

THE KKH NAMED CENTENARY LECTURES

The **KKH Named Centenary Lectures** honour the distinguished careers and contributions of four prominent figures who have left an indelible mark on Kangar Kerbau Hospital (KKH) and the field of obstetrics and gynaecology.



Professor SS Ratnam

- Faculty Staff of Kangar Kerbau Hospital 1961-1985
- Professor & Head KKH 'U' Unit (University Department of Obstetrics & Gynaecology) 1969-1985
- Director of WHO Collaborating Centre for Research in Human Reproduction started in 1972
- Director of WHO Collaborating Centre for Maternal & Child Health/Family Planning Service, Research, and Training in Singapore started in 1982.
- President of the International Federation of Gynaecology and Obstetrics (FIGO) 1985-88
- Delivered Asia's First IVF Baby 1983 in KKH

Professor SS Ratnam served on the faculty staff of KKH from 1961 to 1985, rising to become Professor and Head of the 'U' Unit, the University Department of Obstetrics and Gynaecology, from 1969 to 1985. His leadership extended beyond Singapore, as he directed the WHO Collaborating Centre for Research in Human Reproduction, established in 1972, and later, the WHO Collaborating Centre for Maternal & Child Health/Family Planning Service, Research, and Training, inaugurated in 1982. A visionary in reproductive medicine, Professor Ratnam delivered Asia's first IVF baby at KKH in 1983. His global influence was further cemented when he served as President of the International Federation of Gynaecology and Obstetrics (FIGO) from 1985 to 1988.



Professor Lean Tye-Hin

- Faculty Staff of KKH 1953-1977
- First Head of KKH 'A' Unit - 1962 to 1977.
- Clinical Professor 1972-1977
- President of the Asian Federation of Obstetrics and Gynaecology from 1968 to 1971 and chaired the Federation's 4th Asian Congress in 1968, the first major congress in O&G organised by Singapore
- First Chairman Congress Trust Fund of OGSS from 1971 to 1981.
- He gave the Joseph Price Oration on the topic of "Maternal Mortality in Singapore" at the Annual Meeting of the American College of Obstetricians and Gynecologists in 1970.
- The 'A' Unit was redesignated as the Gynaecological Oncology & Urogynaecology (OU) department in 1990 when KKH was restructured.

Professor Lean Tye-Hin was a key figure at KKH, joining the faculty in 1953 and serving until 1977. He was the first Head of the 'A' Unit, holding this position from 1962 to 1977, during which he also served as Clinical Professor from 1972 to 1977. A leader in the Asian medical community, Professor Lean was President of the Asian Federation of Obstetrics and Gynaecology from 1968 to 1971 and chaired the Federation's 4th Asian Congress in 1968—the first major congress in obstetrics and gynaecology organized by Singapore. His expertise was internationally recognized when he delivered the Joseph Price Oration on "Maternal Mortality in Singapore" at the Annual Meeting of the American College of Obstetricians and Gynecologists in 1970. Following KKH's restructuring in 1990, the 'A' Unit was redesignated as the Gynaecological Oncology & Urogynaecology (OU) department.



Professor Yvonne Marjorie Salmon

- Faculty Staff KKH 1953 – 1996 (one of the longest serving medical staff)
- Head of KKH 'B' Unit 1975-1986
- The first woman to lead an Obstetrics and Gynaecology department at KKH
- Clinical Professor at the University of Singapore in 1977-1986
- Visiting Consultant 1986 to 1996.
- Chairman of the Chapter of Obstetricians and Gynaecologists of the Academy of Medicine, Singapore from 1971 to 1972.
- The 'B' Unit was redesignated as the Reproductive Medicine (RM) department in 1990 when KKH was restructured.

Professor Yvonne Marjorie Salmon dedicated over four decades of service to KKH, from 1953 to 1996, making her one of the hospital's longest-serving medical staff members. She became the Head of the 'B' Unit from 1975 to 1986, notably becoming the first woman to lead an Obstetrics and Gynaecology department at KKH. Her academic contributions were also significant, as she served as a Clinical Professor at the University of Singapore from 1977 to 1986, and later as a Visiting Consultant until 1996. Professor Salmon also chaired the Chapter of Obstetricians and Gynaecologists of the Academy of Medicine, Singapore from 1971 to 1972. In 1990, the 'B' Unit was redesignated as the Reproductive Medicine (RM) department following the hospital's restructuring.



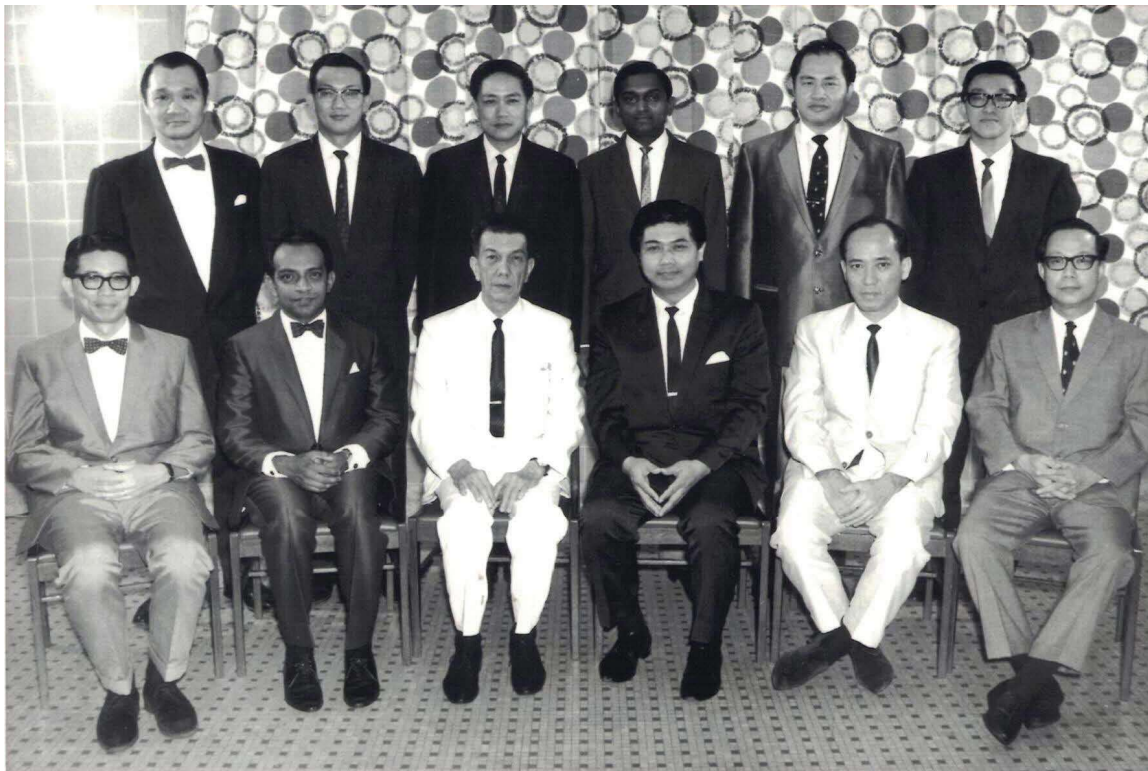
Professor Tow Siang Hwa

- Faculty Staff KKH 1954-1969
- Head & Professor KKH 'U' Unit (University Department of Obstetrics and Gynaecology) 1961 to 1969
- His five-year study starting 1959; of 400 cases of molar pregnancies established KKH as a world leader in this area.
- Instrumental in the accreditation of KKH by the Royal College of Obstetricians and Gynaecologists (RCOG) in 1963
- Delivered the RCOG Blair Bell Lecture award and the Edgar Gentilli Prize Lecture both in 1965.
- Dr Tow was the President, Obstetrical & Gynaecological Society of Singapore in 1965 and 1968, and the President, Obstetrical & Gynaecological Society of Malaysia in 1965/66

Professor Tow Siang Hwa was an influential figure at KKH from 1954 to 1969, serving as Head and Professor of the 'U' Unit, the University Department of Obstetrics and Gynaecology, from 1961 to 1969. His groundbreaking five-year study of 400 molar pregnancies, which began in 1959, established KKH as a world leader in this area of research. Professor Tow was instrumental in achieving accreditation for KKH from the Royal College of Obstetricians and Gynaecologists (RCOG) in 1963, a testament to his commitment to advancing medical standards. His scholarly achievements were recognized through prestigious awards, including the RCOG Blair Bell Lecture award and the Edgar Gentilli Prize Lecture, both delivered in 1965. He also held significant leadership roles, serving as President of the Obstetrical & Gynaecological Society of Singapore in 1965 and 1968, and as President of the Obstetrical & Gynaecological Society of Malaysia in 1965/66.



Aerial View - Old KKH 1990s



Organizing Committee of the 4th Asian Congress of Obstetrics and Gynaecology, Singapore Conference Hall, 15–24th November 1968. Photo taken in KKH.

*Front row (left to right): Dr R Yung, Dr SS Ratnam, Prof BH Sheares, Dr TH Lean, Prof SH Tow, Dr SM Goon.
Back row (left to right): Dr WC Cheng, Dr SP Wong, Dr YN Loke, Dr WR Rasanayagam, Dr KS Khew, Dr KD Chong*



The Organizing Committee of the 4th Asian Congress of Obstetrics and Gynaecology held from 15th–24th November 1968 at the Singapore Conference Hall, was chaired by Mr TH Lean. *The Committee is shown selecting the logo for the Congress in the KK Doctors' Room. From left: Prof SH Tow, Dr SS Ratnam, Mr TH Lean, and Dr SM Goon.*



KKH Pioneers at KK Women's and Children's Hospital on 18th May 2002.
Dr Lean Tye-Hin, Dr Oon Chiew Seng, Dr Yvonne Salmon & Dr Tow Siang Hwa



KKH Pioneers at KK Women's and Children's Hospital on 18th May 2002.
Dr Lean Tye-Hin, Dr Oon Chiew Seng, Dr Yvonne Salmon & Dr Tow Siang Hwa.



Plenary Speaker for the SS Ratnam Lecture



Prof Sir Sabaratnam Arulkumaran

*Professor Emeritus of Obstetrics and Gynaecology, St George's University of London
Visiting Professor, Institute of Global Health Innovation, Imperial College London
Foundation Professor of Obstetrics and Gynaecology, University of Nicosia*

Sir Arul's clinical academic career started in KK Hospital in 1982. He enjoyed participating in research, teaching and clinical care. He became the head of O&G at National University of Singapore before he moved to the University of Nottingham as Professor in 1997. Currently he is Professor Emeritus of Obstetrics and Gynaecology, St George's University of London after being Head of department from 2001 -2013. He is also Foundation Professor of Obstetrics & Gynaecology, University of Nicosia and Visiting Professor, Institute of Global Health, Imperial College; London. He was past President of the FIGO (International Federation of Obstetrics & Gynaecology), the British Medical Association (BMA) and the Royal College of Obstetricians and Gynaecologists.

Arul is author of over 320 indexed publications, editor / author of 32 books and over 200 book chapters. He was Editor in Chief of Best Practise and Research in Clinical Obstetrics & Gynaecology – a popular CME Postgraduate Journal and Global Library of Women's medicine-www.glowm.com. He is recipient of Visiting Professorships from Australia, India, Malaysia, Singapore, Japan, USA & Canada. In recognition of his contribution to women's health he was awarded Honorary fellowships by the American, Sri Lankan, South African, Pakistan, Indian, Australian & NZ Colleges of O&G and Hon Membership of the Canadian, Malaysian, German, Italian, Spanish, Japanese and South African Societies. He was awarded Hon Doctor of Science by the Universities of Athens – Greece; Colombo – Sri Lanka; Lund - Sweden, Odessa - Ukraine and St George's University - London. He is Hon Fellow of the Institute of Medicine, National Academy of Sciences, USA.

Arul's contribution to women's health was recognised with three National Honours; UK - Knight Bachelor by the Queen in her Birthday Honours List in June 2009; Ranjana National award by the Sri Lankan President in 2019 & Active Citizen award by the President of Cyprus in 2019.

Plenary Speaker for the Lean Tye-Hin Lecture



Prof John Kingdom

*Canerector Chair and Staff Obstetrician
Maternal-Fetal Medicine Division
Department of Obstetrics and Gynaecology
Mount Sinai Hospital
Professor, Department of Obstetrics and Gynaecology and Laboratory Medicine
and Pathobiology
University of Toronto
Senior Clinician Investigator, Lunenfeld-Tanenbaum Research Institute, Sinai
Health System*

John is a Clinician-Scientist and High-Risk Obstetrician in the Maternal-Fetal Medicine Division with a clinical and research focus on the full range of medical and surgical complications associated with abnormal placentation. His work centers on the Placenta Program, working with his colleagues Dr Rory Windrim and Dr Sebastian Hobson. His research focuses on improving clinical outcomes in women at risk of medical and surgical complications arising from disorder of the placenta. These efforts include screening, diagnosis and management of the "placental insufficiency" disorders and the placenta accreta spectrum (PAS) disorders. His current work focuses on the clinical utility of maternal circulating Placenta Growth Factor (PlGF) and in the use of advanced ultrasound and MR imaging methods. Therapeutically, his focus is on the non-anticoagulant actions of heparin as a pathway to restore deficient PlGF.

Plenary Speaker for the Yvonne Salmon Lecture



Prof Catherine Williamson

*Professor of Women's Health and Honorary Consultant Obstetric Physician
Imperial College London, Institute of Reproductive and Developmental Biology*

Catherine Williamson, MD, FRCP, FMedSci, is Professor of Women's Health at Imperial College London. In her clinical practice, she manages women with medical disorders in pregnancy. Her research focuses on the endocrine signals that influence alterations in bile acid, lipid, and glucose homeostasis in normal and pathological pregnancies. She studies the maternal and fetal aetiology, outcomes, and management of intrahepatic cholestasis of pregnancy, gestational diabetes mellitus, and severe hyperemesis gravidarum. Her cholestasis work has resulted in the implementation of genetic screening for biliary transporter mutations by the NHS Genomic Medicine Service, and she is now evaluating the impact of identified mutations on maternal future health. Her team also established the threshold concentrations of serum bile acids that are associated with an increased risk of spontaneous preterm birth and stillbirth; work that is now cited in many international guidelines. She is leading clinical trials to evaluate bile acid therapies for gestational cholestasis and diabetes. She is Director of the Tommy's National Centre for Preterm Birth Research, a collaboration between Imperial College, University College, King's College, Queen Mary University London, and Leeds University that includes the UK Preterm Birth Network, enabling involvement of collaborators throughout the UK. As Centre Director, she coordinates a research portfolio that aims to understand the aetiology of preterm birth, develop research-informed interventions, and provide improved support for women affected by preterm birth. Important national collaborations include leading two pregnancy studies for the NIHR BioResource Rare Disease collaboration, leading the Women's Health Diverse data collaboration between Genomics England and Tommy's and being a member of the Obstetric Working Group for the RECOVERY trial during the COVID pandemic. Professor Williamson's contribution to research has been recognized by the award of Fellowship to the Academy of Medical Sciences and a NIHR Senior Investigator Award. She contributes to the formation of national and international guidelines; current examples include the NICE Primary Hyperparathyroidism and the European Association for the Study of the Liver (EASL) Clinical Practice Guideline on Liver Disease in Pregnancy. She was an assessor of maternal deaths in the UK for >10 years and co-authored four CEMD / MBBRACE maternal mortality reports.

Plenary Speaker for the Tow Siang Hwa Lecture



Prof Sailesh Kumar

*Mayne Professor of Obstetrics and Gynaecology
Head of Mayne Academy of Obstetrics and Gynaecology Faculty of Medicine
University of Queensland
NHMRC Leadership Fellow and Professor of Obstetrics and Gynaecology
Mater Research Institute / University of Queensland
Senior Specialist, Maternal Fetal Medicine / Obstetrics
Mater Mothers' Hospital and Royal Brisbane and Women's Hospital*

Professor Kumar is an Australian National Health and Medical Research Council Leadership Fellow and Mayne Professor and Head of the Mayne Academy of Obstetrics & Gynaecology at the Faculty of Medicine, University of Queensland. He is an accredited Maternal Fetal Medicine specialist both in the UK and Australia. He is a Senior Specialist in Maternal Fetal Medicine/Obstetrics at the Mater Mothers' Hospital and Royal Brisbane and Women's Hospitals in Brisbane, Australia. His practice covers all aspects of diagnostic and therapeutic modalities including complex fetal interventional procedures. He trained in Obstetrics and Gynaecology in Singapore, United Kingdom and Australia. He obtained his Doctor of Philosophy degree from the University of Oxford and is a Fellow of the Royal College of Surgeons of Edinburgh, Royal College of Obstetricians & Gynaecologists (UK) and Royal Australian & New Zealand College of Obstetricians & Gynaecologists. He completed his subspecialist Fellowship in Maternal & Fetal Medicine at Queen Charlotte's & Chelsea Hospital/Imperial College London. He has >200 publications and his area of research is in fetal therapy, fetal growth restriction, prediction of adverse perinatal outcomes and placental biomarkers.

Speakers

Muhammad Fairuz Abdul Rahman

*Consultant, Department of Obstetrics and Gynaecology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Fairuz is a Consultant in the Department of Obstetrics & Gynaecology, KKH. He graduated from the NUS Yong Loo Lin School of Medicine in 2011 and underwent postgraduate training in the SingHealth OBGYN residency programme. He obtained his MRCOG and Master of Medicine (MMed) in O&G in 2018. He is accredited as a specialist in O&G since 2021. He has a keen interest in Minimally Invasive Surgery (MIS) and has been involved in various workshops both local and overseas in Basic and Advanced Laparoscopy and vNOTES. He regularly contributes to the community via Project ARIF, to provide couples in their journey towards marriage and family life and to optimise maternal wellness and child development. In his spare time, he does CrossFit and Olympic weightlifting.

Dr Joella Ang Xiaohong

*Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
Consultant, Division of Surgery and Surgical Oncology
National Cancer Centre, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Joella Ang graduated from Yong Loo Lin School of Medicine, National University of Singapore in 2012 and embarked in training with the SingHealth Obstetrics and Gynaecology Residency Programme. She received her MRCOG(UK) and MMed Obstetrics & Gynaecology (Singapore) in 2017/2018. In 2020, Dr Ang was accredited as a Specialist in Obstetrics & Gynaecology, with subspecialty training in the treatment of gynaecological cancer. She believes in education and mentoring of her juniors and is involved in various education projects. She is a core faculty member of the SingHealth OBGYN Residency Programme. She strives for clinical and academic excellence in the field of Obstetrics, Gynaecology and Gynaecological Oncology and provides the best care to her patients.

A/Prof Ang Seng Bin

*Senior Consultant, Family Medicine Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Family Medicine Academic Clinical Programme*

A/Prof Ang Seng Bin is a Family Physician, Senior Consultant at Family Medicine Service of KK Women's and Children's Hospital (KKH). A/Prof Ang has been active in undergraduate and postgraduate teaching and has several teaching appointments which include Director, Innovation in the Family Medicine Academic Clinical Programme (FM ACP) of the SingHealth Duke-NUS Academic Medical Centre, Associate Programme Director of SingHealth Family Medicine (FM) Residency Program, Faculty for the Fellowship programme of the College of Family Physicians Singapore (CFPS), Physician Faculty for the SingHealth Obstetrics & Gynaecology (OBGYN) Residency Program, Clinical Associate Professor in O&G, Paediatric as well as FM clerkships for Duke-NUS Medical School. His research interests include osteoporosis, menopause, sexual health, healthcare innovations as well as dermatology.

Ms Donabel Baskaran

*Principal Occupational Therapist, Occupational Therapy Service
Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Donabel is a Principal Occupational Therapist at KK Women's and Children's Hospital, where she has dedicated 16 years to working with both paediatric and geriatric patients.

