that they only rarely or sometimes discuss issues about mental health with their patients. Approximately half (48.1%) of the time, it is the patient who initiates the discussion about mental health. There were 29.6% of doctors who reported that they rarely or never recommend healthy lifestyle habits to support mental health during the perinatal period, and 11.1% only made recommendations if the patient first initiates the discussion. A majority (74.1%) of the

doctors also reported they were not confident or only somewhat confident about providing advice on perinatal mental health. Amongst the doctors surveyed, 59.3% do not perform routine screening for mental health during the antenatal or postnatal period, while 29.6% were not aware of the adverse pregnancy or child developmental outcomes related to mental health. All who were surveyed agreed on the importance of having guidelines, educating and screening mothers on maternal mental health during pregnancy and the postnatal period, and 96.3% agreed on the need for standardized perinatal mental guidelines specifically for healthcare professionals.

Conclusion

These findings indicated a need for Perinatal Mental Health Guidelines for healthcare professionals to increase their levels of knowledge, as well as confidence and skills in the detection and management of maternal perinatal mental health.

APMCH020 Perinatal Mental Health: Knowledge, Attitudes, Perceptions and Practices Among Perinatal Women

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Introduction

Despite the high prevalence of perinatal anxiety and depression, poor perinatal mental health (PMH) literacy amongst pregnant women is still a major barrier in the Singapore population to seeking help for mental health problems. This study aimed to assess PMH literacy in terms of knowledge, attitudes, and help-seeking among perinatal women.

Methods

Using an online survey, data was collected from three hundred mothers during pregnancy, or between 0-12 weeks post-delivery from those who participated in the Integrated Maternal Perinatal Mental Health Care (I-MUM) study. The mothers self-reported their baseline characteristics, obstetric history, and filled in a 10-item Edinburgh Postnatal Depression Scale (EDPS) embedded within the survey. The surveys also assessed the knowledge, attitudes, perceptions and practices of perinatal mental health. Pregnant women with antenatal EPDS score ≥ 15 was considered as having probable depression during pregnancy, whereas postnatal EPDS score ≥ 13 indicated probable depression postnatal. Subclinical depressive symptoms were defined by EPDS score between 9-14. Items 3, 4, and 5 from the EPDS was used for calculating anxiety scores, and the EPDS score >5 was considered probable antenatal or postnatal anxiety. Descriptive data was presented as mean and standard deviation (SD), or frequency and percentages.

Results

There were 228 (76%) pregnant mothers with a mean (SD) gestational age of 20.6 (9.9) weeks, and 72 (24%) post-delivery mothers who were 7.1 (3.9) weeks post-delivery who responded to the survey. Overall, majority of the mothers were of Chinese ethnicity (60%), had a university degree (70%), and were working full-time (80%). The prevalence of high risk for probable depression and mean (SD) EPDS scores in our study sample was 11.7% and 9.1(4.6) respectively during the antenatal period, and 22.2% and 8.7(5.0) respectively during the postnatal period. There was a higher prevalence of those with subclinical depressive symptoms at 40.3% during the antenatal period, and 50.0% in the postnatal period. The prevalence of high risk for probable anxiety and mean (SD) EPDS scores in our study sample were 47.2% and 4.3(2.0) respectively during the antenatal period, and 51.4% and 4.2(2.1) respectively during the postnatal period. Approximately 96.4% of women were aware of PMH disorders, but 35.6% did not know or were unsure of the signs and symptoms of mental health disorders, 22.4% were not aware of the outcomes on pregnancy and child health. More than 70% reported having not received mental health assessments or education from their primary doctor, and only 14.9% reported that they would approach a HCP if experiencing MH symptoms. Overall, more than 91.1% of mothers agreed on the positive benefits of MH education, 86.8% agreed that screening mothers during pregnancy and post-pregnancy is important, and 96% agreed that it would be useful to have maternal

Conclusion

There is a high prevalence of antenatal and postnatal anxiety and depression amongst women, but sub-optimal MH literacy. These findings indicated a need for Perinatal Mental Health Guidelines for Singapore to educate mothers.

APMCH021 Capturing the value of Enterprise Risk Management (ERM) for the set-up of KKH COVID-19 Vaccination Centre

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Introduction

COVID-19 vaccination had played a huge role in our fight against COVID-19. Since Dec 2021, there had been many changes to the COVID-19 vaccination recommendations as the national COVID-19 vaccination exercise was rolled out. The COVID-19 vaccination exercise started in January 2021 where healthcare workers followed by all eligible persons aged 12 and above, including pregnant women, adolescents and immunocompromised persons. As KKH is the main tertiary public hospital for women and children, we took the lead in vaccinations and aimed to provide COVID-19 vaccinations for KKH staff and our patients safely.

Aim

To capture the value of enterprise risk management (ERM) for the set-up of a COVID-19 VC in administering COVID-19 vaccines safely to a variety of persons with different dose requirement.

Method

A multidisciplinary team from Infectious Disease (ID) Service, Hospital resuscitation Code Blue team, Nurses, Information Technology, Facilities Management, Pharmacists, Corporate communications, Specialty and Ambulatory Services (SAS) and Quality Safety & Risk Management was formed. Enterprise Risk Management (ERM) exercise was conducted. Risks were identified and analyzed according to its likelihood and severity ratings. Control measures were put in place to ensure that existing resources are adequate to provide vaccinations safely.

Risk Mitigation Measures:

- (a) Training for nurses regarding vaccine dilution for paediatric vaccine vials, accurate preparation and resuscitative measures
- (b) Bear-designed apron for paediatric vaccinator
- (c) Design of paediatric vaccination layout
- (e) Supply of vaccines is according to the scheduled numbers of patients on the appointment list by pharmacy staff daily
- (f) Daily reporting of number of paediatric & adolescent/adult doses administered was done before lunch break and at the end of the shift by the nurse in-charge. Tallied against the number of vaccine doses left.
- (g) Sourcing for stickers and small gifts for the recipients of the paediatric vaccine.

Results

Six thousand healthcare workers were vaccinated and by the end of May 2022, we had delivered more than 10,000 COVID-19 vaccine doses. There were no significant adverse events and ERM had ensured the safety of vaccine administration even in our centre that caters to a large variety of persons with different doses/vaccine requirement.

Conclusion

With the constant changes in this COVID-19 pandemic posture, the team had to adapt and change the workflow multiple times to cater to the needs of our patients and ERM reviews.

APMCH022 A Baseline Analysis of Gestational Diabetes Mellitus (GDM) Indicators for Population Health

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Background

As a leading maternal and child hospital in Singapore, the institution has been taking an active approach to screen all pregnant women for GDM. Women with GDM are at risk of developing diabetes at some point in their lifetime following delivery. Hence it is important that the KKH can detect GDM patients early, provide timely intervention, and also actively follow-up on the post-delivery care.

Objectives

Various indicators and counter balancing indicators in relation of GDM were lined out to track current status and identify areas of improvement. For detection of GDM patients, GDM screening rate and GDM incidence rate will be monitored using their antenatal oral glucose tolerance test (OGTT) results. GDM suboptimal management rate is used to identify adverse events from GDM substandard management through child birth weight. Postnatal OGTT completion rate for GDM patients was used as a measurement of post-delivery care, with percentage of GDM patients given postnatal OGTT appointment as a counter-balancing indicator.

Methods

Looking back at the patients who have delivered in KKH for the past 3 years, information such as the GDM screening period, antenatal OGTT results, postnatal OGTT appointment status, postnatal OGTT results and child birth weight. Based on the current workflow of identifying GDM patients, the team excluded patients who are already existing Diabetes Mellitus patients from the analysis as this group of patients will be directed to a separate care pathway. Through descriptive statistical analysis, the team plotted the distribution of performance of the various indicators.

Results

Through the use of data visualisation tool, the team shared the findings of the last 3 years' trend for all the GDM indicators identified. Results show that there is a year-on-year increase in the GDM screening rate for patients who have delivered from FY19 to FY21, with the GDM screening rate at 81.2% in FY21. About 19% of the patients who have completed their antenatal OGTT test have abnormal results. There is also a continual drop in the GDM incidence rate from FY20 Q4 to FY21 Q3.