Donabel has received certification in feeding programs such as Sequential-Oral-Sensory feeding and is WeeFIM certified. Additionally, she has attended neonatal training programs such as 'Supporting and Enhancing NICU Sensory Experience' program (SENSES) and 'IGNITE -Core Theory and Mentoring program for Neonatal therapists' programs to enhance her knowledge in neonatal care. She is also a certified car seat technician and, also contributes to clinical education in her field of work. Her extensive professional experience includes working with children across the developmental workstream and in acute care settings, where she reviews patients in inpatient wards and ICUs as well as in the outpatient clinics. Donabel's expertise also extends to managing oncological rehabilitation among adult patients in Acute settings. She has an expansive background in managing children with developmental and neurological conditions, feeding difficulties, and orthopedic conditions. Donabel also plays a vital role in various multidisciplinary clinics, providing holistic patient care, especially for those with multiple medical comorbidities.

Donabel's expertise lies particularly in the field of neonatal care, where she emphasises the importance of sensory regulation and parental involvement during the early years of a child's life, beginning from their early years in the neonatal intensive care unit. She is also an advocate for patient safety, highlighting the critical role of car seats for young infants and children. Through her work with neonatal patients, Donabel has enhanced the crucial role of sensory-based regulation strategies in nurturing infant-parent bonding. Her approach highlights how early intervention and sensory regulation can positively influence developmental outcomes for children.

Dr Anju Bhatia

*Senior Staff Physician, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Anju Bhatia works as a Senior Staff Physician with the Department of Maternal-Fetal Medicine, at KK Women's and Children's Hospital. She is an integral member of the Fetal Medicine team. She cares for patients with multiple gestations, fetal anomalies, and high-risk maternal conditions. She has a postgraduate degree in Obstetrics & Gynecology (MD) from Lady Hardinge Medical College, India, and the Royal College of Obstetrics & Gynecology (FRCOG, UK). Owing to her keen interest in fetal medicine, she proceeded to do a Master's in Maternal-Fetal Medicine at BC Natal, University of Barcelona and has completed it with honors.

She has been involved in education, research, and clinical management for over 12 years at KKH. She is the part of teaching faculty of Yong Loo Lin School of Medicine, the National University of Singapore, Duke -NUS Graduate Medical School, and Lee Kong Chian School of Medicine. She is the MF lead in the perinatal palliative team. She has publications in peer-reviewed local and international journals.

Dr Kazila Bhutia

*Consultant, Department of Urogynaecology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Kazila Bhutia is a Consultant Obstetrician, Gynaecologist and sub-specialist Urogynaecologist and Pelvic Floor Reconstructive Surgeon in KK Women's and Children's Hospital (KKH), Singapore. She completed her six years of basic and advanced O&G specialist training in KKH. Subsequently, she underwent three years of subspecialty training in urogynaecology in KKH and the Royal Women's Hospital, Melbourne, Australia. Apart from urogynaecology problems, such as pelvic organ prolapse and urinary incontinence, her special interests include the use of minimally invasive surgery in pelvic reconstructive surgery and the management of urogenital fistulas and pelvic mesh-related problems. She was instrumental in introducing laparoscopic urogynaecology service not only in KKH but in Singapore as well. In addition, she is one of the early adaptors of vNOTES (Vaginal Natural Orifice Transluminal Endoscopy Surgery) in Singapore and among few world experts certified by International NOTES Society.

Apart from her clinical appointments, Dr Kazila is a lead investigator in multiple research projects involving pelvic organ prolapse, urinary incontinence and vNOTES. She has published in multiple scientific journals and has presented papers in both local and international conferences. She is also committed to the teaching and training of juniors and residents. She serves as a Clinical Assistant Professor in DUKES-NUS Graduate Medical School and Clinical Lecturer in NUS YLL and LKC Medical School, Singapore. She is also a Clinical Lead at the SingHealth DUKE-NUS Pelvic Disorders Centre.

Dr Kazila is a committee member of IUGA Pelvic floor and anal Sphincter Injuries SIG Steering Committee as well as IUGA Fellow, Trainee and Early career professional Committee. In addition, she is a self-funded medical volunteer who travels annually to resource-constrained areas like Africa and Asia, treating women with pelvic floor disorders and genital fistulas.

Prof Jerry Chan Kok Yen

*Director, SingHealth Duke-NUS Maternal & Child Health Research Institute
Senior Consultant, Department of Reproductive Medicine, Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
Academic Vice Chair, Research
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Prof Jerry Chan is a Senior Clinician Scientist, Reproductive Medicine Specialist and Obstetrician and Gynaecologist. He read medicine at Trinity College Dublin, trained at Queen Charlotte's and Chelsea Hospital, and completed a PhD in fetal stem cell transplantation at Imperial College London before setting up the Experimental Fetal Medicine Group in 2005. He splits his time between both clinical and translational research activities. Prof Chan's research straddles several fields of cutting-edge science underpinning advances in reproductive biology, from early fetal development and immunology to fetal therapy and perinatal advancements through optimising fertility and perinatal outcome. His lab seeks to translate discoveries from the laboratory and clinical arena into clinical applications to improve patient outcomes. Prof Chan is also the Director of the SingHealth Duke-NUS Maternal and Child Health Research Institute that seeks to optimise health outcomes for mothers and their children.

Ms Cheong Xinyi

*Principal Psychologist, Psychology Service
Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Ms Cheong Xinyi is a Principal Psychologist at KKH, Psychology Service. She completed her training in the area of Clinical Psychology and has worked with populations ranging from children to adults who present with complex emotional, behavioral and mental health conditions. She has an interest in working with women with sexual health difficulties as well as in research related to this. She has trained with the European Society for Sexual Medicine (ESSM), School of Sexual Medicine and is a EFS-ESSM certified Psycho-Sexologist (ECPS). She is also a registered psychologist with the Singapore register of Psychologists. She also lectures at various post graduate Clinical Psychology and Counselling programmes, also being involved in the training and supervision of provisional psychologists.

Dr Felicia Chin Hui Xian

*Senior Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Felicia Chin is a Senior Consultant with the Department of Gynaecological Oncology, KK Women's and Children's Hospital, Singapore. She graduated from the Yong Loo Lin School of Medicine, National University of Singapore, in 2008, attained specialist accreditation in Obstetrics and Gynaecology in 2016, and underwent subspecialty training in Gynaecological Oncology. She was awarded the Singhealth Health Manpower Development Plan Award in 2019 and completed her fellowship in Fertility Sparing Management in Gynaecological Cancers at the Royal Women's Hospital, Melbourne. In 2020, Dr Chin spearheaded the Gynae Oncofertility Service in KKH, a first-in-Singapore service, which provides multidisciplinary, holistic care for young women with gynaecologic cancers, with a focus on fertility preservation.

A/Prof Chong Shu-Ling

*Senior Staff Physician, Department of Emergency Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Chong Shu-Ling is a Senior Staff Physician in the Department of Emergency Medicine, KK Women's and Children's Hospital. She led multicentre prospective observational studies in Asia (Pediatric Acute and Critical Care Medicine Asian Network, PACCMAN) and Latin America (Red Colaborativa Pediátrica de Latino America, LARed)). The study team sought to use comparative effectiveness research (CER) methodology to compare the use of 3% hypertonic saline and 20% mannitol and their association with the clinical outcomes of mortality and functional outcomes (including discharge Pediatric Cerebral Performance Category {PCPC} scale and 3-month Glasgow Outcome Scale Extended – Peds {GOS-E Peds}).

Dr Chong's areas of interest include:

1. Early identification of infants and children at risk of acquired brain injuries (ABI) in Singapore
Sepsis and traumatic brain injury affect the neuroplasticity and blunt the affected child's developmental trajectory. Dr Chong's research projects have largely focused on early identification of ABI targeted at timely intervention, with the goal of returning children from illness to health. These include prehospital Glasgow coma scale assessment in paediatric trauma (*Am J Emerg Med*, 2024), derivation of a Febrile infants risk score at triage (FIRST) for the early identification of serious bacterial infections (SBIs) (*Sci Rep*, 2023), effective diagnosis of sepsis using probabilistic graphical models and other data approaches (*Transl Pediatr*, 2023).
2. Investigation on long-term neurodevelopmental outcomes in children with ABI
Neurodevelopment is an increasingly important patient-centric measurable outcome. Dr Chong has led teams to investigate neurocognitive outcomes among children with traumatic brain injuries and found that injuries can affect multiple domains – including executive function, learning and memory (*J Neurol Neurosurg Psychiatry*, 2021)
3. Developing and leading multicentre research in Asia
Driven by her motivation to study ABIs not only in Singapore but also in the region, Dr Chong led participating critical care units in the Paediatric Acute and Critical Care Medicine Asian Network (PACCMAN) on a number of topics in traumatic brain injury research (*J Neurosurg Pediatr*, 2024; *Acta Neurochir*, 2024, *J Pediatr Surg*, 2024, *Acta Neurochir*, 2023, *Neurosurgery* 2021, *Pediatr Crit Care Med*, 2021).

Dr Chow Wen Hann

*Consultant, General Paediatrics Service, Department of Paediatrics
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Chow Wen Hann is a consultant paediatrician at KK Women's and Children's Hospital (KKH). His specialty interests include child advocacy and safeguarding, community and general paediatrics. He also leads a team in the KKH Anchor programme, a home visitation programme that aims to provide trauma-informed care to at-risk families with young children, to mitigate the long-term risks posed by the adversities they face. He believes that it is important for these at-risk families to be supported holistically such that every child can reach their full potential. He is also passionate about raising awareness to protect children from maltreatment. Aside from advocacy work, Dr Chow is also interested in medical education and believes that simplifying complicated concepts is an art and a key to learning.

Dr Chua Ka-Hee

*Consultant, Department of Reproductive Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Chua Ka-Hee is a Consultant in the Department of Reproductive Medicine, KK Hospital. He graduated from NUS School of Medicine and underwent Singhealth Residency training in Obstetrics & Gynaecology. In addition to assisted reproduction treatment via intrauterine insemination or in-vitro fertilisation, he also has a keen interest in minimally invasive surgery to enhance fertility. He also subspecialises in Andrology, the treatment of male sexual dysfunction and infertility.

Dr Ee Tat Xin

*Consultant, Department of Reproductive Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ee Tat Xin is a Consultant Fertility Specialist with the Department of Reproductive Medicine KK Women's and Children's Hospital. He is also a Clinical Assistant Professor with Singhealth OBGYN ACP and clerkship director for the OBGYN Clerkship for Duke-NUS Medical School. Dr Ee further subspecialises in fertility preservation and is the clinical lead for the fertility preservation service for KKIVF. He co leads the Oncofertility clinic, which is the first of kind service in Singapore, catering a one stop service for young patients with gynecological cancers to pursue their fertility wishes. His vision for fertility preservation is to provide high quality, technologically advanced medical access to more young patients with known conditions that adversely affect their fertility potential. Additionally, even for young women with no medical conditions, fertility preservation can be a viable avenue for them to expand their fertility potential if there are intentions to delay motherhood.

Dr Muniswaran Ganeshan

*Maternal Fetal Medicine Specialist
Consultant Obstetrician and Gynaecologist
Pantai Hospital Kuala Lumpur and Institute Jantung Negara, Malaysia*

Dr Muniswaran Ganeshan is the President of the Obstetrical and Gynaecological Society of Malaysia (OGSM) and the founding president of the Malaysian Obstetric Medicine Society (MOMS). As a subspecialist in Maternal Fetal Medicine, with a passion for maternal medicine, he pioneered, leads, and advocates maternal medicine services which he established upon his return from UK in 2016. He runs a high-risk pregnancy clinic at Pantai Hospital Kuala Lumpur, while he also dedicates his time towards teaching postgraduate students at the University of Malaya, Kuala Lumpur and the MRCOG trainees. He is also the advisor and lead obstetrician for cardiac services among pregnant mothers at the National Institute of Heart, IJN since 2016 and is their resident Obstetrician now. Apart from receiving his fellowship from the Royal College of Obstetricians & Gynaecologist, he completed his subspeciality training in maternal medicine in the UK, obtained his masters in O&G from University Malaya with a gold medal and he also recently completed his Master of Law in Healthcare and Medical Law. He is also the treasurer of the College O&G of Malaysia and the chair of the MMA Women Committee which he initiated. 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 and is working on numerous other national guidelines related to high-risk pregnancies. 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 and international conferences especially with regards to maternal medicine, high risk pregnancies and obstetric emergencies which remains his passion. He had authored numerous books, including the award winning "Handbook in Obstetric Emergencies" and "Preeclampsia; An Enigma". He remains dedicated to his passion which is to establish Maternal Medicine services in Malaysia and to improve the standards and quality of care for mothers with medical complications in pregnancy.

Ms Bavani Govindarasu

Senior Community Health Visitor, ANCHOR Programme
Division of Medicine
KK Women's and Children's Hospital, Singapore

Bavani Govindarasu is a Senior Community Health Visitor in KKH. She joined Anchor Program in 2020 to support children experiencing or suspected of maltreatment and neglect. She continues to facilitate parent child engagement and actively contributes to shape the home visiting needs structure and competencies. Prior to Anchor, in 2014 she was working as a community health visitor in KIDS 0-3 Program and fostered skills in providing direct casework for families needing additional support in parenting works, assisting to coordinate social support, and helping them to link up with community services. Bavani Govindarasu also has an accumulative background experience of 6.5 years as a registered nurse in mental health, chronic disease management and general medicine and surgical areas. She holds a Master of Counseling, Bachelor of Science in Nursing and Post Graduate Advanced Diploma in Chronic disease management. She was also awarded Silver in Singapore HealthCare Service Quality in 2022.

Dr Mohamed Siraj Shahul Hameed

Senior Staff Physician, Minimally Invasive Surgery Unit
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme

Dr SHM Siraj MBBS MD FSLCOG FRCOG is a Senior Staff Physician attached to Minimally invasive Surgery Unit, Department of Obstetrics and Gynaecology, KKH. He is an Adj Assistant Professor at DUKE-NUS, a Clinical Lecturer at Yong Loo Lin School of Medicine, Singapore and a Clinical Teacher, Content Expert & Clinical Practice Facilitator at LKC School of Medicine, Singapore. His main interest is caesarean scar related morbidity. He is an active member of the Placenta Accreta Team Member, KKH. He has developed "3R" Technique of suturing and repairing the myometrium defect during caesarean section and conservative surgical approach for placenta accreta spectrum disorders. He is also conducting the caesarean Scar Clinic which deals with caesarean section scar pregnancy in KKH/Singapore.

Dr Rajesh Hemashree

Senior Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme

Dr Rajesh Hemashree is a Reproductive Endocrinologist in the Centre for Assisted Reproduction, Singapore General Hospital. She has been practicing advanced fertility care for couples with infertility the last 19 years at Singapore. She did her fellowship in fertility at Sydney IVF and is trained in surgical sperm retrieval. She is passionate about teaching the basics of Fertility and runs a "Starting out on Assisted Reproduction" course, once every 2 years at SGH. In addition, she has run workshops on "Testicular sperm retrieval" overseas. Dr Rajesh has published widely in peer reviewed Journals and has more than 200 citations of her publications. She has lectured widely in and around Asia and was the Singapore representative of the ASPIRE for 8 years.

Ms Ho Yiling

Senior Principal Psychologist, Psychosocial Trauma Support Service
Division of Medicine
KK Women's and Children's Hospital, Singapore

Ho Yiling is a senior principal psychologist with the Psychosocial Trauma Support Service (PTSS) - Women's Service team. She currently supports adult women who present with psychological trauma after being exposed to interpersonal violence or medically traumatic events. Yiling's clinical experiences also included working with traumatised youths and children in residential group homes, and with families and schools within the child protection system. She has a keen interest in providing trauma-informed trainings for professionals and implementing trauma-informed practices for healthcare and community stakeholders. Her other areas of interests include providing clinical supervision, public health education, and increasing mental health literacy in Singapore. Yiling received a Doctor of Psychology (Clinical) from The University of Queensland, Australia.

Dr Hong Lin Feng

Consultant, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Dr Hong is a consultant psychiatrist who has been at the Department of Psychological Medicine at KK Women's and Children's Hospital since 2000. She works with a significant portion of women who struggle with mental health difficulties during and after pregnancy. She is also interested in research looking at antenatal and postnatal depression and hopes that new findings could lead to better care provision for pregnant women and new mothers.

Dr Michael Hsieh Ku-Hung

*Associate Consultant, Department of Plastic, Reconstructive & Aesthetic Surgery
Division of Surgery
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Musculoskeletal Sciences Academic Clinical Programme*

Dr Mike is an Associate Consultant at KK Women's and Children's Hospital with the Department of Plastic, Reconstructive & Aesthetic Surgery. He is the third-generation graduate of Duke NUS medical school for which he is a current college leader of Eugene Stead College. His clinical interests are in breast reconstruction, lymphedema, craniofacial, and aesthetic surgery.

Dr Celene Hui Yan Yan

*Consultant, Minimally Invasive Surgery Unit
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Celene Hui is an accredited specialist in Obstetrics and Gynecology from the Minimally Invasive Surgery (MIS) Unit, Division of Obstetrics and Gynecology at KK Women's and Children's Hospital (KKH). She holds the position of Clinical Assistant Professor at Duke-NUS Medical School and serves as a Clinical Lecturer for both the Lee Kong Chian School of Medicine and the Yong Loo Lin School of Medicine.

Dr Hui plays an active role in the advancement of women's health. She is a council member of the Obstetrical and Gynaecological Society of Singapore (OGSS), a national organization dedicated to improving women's health and promoting high standards of practice in Obstetrics and Gynecology in Singapore. From 2022 to 2024, she served as a committee member for the Minimally Invasive Gynecologic Surgery division of the Asia & Oceania Federation of Obstetrics & Gynaecology (AFOG). Additionally, she is a current council member of the Society for Gynaecological Minimally Invasive Surgery (SGMIS) in Singapore.

Dr Hui has significantly contributed to several scientific and educational events. She has been a member of scientific and organizing committees as well as a surgical trainer for conferences and workshops, including the Singapore International Conference on Obstetrics and Gynaecology (SICOG) the Asia-Pacific Association for Gynecologic Endoscopy and Minimally Invasive Therapy (APAGE) Congress in 2023, Asia-Pacific Gynaecological Endoscopy Training (APGET) Virtual Congress on Minimally Invasive Surgery in Gynaecology in 2022, and others. In 2022, she initiated the MIS Educational Webinar Series within her department, aimed at enhancing resident training. Her research has been published in peer-reviewed journals, and she has presented her work at international conferences.

Her clinical interests include minimally invasive treatments for benign gynecological conditions such as fibroids and ovarian cysts, the prevention of intrauterine adhesions, and, in particular, she has a strong interest in minimally invasive "scarless" surgery using the innovative technique of vNOTES (vaginal natural orifice transluminal endoscopic surgery).

A/Prof Saumya Jamuar

*Senior Consultant, Genetics Service, Department of Paediatrics, Division of Medicine
KK Women's and Children's Hospital, Singapore
Director, SingHealth Duke-NUS Institute of Precision Medicine
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Saumya Jamuar is a Clinical Geneticist at KKH, serves as the Lead PI of the Singapore Childhood Undiagnosed Disease and the Director of the SingHealth Duke-NUS Institute of Precision Medicine. He is the Chair of Chapter of Genomic Medicine, Academy of Medicine, Singapore, and co-chair, Genetic and Genomic Testing and Research Review Group. He is actively involved in research and has published in top tier journals including *The New England Journal of Medicine*, *Nature Genetics*, *Neuron* and *Nature Communications*. He has received multiple awards for his research, including the 2015 SingHealth Outstanding Young Researcher Award, 2021 National Medical Research Council Clinician Scientist Award and the 2024 GCEO Outstanding Researcher Award.

Dr Smita Lakhota Jindal

*Consultant, Minimally Invasive Surgery Unit
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Smita is currently a Consultant with KK MIS Unit.

She obtained her MBBS in 2002 and MS in Obstetrics and Gynecology from Mumbai University, India in 2007. She further obtained Diploma in Advanced Minimally Invasive Surgery from KK Women's and Children's Hospital Singapore in 2012. In that same year, she was also awarded the specialist degree from Royal College of Obstetricians and Gynecologist in London. Her special area of interest is gynecologic laparoscopic surgery.

Besides clinical work, she is also involved in research and has published numerous scientific articles. Her personal interests are traveling and organizing events.

Dr Julian Kang Hean Leng

*Clinical Director, Quality, Safety and Risk Management
Senior Consultant, Department of Obstetrics and Gynaecology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

As an experienced Senior Consultant in Obstetrics and Gynaecology, I graduated from Queen's University of Belfast (UK) in 2000 and completed specialist training in the UK, receiving the Certificate of Completion of Training (CCT) and being entered onto the UK Specialist Register in 2011. I served as a Consultant in the National Health Service (NHS) from 2012 before relocating to Singapore in 2016, where I continue to practice at KK Women's and Children's Hospital.

Throughout my career, I have been deeply committed to medical education, actively involved in undergraduate and postgraduate teaching. In the UK, I conducted formal lectures at Leeds Medical School and supervised medical students and junior doctors in clinical settings. I also served as faculty for Basic Surgical Skills courses and MRCOG exam preparation.

After relocating to Singapore, I continue to provide comprehensive clinical care, including outpatient consultations, labour ward management, and weekly surgical procedures. These responsibilities also provide opportunities to teach medical students and mentor junior doctors.

In 2023, I completed a 3-month fellowship in Early Pregnancy and Gynaecological Ultrasound at the Gynaecology Diagnostic and Treatment Unit, University College Hospital London (UCLH), under the mentorship of Professor Davor Jurkovic. This specialized training focused on advanced ultrasound techniques and diagnostic protocols for managing early pregnancy and gynaecological conditions.

I now hold academic appointments as a Clinical Lecturer at Duke-NUS Medical School, Yong Loo Lin School of Medicine (YLL-SOM), and Lee Kong Chian School of Medicine. My responsibilities include leading group tutorials, delivering lectures, and providing clinical teaching in Obstetrics and Gynaecology. Additionally, as a Physician Faculty Member for the SingHealth O&G Residency Program, I actively contribute to resident education through clinical rounds, surgical training, and journal clubs.

I also initiated the weekly gynaecological audit in the Department of O&G, designed to enhance patient safety through case discussions before planned surgeries, ensuring patients are adequately prepared, and optimizing operating theatre utilisation. This platform also serves as an educational forum for surgeons. As a member of the Value-Driven Care Committee, I participate in quarterly meetings to monitor specific key performance indicators (KPIs) that ensure the delivery of healthcare that achieves the best possible outcomes for patients at the lowest possible cost.

I have held various roles encompassing both hospital committee work and educational responsibilities. As an advocate for quality and safety, I have actively contributed to initiatives such as serving as the Division of Obstetrics and Gynaecology champion for the SHINe (Singapore Healthcare Improvement Network) Hand Hygiene Initiative and as a representative on the Joint Commission International (JCI) sub-committee for Medication Management and Use. JCI identifies, measures, and shares global best practices in quality and patient safety, offering innovative solutions to improve performance and outcomes across healthcare organisations.

In my role as the Division's Patient Safety Lead, I oversee cases with significant morbidity or mortality concerns and provide recommendations to address gaps identified from risk management reviews.

Since November 2023, I have served as Joint Clinical Director for Quality, Safety, and Risk Management (QSRM), a divisional appointment aimed at fostering a culture of quality improvement and patient safety, while aligning the hospital's risk management initiatives.

Dr Rajeswari Katjirvel

*Head and Senior Consultant, Urgent O&G Centre
Department of Obstetrics and Gynaecology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Rajeswari is a senior consultant in the department of general Obstetrics and Gynaecology and is the Head of Urgent O&G Centre in KKH. Dr Rajeswari completed her under graduation in India and her higher specialist training in Obstetrics and Gynaecology in the United Kingdom. After working in the UK as a consultant in O&G for a couple of years, she moved to Singapore and has been working in KKH since 2014. She was offered the FRCOG in 2017.

She heads the Urgent O&G Centre with passion and strives to offer evidence-based care to women with acute gynaecological and early pregnancy problems. She was instrumental in setting up the early pregnancy assessment centre that was soft launched amidst COVID 19 pandemic and then formally established in 2022. She prioritizes patient safety and is continuously involved in overseeing the development of evidence-based pathways and protocols. She is very enthusiastic about teaching and training the next generation of health care professionals. She teaches in all the three medical schools in Singapore and has taken up the role of principal lead for O&G for the Lee Kong Chian school of Medicine for the past 9 years.

Ms Khoo Shi Min

Senior Nurse Clinician / Advanced Practice Nurse, Nursing Clinical Services

Division of Nursing

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Shi Min is a dedicated Paediatric Advanced Practice Nurse with over 18 years of experience working across inpatient and community settings. She holds a Master of Science in Nursing (MSN) and is a Certified Paediatric Advanced Practice Nurse. Shi Min is known for her strong commitment to enhancing the health outcomes of children and families, using evidence-based practices to guide her work.

Throughout her career, Shi Min has provided comprehensive care to paediatric patients in various healthcare environments, including inpatient units, outpatient clinics, and community health settings. She has developed and led multiple community outreach projects aimed at improving maternal and child health, focusing on nutrition education, child development and growth, oral health, and preventive care. One such program, the Integrated Maternal and Child Wellness Hub has demonstrated success in enhanced child development screening, with the early identification of children with developmental and behavioural concerns. Other programs are in the midst of the pilot phase.

As a speaker at health conferences, Shi Min has shared her expertise on topics including the integration of advanced nursing practice in child and community health, the importance of family-centered care, and strategies for enhancing collaboration between healthcare providers and families. At the upcoming KKH Scientific Meeting, her sharing: "Community Maternal and Child Health: Enhancing Care through Collaboration and Education" discussing projects that have led to impactful changes in health behaviours and improved access to healthcare services for children and their families.

Shi Min is passionate about education and mentorship, actively teaching nursing students and new graduates in both clinical and academic settings. She is actively engaged in academic teaching, taking on the role of curriculum reviewer and adjunct lecturer for Master of Nursing (Paediatrics) students. She is engaged in several professional organizations, such as the chairperson of the Paediatric and Neonatal Chapter in Singapore Nurses Association and the President of the Asia Pacific Pediatric Nurses Association, where she contributes to initiatives supporting paediatric nursing excellence.

In her community, Shi Min volunteers with local organizations such as Club Rainbow to support families with special needs children. She enjoys working with multidisciplinary teams to advocate for and implement policies aimed at improving health equity. Outside of her professional pursuits, Shi Min loves spending time with her family, doing yarn work and reading. She believes that storytelling can be a powerful tool in healthcare and often incorporates narratives into her presentations to highlight the importance of patient experiences.

Shi Min is excited to share her insights at the 11th KKH Scientific Meeting and hopes to inspire fellow health professionals to embrace innovative approaches to care that benefit families and communities.

Dr Delphine Koh Liow Ping

Senior Principal Psychologist, Department of Psychological Medicine

Division of Medicine

KK Women's and Children's Hospital, Singapore

Dr Delphine Koh is a Senior Principal Psychologist at the Department of Psychological Medicine, KK Women's and Children's Hospital. She holds a Doctorate in Clinical Psychology and is both a registered psychologist and a registered supervisor with the Singapore Registry of Psychologists. In addition to her clinical practice, Delphine provides training and supervision to psychologists and mental health professionals and serves as adjunct faculty at the Singapore University of Social Sciences.

With over 20 years of experience in the mental health field, Delphine works with the paediatric, adolescent, and women's populations at KKH, as well as with children and adolescents presenting with mental health concerns in the community. She has substantial experience in clinical assessments and interventions and places great importance on collaborating with various stakeholders to drive positive outcomes for her young clients.

In her role bridging community and hospital settings, Delphine has encountered and managed psychosomatic presentations in children and adolescents, gaining insight into the complexities of these symptoms in different contexts. Recognizing the importance of early intervention, she has dedicated her efforts to empowering other professionals to support youths with psychosomatic symptoms effectively.

Delphine will present on how psychosomatic symptoms in children and adolescents can be managed using a tiered model of care, sharing her expertise and practical approaches developed through her experience.

Dr Kong Juin Yee

*Senior Consultant, Department of Neonatology, Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Kong is a senior consultant neonatologist at KK Women's & Children's Hospital, Singapore. She is also Adjunct Assistant Professor in its 3 affiliated medical schools (Duke-NUS Medical School, Lee Kong Chian School of Medicine and NUS-YLL School of Medicine). She completed her General Paediatrics and Neonatal-Perinatal fellowship training in the USA. Her clinical and research interests include neonatal resuscitation, crisis resource management, patient safety, and health quality. Dr Kong is a strong advocate for the value of simulation in medical training, recognizing its role in enhancing patient safety and healthcare quality. She supervises the in-situ Neonatal Simulation Program, using modified low-fidelity manikins, conducted at frequent intervals in real clinical settings. These sessions take place in the delivery suites, operating theatres, neonatal intensive care unit, and postnatal nurseries, allowing healthcare professionals to hone critical skills in various clinical scenarios, from perinatal complexities to postnatal emergencies.

Additionally, Dr Kong organizes multidisciplinary debriefing sessions following high-risk deliveries and neonatal resuscitations, where trainees undergo reflective learning in a conducive and safe space. These sessions have led to multiple collaborative improvement initiatives recognized with SingHealth Target Zero Harm Awards. She is also an instructor for the Singapore Neonatal Resuscitation Course (SNRC). Recently appointed as the chairperson of the KKH Academic Simulation Committee and the Campus Director (KKH) for SingHealth Duke-NUS Institute of Medical Simulation (SIMS), Dr Kong continues to pursue her passion for simulation training and actively contributes to the simulation community. Dr Kong also sits in several hospital wide committees in KKH including Hospital Medical Emergency Codes and Training Committee, Hospital Medical Safety Committee, Patient Safety Council, and Healthcare Quality & Patient Safety Standards (HQPSS) Committee. She is currently pursuing a Master's in Patient Safety and Health Quality at the National University of Singapore, continuing her interest in this area with the hope of contributing to patient safety and healthcare quality on a broader scale.

Dr Ku Chee Wai

*Consultant, Department of Reproductive Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Clinical Assistant Professor Ku Chee Wai is a Consultant in the Department of Reproductive Medicine at KK Women's and Children's Hospital. He received both his MD and PhD from Duke-NUS Medical School, reflecting his deep commitment to medical research and clinical practice. He is passionate about maternal and child health, emphasising a life course approach to health. His interests include preconception health and early pregnancy complications, and he is dedicated to innovation and harnessing the potential of mobile health interventions to improve metabolic and mental health of mothers, fathers, and children.

Dr Jean-Jasmine Lee

*Consultant, Family Medicine Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Family Medicine Academic Clinical Programme*

Dr Jean-Jasmin Lee is a Consultant Family Physician at the KK Women's and Children's Hospital. She is a Clinical Assistant Professor with Duke-National University Singapore and a Visiting Consultant at National Cancer Centre Singapore Primary Care Oncology. Dr Lee is a Fellow of the College of Family Physicians (CFPS) as well as a Fellow of the European Committee in Sexual Medicine.

Dr Lee has been working in women's health for more than a decade and is mainly focused on menopause, osteoporosis, obesity, and sexual dysfunction. Her teaching appointments include Physician Faculty Member in the SingHealth Family Medicine (FM) Residency program, Clinical Teacher with the Lee Kong Chian Medical School and teaching faculty for the CFPS MMed (FM) program.

She has a broad international experience both as a published researcher and conference presenter in the areas of menopause, osteoporosis, obesity, sexual medicine, and innovation.

Dr Jill Lee Cheng Sim

*Consultant, Department of Urogynaecology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Jill Lee is a Consultant Obstetrician, Gynaecologist and Urogynaecologist at KK Women's and Children's Hospital (KKH) and Clinical Assistant Professor at Duke-NUS Medical School. She is the clinical lead for the multidisciplinary combined pelvic floor and perineal clinics at KKH which she helped to establish in 2020 and 2022 respectively. Through these services, women with complex pelvic floor disorders and obstetric anal sphincter injuries receive more holistic care and improved access to relevant tertiary care services not just at KKH but also at partner SingHealth institutions.

Alongside her clinical commitments, she is actively involved in health professions education with special interest in curriculum development, wellbeing and resilience and technology-enhanced learning. She is Associate Programme Director to the SingHealth Obstetrics and Gynaecology Residency Programme and is Co-Chair of the Technology Enhanced Learning sub-committee at SingHealth Academy. Her passion in this area has led to the development of AM Buddy, a clinical reference app for local guidelines for SingHealth Obstetrics and Gynaecology and Paediatric Medicine ACPs.

She has published both clinical and education related research in a number of indexed journals with her current main research interests dedicated to pelvic floor dysfunction and obstetric anal sphincter injuries.

Ms Sharon Lee Kit Yin

*Senior Nurse Clinician, Lactation Services
Division of Nursing
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Sharon's nursing journey started in 1997. She is a registered nurse, midwife, and an International Board-Certified Lactation Consultant (IBCLC) with a Master of Science –Clinical leadership from School of Nursing and Midwifery, Curtin University. She has gained 24 years of nursing experience since she started her career in KK Women & Children's Hospital. Her focus has been in obstetric nursing and lactation specialization- providing care to the breastfeeding mothers and babies, training and teaching nurses and other health care professionals as well as outreaching to the community. She is currently the lead education associate with SingHealth Duke–NUS Obstetrics & Gynecology Academic Clinical program (OBGYN ACP) as well as a Clinical practice facilitator for Lee Kong Chian School of Medicine. She is also one of Baby Friendly Hospital Initiative (BFHI) accredited assessor, member of KKH Baby Friendly Hospital Initiative Steering Committee.

Sharon is also an active member of several professional organizations, including the Association for Breastfeeding Advocacy, Singapore (ABAS), Singapore Nursing Board and the International Lactation Consultant Association.

Dr Lee Yien Sien

*Deputy Head and Senior Consultant, Department of Diagnostic & Interventional Imaging
Division of Clinical Support Services
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Radiological Sciences Academic Clinical Programme*

Adj Asst Prof Lee Yien Sien is Senior consultant and Deputy Head Clinical Operations and Women's Imaging, Head of Breast Imaging and BMD Services at the department of Diagnostic and Interventional Imaging at KK Women's and Children's Hospital. She obtained MBBS from NUS in 2000 and completed observership at MD Anderson Cancer Centre in 2009. Her subspecialty interests include Breast and Gynaecologic Imaging. She is involved in improving Women's and Breast Imaging services and education in DDII.

Dr Alicia May Lim

*Consultant, Department of Neonatology
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Alicia Lim is a consultant neonatologist at the Department of Neonatology, KK Women's and Children's Hospital. She completed her MBBS at King's College London before returning to Singapore to practice. Upon completion of her paediatric residency, she subspecialized in neonatology. She has interests in acute neonatology, resuscitation and medical simulation education.

Ms Lim Hui Koon

*Senior Nurse Clinician / Advanced Practice Nurse, Nursing Clinical Services
Division of Nursing
KK Women's and Children's Hospital, Singapore*

Ms Lim is a Paediatric Advanced Practice Nurse (APN) under the Nursing Clinical Services in KK Women's and Children's Hospital. She has more than a decade of experience in neonatal and paediatric nursing, and she is currently practising in the Neonatal Intensive Care Unit. She runs the APN-led Neonatal Jaundice (NNJ) clinic independently with remote supervision from the neonatologist and is also part of the team of APNs involved in recruitment, assessment, and management of NNJ patients recruited into the NNJ@Home as part of the KKH@Home programme.

Her interest in nursing lies in the Clinical and Education tracks, and she co-leads the Clinical Immersion Programme (CIP) where she plans the programme with her workgroup and trains the paediatric nurses returning from their Advanced Diploma course to help bridge and integrate their knowledge and skills learnt in school into clinical practice. She is also currently training to be a Singapore Neonatal Resuscitation Course (SNRC) instructor.

Dr Michelle Lim Hui Ping

*Consultant, Minimally Invasive Surgery Unit
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Michelle Lim is currently a Consultant at the Minimally Invasive Surgery Unit, Obstetrics and Gynaecology in KK Women's and Children's Hospital.

She has a special interest in Advanced Laparoscopic Surgery and Endometriosis and was awarded the Ministry of Health, Health Manpower Development Plan (HMDP) Scholarship to pursue her speciality training. She has since completed both her local and overseas surgical fellowships in this field.

Besides being actively involved in her clinical work, Dr Michelle is a surgical trainer for advanced minimally invasive surgery in KKH and has been an invited speaker and surgical trainer at local and international workshops. She believes in sharing her experience and skills and that of continuous learning from others too.

Dr Lim Yu Hui

*Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Lim Yu Hui is currently a consultant gynaecological oncologist at KK Women's and Children's Hospital. She graduated from NUS Yong Loo Lin School of Medicine in 2011 with a M.B.B.S. degree and achieved her MRCOG (UK) and MMed (Singapore) membership in 2016. As a house officer, she received the awards for the Best House Officer in the Division of Obstetrics and Gynaecology in KKH for the period of 05/09/11 to 02/01/12, as well as the Meritorious House Officer Award from the Yong Loo Lin School of Medicine from 03/05/11 to 02/05/12. During her residency years in the Singhealth Obstetrics and Gynaecology program, she performed well both academically and clinically. She received the R1 Resident Merit Award (2012-2013) awarded by the Singhealth Duke-NUS OBGYN Academic Clinical Program and the Outstanding Resident Award (2014-2015) by Singhealth Residency. After completing 4 years of residency, she clinched the Best OBGYN Resident (Cohort of 2012) awarded by the Singhealth Obstetrics and Gynaecology Residency program. After completion of senior residency in 2019, she went on to pursue a 2-year local gynaecological oncology fellowship program as part of the Broad-Based General Training (BBGT) program curated by Singhealth and Ministry of Health. She was then accepted as a fellow at the prestigious Memorial Sloan Kettering Cancer Center in New York City, New York, United States of America. She completed a 2-year international gynecologic oncology fellowship program between 2022 to 2024. In this time, she also received the European Society of Gynaecological Oncology (ESGO) diploma to become a certified European gynaecological oncologist. She has also received training in robotic surgery and is formally certified by Intuitive Surgical to be independent in performing advanced robotic surgeries using the Da Vinci XI platform.

Dr Lim has also published articles in various peer reviewed journals such as the Journal of Gynecologic Surgery, Journal of Gynecologic Oncology, BMJ Case Reports, The Obstetrician and Gynaecologist journal and Gynecologic Oncology. She has also presented posters and oral presentations at various international conferences as well.

She remains a well-respected figure in the residency and continually strives to improve education opportunities for her junior residents. She has taken on a role as core faculty for the Singhealth Obstetrics and Gynaecology residency program since 2024. She is also on the teaching faculty for the medical students from NUS, Duke-NUS and LKC school of medicine. She takes pride in tutoring and mentoring junior doctors and medical students.

She is a member of the KKH Infection Control Committee and also the sports representative of the Junior Officer's Committee. She is also a founding member of the KKH Junior Doctors Well-being Committee which supports the welfare junior doctors in the hospital. She is passionate about teamwork, and she actively participates in team bonding and sports activities including the annual Singhealth Residency Games. Her extracurricular activities also include volunteerism, and she is a member of the Himalayan Women Health Project, a team that does annual visits to rural India to provide free cervical cancer screening for underprivileged women. She was also awarded with the Singhealth Residency Grant for Overseas Education Mission Trip for the above project.

Dr Abigail Loh Hong Yan

*Associate Consultant, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Abigail Loh is an Associate Consultant at the Department of Psychological Medicine, KK Women's and Children's Hospital. She sees both women and children in clinical practice and is also involved in research and teaching within the department. Her areas of interest include infant and early childhood mental health, an emerging field which she hopes to further develop in the local setting. She is married and has two children aged 5 and 2.

Dr Loh Lik Eng

*Senior Consultant, Children's Intensive Care Unit
Department of Paediatric Subspecialties
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Loh Lik Eng MB BCH, BAO, MRCPCH (UK) is Senior Consultant in Children's Intensive Care Unit KKH. She is also Director, Children's Hospital Emergency Transport Services (CHETS) KK Women's and Children's Hospital. She has extensive clinical experience in managing traumatic brain injury and also in transport of critically ill children.