There is also a year-on-year increase in the percentage of GDM patients who have completed their postnatal OGTT in KKH from FY19 to FY21. Although only 67.8% of the GDM patients have completed their postnatal OGTT between 3 – 24 weeks after delivery, around 90% of them have been given a postnatal OGTT appointment for follow-up.

As a measure of serious adverse outcome for GDM patients, the number of macrosomia cases were tracked. Amongst the GDM patients who have delivered between FY19 to FY21, around 2.1% have newborns with birth weight \geq 4000g.

Conclusion

By understanding the baseline of the current population, the team was able to have better oversight and also zoom in to specific areas for improvement. One of which would be to tighten the gap between the percentage of GDM patients given postnatal OGTT appointment and the percentage of GDM patients who actualized them. Early management of GDM will play a part to strengthen the prevention and management of diabetes in the population.

APMCH023 Improving emotional and mental well- being of postnatal mothers in primary care setting

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Background of issue/problem identified

Postnatal depression (PND) represents a major depressive disorder that can lead to maternal morbidity, threaten the family system and impact children's emotional development adversely¹ (Lee et al., 2016). Despite recommendations for early screening and interventions, PND often goes undertreated in the primary care setting.

In collaboration with KK Women's and Children's Hospital (KKH) in 2019, an opportunistic PND screening service for postnatal mothers using a 2-tier approach in Punggol polyclinic was established. However, by August 2020, only 21.4% of mothers picked up the with PND symptoms and counselled in Tier 2 nurses accepted referral to community and tertiary care. Nurses feedback that low confidence in counselling and assessment of indication for referral contributed to hesitancy in their management with possible PND.

Objectives

To improve emotional and mental well-being of postnatal mothers (1) building nurses' confidence in counselling and (2) enhancing referral process.

Improvements and results

- **A Plan-Do-Study-Act (PDSA) approach was adopted.**

Plan:

- Gather feedback from nurses on their knowledge gap
- Invite speaker from KKH Department of Psychological Medicine (DPM) to provide education

Do:

- Conduct in-service sessions, facilitated by KKH DPM
- Conduct post-intervention survey to assess effectiveness

Study:

- Analyse post-intervention findings
- Identify improvement areas from feedback

Act:

- Monitor feedback from nurses
- Reinforce and re-educate

- **Results**

- Nurses reporting 'confident' in providing counselling for mothers with PND signs increased from 20% to 71%
- Nurses reporting 'extremely confident' in referring mothers with PND signs for further evaluation increased from 10% to 71%
- Implementation of Edinburgh Postnatal Depression Scale (EPDS) tool increased referral rates from 21.4% to 47.6%

Conclusion

A combination of role-play sessions and EPDS tool implementation have increased nurses' efficacy levels and referral rates to specialized and community care significantly – improving quality of care for PND mothers in the primary care setting.

APMCH024 24-hour activity guidelines in children and adolescents: A prevalence survey in Asia-Pacific cities

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Introduction

This study aimed to compare the prevalence of adherence to 24-hour activity guidelines in children and adolescents from Asia-Pacific cities.

Methods

The sample consisted of 1139 children aged 5-18 years. Moderate-to-vigorous physical activity (MVPA), screen viewing time (SVT), sleep duration, child weight, height, sex and age were parent reported. BMI z-scores were derived using the World Child Growth Standards for 5-19 years, and childhood overweight and obesity (OWOB) was defined as age-and-sex-specific BMI z-score > 1SD. Meeting the 24-h activity guidelines was defined as ≥ 60 minutes/day of MVPA; ≤ 2 hours/day of SVT; and sleep duration of 9-11 hours/day (for 5-13 years old) and 8-10 hours (for 14-18 years old). Descriptive statistics were used to assess the number of guidelines met, and prevalence of adherence to activity guidelines by city and by child sex.