Dr Sharon Low Yin Yee

*Head and Senior Consultant, Neurosurgical Service
Division of Surgery
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Neuroscience Academic Clinical Programme*

Dr Sharon Low is the current Head and Senior Consultant of the Neurosurgical Service at the KK Women's and Children's Hospital. She completed her Advanced Surgical Training (Neurosurgery) at the National Neuroscience Institute (Singapore). In 2015, she obtained her research PhD at the National University of Singapore (NUS) and her specialty FRCS (Surgical Neurology) exams. In her pursuit of holistic care for patients, she undertook the Graduate Diploma of Palliative Medicine (GDPM) in 2020. At present, she is an Assistant Professor at the Duke-NUS School of Medicine and is one of the Principal Investigators of the VIVA-KKH Paediatric Brain and Solid Tumours Laboratory. She strongly believes that the best approach to managing patients requires good neurosurgical techniques and in-depth understanding of each condition. Her ethos is that the lives of patients can only be objectively improved through evidence-based medicine. Her main research interest is in paediatric neuro-oncology, with a focus on malignant childhood brain tumours that are refractory to treatment. She has co-authored more than 80 peer-reviewed articles and continues to do so as part of her commitment to academic medicine. In addition, she has won several awards in health services, research and clinical contributions at institutional and national levels.

Prof Nigel Marsh

*Professor of Clinical Psychology
James Cook University, Singapore*

Dr Nigel Marsh is a New Zealand-trained clinical psychologist, and he is currently a Professor of Clinical Psychology at James Cook University in Singapore. He has held academic appointments in Clinical Psychology in Australia, Lebanon, Malaysia, New Zealand and the United Kingdom.

Professor Marsh's expertise within the field of clinical psychology is in the areas of psychological assessment and research design. The majority of his research publications deal with the assessment of the psychosocial consequences of traumatic injuries or chronic illness for both the individual and their familial caregivers. He has conducted research across the life span with published studies on age groups ranging from infants to older adults. He has also published studies on non-clinical groups, primarily in the areas of lifespan developmental psychology and organisational psychology.

Professor Marsh has been awarded grants to conduct research on traumatic brain injury, quality of life in dialysis patients, dementia in older adults, resilience in very low-income families, and internet use amongst young adults. He has served as a consultant in the areas of healthy ageing, occupational health, genetics, and rehabilitation.

He has held Visiting Professor appointments at Norwich Medical School, University of East Anglia (United Kingdom) and at the Faculty of Psychology, University of Oviedo (Spain) where he worked with the Health Sciences Research Group on School Learning, Difficulties and Academic Performance. He has held an Adjunct Research Professor appointment in the School of Science and Technology, Sunway University (Malaysia).

Professor Marsh has supervised 39 Higher Degree by Research theses to completion. This includes 20 master's theses and 19 doctoral theses. He is a Registered Psychologist (Singapore).

A/Prof Manisha Mathur

*Deputy Head and Senior Consultant, Department of Obstetrics and Gynaecology
Head, Ambulatory Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
Academic Deputy Vice Chair, Postgraduate Education
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

A/Prof Manisha Mathur is the Head of Ambulatory Service and Deputy Head & Senior Consultant with the Department of Obstetrics & Gynaecology at KKH. She is also the Program Director of the SingHealth OBGYN Residency Programme and the Deputy Vice Chair of Education (postgraduate) for OBGYN ACP.

A/Prof Mathur graduated with honours in her Bachelor of Medicine and Surgery and her Master of Surgery (Obstetrics & Gynaecology) from the S.M.S Medical College in India. She subsequently trained in the United Kingdom, advanced herself with Certificate of Completion of Training for Specialist from the General Medical Council, United Kingdom in 2010. She has been a Member of Royal College of Obstetrics & Gynaecology, London, United Kingdom since 2004, obtaining the Fellowship of Royal College of Obstetrics & Gynaecology, London, United Kingdom in 2017. She is also a fellow of the American Congress of Obstetrics & Gynaecology since 2016.

Her main areas of interest are antenatal and peri-partum care and medical education. She is highly regarded as a caring and dedicated doctor who is very meticulous in ensuring that all her patients receive the best available care. Her excellent knowledge of clinical practice is up to date with local and international protocols that widely benefits women who seek for care and treatment. She is passionate about teaching and was awarded the prestigious AM.El Golden Apple Award in 2019. Apart from the clinical commitment, her passion in teaching and educating junior doctors is unparalleled. As the Program Director of the SingHealth OBGYN Residency Program for last 8 years, A/Prof Mathur has been patiently training and mentoring OBGYN residents. She is also actively involved in teaching and training of the medical students of Yong Loo Lin, Duke-NUS, and Lee Kong Chian Medical schools. In recognition of her teaching contributions she was awarded the prestigious AM.El Golden Apple Award in 2019 and the SingHealth Distinguished educator award in 2021.

She is also active in clinical research related to her areas of interest and has over 50 publications in peer reviewed journals with significant impact factor. She has been a recipient of many research grants.

In recognition of her excellent service to patients throughout the years, she was also awarded the Singhealth Quality Service Gold Award in 2014, the Singhealth Quality Service Star Award in 2015 & 2024 as well as the Singhealth Quality Service Superstar Finalist Winner in 2017.

Dr Ravichandra Nadarajah

*Senior Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ravichandran obtained his MBBS from University Malaya in 2000 and subsequently pursued his Masters in Obstetrics and Gynaecology (M.Med.O&G) from 2004 to 2008 from University of Malaya. He was the prize medallist for the T A Sinnathuray Academic Award by the Obstetrical and Gynaecological Society of Malaysia for being the top student. He received FRCOG from UK in 2021

He was awarded the Singhealth HMDP scholarship for advanced laparoscopic and robotic surgery in gynecologic oncology at Hanyang University Hospital and Severance Hospital Yonsei University in South Korea. In addition, he also completed his fellowship training in cytoreductive surgery for advanced ovarian cancer National Cancer Centre Korea.

Dr Ravi has vast experience in management of gynaecology cancer includes patient who are elderly, have multiple medical co-morbidities and obese. Apart from gynaecology oncology, Dr Ravichandran has extensive experience in performing minimally invasive surgery which includes laparo-endoscopic single site surgery (LESS) and transvaginal natural orifice transluminal endoscopic surgery (vNOTES) for benign and malignant conditions.

He was awarded the Outstanding Clinician for Singhealth Group CEO Excellence Awards 2024.

Dr Singaraselvan Nagarajan

Deputy Head and Senior Consultant, Department of Women's Anaesthesia

Division of Clinical Support Services

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Anaesthesiology and Perioperative Sciences (ANAE) Academic Clinical Programme

Dr Singar is a Senior Consultant in the Department of Women's Anaesthesia at KK Women's and Children's Hospital. After completing his MBBS in Chennai, India, he gained valuable experience in General Surgery and Emergency Medicine in UK before enrolling in a Royal College of Anaesthetists Accredited training program.

With a special interest in Obstetric Anaesthesia, he trained in notable tertiary maternity centres, including Cardiff, Birmingham, and Singapore. He completed a one-year advanced training fellowship in Obstetric Anaesthesia at KK Hospital, where he developed a keen interest in research on maternal cardiac output and obstetric hemorrhage. Additionally, he has completed advanced training in Airway Management and Healthcare Management.

He is a proud recipient of KKHHEF grant in 2016 for research on hypotension and angiotensin polymorphism and the SHF Grant in 2017 for the ADIVA study on minimizing hypotension during caesarean sections.

Dr Singar is also an active educator, teaching at NUS Yong Loo Lin School of Medicine and in the Singhealth Anaesthesiology Residency Program.

Prof Ivy Ng Swee Lian

Senior Advisor, Singapore Health Services Pte Ltd (SingHealth) Board

Professor Ivy Ng is Senior Advisor, SingHealth Board. Prior to her appointment as Senior Advisor, she was the Group Chief Executive Officer of SingHealth (2012-2024). She was also previously Chief Executive Officer of KK Women's & Children's Hospital (KKH) and Deputy Group Chief Executive Officer of SingHealth.

SingHealth is Singapore's largest healthcare group and comprises Singapore General Hospital, KK Women's and Children's Hospital, Changi General Hospital, Sengkang General Hospital, 5 National Specialty Centres (Cancer, Eye, Neurosciences, Dental and Heart), SingHealth Community Hospitals and 9 primary health polyclinics. SingHealth has also been charged to develop Eastern General Hospital.

She was conferred the Singapore Human Resource Institute Leading CEO Award 2008, the International Management Action Award 2010, the Public Administration Medal (Gold) 2011, Her World Woman of the Year 2012, NTUC May Day Medal of Commendation (Gold) Award 2020, National University of Singapore (NUS) University Outstanding Service Award 2020 and President's Science & Technology Medal 2021. She is member of the Boards of Duke-NUS Medical School, Singapore Management University, Temasek Trust Ltd, National Research Foundation (NRF) Singapore and Precise Health Research Singapore (PRECISE) Board Oversight Committee (BOC).

She holds a Bachelor of Medicine, Bachelor of Surgery (MBBS) and Master of Medicine (Paediatrics) from the National University of Singapore. She is a Fellow of the Royal College of Physicians (FRCP, Edinburgh), Royal College of Paediatrics and Child Health (FRCPC, London) and Academy of Medicine, Singapore (FAMS). She is Professor, Duke-NUS Medical School and Yong Loo Lin School of Medicine, National University of Singapore and Adjunct Professor, Saw Swee Hock School of Public Health, National University of Singapore.

A/Prof Ng Lay Guat

Senior Consultant, Department of Urology

Singapore General Hospital, Singapore

SingHealth Duke-NUS Surgery Academic Clinical Programme

Dr Ng graduated from Singapore University in 1992 and obtained her FRCS(Edin) in 1996, and FAMS (Urology) in 2001. She had completed her Fellowship for Female Urology in London in 2003. She is currently the Senior Consultant, Department of Urology at Singapore General Hospital. She was the Head of Department of Urology from 1st April 2011 to 31st March 2017.

Dr Ng was awarded the Golden Apple Awards for Program Innovation (Nursing) for Resident Nurse Program. Dr Ng was awarded as Outstanding Faculty for Urology Residency Program for three consecutive years from 2017 to 2020. Dr Ng is the Adjunct Associate Professor to Duke-NUS Graduate Medical School Singapore and Clinical Senior Lecturer at the Yong Loo Lin School of Medicine, National University of Singapore.

Dr Ng has clinical subspecialty is mainly in Functional urology, namely in female urinary incontinence, voiding dysfunction, adolescent urology, reconstructive urology, neurourology, renal transplantation. Her research projects include mainly clinical

research such as urinary incontinence and pelvic dysfunction. She is also doing several projects related to Medical technology and innovations.

Dr Yvonne Ng Ying Ru

*Consultant, Department of Colorectal Surgery
Singapore General Hospital, Singapore
SingHealth Duke-NUS Surgery Academic Clinical Programme*

Dr Yvonne Ng is a Consultant Colorectal Surgeon at the Singapore General Hospital and National Cancer Centre Singapore. She is also a Visiting Consultant at the Department of Urogynaecology in KK Women's and Children's Hospital Singapore.

Dr Ng completed her fellowship training in The Royal Marsden Hospital and St Mark's Hospital (London, United Kingdom) in the areas of robotic surgery for complex colorectal cancer and pelvic floor reconstruction to complement her clinical interest in advanced minimally invasive surgery (MIS) for colorectal disease.

Dr Ng is well-published in peer-reviewed scientific journals and her subspecialty interests are in MIS (robotic and laparoscopic), complex colorectal cancer, pelvic floor disorders, and endoscopy.

Dr Ng Zheng Yuan

*Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ng Zheng Yuan is a Consultant in the Department of Gynaecological Oncology, KK Women's and Children's Hospital. He graduated from Imperial College School of Medicine, London in 2012 and joined the SingHealth Obstetrics & Gynaecology Residency Programme upon his return. He subsequently attained both Membership to the Royal College of Obstetrics & Gynaecology (MRCOG) and Master of Medicine (MMed) in O&G in 2018. In 2020, Dr Ng was accredited as a Specialist in Obstetrics & Gynaecology, with subspecialty training in the treatment of gynaecological cancer. Dr Ng was awarded the Singapore Ministry of Health Human Manpower Development Plan (HMDP) scholarship in 2022 and spent a year in Europe with European Society of Gynecologic Oncology (ESGO) past President Prof David Cibula learning advanced surgical techniques in gynaecological cancers.

Dr Ng Zhi Min

*Senior Consultant, Neurology Service, Department of Paediatrics
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Ng Zhi Min is a Senior Consultant and Programme Director of the Paediatric Integrated Neurorehabilitation Service (PINS) at KK Women's and Children's Hospital. Her special interest is in Neurorehabilitation for children with long-term neurological condition and acquired brain injury. She is the Principal Investigator for the Cerebral Palsy Registry in Singapore and has keen interest in clinical outcome-based and health services research in children with neuro-disability.

Ms Rajni D/O Parasuram

*Nurse Clinician
Division of Nursing
KK Women's and Children's Hospital, Singapore*

Ms. Rajni Parasuram is a Nurse Clinician who has been involved with the KIDS (Kids Integrated Development Service) 0-3 programme since its inception in 2014. This programme has since transformed into the national initiative KidSTART@KKH. In her capacity, she has committed herself to supporting low-income vulnerable families, with a particular emphasis on maternal and infant well-being, fostering parent-child bonding, promoting developmental-centered parenting, and enhancing family well sufficiency. She is deeply passionate about advocating for the mental health needs of both mothers and infants, recognizing the crucial role it plays in overall health.

A/Prof Rukshini Puvanendran

*Head and Senior Consultant, Family Medicine Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Family Medicine Academic Clinical Programme*

Clinical Associate Professor Rukshini Puvanendran is a Senior Consultant in KK Women's and Children's Hospital.

She is the Head of Family Medicine Service and Co Director of the Menopause Centre at KK Women and Children's Hospital. She is the lead physician for the Women's Weight Management Clinic at KK Women and Children's Hospital, the only weight management clinic specially for women in a restructured hospital in Singapore.

Her clinical interests include Weight Optimisation, especially in women keen to conceive and women with polycystic ovarian syndrome, as well as gynaecological malignancies. Other interests include optimising women's health during the menopause transition and beyond, as well as osteoporosis and chronic disease management.

In addition to clinical work, she is also passionate about education of residents and medical student and is core faculty in Duke-NUS Medical School and clinician faculty for Singhealth and National Health Group Family Medicine Residencies. She also serves as an examiner for doctors sitting for Master of Medicine and well as Graduate Diploma examinations.

She has been the recipient of many awards including Singapore Health Quality Service Awards, Service from the Heart Awards, Singhealth Long Service Award and Faculty Appreciation Awards.

She also served on several committees, both at Hospital and National Level and has an interest in Patient Safety and Healthcare Improvement.

Dr Quek Bin Huey

*Head and Senior Consultant, Neonatal Intensive Care Unit, Department of Neonatology
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Quek is a Senior Consultant Neonatologist and Head of Service, Neonatal Intensive Care Unit (NICU) at KK Women's and Children's Hospital (KKH). Her areas of interest include Neonatal Resuscitation, Neonatal Ventilation, Chronic Lung Disease, Borderline viability, follow-up outcomes of Very-Low-Birth-Weight infants and bioethics. She also has an interest in education and simulation-based learning. She is Chief Instructor for Singapore Newborn Resuscitation Course (SNRC) at KKH and one of the neonatal leads for Singapore Resuscitation and First Aid Council (SRFAC). She is also core faculty for the Pediatric Residency program.

She has been a working member for International Liaison Committee on Resuscitation (ILCOR), Neonatal resuscitation workgroup since 2012. Her most recent collaboration with ILCOR is a systematic review on Supraglottic Airways Compared with Face Masks for Neonatal Resuscitation (Yamada NK, McKinlay CJ, Quek BH, Schmolzer GM, Wyckoff MH, Liley HG, Rabi Y, Weiner GM. Supraglottic Airways Compared with Face Masks for Neonatal Resuscitation: A Systematic Review. *Pediatrics*. 2022 Sep 1;150(3):e2022056568. doi:10.1542/peds.2022-056568. PMID:35948789). She is also a steering committee member of the Asian Neonatal Network Collaboration (AsianNeo), a collaboration among national or regional neonatal networks in Asia. Through the collaboration, the network aims to improve the quality of neonatal care and infants' outcomes in the Asian countries or regions as well as globally.

Ms Rebekah Ramachandran

*Senior Staff Nurse, Delivery Suite
Division of Nursing
KK Women's and Children's Hospital, Singapore*

Rebekah is a Senior Staff Nurse from KK Women's and Children's Hospital (KKH). She has been working in the Delivery Suite in KKH since graduating from NUS with a Bachelor of Science (Nursing) (Honours) in 2019. In the labour ward, she cares for women in labour, including patients with high-risk pregnancies, as well as their newborn babies. She went on to complete her Advanced Diploma in Nursing (Midwifery) in 2023 and is now also a Registered Midwife.

Rebekah carried out a primary research study in 2020 while involved in the Nursing Research Fellowship programme in KKH. The study explored the experiences of midwives and obstetric nurses in caring for suspected or confirmed COVID-19 cases in Singapore. She has also conducted some ward-based quality improvement (QI) projects and continues to involve herself in various other research projects. She hopes that such projects will contribute towards a positive and productive change to her department and nursing care overall. Rebekah has been part of the Nursing Research Council in KKH since 2021 and now serves as the co-lead of the council where she oversees the audit team in carrying out audits on nursing research projects.

In 2020, Rebekah received the MOH Nurses' Merit Award and has also received the Singapore Healthcare Quality Service Award in 2021 and 2022. Rebekah aspires to provide safe and holistic woman-centered care to all her patients, allowing them a memorable delivery journey.

Ms Alisha Shah

*Senior Clinical Counsellor, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore*

Ms Alisha Shah, Senior Clinical Counsellor at KK Women's and Children's Hospital, has a Master's Degree in Counseling and Guidance, she bring over 9 years of experience in the mental health field. Her professional journey has been enriched by a background in teaching, which has enhanced her ability to connect with and educate clients effectively. She has a particular passion for working with mothers and expectant mothers, supporting them as they navigate the challenges and joys of embracing motherhood. Her goal is to provide compassionate guidance and support, helping them build strong, healthy bonds with their children while fostering their own well-being.

Mental health profoundly influences the mother-infant bond by affecting emotional availability, behavioral responses, and cognitive interpretations of the baby's needs. Ensuring mothers receive the necessary support for their mental health is crucial for fostering a strong, healthy bond with their baby.

Dr Sim Wen Shan

*Head and Senior Consultant, Antenatal Risk Assessment Unit
Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Sim Wen Shan is a Senior Consultant in the Department of Maternal and Fetal Medicine and Antenatal Diagnostic Centre, KK Women's and Children's Hospital. Her interests lie in prenatal diagnosis, pre-eclampsia screening, multiple pregnancies as well as fetal anomalies. She is also the clinical lead for the STORK Twin clinic which is the first dedicated Multiple Pregnancy Clinic in Singapore, and a Fetal-Medicine Specialist in the Antenatal Diagnostic Centre. As the Head of Antenatal Risk Assessment Unit, she spearheaded the introduction of First- Trimester Preeclampsia Screening in April 2023 in KK Women's and Children's Hospital. Dr Sim has also published widely and actively collaborated with key-opinion leaders in Pre-eclampsia screening in multiple publications, as well as an Asian-wide Multi-Center cohort study on First trimester pre-eclampsia biomarker profiles in Asian Population.

Dr Sim is also heavily involved in postgraduate education. She is the Programme Director of the Singhealth PGY1 Programme in KK Women's and Children's Hospital and oversees the training of post-graduate year 1 doctors prior to their entry into the local residency programmes. As a mother of three, Dr Sim empathizes with the highs and lows of the pregnancy and strived to remain approachable and relatable to her patients. She was awarded the 2022 SHQSA Superstar Award (Exemplar Clinician Category) based on positive feedback from her patients.

Dr Sharmini Su Sivarajah

*Senior Consultant, Department of Surgery
Sengkang General Hospital, Singapore
SingHealth Duke-NUS Surgery Academic Clinical Programme*

Dr Sharmini joined Sengkang General Hospital in February 2017 in the Department of General Surgery, subspecializing in Colorectal Surgery. She completed both her primary and secondary schooling in Malaysia until she was awarded a full scholarship by Bosworth Tutorial College, UK to complete her A-Levels studies. She also succeeded in achieving a full scholarship to complete her medical degree from the University of Edinburgh Medical School, UK in 2005 and was accepted for speciality training by the West of Scotland Deanery, UK of which she achieved her Certificate of Completion of Training (CCT) specialising in colorectal surgery in 2015. She was then awarded the 'John Goligher Fellowship' at the St James University Hospital, Leeds for 15 months where she was provided with comprehensive exposure to clinical, technological aspects of modern and advanced colorectal surgery including minimally invasive and robotic surgery. During her fellowship, she gained valuable experience on the full complement of pelvic floor services which included sacral nerve stimulation, anterior sphincter repair, robotic ventral mesh rectopexy and the application of the FENIX device.

Currently as a senior consultant, she works closely with KKH Department of Urogynecology to run the Complex Pelvic Floor clinic to address women with bowel dysfunction, a common aetiology in the elderly population especially those who incurred injuries after childbirth.

Dr Shephali Tagore

*Director, Obstetrics and Gynaecology International Medical Programme
Senior Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Shephali joined the Department of OBGYN in KK Hospital, Singapore, in 2004 and completed Specialty Training in 2008. Her subspecialty training was in Management of High-Risk Pregnancies and Critical Care in Dukes University Hospital, US in 2009.

Her clinical practice encompasses all aspects of Obstetrics and Gynecology. As the Head of MF and Peripartum, she implemented risk reduction strategies towards safer clinical care. Her special interests are Cervical incompetence (Cervical cerclage), Placenta accreta, Fetal heart rate monitoring, Vaccination in pregnancy and Induction of labor. She is actively involved in teaching, training and research activities. Additionally, as a Director of International Medical Programme, she organizes training in Obstetrics Emergencies in developing countries in Southeast Asia. She leads teams to teach simple, safe obstetric practices improving perinatal outcomes and at the same time streamlining their own systems and processes.

Ms Anna Tan Li Cheng

*Senior Nurse Manager, Ward 32
Division of Nursing
KK Women's and Children's Hospital, Singapore*

Anna Tan Li Cheng has had a distinguished career in nursing, spanning over two decades since she began her journey in 1998. Her dedication and expertise as an experienced midwife have been recognized through numerous roles, certifications, and accolades, highlighting her commitment to healthcare excellence.

Anna started her nursing career with a Diploma in Nursing from Nanyang Polytechnic in 1998. She further specialized with an Advanced Diploma in Nursing (Midwifery) from the same institution in 2001. In 2009, she earned a Bachelor of Science in Nursing from Curtin University of Technology, Australia. In 2024, she completed a Graduate Diploma in Healthcare Management and Leadership from SingHealth-SMU. Her education continued with various professional development courses and workshops, including healthcare management, leadership training, and specialized clinical courses.

Anna's career at KK Women's and Children's Hospital (KKH) has seen her take on numerous pivotal roles. In 2023, she was designated as Senior Nurse Manager, overseeing the Obstetric wards and the Outpatient Diagnostic and Ambulatory Care (ODAC) unit. Her leadership roles have been instrumental in improving patient care and operational efficiency within the hospital. Her journey within KKH began in earnest with her involvement in various specialized training programs. Notable among these are the SingHealth Performance Leadership Programme, numerous obstetric emergency and resuscitation courses, and workshops focused on patient safety and quality improvement. Anna has also been a dedicated trainer and mentor, sharing her knowledge and skills with upcoming healthcare professionals.

Anna has completed an extensive list of training and workshops, reflecting her commitment to continuous learning and excellence in patient care. Highlights include:

- 2023: SingHealth-SMU Graduate Diploma in Healthcare Management & Leadership.
- 2021: 1st SingHealth Peripartum Course, Compassion 365, and Disney Institute Training.
- 2018: Conflict De-escalation Workshop, Root Cause Analysis Workshop.
- 2011: Midwife Led-Care Clinic Training, Simulation training, Train The Trainer for Mask Fitting, Peripheral Intravenous Cannulation Course.
- 2009: Combined Obstetric Resuscitations & Emergency Training Course (CORE).

Anna has been actively involved in numerous committees, projects, and training initiatives, demonstrating her leadership and commitment to continuous improvement in healthcare. Some of her significant contributions include:

- 2024 - ongoing: Collaborating with WHO and KKH to support priority countries in improving the quality of basic intrapartum care to reduce preventable maternal mortality due to direct obstetric causes.
- 2024: Participating in the Maternal Child Health Summit in Taguig City, Philippines.
- 2023 - ongoing: Member of the KKH Injury Prevention Working Group, Labour Ward Optimization Labour - Team 2 (Postnatal Process), Inpatient Obstetric Correlated PREM to Recommendation Workgroup, KKH Medical Device Committee, KKH BFHI Steering Committee.
- 2022 - 2025: Programme Coordinator for the KKH Obstetric Nursing Fellowship at the College of Clinical Nursing.
- 2021 - 2023: Mentor in KKH's Mentoring Cycle, Member of the Labour Ward Working Committee and Labour Ward Risk Management, Patient Safety Enabler, Member of the HQSS Medication Management and Use (MMU) Committee.
- 2019 - 2022: Member of the Specimen Lab Error Workgroup, Antenatal Clinic/Education with Medical Team.
- 2017 - 2020: Member of the JCI Medication Management and Use (MMU) Committee.
- 2014 - 2023: Conducting NVD Workshop for Obstetric RNs in Delivery Suite, Conducting 'Mask Fitting' for Nurses in Delivery Suite, Involved in departmental Simulation Training & CORE Programmes.

Anna's exemplary service has been recognized through numerous awards and accolades, including:

- 2023: National Day Award – Long Service Medal.
- 2021: 3rd Prize for Research Poster at the SingHealth Nursing Conference.
- 2020: Singapore Health Quality Service Awards – SILVER Award.
- 2019: 'Dedication Award' – Singapore International Foundation.
- 2018: Long Service Award – 20 Years.
- 2016: SingHealth – Health Manpower Development Plan (HMDP) Award for 'Simulation Training in Obstetrics and Neonatology (Team-Based)' in the USA.
- 2015: Healthcare Humanity Award.
- 2013: Midwife of the Year Award.

Anna has been a vital contributor to KKH's policy and procedure review teams and has played a key role in quality improvement projects. Her leadership in obstetric simulation training and patient safety initiatives has significantly enhanced the hospital's service quality.

Anna's dedication to her profession, continuous pursuit of knowledge, and commitment to patient care exemplify the values of a true healthcare leader. Her career serves as an inspiration to her peers and the broader healthcare community.

Ms Charmain Samantha Tan Shiyun

*Senior Psychologist, Department of Child Development
Division of Medicine
KK Women's and Children's Hospital, Singapore*

Charmain is a clinical psychologist at the Department of Child Development (DCD), KK Women's and Children's Hospital (KKH). Her clinical practice interests include neurodiversity, relational care, and trauma informed practices. Her current role involves working with young children and their families, to provide assessment and intervention (individual, group, and caregiver training) for developmental, behavioural, socio-emotional, and/or relational concerns. She additionally provides psychological input, training and supervision in two programs. Anchor, a home visitation program that aims to provide trauma informed care to families whose young children have experienced maltreatment, in order to optimize their health and well-being. She is also involved in DayOne, a screening and intervention program that focuses on the mental health of caregivers of the children who present at DCD.

Dr Tan Chunzhen

*Consultant, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Tan Chunzhen is a psychiatrist with the Department of Psychological Medicine in KK Hospital, where she sees both women and children with mental health conditions. She has a special interest in the mental health of young children and the impact of early childhood experiences. Dr Tan is also a mother to an active two-year-old who keeps her learning on-the-job outside office hours.

Prof Tan Hak Koon

*Chairman, Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital
Academic Chair, SingHealth Duke-NUS OBGYN Academic Clinical Programme
Designated Institutional Official, SingHealth*

Tan Hak Koon is the Chairman of Obstetrics and Gynaecology Academic Clinical Programme (OBGYN-ACP) at SingHealth Duke-NUS. He also holds the position of Designated Institutional Official (DIO) at SingHealth Residency concurrently. He is the Chairman, Division of Obstetrics and Gynaecology, and Chief of Obstetrics, KK Women's and Children's Hospital. He is an Associate Dean, Office of Academic and Clinical Development, Duke-NUS Medical School. He was the President of College of Obstetrics and Gynaecology, Academy of Medicine, Singapore 2013 - 2015. He was the Head of Department, O&G at Singapore General Hospital 2010 - 2019. He is a Clinical Professor at Duke-NUS Medical School. He has been a teaching faculty and examiner for both undergraduate and postgraduate examinations since 1990s. He currently sits on many local and international committees and is actively contributing to clinical work, education, and administration.

Dr Ilka Tan

*Senior Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ilka Tan is a Senior Consultant in the Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology at KK Women's and Children's Hospital (KKH) in Singapore. Dr Tan graduated from the Ruprecht Karl's University in Heidelberg in Germany in 2004. She completed her research on the effect of oral antihyperglycemic drugs on the early steps of the insulin signaling cascade at the same university and obtained her PhD in 2005. During her university studies, she was awarded a national scholarship from the German National Merit Foundation (Studienstiftung des Deutschen Volkes). She undertook her Obstetrics and Gynaecology Specialist Training in the London Deanery, UK, and was awarded her Certificate of Completion of Training in 2015. Dr Tan started working in the Department of Maternal Fetal Medicine at KK Women's and Children's Hospital (KKH) in Singapore in 2016 completing her subspecialty training in Maternal Fetal medicine. She was admitted as a Fellow of the Royal College of Obstetricians in the UK in 2022.

As a senior consultant at KKH, Dr Tan is actively involved in managing high risk pregnancies with both maternal and fetal complications. She has a special interest in high-risk pregnancies, ultrasound scanning, preterm labour and labour ward management. In 2022 Dr Tan set up the Preterm Birth Clinic in the STORK Centre in KKH, the first of its kind in Singapore. She continues to be the lead for this service.

Dr Tan holds teaching appointments with all 3 medical schools in Singapore and is also actively involved with the training of PGY1s as well as Obstetrics and Gynaecology residents in Singapore.

For her work at KK Hospital Dr Tan has received the Outstanding Faculty award from the Singhealth Residency as well as the Quality Service Awards in Silver/Gold/Star and the Service from the Heart Award.

Ms Jennifer Tan Huey Li

*Principal Psychologist, Department of Child Development
Division of Medicine
KK Women's and Children's Hospital, Singapore*

Jennifer Tan serves as an Educational Psychologist at the Department of Child Development (DCD), KK Women's and Children's Hospital, where she has been for over 10 years. She leads a multidisciplinary team of allied health professionals, collaborating with local early childhood government agencies and preschools. Her work focuses on service development and the national implementation of the Development Support and Learning Support (DS-LS) Programme.

Before her current role, Jennifer was a trained teacher in a primary school, where she established the Learning Support Math programme and served as a level head. She also worked at the Ministry of Education headquarters before transitioning from full-time work to focus on her family. During this period, she was involved in the training of Teachers in Special Needs programme, supervised Special Educational Needs Officers, involved in research work, and conducted assessments, and interventions for children with special educational needs.

At DCD, Jennifer works on building the capability and capacity of preschool professionals and promote stakeholder collaboration to create a supportive community for children with developmental needs. She aims to increase knowledge and awareness of learning support and school-based therapy practices. As the team lead of the Consultancy for DS-LS contracted by Early Childhood Development Agency (ECDA), Jennifer reviews and refines the programme with her team to facilitate expansion, improve programme professionals' capability, and extend early intervention services through advocacy and pilot projects.

Jennifer is also involved in establishing training programs for Learning Support Educators at the National Institute of Early Childhood Development, and for Inclusion Coordinators at the Social Service Institute. She also contributes as a resource person for the national Social Service SkillsFuture Tripartite Taskforce, which recently launched career pathways for early intervention professionals.

Jennifer's community work supports children with developmental needs and their families, aligning with the hospital's broader mission of improving population health. By addressing developmental needs early within community settings, her efforts aim to optimize resource utilization and improve health outcomes.

Her research interests include inclusion, differentiated instruction, and supports for children with developmental needs. She collaborates with key stakeholders to apply research in educational and therapy settings, enhancing children's participation and engagement in their communities. She is also currently pursuing a PhD.

Dr June Tan Vic Khi

Director, Antenatal Diagnostic Centre

Head and Senior Consultant, Obstetrics Ultrasound and Prenatal Diagnosis Unit

Department of Maternal Fetal Medicine

Division of Obstetrics and Gynaecology

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Dr June Tan is the Head & Senior Consultant of the Obstetric Ultrasound & Prenatal Diagnosis Unit, and she is also the Director of the Antenatal Diagnostic Centre (ADC) in KK Hospital.

Dr Tan graduated with MBBS at the National University of Singapore and MRCOG from Royal College of O&G, United Kingdom. She underwent oneyear post-graduate training on fetal echocardiography at 2 European centres, The National Centre of Fetal Medicine in Trondheim, Norway & the National Heart & Lung Institute at the Royal Brompton Hospital in London, UK, as part of the MOH, Human Management Development Program. At these centres, Dr Tan trained to provide specialised fetal echocardiography scans together with Professor Sturla Eik-NES, & Dr Julene Carvalho, paediatric cardiologists who specialises in fetal cardiology. Dr June Tan's professional training in Obstetrics and Gynaecology has been largely in Maternal Fetal Medicine Department in KK Hospital. In the field of obstetrics, Dr Tan has been focused on fetal medicine & obstetric ultrasound.

Together with the team of fetal medicine specialists and obstetric sonographers, KKH ADC now offers specialised fetal heart screening for all pregnancies including Low and high-risk pregnancies, screening for fetal heart abnormalities in the first trimester of pregnancy. Dr Tan strongly believes that teaching and training are the cornerstones of continuing and improving the current practice of obstetrics. She has been involved in teaching of medical students from the Yong Loo Lin School of Medicine in the form of mentoring, conducting tutorials & lectures and conducting clinics with the medical students.

Prof Tan Kok Hian

Head and Senior Consultant, Perinatal Audit & Epidemiology Unit

Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Advisor, SingHealth Duke-NUS OBGYN Academic Clinical Programme

Senior Associate Dean, SingHealth Duke-NUS Institute for Patient Safety and Quality (IPSQ)

Professor Kok Hian Tan is Head & Senior Consultant, Perinatal Audit & Epidemiology Unit, Dept of Maternal Fetal Medicine KK Women's and Children's Hospital, Singapore and Founding Chair of the OBGYN Academic Clinical Programme in SingHealth Duke-NUS Academic Medical Centre, Singapore in 2011. He is the Benjamin Henry Sheares Professor of OBGYN at National University of Singapore (NUS) and his academic interests include preeclampsia, gestational diabetes, pregnancy cohort studies, perinatal epidemiology and patient safety.

Prof Tan is Lead Integrated Platform for Research in Advancing Metabolic Health Outcomes in Women and Children (IPRAMHO) since 2017. IPRAMHO under the Singapore NMRC collaborative grant and later under SingHealth Duke-NUS Maternal & Child Health Research Institute since 2021, builds core research capability & capacity and enhance collaborative & transdisciplinary research productivity in care for women and children in Singapore, with active collaborative engagements of national & international key opinion leaders & collaborators. The framework has facilitated Asia Pacific expert groups in the maternal and child health specific domains and achieved several national and Asia Pacific consensus in care guidelines.

Prof Tan is Chairman of the Congress Trust Fund of the Obstetrical & Gynaecological Society of Singapore and Editor of Singapore Journal of Obstetrics & Gynaecology. He is Past President of the Obstetrical & Gynaecological Society of Singapore. Currently he is Vice President of the Perinatal Society of Singapore and FAOPS Deputy Secretary General - Central Region.

A/Prof Tan Lay Kok

Head and Senior Consultant, Department of Maternal Fetal Medicine

Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Academic Vice Chair, Education

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Clinical Associate Professor Tan Lay Kok is a senior consultant obstetrician and gynaecologist with a special interest in obstetric medicine and high-risk pregnancy. He did his fellowship with Professor Michael de Swiet at Queen Charlotte's Hospital. He has developed several multidisciplinary obstetric services caring for mothers with diabetes, cardiac, rheumatological, hematological, kidney and other medical conditions at the Singapore General Hospital. He has peer reviewed publications and book chapters in these areas and organizes regular courses and meetings in maternal medicine and peripartum management. He has also been actively involved, either as chair or committee member, in holding international congresses in O&G for the Obstetrical Society of Singapore, including the 2018 RCOG World Congress held in Singapore. He is also a regular invited speaker at both local and regional meetings.

Since 2021, he has been the head of the Maternal Fetal Medicine department at the KK Women's and Children's hospital (KK Hospital) which oversees almost 12 thousand deliveries annually. He has since further developed Maternal Medicine in KK Hospital and also established a Maternal Medicine Network for the health cluster SingHealth. He is also actively involved in undergraduate and postgraduate teaching and is also the Vice Chair of Education for the SingHealth OBGYN Academic Clinical Programme. He has been President of the College of Obstetricians and Gynecologists since 2021 and oversaw the publication of guidelines on the management of COVID-19 in pregnancy and COVID-19 vaccination in pregnancy.

Prof Teoh Tiong Ghee

*Director, Maternal and Child Global Health and Care Transformation
Senior Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
Advisor, SingHealth Duke-NUS OBGYN Academic Clinical Programme
Professor of Obstetrics, Imperial College London*

Teoh Tiong Ghee is a Senior Consultant in Obstetrics and Gynaecology and Director, Maternal and Child Global Health and Care Transformation at KKH, SingHealth. He is an Advisor to the SingHealth Duke-NUS Obstetrics and Gynaecology Academic Clinical Programme. He is a University of Toronto and Royal College of Obstetricians and Gynaecologists accredited subspecialist in Maternal and Fetal Medicine. His research interests include laboratory, translational and clinical research in the prevention of preterm delivery. Together with a team of obstetricians and neonatologists, they have launched the Preterm Pregnancy Prevention Programme (PPPP) aimed at reducing the burden and consequences of preterm birth. This programme has been generously supported by The Far East Organisation.

Dr Serene Thain Pei Ting

*Head and Consultant, Maternal Medicine Unit
Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Serene Thain is Head of the Maternal Medicine Unit, and Consultant Obstetrician and Gynaecologist in the Department of Maternal Fetal Medicine at KK Women's and Children's Hospital in Singapore. She obtained her Membership of the Royal College of Surgeons MRCS (Edinburgh) in 2013, her Membership of the Royal College of Physicians MRCP (UK) and Master of Medicine in Internal Medicine in 2014 and in November 2015 was admitted as a Member of the Royal College of Obstetricians and Gynaecologists (UK). She was awarded the MRCOG Prize Medal for emerging as the overall highest scoring candidate in the examination, as well as the 4th Asia-Oceania Congress of Obstetrics and Gynaecology Gold Medal for the M.Med (O&G) examinations.

Dr Thain pursued subspecialty training in the field of Obstetric Medicine under the mentorship of Professor Catherine Nelson-Piercy at Guy's and St Thomas' Hospital in London. She strongly believes in adopting a holistic approach to the care of pregnant mothers through optimisation of their health and medical conditions in the pre-pregnancy, antenatal and postpartum period, with the end goal of achieving the best possible outcome for both mothers and their babies.

Dr Wang Junjie

*Head and Senior Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Wang Junjie is the Head and Senior Consultant of the Department of Gynaecological Oncology, KK Women's and Children's Hospital. Dr Wang underwent overseas training in the Inselspital in Bern, Switzerland and Oscar Lambret Cancer Centre in Lille, France. His fellowship training had a strong focus on advanced laparoscopic surgery for gynaecological cancers.