Results

The cities in India had the highest prevalence of OWOB at 35.4%, and Kowloon, Hong Kong the lowest at 19.5%. Overall, the prevalence of meeting all three 24-hour activity guidelines were low across all countries (1.8-10.3%) ($p < 0.05$). Children from Thiruvananthapuram had the highest prevalence [10.3% (95% CI: 6.0-17.0)], while children from Tokyo, Japan had the lowest prevalence [1.8% (95% CI: 0.5-7.0)] of meeting all three activity guidelines. Similarly, there were differences observed between sexes. The prevalence of OWOB was higher in boys (30.3%) compared to girls (21.6%), and there was a higher prevalence of boys meeting all three guidelines, compared to girls [5.9% (95% CI: 4.1-8.1) vs 4.7% (3.1-6.6), $p = 0.32$].

Conclusion

Evidence from our study showed that the prevalence of adhering to all three activity guidelines were low in all the five participating cities. Overall, a higher proportion of boys were meeting these guidelines, compared to girls.

APMCH025 Mean amplitude of glycemic excursion (MAGE) and standard deviation (SD) in early pregnancy may predict a subsequent diagnosis of gestational diabetes

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Introduction

This study examined the prospective association between CGM-derived glycemic variability (GV) and glycemic control (GC) parameters in the first and second trimester, with subsequent diagnosis of GDM in the early third trimester.

Methods

In a longitudinal observational study, 60 study participants in the first trimester (9–13 weeks' gestation), and 53 participants (18–23 weeks' gestation) in the second trimester of pregnancy had CGM data extracted after a minimum of 8 days' wear time (up to 14 days). At 24–31 weeks' gestation, participants underwent a 75 g, 2-hour oral glucose-tolerance test as per IADPSG criteria to diagnose GDM. GV parameters examined in both first and second trimesters were mean amplitude of glycemic excursion (MAGE), standard deviation (SD), mean glucose, and coefficient of variation (CV). GC parameters measured were J-Index and percentage of time spent in glucose target ranges.

Results

The first trimester SD and MAGE were significantly higher in participants subsequently diagnosed with GDM (SD adjusted median 1.31 [interquartile range 1.2–1.3] mmol/L; MAGE 3.26 [3.2–3.3] mmol/L) than those who were not (SD 1.01 [0.9–1.0] mmol/L, MAGE 2.59 [2.4–2.6] mmol/L; $p < 0.05$). Similarly, second trimester SD and MAGE were also significantly higher in participants subsequently diagnosed with GDM (SD 1.35 [1.3–1.4] mmol/L; MAGE 3.32 [3.31–3.41] mmol/L) than those who were not (SD 0.99 [0.98–1.01] mmol/L, MAGE 2.42 [2.42–2.55] mmol/L; $p < 0.05$). Associations between SD and MAGE with GDM outcomes were adjusted for prepregnancy BMI and ethnicity. There were nonsignificant trends of higher J-Index scores in the first and second trimester, higher CV in the first trimester only, and higher mean in the second trimester only in participants diagnosed with GDM. Other study parameters measured were not significantly different between groups ($p > 0.003$).

Conclusion

Our study suggests the potential value of CGM-derived SD and MAGE in early pregnancy as potential predictors of subsequent GDM diagnosis.

APMCH026 Safe and Effective Administration of Childhood Subcutaneous Vaccinations in Sengkang Polyclinic

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Background

The current practice in Sengkang Polyclinic is to use a 1 inch, 25-gauge needle for subcutaneous childhood vaccinations. The chances of delivering subcutaneous vaccines intramuscularly increases with the use of a one-inch needle.

Objectives

This project aims to ensure safe and effective delivery of childhood subcutaneous vaccination with the use of a 5/8 inch 25-gauge needle, with the mission statement being to achieve 100% optimization of confidence level and safe and effective delivery of childhood subcutaneous vaccination amongst Registered Nurses in Sengkang Polyclinic, within 6 months.

Methods

Literature reviews on administration of childhood subcutaneous vaccination, managing of fretful child, child positioning during vaccination was conducted. A pre-intervention survey was given to 22 nurses who were trained in delivering childhood vaccinations in Sengkang polyclinic, and its results were analyzed. A Pareto chart was used to examine the factors that affect nurses' confidence level in delivering subcutaneous vaccinations. A Prioritization matrix was utilized to narrow down on the interventions which were implemented in two PDSA cycles consisting of sharing sessions, hands-on practice of subcutaneous vaccination and showing of educational videos to nurses. A post-intervention survey was given at the end of the two PDSA cycles.