Ms Kayla Wong

*Senior Music Therapist, Child Life, Art and Music Therapy Programmes
Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Kayla Wong (Registered Music Therapist) is a Senior Music Therapist working in KK Women's and Children's Hospital. She received her master's in music therapy from the University of Melbourne, Australia. Kayla has obtained advanced training in Neurologic Music Therapy and is also a Grandparent of Rhythm, Breath and Lullaby, receiving specialized training for working with premature infants and their families. Her clinical experiences range through neurorehabilitation in paediatrics, intensive care, cancer and palliative care, and pain for women and children. She also started the first chronic pain music therapy clinic for children in Singapore as part of a multidisciplinary team. Kayla has been involved in a range of award-winning programmes, namely the Psychosocial and Supportive Care Programme serving children diagnosed with cancer and CHAMPs CaREs, a supportive

resource toolkit for children and their families that was birthed during the Covid-19 Pandemic. Kayla continues to grow her practice and share her knowledge through grant funded programmes such as the Temasek Foundation Music Baby and Me programme for premature infants and their families, and the Art and Music Therapy Programme funded by the Tan Chiew Lien fund for women in palliative care. She has shared her work in conferences both locally and internationally. Kayla is the former Vice President of the Association of Music Therapy Singapore and remains an active member. Kayla is currently a PhD candidate in Music Therapy at Temple University and holds special interest in connecting through musical interactions.

Dr Ann Wright

*Head and Senior Consultant, Peripartum Unit, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ann underwent her undergraduate, postgraduate and specialist training in Obstetrics and Gynaecology in the UK. She joined KKH in 2014 and is currently a Senior Consultant in the Maternal Fetal Medicine Department. Her main interests are the antenatal care of high-risk patients, labour ward management and operative obstetrics.

Dr Ryan Wu Song Lian

*Consultant, General Paediatrics Service, Department of Paediatrics
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Ryan Wu graduated from National University of Singapore in 2008 with a Bachelor of Sciences (Honors) degree and worked at the Ministry of Health (Communicable Diseases Department) from 2008 to 2009. He subsequently enrolled in Duke-NUS University School of Medicine in 2009 and graduated in 2013 with a Doctor of Medicine post graduate degree. He has worked at several governmental hospitals such as Singapore General Hospital (SGH), Changi General Hospital (CGH) and KK Women's and Children's Hospital (KKH) in 2013 before starting Paediatrics Residency training with Singhealth in 2014 with KK Women's and Children's Hospital (KKH). He has obtained Master of Medicine (Paediatric Medicine) in 2017 and is a current member with the Royal College of Paediatric and Child Health. He has been accredited as a specialist in Paediatric Medicine in 2021 and currently a Consultant at KKH with the Department of General Paediatric Medicine with an interest in adolescent mental health issues. He has also been involved in setting up the Paediatric & Adolescent Wellness Service (PAWS) - a service that primarily sees children and adolescents with mild to moderate mental health distress, neurodevelopmental disorders. Dr Wu believes that the body and the mind are closely linked and that a holistic care for the patient involves ensuring good body and mental health for each patient.

Dr Yang Liying

*Senior Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Yang Liying is a Senior Consultant in the Department of Obstetrics & Gynaecology at Singapore General Hospital. She graduated from the Yong Loo Lin School of Medicine of the National University of Singapore with a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree in 2008, completed her Master of Medicine in Obstetrics & Gynaecology in 2013, and became a Member of the Royal College of Obstetrics & Gynaecology (MRCOG) in the same year. She subsequently undertook further training in prenatal and reproductive genetics both locally and abroad in Mount Sinai Hospital, Toronto, and received her Master of Science in Medical Genetics in 2021.

Dr Yang's subspecialty interests are in Maternal-Fetal Medicine as well as Prenatal and Reproductive Genetics, as she believes that pregnancy and the pre-conception period offer the unique opportunity to provide quality care that can influence the long-term health of the family, mother and child. She runs general O&G clinics and also helms the Obstetrics-Kidney (OKC), Rheumatology-Obstetrics (ROC) and Prenatal and Reproductive Genetics clinics at the Centre for High Risk Pregnancy (CHIRP) at SGH.

Prof George Yeo Seow Heong

*Emeritus Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
Senior Consultant, Obstetrician and Gynaecologist
Maternal-Fetal Medicine Specialist
The Prenatal Consultants*

Prof George SH Yeo is an Emeritus Consultant to SingHealth. Before his retirement, he was Professor to SingHealth Duke-NUS Medical School. Prof Yeo was given the ambit to start the Maternal Fetal Medicine Department as a subspecialty department in KKH in 1993. He retired in 2019 and is now practicing at The Prenatal Consultants Pte Ltd, Royal Square at Novena. He is still spending substantial time teaching and supporting prenatal diagnosis and Fetal Surgery in KKH.

He is particularly passionate in the education of the next generation, having developed an annual ISUOG education Course in Singapore for 20 years since 2004. In 2010, Prof Yeo received the Stuart Campbell Award for Education from ISUOG. In 2012 he received the National Medical Excellence Award (National Outstanding Clinician Mentor Award) Singapore. He has published many papers in Indexed journals: Researchgate- 249 Publications, 4413 Citations, h-index 33; Google Scholar- Citations 16624, h-index 45, i10-index 110.

Ms Yik Chow Meng

*Senior Clinical Counsellor, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore*

Ms Yik Chow Meng is the Senior Clinical Counsellor at KK Women's and Children's Hospital, she is passionate about providing a holistic approach that empowers both patients and their caregivers in achieving optimal mental well-being. With a Master of Science in Counselling, Ms Yik has devoted over 13 years to working with children and adolescents facing various mental health challenges, spanning multiple settings. This diverse experience has equipped her with the expertise to manage intricate emotional and psychological challenges, laying a solid foundation for her advanced clinical counselling roles.

In 2019, Ms Yik became a part of the RECAP (Resilience for Children and Adolescents with Psychosomatic Symptoms) initiative. This program offers intensive and structured Cognitive Behavioral Therapy (CBT)-informed interventions tailored for children and adolescents experiencing psychosomatic symptoms. In her role, Ms Yik not only delivers direct interventions but also leads the counselling team, ensuring the continuous evolution and success of the program.

Ms Yik will be sharing more on the RECAP program for children and adolescents with psychosomatic presentations.

A/Prof Yung Chee Fu

*Senior Consultant, Infectious Disease Service
Department of Paediatrics
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Dr Yung Chee Fu is a Senior Consultant of the Infectious Disease Service at KK Women's and Children's Hospital, Singapore. He is also Associate Professor at Duke-NUS Medical School and LKC School of Medicine, NTU. His research interests are vaccinology, infectious disease epidemiology, outbreak control and public health medicine.

A Century of Leadership in Maternity Care – KKH Progress, Achievements and Challenges

Prof Tan Kok Hian

Chairperson, 11th KKH Scientific Meeting 2024 Organising Committee

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

Advisor, SingHealth Duke-NUS OBGYN Academic Clinical Programme

Benjamin Henry Sheares Professor in Obstetrics and Gynaecology, Duke-NUS

We gather today to celebrate a century of leadership in maternity care at KK Women's and Children's Hospital (KKH). As the Chairperson of this year's Organising Committee and a Senior Consultant in the KKH Department of Maternal Fetal Medicine, who was born and trained in KKH, I am deeply moved to reflect on the remarkable progress, achievements, and challenges that have shaped KKH into the beacon of excellence it is today.

This year marks a significant milestone in our journey, as KKH commemorates 100 years of dedicated service to mothers and children. Since its inception as a maternity hospital in 1924, KKH has evolved from a modest facility into a leading institution recognized globally for its pioneering contributions in obstetrics, gynaecology, and neonatal care. Notably, from the 1950s to the 1970s, KKH held the distinction of being the busiest maternity hospital in the world, delivering over 30,000 babies annually in 1960s. Over the past century, KKH has delivered 1.6 million babies, a testament to our profound impact on countless lives.

One of KKH's most significant contributions to healthcare in Singapore has been the reduction of maternal and perinatal mortality. Through relentless focus on improving maternal and neonatal outcomes, KKH has played a central role in lowering maternal mortality rates and ensuring safer childbirth for both mothers and babies. Our efforts in perinatal care, such as maternal and neonatal screening, risk assessment, and early intervention programs, have been instrumental in transforming Singapore into a nation with some of the lowest maternal and perinatal mortality rates globally.

Our journey is one of unwavering commitment to advancing medical science, enhancing patient care, and fostering an environment of innovation and excellence. KKH has achieved numerous milestones that have left an indelible mark on the landscape of maternity care. From the birth of Asia's first IVF baby in 1983 to the establishment of pioneering services such as the customised delivery of epidural analgesia, maternal and neonatal screening and risk assessment for various conditions and their management, KKH has consistently been at the forefront of reproductive medicine and women's health. Our contributions extend beyond clinical advancements to encompass a holistic approach that includes patient safety, quality improvement, and a commitment to academic excellence through our leadership in the SingHealth Duke-NUS OBGYN Academic Clinical Programme (ACP).

Our centennial theme, "A Century of Leadership in Maternity Care," encapsulates the spirit of KKH's journey—a journey characterized by resilience, innovation, and a steadfast dedication to our patients. As we celebrate our achievements, it is also important to acknowledge the challenges we have faced. From addressing the evolving healthcare needs of a growing population to navigating the complexities of advancing technology and research, KKH has continually adapted and risen to meet each challenge. Our commitment to patient safety and quality of care has been a driving force, reflected in initiatives like the Code Green of effective mobilisation for immediate C-section, integrated perinatal care team management, the PROMPT training program for acute obstetric emergencies, the SCOTT RFID system for surgical safety and ongoing research and applications in assisted reproductive techniques, fetal monitoring, prenatal diagnosis and care, and genetics.

This centenary scientific meeting is not only a celebration of our past but also an opportunity to look forward. The future of maternity care lies in our ability to innovate, collaborate, and continue pushing the boundaries of what is possible. As an O&G and midwifery education hub, we remain dedicated to training the next generation of healthcare professionals who will carry forward our legacy of excellence. As we embark on the next century of our journey, let us reaffirm our commitment to excellence in patient care, education, and research. Together, we will continue to lead, inspire, and shape the future of maternity care for generations to come.

I would like to express my heartfelt gratitude to everyone who has contributed to KKH's legacy. Your dedication, passion, and commitment have been instrumental in making KKH a leader in maternity care. Let us take pride in our achievements, reflect on our journey, and look forward with optimism to the challenges and opportunities that lie ahead.

The Newest Paradigms in the Management of Post Partum Haemorrhage

Prof Sir Sabaratnam Arulkumaran

Professor Emeritus of Obstetrics & Gynaecology, St George's University of London

Visiting Professor, Institute of Global Health Innovation, Imperial College London

Foundation Professor of Obstetrics & Gynaecology, University of Nicosia

Paradigm is a standard, perspective or set of ideas i.e. a way of looking at something. A new paradigm means a new way of looking at our practise. I shall review the new ideas in the prevention and management of postpartum haemorrhage (PPH). About 30% of global maternal deaths are due to PPH. This is partly because of the non-availability of heat stable oxytocic drugs for prevention of PPH. Paradigm 1 refers to the discovery of heat stable, long acting carbetocin. It can be kept at 30°C for a period of three years. With 100 ug given IM the action lasts for two hours and given IV, the action last for one hour compared with 25 mins with currently available synthetic syntocinon. This allows carbetocin to be used in LMICs where refrigeration of drugs is a problem. In terms of efficiency 7 per 100 women will have blood loss > 500 mls compared with 10 per 100 women with oxytocin. For oxytocin to achieve the same efficacy misoprostol or ergometrine need to be given in addition but this will be accompanied with its unpleasant side effects of nausea, vomiting, rigors and pyrexia. RCTs have shown reduced use of additional oxytocics with carbetocin in the third stage of labour. The second paradigm is the treatment of PPH with the use of one gram of the anti-fibrinolytic drug tranexamic acid (Txa) and if needed with another dose 30 mins later. The 20,000 strong WOMEN multicentre RCT showed 30% reduction of maternal deaths if the drug is given within 3 hours of PPH, whether it is atonic or traumatic haemorrhage and whether it is CS or vaginal delivery and without any increase in arterial or venous thrombo-embolic complications. The third paradigm is to condense all the sequential treatment modalities used for controlling PPH, together as an EMOTIVE care bundle thus reducing the time in instituting treatment. EMOTIVE care bundle approach – “Early identification of PPH, Massage of the uterus, Oxytocics, Tranexamic acid, Intra-Venous fluids and Early escalation in cases of refractory haemorrhage” was shown to reduce the incidence of the composite outcome of maternal deaths, blood transfusion and surgery to control PPH by 60%. This approach has been recommended by the WHO. The fourth paradigm is the use of ROTEM or TEG devices to detect formation of weak clots with early PPH due to inadequate fibrinogen and to replace with reconstituted fibrinogen concentrate or cryoprecipitate to reduce significant blood loss and the need for blood transfusion (OBS – UK study). The fifth paradigm is the use of simple physical or surgical alternatives that can be practised by a junior doctor such as aortic compression, bimanual uterine compression, suction tamponade, cervical clamps, compressed sponges and chitosan impregnated packs which appear to be more effective compared with the traditional balloon tamponade. But these methods need to be evaluated by RCTs to establish the best method. The sixth paradigm is the use of tranexamic acid as prophylaxis to reduce PPH in anaemic women who have a high incidence of PPH due to hyperdynamic circulation, high velocity due to low viscosity and poor stability of the clot. This is being investigated by a large RCT of 15,000 women in the WOMAN 2 study, the results of which is submitted for publication.

Placenta Growth Factor (PlGF): A Powerful New Tool in Obstetrics

Prof John Kingdom

Canerector Chair and Staff Obstetrician

Maternal-Fetal Medicine Division, Department of Obstetrics and Gynaecology

Mount Sinai Hospital

Professor, Department of Obstetrics and Gynaecology and Laboratory Medicine and Pathobiology

University of Toronto

Senior Clinician Investigator, Lunenfeld-Tanenbaum Research Institute, Sinai Health System

Placenta Growth factor (PlGF) is a pro-angiogenic protein secreted into maternal blood by the placental trophoblast surface. PlGF levels rise steady to a peak at 28 weeks, then decline slowly. PlGF is an arterial vasodilator, supporting VEGF to promote endothelium-dependent system systemic vascular relaxation. PlGF secretion thus facilitates cardiovascular adaption in normal pregnancy, characterized by an expanded blood volume, augmented cardiac output, and minimal effects on blood pressure. Early-onset severe preeclampsia (sPE), and associated fetal growth restriction (FGR), are almost always associated with underlying serious placental diseases, the most common of which is maternal-vascular malperfusion (MVM). MVM is characterized by reduced placental size, infarcts diseased spiral arteries and reactive changes in the trophoblast surface of the placental villi that reorganizes into syncytial knots. Explants of placental villi from sPE placentas secrete low levels of PlGF together with high levels of the VEGF antagonist sFLT1; in maternal blood, patients with sPE, circulating PlGF levels are low and the sFLT1/PlGF ratio is high.

Low PlGF (or a high sFLT1/PlGF ratio) is now the gold standard for the diagnosis of sPE. In normotensive individuals, low PlGF can be combined with ultrasound to distinguish SGA growth from FGR. The cost of these diagnostic tests is recovered through less interventions in test negative individuals that have gestational hypertension, or SGA growth. In fetal medicine, PlGF is an ideal 1st test when evaluating peri-viable severe FGR; 4/5 such pregnancies have low PlGF and underlying placental diseases causing sPE or FGR-related stillbirth, while 1/5 pregnancies with severe FGR and normal PlGF require in depth fetal investigations.

PlGF is incorporated into 1st trimester screening for sPE/FGR, but may be effective as a stand-alone screening test later in pregnancy, for example to determine the risk of sPE/FGR when patients have abnormal eFTS test results. Our PlGF screening study at 24-28 weeks in 9,100 individuals is under peer review and will be presented in Singapore.

PLENARY SESSION 3 | The Yvonne Salmon Lecture

Day 2 - Venue: Auditorium

Liver Disease in Pregnancy

Prof Catherine Williamson

*Professor of Women's Health and Honorary Consultant Obstetric Physician
Imperial College London, Institute of Reproductive and Developmental Biology*

When considering liver disorders in pregnant women there is a distinction between gestational liver disorders or the management of pre-existing liver disorders. Also, some women may present de novo when pregnant with a hepatic disease.

This lecture will consider the aetiology and management of acute fatty liver of pregnancy and intrahepatic cholestasis of pregnancy (ICP) with reference to the most recent international guidelines. It will also review the recent studies that have informed ways to individualise diagnosis and treatment strategies for ICP.

Women with pre-existing liver disorders should have pre-pregnancy counselling and once they have conceived should have multidisciplinary management by teams with expertise in hepatic disorders. Recent guidance for the management of common liver disorders, e.g., cirrhosis and metabolic dysfunction-associated steatotic liver disease, will be presented.

PLENARY SESSION 4 | The Tow Siang Hwa Lecture

Day 2 - Venue: Auditorium

Assessment of Wellbeing and Timing of Birth for the Small and Vulnerable Fetus

Prof Sailesh Kumar

*Mayne Professor of Obstetrics and Gynaecology
Head of Mayne Academy of Obstetrics and Gynaecology Faculty of Medicine University of Queensland
NHMRC Leadership Fellow and Professor of Obstetrics and Gynaecology
Mater Research Institute / University of Queensland
Senior Specialist, Maternal Fetal Medicine / Obstetrics
Mater Mothers' Hospital and Royal Brisbane and Women's Hospital*

Current advances in fetal monitoring using ultrasound and placental biomarkers will be discussed. The risk-benefit of planned birth versus expectant management and the optimum timing of birth will be critically appraised. The impact of a universal policy of planned birth will also be explored.

LUNCH SYMPOSIUM 1 | Pushing the Frontiers of Obstetrics and Gynaecology

Day 1 - Venue: Auditorium

Fetal Molecular Therapy - The Third Option

Prof Jerry Chan Kok Yen

Director, SingHealth Duke-NUS Maternal & Child Health Research Institute

Senior Consultant, Department of Reproductive Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Academic Vice Chair, Research

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Inherited genetic diseases affect one percent of all live births and are responsible for 40% of all paediatric admissions with significant morbidity and mortality, some of which occurs during pregnancy. This, together with a convergence of technologies in prenatal diagnosis, forms the rationale for offering fetal molecular therapy in an attempt to initiate treatment, even before babies are born. Intrauterine therapy performed in early gestation offers several other advantages such as the naive fetal immune system which will tolerate foreign cells and vectors, the stoichiometric advantage of a small body size that requires less therapeutics per kilogram of body weight, and the accessible stem cells during development. While there are many different approaches for fetal molecular therapy, in this talk, we will focus on the use of fetal mesenchymal stem cells for the treatment of osteogenesis imperfecta, the use of adeno-associated viruses to treat haemophilia and neuronopathic Gaucher disease, and the use of lipid-nano-particles to deliver CRISPR base editing to treat hereditary tyrosinaemia type I.

LUNCH SYMPOSIUM 1 | Pushing the Frontiers of Obstetrics and Gynaecology

Day 1 - Venue: Auditorium

Artificial Intelligence and the Future of Maternal Fetal Medicine

Prof Sailesh Kumar

Mayne Professor of Obstetrics and Gynaecology

Head of Mayne Academy of Obstetrics and Gynaecology Faculty of Medicine University of Queensland

NHMRC Leadership Fellow and Professor of Obstetrics and Gynaecology

Mater Research Institute / University of Queensland

Senior Specialist, Maternal Fetal Medicine / Obstetrics

Mater Mothers' Hospital and Royal Brisbane and Women's Hospital

This lecture will cover some of the recent advances and impact of AI in Maternal Fetal Medicine and prenatal imaging. It will focus on screening and prediction of adverse maternal and perinatal outcomes as well as detection of fetal abnormalities. Technological advances in imaging capability will also be covered.

The History of Fetal Surgery in Singapore

Prof George Yeo Seow Heong

Emeritus Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Senior Consultant, Obstetrician and Gynecologist

Maternal-Fetal Medicine Specialist

The Prenatal Consultants

Over the past half a century, advances in prenatal imaging, coupled with an increasing understanding of human fetal development, have created a new surgical patient: the fetus. Some destructive fetal processes can now be replaced by Fetal Surgery. Fetal surgery has evolved from experimental procedures to a well-established component of prenatal care. It has become the standard of care for several congenital conditions.