Results

A comparison of the answers in the pre-intervention and post-intervention survey was done. 96% of nurses were able to identify the correct site of child subcutaneous vaccination in the post intervention survey as compared to 36% in the pre- intervention survey. 100% of nurses were able to identify the correct angle of administering childhood subcutaneous vaccination in the post intervention survey as compared to 86% in the pre-intervention survey, 92% of nurses were able to identify the correct length of needle for childhood subcutaneous vaccination in the post intervention survey as compared to 82% in the pre intervention survey. 82% of nurses responded with feeling confident all of the time in the post- intervention survey when administering childhood subcutaneous vaccines to fretful, struggling child as compared to 59% in the pre-intervention survey.

Conclusion

There is an improvement in the knowledge of childhood immunization trained nurses in Sengkang polyclinic with regards to administration of childhood subcutaneous vaccination. The 5/8 inch, 25G needle for subcutaneous childhood vaccine was started for use at the immunization room by Registered Nurses at Sengkang Polyclinic.

APMCH027 A Qualitative Review and Perinatal Audit of Drug Abuse Care Management in Singapore

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Background

Drug use during pregnancy can have detrimental effects on pregnancy and can lead to poor child health outcomes. It is paramount to perform local qualitative review and perinatal audit on a regular basis to gain the clinical knowledge and relevant information on the care and management of these patients with drug abuse during pregnancy. Our aim was to assess the performance of the healthcare system and care provided to the patients with drug abuse in pregnancy by performing a perinatal audit of drug abuse in Singapore.

Objectives

The objectives of our study was to assess the performance of the healthcare system based on the World Health Organization (WHO) 16-point checklist.

Methods

A perinatal audit and review of management of cases of substances abuse in pregnancy from 2010 to 2020 was performed. Case records of substance abuse (excluding alcohol and tobacco) over the last 10 years from 2010 - 2020 were sourced via ICD 10 Diagnosis extracted from the medical records.

Results

There was a total of 20 women with perinatal drug abuse between 2010 and 2020. Three of the 20 women engaged in drug abuse for 2 of their pregnancies each, making 23 pregnancies affected by substance abuse during this period. The prevalence was 0.018% (23/128576) or 1 in 5,590 pregnant women. The commonly substance abuse were heroin with 11 cases (55.0%). Our audit showed general fulfillment of standard of care providing comprehensive assessment and individualized care, despite the tendency for patients to default care.

Conclusion

Pregnant women with drug abuse were appropriately identified during antenatal screening visit, referred to the appropriate multidisciplinary team for assessment and evaluation before rendering comprehensive assessment and individualized care. Improving policies and having a local registry to enhance comprehensive antenatal & perinatal obstetric care with multi-disciplinary inputs need to be developed, encouraged, sustained and implemented well at all levels.

APMCH028 The KKH Perinatal High Risk Consult – Fetal-Neonatal Conjoint Management

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Objective

The KKH Perinatal High Risk Consult (HRC) has served as a focal point for the management and referral of high risk pregnancies for nearly thirty years. It is a specialized service centred around a weekly meeting at which maternal fetal medicine specialists, neonatologists, obstetric physicians and obstetricians meet and discuss the management of high risk pregnancies. The aim of this study was to analyse the number, types and trends in cases managed by this service over the years.

Methods

All cases discussed at HRC during two epochs, 1994 to 2003 and 2008 to 2021, were entered into a database and analysed. Changes in disease caseloads between the two periods were compared. The maternal and neonatal outcomes of the cases were recorded.

Results

During the epoch 1994 to 2003, 2356 cases were discussed at HRC which comprised 1.56% of the 151,589 deliveries in KKH over the same time period. This compared to 2514 cases, or 1.55% of the 162,017 deliveries during the epoch 2008 to 2021. Some cases had more than one condition and the total number of conditions discussed were 4097 and 5944 in the two epochs respectively. During the first epoch the most common conditions were preterm rupture of membrane (PPROM) (30.6%), fetal growth restriction (FGR) (23.6%) and preterm labour (21.9%). While for the second epoch the most common conditions were fetal

anomaly (FA) (34.2%), FGR (32.9%) and PPROM (21.6%). Between 1994 and 2021 the stillbirth rate showed a steady decline from 4.49 to 3.05 per 1000 births. Similarly, the perinatal mortality rates fell from 6.36 to 3.72 per 1000 births between 1994 and 2021 respectively.

Conclusion

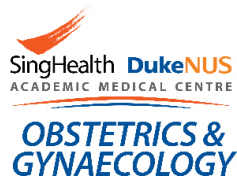
The most common case types discussed in HRC in the second epoch were fetal anomaly and intrauterine growth restriction but two decades previously they were preterm rupture of membrane and fetal growth restriction. The increased percentage of fetal anomaly cases (from 3% to 34.2%) in the second epoch may reflect a true increase in FA but is likely to also reflect the advancing screening technologies which has led to earlier detection, intervention and counselling. Our findings provide information for service planning, as well as an opportunity for teaching, and reiterate the usefulness of a perinatal HRC.

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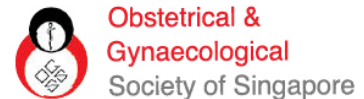
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Research Theme 3: Innovative & System Research Platform for Enhancing Health Outcome in Women and Children with High Metabolic Risks

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Research Theme 7: Combined Registry for Metabolic Diseases (Obesity and Diabetes)

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Research Theme 2: Collaborative Research Platform for Early Intervention for Infant and Children with High Risk of Metabolic Diseases

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Research Theme 4: Qualitative Research Platform for Maternal-Child Adjustment and Patient Activation in Women and Children with High Metabolic Risks Diseases

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Research Theme 6: Collaborative Implementation Science Platform for the Optimal Implementation of Programs for better Maternal and Child Health Outcomes

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The Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) has evolved from the original Integrated Platform for Research in Advancing Metabolic Health Outcomes of Women and Children, to focus comprehensively on various pressing issues (e.g., mental health) in maternal and child care, besides metabolic health.