Fetal Surgery program at KK Hospital (KKH) started in 1993 with

1. Singapore's first in-utero transfusion for an anaemic fetus suffering from Rh disease. The indications for surgery expanded over time and the
2. Fetoscopic Laser Photocoagulation was established in 2011.
3. Our training program has gone regional (ISUOG Approved Courses Laser Workshops 2011- 5),
4. The creation of our own Laser Trainers
5. The refinement of surgical techniques from a wide exposure to the diverse clinical material of both mother and fetus.
6. The Fetal Surgery Suite was inaugurated in 2015. The opening of this facility represents the culmination of years of vision, dedication, and experience.

We have successfully performed a wide range of fetal surgeries, including ultrasound-guided needle procedures, fetoscopic Laser, thoracoamniotic shunts, Bipolar cord coagulation, and radiofrequency ablation, with outcomes that align with the highest international standards. Our survival rate of at least one twin following fetoscopic laser surgery for TTTS is 93%, and the survival rate for both twins is 65%. This meets international standards where the survival rate of fetoscopic laser surgery for TTTS were 85-90%, and 60-70% correspondingly.

Despite our smallness in birth number nationally, a continued commitment, multidisciplinary collaboration, and innovative creation in KKH has brought us safety and vibrancy of fetal surgery for the pregnant women in Singapore.

Day 2 - Venue: Auditorium

Dr Shephali Tagore

Director, Obstetrics and Gynaecology International Medical Programme

Senior Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Post-partum haemorrhage (PPH) is the commonest obstetrical emergency. Early identification and intervention are crucial to achieve haemostasis. The causes of PPH include uterine atony, retained placental tissue, genital tract lacerations, and coagulopathy, with uterine atony being the commonest cause (80%).

Primary PPH is traditionally defined as per vaginal bleeding of more than 500ml within 24 hours of birth. PPH can be either minor (blood loss 500-1000ml) or major (blood loss more than 1000ml) (2). The first line therapy includes the use of the use of Uterotonics (e.g., Oxytocin, Carboprost, Misoprostol, Duratocin) and an anti-fibrinolytic agent (Tranexamic acid). If bleeding is refractory to medical management, other interventions include mechanical device insertion or surgical intervention with either interventional radiology uterine artery embolization, internal iliac artery ligation, haemostatic sutures (e.g., B-lynch or Hayman sutures) or even a hysterectomy as a last resort.

Recently, a novel intrauterine vacuum-induced control device (JADA) has emerged in the management of PPH. The JADA System was approved by U.S. Food and Drug Administration (FDA) for treatment of PPH or abnormal uterine postpartum bleeding in August 2020. JADA uses a low-level vacuum to cause physiologic uterine contractions which in turn controls the abnormal uterine bleeding. Its effectiveness and safety were evaluated in a prospective study which showed rapid and effective control of abnormal bleeding. The JADA device may have a place, as an additional treatment option, before proceeding with further interventions. Some of the advantages of the JADA include its rapid action and early control of PPH, ease of insertion.

The JADA device was implemented in KK Hospital, in August 2023. We conducted a study evaluate the efficacy with the JADA system in managing PPH. Our initial data shows that JADA system is safe and effective for rapid control of primary atonic PPH regardless of the mode of delivery.

Prof Sir Sabaratnam Arulkumaran

Professor Emeritus of Obstetrics and Gynaecology, St George's University of London

Visiting Professor, Institute of Global Health Innovation, Imperial College London

Foundation Professor of Obstetrics and Gynaecology, University of Nicosia

For this presentation refractory PPH is defined as that due to poor uterine tone of the four Ts ascribed to PPH (Tone, Tears, Tissues and Thrombin or clotting problems) i.e. PPH that is not responding to additional uterotonics in the absence of tears, tissue or clotting disorders. Early postpartum uterine activity studies using intrauterine catheters has shown that although there is a linear correlation to uterine activity and measured blood loss there are cases with excessive blood loss despite high uterine activity suggesting that in some cases of presumed atonic PPH it may be partly contributed due to defective clot formation due to lack of fibrinogen or excessive fibrinolysis. The latter has been shown to respond to the use of tranexamic acid if given within three hours of onset of PPH (WOMAN trial). The role of low fibrinogen at the onset of the presumed atonic PPH leading to poor clot formation is being investigated by the OBS-UK study using ROTEM or TAG and if found to be useful the problem can be overcome by the use of reconstituted fibrinogen or cryoprecipitate. In cases of PPH following the prolonged use of syntocinon for induction or augmentation of labour the use of ergometrine has been shown to be effective in some cases. The use of carbetocin for treatment of refractory PPH is being currently investigated by the WHO. Aortic compression and bimanual compression of the uterus for a period exceeding bleeding/ clotting time (>8 mins) has shown to be effective. In the absence of any response to these measures, simple physical or surgical method is effective in the vast majority of cases provided they are instituted before the onset of consumptive coagulopathy. Balloon tamponade using Sengstaken tube, Rusch, Bakri, condom or rubber glove balloons have been shown to be prognostic in identifying those who need surgical treatment i.e., if they continue bleeding. The tamponade test is therapeutic in stopping the bleeding in the vast majority. Simpler suction tamponade using plastic or metal cannula have been shown to be easy to use and highly successful in most cases. Bilateral transient transvaginal clamps to clamp the uterine vessels has shown to be effective in controlling refractory atonic PPH. A recent RCT comparing balloon tamponade, suction tamponade and TV paracervical clamps indicate that the TV clamps to be better, but the numbers studied were small and hence further studies are encouraged. Packing with 'chitosan' covered gauze has shown to control the PPH and reduce the need for laparotomy/hysterectomy. Chitosan is an effective haemostatic agent and has been used for years to prevent bleeding from war injuries. It is a hydrophilic biopolymer resulting from diacylation of chitin - part of crustacean crusts. Haemostasis is achieved by electrostatic interactions between the erythrocytic cell membrane and chitosan. It works independently of the coagulation cascade, even in the presence of heparin and under hypothermic conditions. Its safety for people with crustacean allergy has been established. Mini-sponge tamponade device which consists of mini-sponge pouch that is delivered with a curved applicator and plunger has been shown to be effective. The mini sponges are composed of the same materials used in standard surgical sponges currently approved for use inside the uterus and vagina. Each mini-sponge is compressed to a height of 4-5mm. On contact with blood the mini sponges absorb blood and expand to their pre-compressed height of 40 to 50 mm within 20 seconds. Expansion of mini-sponges exerts pressure within the uterus for a period of hours. The pouch is highly distensible and durable with a tensile strength of greater than 200 lbs. Approximately 400 mini sponges are within the pouch. A removal strand is attached to the pouch to facilitate post treatment removal by means of gentle traction. Additional procedures are not needed. The pouch is inspected on removal to confirm that it was intact and that all sponges had been removed. If there is a breach in the pouch, retained sponges can be identified by ultrasound and removed by suction or forceps. If these simple techniques are not successful in controlling the bleeding, the next step is laparotomy and placement of vertical compression sutures (B-Lynch or modified vertical sutures) or systemic devascularisation, internal artery ligation or subtotal or total hysterectomy depending on the condition of the patient and the availability of expertise, blood transfusion and HDU facilities.

Day 1 - Venue: Lecture Theatre

Preventing RSV via Maternal Immunization – RSV Burden and Impact in Infants

A/Prof Yung Chee Fu

*Senior Consultant, Infectious Disease Service
Department of Paediatrics, Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Respiratory syncytial virus (RSV) is a leading cause of severe lower respiratory tract disease, especially in young children. Recently, for the first time in more than 50 years, new interventions are available to help prevent RSV in infants. The talk will present latest data on RSV clinical epidemiology and disease burden.

Day 1 - Venue: Lecture Theatre

Preventing RSV via Maternal Immunization – Protecting Infants with RSV Vaccine via Maternal Immunization

Dr Serene Thain Pei Ting

*Head and Consultant, Maternal Medicine Unit
Consultant, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Respiratory Syncytial Virus (RSV) represents a significant health threat to infants, being a leading cause of severe respiratory illness in young children. Recent advancements in maternal immunisation strategies highlight the potential to mitigate RSV-related morbidity and mortality by vaccinating pregnant mothers. This talk will explore the current evidence and future directions of maternal vaccination against RSV, evaluate the effectiveness and safety of these vaccines, and discuss the impact on neonatal outcomes.

Day 1 - Venue: Lecture Theatre

Impact of PCV on Burden of Invasive Pneumococcal Disease

Dr Li Jiahui

*Head and Consultant, Infectious Disease Service
Department of Paediatrics
Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Streptococcus pneumoniae is a leading cause of morbidity and mortality worldwide, especially in children younger than 5 years of age. This talk aims to explore the burden of invasive pneumococcal disease and the impact of existing pneumococcal conjugate vaccines locally and worldwide. It will also discuss potential pitfalls and benefits of newer pneumococcal vaccines.

Advancing Academia in OBGYN – The Global Perspective

Day 1 - Venue: Auditorium

Building Academic and Research Capacity in Obstetrics and Gynaecology

Prof Sailesh Kumar

Mayne Professor of Obstetrics and Gynaecology

Head of Mayne Academy of Obstetrics and Gynaecology Faculty of Medicine University of Queensland

NHMRC Leadership Fellow and Professor of Obstetrics and Gynaecology

Mater Research Institute / University of Queensland

Senior Specialist, Maternal Fetal Medicine / Obstetrics

Mater Mothers' Hospital and Royal Brisbane and Women's Hospital

This lecture will cover some of the trials and tribulations encountered in building a strong academic/research workforce in Obstetrics and Gynaecology in Australia. Some current government and institutional initiatives will be discussed, and their impact assessed.

Advancing Academia in OBGYN – The Global Perspective

Day 1 - Venue: Auditorium

Advancing Academia in OBGYN: The University of Toronto Experience

Prof John Kingdom

Canerector Chair and Staff Obstetrician

Maternal-Fetal Medicine Division, Department of Obstetrics and Gynaecology

Mount Sinai Hospital

Professor, Department of Obstetrics and Gynaecology and Laboratory Medicine and Pathobiology

University of Toronto

Senior Clinician Investigator, Lunenfeld-Tanenbaum Research Institute, Sinai Health System

Modern-day Obstetrics and Gynecology is an increasingly challenging and demanding specialty to master as a trainee, and has expanded into many areas of sub-specialty practice due to advances in diagnostic and surgical methods. When combined with more compressed training duration and duty hours, it has become increasingly challenging to nurture next generations of innovators and researchers in our field.

Our approach in Toronto over my past decade as Chair has been to empower as many non-clinical learners, Residents, Clinical Fellow trainees, and Junior Faculty as possible, to discover their inner passions to contribute to the broad agenda of "academic ObGyn". This began with directing University resources into an expanded summer student research program, capturing bright minds as medical and undergraduate students – all coordinated by our Vice Chair Research. Next, we expanded support for ObGyn Residents to step away for 12 months into quality MSc or PhD-level graduate training, most commonly in Clinical Epidemiology, so as to gain strong data management skills. We have a wide pool of international Clinical fellows, who naturally aspire to be productive for career progression. Budgetary reorganization then provided University resources to match the hospital sector "practice plans" whereby physicians give up gross private income to common academic enrichment funds that "buy out" clinical time for individual Faculty level job descriptions - other than as a full-time clinician-teacher. Across our system, over 20% of ObGyn faculty have one or more protected academic days to pursue their agreed job description goals over renewable 2-year cycles as: clinician-investigator, clinician-QI, clinician-educator, and clinician-KT. Centrally, we focus more on common resources to help with grant preparation and peer review publication, and we celebrate successes via a systems-wide monthly newsletter. Annually, we place great emphasis on our research day, attended by over 250 people, where all presentations are made by clinical and non-clinical trainees. Ultimately, there is no substitute for sustained encouragement at all levels, a focus successful grant capture and fostering international-level collaborations between strong institutions. In doing so, we make the research effort less daunting, more successful and thus attractive to the new generations of aspiring ObGyn's.

Advanced Academic Training in O&G – UK Perspective

Prof Sir Sabaratnam Arulkumaran

Professor Emeritus of Obstetrics and Gynaecology, St George's University of London

Visiting Professor, Institute of Global Health Innovation, Imperial College London

Foundation Professor of Obstetrics and Gynaecology, University of Nicosia

Advanced academic training curriculum was recently launched as clinical research eLearning resource for the NIHR.

<https://www.rcog.org.uk/news/rcog-launch-clinical-research-elearning-resource-for-the-national-institute-of-healthcare-research/>

The resource contains the curriculum and syllabus to develop competencies in;

1. Women's health and research
2. Research infrastructure and organisational support for research
3. I have a research idea. How do I develop this further
4. Introduction to clinical trials

The Academic Curriculum will be used by all academic trainees and the Academic Supervisors will help to direct, guide, and determine achievable goals for their training. The progress will be assessed annually at the combined clinical/academic Annual Review of Competence Progression (ARCP). The rate of progress is likely to vary from one trainee to another according to the amount of time they have for academic activity and the type of research being undertaken. The curriculum is also flexible to allow for trainees where there is discrepancy between clinical and academic experience, e.g., those who have undertaken an undergraduate PhD programme. Assessment is principally based on academic outputs that are subject to peer review by other academic colleagues. All assessments will form part of a portfolio that will be kept by the trainee. The Academic curriculum has three modules which are in addition to the clinical modules. Module 1 consists of gaining knowledge in generic and applied research with the learning outcomes of; To develop and undertake a research project (may include MD or PhD); To obtain funding to undertake research (by writing research grants) and develop collaborative working practices (e.g., with other disciplines). Module 2 is on Research Governance with the learning outcomes of; How to perform ethical research within the framework of the appropriate governance; To understand legislation relevant to undertaking research and to understand implications of legislation for research in both animals and humans. Module 3 is on Communication and Teaching. The learning outcomes are: To build the ability to communicate research verbally and written; Communicate with professional and lay audience; to learn the skills of peer review and acquire teaching skills in academic areas in addition to those required by clinical specialist trainees. Audit is included as part of clinical training. The syllabus for each of these modules consists of Training pathway; Knowledge criteria; Academic competency; Professional skills and attitudes; Training support and evidence/ assessment. The Academic curriculum is aimed at goal setting. Not all 'outputs' are compulsory but are shown as examples.

The UK Perspective

Prof Catherine Williamson

Professor of Women's Health and Honorary Consultant of Obstetric Physician

Imperial College London, Institute of Reproductive and Development Biology

This talk will review the current progress in advancing research innovation in the UK, e.g., advances in genomic technologies that enabled an individualized focus on treatment and multicentre trials of biomarkers or drugs to manage common obstetric disorders. While there is excellent expertise in methodology in specialist research departments, there are challenges in enabling early and mid-career researchers to pursue stable careers in obstetrics and gynaecology research. This talk will consider current challenges and opportunities to advance academic careers across different specialties with an interest in O&G research in the UK.

The SingHealth Duke-NUS Perspective

Prof Ivy Ng Swee Lian

Senior Advisor, SingHealth Board

SingHealth is the largest healthcare cluster in Singapore, comprising 12 institutions with services for the entire continuum of care and spanning all specialties, with the breadth and depth of subspecialty expertise too. The span of complexity of care provides an excellent foundation for the development of academic medicine. Duke-NUS was identified as the academic partner for SingHealth when it was first launched in 2005.

The many challenges of bringing two very different organisations together towards the shared vision of advancing academia were considerable with multiple barriers that needed attention. Structural changes were essential, and these required bold leadership and meticulous execution. However, the benefits are tremendous and well demonstrated by the transformation in OBGYN in a relatively short period of time.

OBGYN was among the first wave of Academic Clinical Programmes (ACPs) that were formed, bringing together all OBGYN specialists from different institutions to strategise and grow efforts in research, innovation, and education. SingHealth Duke-NUS joint institutes in specific areas were also created to provide the necessary expertise from across institutions and across disciplines and specialties, to cement the union between the health system and the medical school. The SingHealth Duke-NUS Maternal and Child Health Research Institute (MCHRI) is one such example that has brought multiple groups together to work synergistically to bring fresh vibrancy to this important area.

There has been significant progress and growing leadership and prominence, both locally and globally, with many exciting opportunities ahead.

The OBGYN ACP Perspective: Research

Prof Jerry Chan Kok Yen

Director, SingHealth Duke-NUS Maternal and Child Health Research Institute

Senior Consultant, Department of Reproductive Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Academic Vice Chair, Research, SingHealth Duke-NUS OBGYN Academic Clinical Programme

KK Women's and Children's Hospital is now celebrating its 100th year anniversary and it has been the centre that provided excellent clinical services, quaternary and sub-specialisation care. KKH has also established a Paediatrics service since 1997, leading to the development of a holistic Women's and Children's Hospital. However its academic journey has only started since May 2011 with the inception of the OBGYN Academic Clinical Program, allied with Duke-NUS Medical School. Since then, the OBGYN ACP has developed a comprehensive research programme that takes into account the necessity to build and grow human talent from academic clinicians to clinician scientists and investigators. Together with Duke-NUS, we have enlarged our research vision to accommodate population health and integrated research with our community and paediatric colleagues. Our future goals are to build strategic partnerships locally and internationally, and to further develop thematic research in the different sub-specialties.

The OBGYN ACP Perspective: Education

A/Prof Tan Lay Kok

*Head and Senior Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
Academic Vice Chair, Education, SingHealth Duke-NUS OBGYN Academic Clinical Programme*

The coming into being of the OBGYN ACP brought together the campuses of KK hospital and the Singapore General Hospital. The alignment with the ACGME residency requirements provided a valuable opportunity for putting in place a structure for faculty and residents, covering curriculum development assessments and remediation, but also faculty development and a hitherto neglected emphasis on wellness, psychological health and prevention of burnout. The rigour needed to meet the particular demands of Obstetrics and Gynaecology resulted in the development of milestones, criteria for resident progression, entrustable professional activities, simulation courses, as well as an emphasis on research and publications as requirements for progression and editing as specialists. Faculty development was also cultivated, and staff were encouraged and supported to pursue secondary qualifications in medical education. Subspecialty training pathways in gynaecological oncology, reproductive medicine, maternal fetal medicine, urogynaecology and minimally invasive surgery have been developed, with two (oncology and maternal fetal medicine) also recognised by the RCOG in the U.K. as specialty training centres. Undergraduate teaching commitments are also considerable with three medical schools sending medical students for clinical rotations. Additionally, the ACP has fellowship programmes for overseas doctors.

Directions for the future include harnessing technology and Artificial Intelligence (AI) and encouragement more research in medical education.

Day 1 - Venue: Auditorium

Preterm Pregnancy Prevention Programme – Introduction and Launch

Prof Teoh Tiong Ghee

Director, Maternal and Child Global Health and Care Transformation

Senior Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics & Gynaecology

KK Women's and Children's Hospital, Singapore

Advisor, SingHealth Duke-NUS OBGYN Academic Clinical Programme

Professor of Obstetrics, Imperial College London

Globally, Preterm Birth is still the biggest cause of mortality for infants less than 5 years of age. In the last 10 years this has not improved. In spite of modern advances in medicine, and even in Singapore with one of the best healthcare services in the world, the incidence of preterm birth has not significantly decreased. I shall present the preterm birth trend and the challenges of preterm pregnancy from a National and SingHealth perspective.

I shall also present the Preterm Pregnancy Prevention Programme, established by SingHealth, to help reduce this incidence.

Day 1 - Venue: Auditorium

Spontaneous Preterm Birth – Pregnancy Screening and Management

Dr Ilka Tan

Senior Consultant, Department of Maternal Fetal Medicine

Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Preterm Birth, delivery before 37 completed weeks gestation, remains the leading cause of neonatal morbidity and mortality. Worldwide 15 million babies are born prematurely every year. Spontaneous Preterm Birth resulting from preterm labour or preterm pre-labour rupture of membranes accounts for about two-thirds of all preterm births. Spontaneous preterm birth is a multi-factorial condition due to various aetiologies such as cervical weakness, uterine overdistension and activation of inflammatory pathways. Recognising women with risk factors for spontaneous preterm birth and offering additional screening with tailored preventative interventions is an important strategy for reducing preterm birth rates. This has led to the development of specialised clinics for those who are identified as high risk. The Preterm Birth Clinic in the STORK centre in KK Women's and Children's Hospital, the first of its kind in Singapore, specialises in addressing modifiable risk factors, mid-trimester cervical length surveillance, as well as provision of evidence-based interventions such as cervical cerclage and vaginal progesterone.