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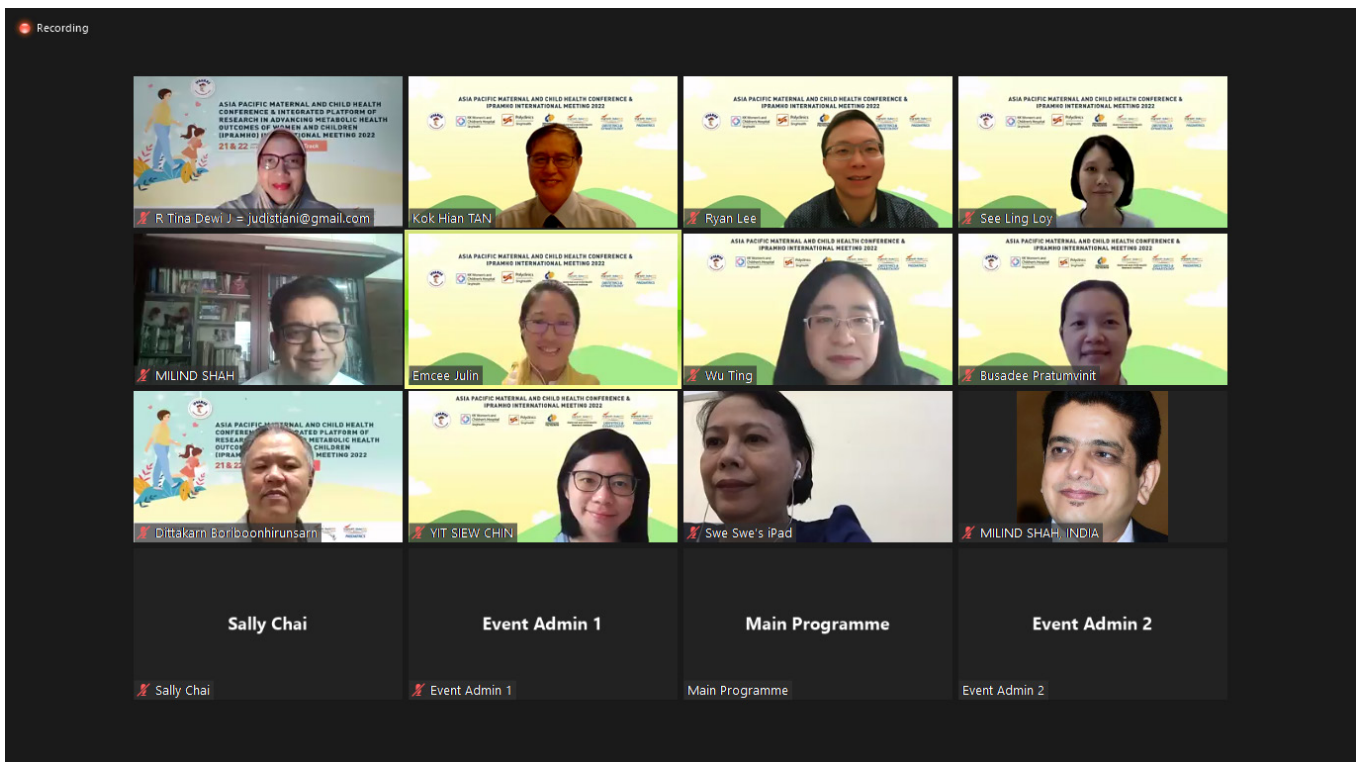
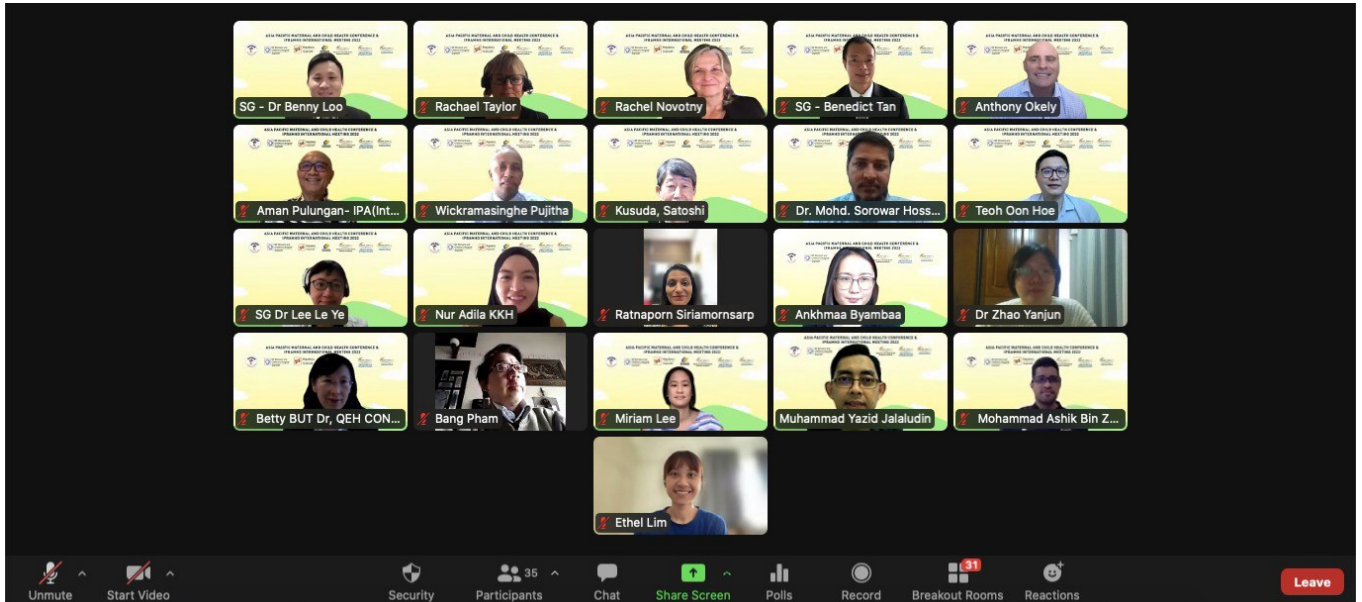
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21 & 22

JANUARY 2022


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Senior Minister of State for Health and Manpower


Assoc Prof Ng Kee Chong
KK Women's & Children's Hospital, Singapore




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