Day 1 - Venue: Auditorium

Iatrogenic Preterm Birth Screening and Management

A/Prof Tan Lay Kok

*Head and Senior Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics & Gynaecology
KK Women's and Children's Hospital, Singapore
Academic Vice Chair, Education
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Iatrogenic preterm birth constituted 30-40% of all preterm births and the global incidence continues to increase. The underlying causes range from obstetric complications to maternal and fetal causes as well as non-medically indicated iatrogenic preterm deliveries, with hypertensive disorders of pregnancy, in particular preeclampsia, diabetes, multiple pregnancies from ART as well as placental conditions such as placental insufficiency leading to fetal growth restriction and placental accreta syndrome being more common causes.

Compared to spontaneous preterm births, iatrogenic preterm births have more fetal growth restriction and caesarean sections. Additionally, previous caesarean sections, particularly second stage intrapartum caesarean sections, are important contributors to iatrogenic preterm births. Level 3 maternal obesity is also a risk factor.

Prevention measures are multifactorial and much of which should optimally commence pre pregnancy. First trimester screening for preeclampsia between 11-14 weeks has been shown to be sensitive in detecting those who develop preterm preeclampsia, and the timely intervention of low dose aspirin effectively reduces the incidence of preterm preeclampsia in both Western and Asian populations. Interestingly a systematic review has also shown that vaginal micronised progesterone started in the first trimester lowered the risk of preeclampsia. Efforts to reduce the prevalence of diabetes and gestational diabetes, including pre pregnancy weight management, must continue in tandem with universal GDM screening. Controlling the rate of intrapartum caesarean sections requires a multi-pronged approach including senior participation in active management of labour and second stage clinical caesarean sections.

Day 1 - Venue: Auditorium

Perinatal Outcomes of Premature Babies Born at Limits of Viability – Are We Doing Better?

Dr Quek Bin Huey

*Head and Senior Consultant, Neonatal Intensive Care Unit
Department of Neonatology, Division of Medicine
KK Women's and Children's Hospital, Singapore*

Advances in neonatal care have resulted in improved survival of the tiniest babies. Babies born at 23 and 24 weeks, once considered 'non' or 'pre-viable' are now surviving. The limits of viability and challenged and lowered every day. The improved trend in survival is however not consistently seen in all centres. There is also concern if this improved survival comes at the cost of increasing morbidities.

We will examine trends in survival and perinatal outcomes of babies born at limits of viability in recent decades. And also evaluate practices that may be associated with better outcomes.

Day 1 - Venue: Auditorium

Health Economics of Preterm Pregnancy

Dr Alicia May Lim

*Consultant, Department of Neonatology, Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Preterm birth affects up to 1 in every 10 births leading to an estimated 3000 preterm births annually in Singapore. In spite of advances in the care of pregnant women, the incidence of prematurity has remained unchanged and is increasing in many areas. Much of this is attributed to changes in maternal age at conception and the increasing use of assisted reproductive technology. Significant complications arising from prematurity are the leading cause of mortality and morbidity in these preterm infants within the first 2 years of life. Complications that lead to increased costs in this population are specific to the preterm infant, including necrotizing enterocolitis requiring surgery or resulting in short gut syndrome, patent ductus arteriosus requiring cardiac surgery, bronchopulmonary dysplasia requiring prolonged ventilatory support, and retinopathy of prematurity requiring retinal surgery. Many of these complications lead to prolonged need for medical support and follow-up. Additionally, these issues culminate in increased risks of long-term neurodevelopmental delay and rehospitalizations.

Direct medical cost of caring for preterm infants can be high and have significant long-term economic impacts on the family and on the wider society. These direct costs include the initial hospital stay, those associated with follow-up and care associated with morbidities from preterm complications. Indirect costs are borne by the family due to the loss of productivity and family income to care for the child with multiple medical needs, as well as other indirect medical expenses required for the care of the child. Importantly, with improved survival of preterm infants due to advancing medical technology, there are an increasing number of preterm infants being discharged home requiring medical and technology support.

Understanding the costs related to premature births in Singapore will inform the population about the medical, social and mental costs of premature births; help advance preterm prevention strategies that can be implemented on the wider population and encourage investments in technological advances in preterm screening and prevention.

Day 1 - Venue: Lecture Theatre

Intracranial Pressure – Targeted Interventions in Traumatic Brain Injury – What is the Latest Evidence?

Dr Loh Lik Eng

*Senior Consultant, Children's Intensive Care Unit
Department of Paediatric Subspecialties, Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Traumatic brain injury is one of the leading causes of paediatric death and disability around the world. Falls and motor vehicle accidents account for the majority of cases of head trauma in children and adolescents. In infants less than one year of age, abusive head trauma can account for up to half of all cases receiving intensive care for traumatic brain injury.

The primary injury to the brain is irreversible. The goal of neurocritical care for these patients is to minimize secondary brain injury by controlling intracranial pressure, optimising cerebral perfusion and oxygenation.

Day 1 - Venue: Lecture Theatre

Role of Neurosurgery for Paediatric Head Injury: Our KKH Experience

Dr Sharon Low Yin Yee

*Head and Senior Consultant, Neurosurgical Service, Division of Surgery
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Neuroscience Academic Clinical Programme*

Paediatric head injury is one of the leading causes of death and disability in children worldwide. Optimal management of these patients is challenging due to the heterogeneity of age-related differences in brain structure and physiology. Acquired intracranial damage can disrupt normal neurological development, with delayed consequences emerging over time; hence, causing significant alterations in a wide range of functional abilities in a growing brain. Most affected patients may experience a spectrum of persistent symptoms in the cognitive, behavioural, emotional and social domains. To date, global research focused on neurosurgical outcomes in the paediatric population are less in comparison to their adult counterparts, especially in our local context. This is a longitudinal study undertaken to evaluate the epidemiology, head injury characteristics and types of intervention by the Neurosurgical Service at KK Women's and Children's Hospital. Main aims of the project include firstly the review of the perioperative outcomes of children at our institution and next, corroboration of our results with current literature.

Neurorehabilitation in Traumatic Brain Injury – Assessment and Interventions

Dr Ng Zhi Min

Senior Consultant, Neurology Service

Department of Paediatrics

Division of Medicine

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Traumatic brain injury (TBI) is a leading cause of acquired long-term disability in children. Neuro-rehabilitation plays an important role in the management of paediatric TBI. At KKH, the neuro-rehabilitation team is involved in the care as soon as the patient is stabilised in the children's intensive care unit. In this session, we share our experience of managing paediatric TBI using a multi-disciplinary approach. We will provide an overview of the various assessment tools and interventional strategies in common neuro-rehabilitation issues in paediatric TBI.

Regional Perspectives on Traumatic Brain Injury – The Paediatric Acute and Critical Care Medicine in Asia Network (PACCMAN) Initiative

A/Prof Chong Shu-Ling

Senior Staff Physician, Department of Emergency Medicine

Division of Medicine

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Traumatic brain injury (TBI) in children remains a major cause of death and disability. In an earlier multi-centre study, the *Pediatric Acute and Critical Care Medicine Asian Network (PACCMAN)* investigators found that an estimated 32% of survivors with moderate-to-severe TBI had poor functional outcomes. Further interrogation of this TBI dataset has yielded publications on vulnerable patient subgroups (child abuse), metabolic risk factors (hyperglycaemia and dysnatraemia), and country resource (low- and low-middle income status), and their association with TBI mortality and morbidity. Our research attracted the participation of a Latin America paediatric intensive care network (*Red Colaborativa Pediátrica de Latino America, LARed*). Together, we used comparative effectiveness research (CER) methodology to study the use of 3% hypertonic saline versus mannitol in the initial management of moderate – severe TBI. In this talk, besides the results of the above studies, we will also discuss the challenges and barriers to doing multi-national paediatric research and the lessons we learnt as a study team.

Day 1 - Venue: Conference Room 1

Growing Together: Mother-Baby Bond

Ms Alisha Shah

*Senior Clinical Counsellor, Department of Psychological Medicine, Division of Medicine
KK Women's and Children's Hospital, Singapore*

The mother-infant bond is a foundational aspect of human development, encompassing emotional, psychological, and physiological connections that profoundly impact both the mother and the child. This bond begins during pregnancy and continues to evolve through early childhood, influenced by a complex interplay of hormonal, environmental, and social factors. The strength and quality of this bond are crucial for the infant's emotional regulation, cognitive development, and socialization, while also affecting the mother's psychological well-being and identity. This talk explores the dynamic process of bonding and responsive caregiving. It also examines the bidirectional nature of this relationship, where both mother and infant grow and adapt in response to each other's cues and needs. Understanding the nuances of the mother-infant bond can inform better parenting practices, healthcare policies, and support systems to foster healthier developmental outcomes for both mother and child.

Day 1 - Venue: Conference Room 1

Nurturing Parent-Child Interaction in the Early Years of Life Through Sensory-Based Regulation Strategies

Ms Donabel Baskaran

*Principal Occupational Therapist, Occupational Therapy Service, Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Prematurely born infants in NICU are deprived of the essential sensory experiences crucial for their growth and development, as their premature delivery reduces the opportunity to experience the necessary sensory stimulation in the womb.

Furthermore, when these babies spend months in the hospital, they are deprived of the opportunity to form strong bonds, particularly with their mothers. This absence of bonding significantly impacts both the infants' growth and the overall parent-child relationships and interactions.

Simultaneously, parents, especially mothers, are unable to share these formative experiences with their newborns, further influencing the depth of their bonding.

We introduce sensory-based regulation strategies to neonates in NICU and SCN, teaching parents how to apply these techniques for bonding when caring for their babies. Our therapy emphasizes enhancing parent-child interaction by guiding parents to provide positive, developmentally appropriate graded sensory exposure to their high-risk infants in the hospital. This fosters optimal sensory experiences, supporting the child's development, overall growth, and well-being. Graded interactions with various sensory systems further strengthen the parent-child bond, contributing to the overall well-being of both parents and babies.

The introduction to age-appropriate sensory stimuli shapes the development and growth of the child in the early years of the child's life and enhances their emotional and social development.

In this presentation, Donabel will share her insights on the importance of sensory-based regulation strategies that help nurture infant-parent bonding in the early years of a child's life. Her presentation offers perspectives and practical strategies for professionals and caregivers dedicated to enhancing neonatal care and early childhood development.

Role and Impact of Music Therapy for Premature Infants and their Families

Ms Kayla Wong

*Senior Music Therapist, Child Life, Art and Music Therapy Programmes, Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Premature babies have a high risk of neurodevelopmental disorders and delays. Although they are sensitive to touch and sound, they must endure the noisy environment of the Neonatal Intensive Care Unit (NICU) and Special Care Nursery (SCN), full of beeping machines and chatter, and often undergo painful procedures while experiencing early separation from their parental units. For parents, having a baby is an experience that involves a great range of emotions, and one which may be intensified with the additional complications of an unexpected early birth. Families are often overwhelmed by the amount of stress and anxiety that comes with having a premature baby. They may find it difficult to cope with the challenges presented and require extra support to navigate through their time in the NICU and SCN. This presentation takes us through the process of how music therapy provides premature babies with individualized care for comfort using first sounds and live music to soothe and promote greater regulation. Music therapy also provides parents with a gentle and non-confrontational space to bond with their baby, while making sense of emotions surrounding their situation. Music therapy in the NICU and SCN is family-centred in nature and aims to enhance the support received in their overall hospital journey experience.

Supporting Children within Preschool: The Development Support and Learning Support (DS-LS) Programme

Ms Jennifer Tan Huey Li

*Principal Psychologist, Department of Child Development, Division of Medicine
KK Women's and Children's Hospital, Singapore*

In 2006, the Department of Child Development (DCD) initiated the Therapy Outreach Programme to better support children with developmental needs in their natural environments. This evolved into Mission I'mPossible, which reached 25 preschool centres. Recognising its potential benefits, the Ministry of Social and Family Services (MSF) adopted it as a national initiative in 2012, now known as the Development Support and Learning Support (DS-LS) Programme. The programme is on track to cover 60 percent of pre-schoolers by 2025, with a goal to increase to 80 percent at steady state.

The DS-LS Programme has been pivotal in providing targeted support within preschools, allowing children to receive the interventions in their settings. It exemplifies the collaboration among the health, social and education sectors to create a comprehensive support network for children with developmental needs and their families. Key objectives of the programme include early identification of developmental delays and the provisions of customised early interventions through learning support and specialist interventions.

The presentation will overview the team's approach to investing in early development through a system-level strategy and targeted programme services. These services include learning support and development support, addressing areas such as social-emotional skills, literacy, language and communication, and motor development. Therapists and Learning Support Educators work collaboratively with teachers and parents to support children in both classroom and home. The presentation will also offer insights into the efforts and challenges faced in enhancing community stakeholders' capacity to foster more inclusive educational environments. Additionally, ongoing upstream initiatives in early intervention strategies to inspire further progress in the sector's capability to identify and address developmental needs in preschool children will be shared.

Day 1 - Venue: Auditorium

Carrier and Thalassaemia Screening

A/Prof Saumya Jamuar

Senior Consultant, Genetics Service, Department of Paediatrics

Division of Medicine

KK Women's and Children's Hospital, Singapore

Director, SingHealth Duke-NUS Institute of Precision Medicine

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Genetic diseases, while individually rare, cumulatively account for 2-3% of all livebirths, commonly affect children and 30% of those with a genetic disease die before the age of 5 years. Less than 5% of these diseases are treatable and overall create an emotional and economic burden to the caregivers as well as to the healthcare system and society.

A subset of these genetic diseases is recessively inherited, which means that parents carry the variant in one copy of the gene but are healthy as they have one normal copy. Given that thalassemia is the commonest recessive genetic disease in our population, National Thalassemia Registry was set up in 1992 to provide access and counselling to at-risk couples, which has then led to a significant drop in the incidence of thalassemia major in Singapore. At the same time, advances in genomic technologies allow for testing of multiple genes simultaneously at the same cost (or even cheaper) than testing thalassemia alone.

Our recent analysis of 10,000 healthy Singaporeans identified variants in recessively inherited genes, like thalassemia, that are commoner in our local population. A few of them are absent from Western data based genetic tests. In this talk, I will share our journey in translating these findings into developing and implementing a carrier couple screening test, beyond thalassemia, customised for the Singaporean population.

Day 1 - Venue: Auditorium

Uterine and Tubal Surgery for Fertility

Dr Chua Ka-Hee

Consultant, Department of Reproductive Medicine

Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS OBGYN Academic Clinical Programme

There are many pathologies affecting female fertility, that can be surgically corrected. The endometrial cavity is important for embryo implantation, and can be disrupted by certain conditions, namely polyps, septum and synechia. The Fallopian tubes serve as conduits for the sperm and the embryos, and they can be obstructed from endometriosis and infection. The surgical and medical treatment of these conditions will be discussed.

Management of Subfertility before IVF

Dr Rajesh Hemashree

*Senior Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Fertility rates in Asia are currently at 1.93/ woman and a dismal 0.97/ woman in Singapore. Couples can be comprehensively evaluated and treated in an outpatient setting before referral for IVF. Counselling about sexual intercourse and lifestyle can make a considerable difference. Common causes of anovulation include polycystic ovary syndrome (PCOS), hypothalamic amenorrhea (HA) and premature ovarian insufficiency (POI). Treatment involves medications including clomifene, Letrozole and metformin. Tubal evaluation and management may contribute to pregnancies prior to IVF. Lipiodol has created ripples in the treatment of endometriosis related subfertility. Early ovarian reserve assessment can facilitate prompt referral and treatment. Semen analysis and interpretation is valuable in managing men in a primary setting. Involuntary childlessness is associated with significant psychological morbidity, yet not all patients need IVF.

Elective Egg Freezing – A Modern Day Medical Solution to A Non-Medical Problem?

Dr Ee Tat Xin

*Consultant, Department of Reproductive Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Elective egg freezing is a medical procedure aimed to protect and expand a women's fertility potential and has been approved by the Ministry of Health Singapore for usage since July 2023. The usage of elective egg freezing has been on the rise worldwide and many women invest their time and money into this endeavour hoping to exert greater control over their reproductive timelines. This talk aims to explore its benefits and risks, dissect its wider implications on women's autonomy and choice, and foster a nuanced understanding of its place in modern reproductive health and social equality.

Imaging of Placenta Accreta Spectrum Disorder

Dr Lee Yien Sien*Deputy Head and Senior Consultant, Department of Diagnosis & Interventional Imaging**Division of Clinical Support Services**KK Women's and Children's Hospital, Singapore**SingHealth Duke-NUS Radiological Sciences Academic Clinical Programme*

Placenta accreta is a condition first described in 1937 by obstetrician Frederick C. Irving and pathologist Arthur T. Hertig. Over the last 40 years, cesarean delivery rates around the world have risen from less than 10% to over 30%, and almost simultaneously a 10-fold increase in the incidence of placenta accreta spectrum (PAS) disorders. Accurate prenatal diagnosis of PAS is fundamental because it has been shown to reduce significantly the burden of maternal morbidities associated with such anomalies, such as life-threatening hemorrhage, need for blood transfusion, damage to adjacent organs and admission to intensive care unit, by allowing a pre-planned management of these conditions. Ultrasound is the primary tool to diagnose PAS in women at risk, such as those with placenta previa and a prior cesarean section, whereas prenatal magnetic resonance imaging (MRI) is a useful adjunct. Overall, ultrasound and MRI have a good diagnostic performance in detecting PAS disorders. Magnetic resonance imaging has an excellent diagnostic accuracy in identifying the depth and the topography of placental invasion.

Placenta Accreta Spectrum Disorders (PASD) – The KKH Experience

Dr Mohamed Siraj Shahul Hameed*Senior Staff Physician, Minimally Invasive Surgery Unit, Division of Obstetrics and Gynaecology**KK Women's and Children's Hospital, Singapore**SingHealth Duke-NUS OBGYN Academic Clinical Programme***Dr Ann Wright***Head and Senior Consultant, Peripartum Unit, Department of Maternal Fetal Medicine**Division of Obstetrics and Gynaecology**KK Women's and Children's Hospital, Singapore**SingHealth Duke-NUS OBGYN Academic Clinical Programme*

PASD, usually due to previous Caesarean section, is one of the most challenging situations in operative obstetrics. Bleeding from the condition itself or as a complication of the obligatory surgery required for delivery can be torrential and life threatening. Several surgical approaches have been employed but none is without risk and the 'gold standard' of hysterectomy results in complete loss of fertility which can be emotionally devastating especially in cases of fatal fetal anomaly. In this presentation we describe how the management of PASD in KKH has evolved over the past decade including service delivery, the surgical techniques used and the way in which the various members of the multidisciplinary team are involved. Finally, we discuss how greater understanding of the pathophysiology of PASD as a disorder of dehiscence rather than invasion, often originating from implantation close to the previous scar, and associated with a local inflammatory response, has led to the development of a novel surgical approach which allows uterine preservation. We demonstrate the technique and present our results.

Placenta Accreta Spectrum Disorder (PASD): Mount Sinai Hospital, Toronto, Canada**Dr John Kingdom**

Canerector Chair and Staff Obstetrician

Maternal-Fetal Medicine Division, Department of Obstetrics and Gynaecology

Mount Sinai Hospital

Professor, Department of Obstetrics and Gynaecology and Laboratory Medicine and Pathobiology

University of Toronto

Senior Clinician Investigator, Lunenfeld-Tanenbaum Research Institute, Sinai Health System

Our high-volume (7200 births/year) centre supports community hospitals providing complex Obstetric care in the Greater Toronto Area (population 6 million) and more northern parts of Ontario. Increasingly over the past 20 years, we have developed a multidisciplinary team to enhance our skills in both the diagnosis and surgical management of PAS, including inter-disciplinary care. This care pathway is centered around our Placenta Clinic in Maternal-Fetal Medicine. When multimodal ultrasound and T1/T2 MRI confirms a diagnosis of placenta previa-percreta, inter-disciplinary care is subsequently coordinated and involves Gynecologic Surgery, Obstetric Anesthesia and Pediatrics. We provide elective mostly sub-umbilical midline surgery at 35-36 weeks, mostly as Cesarean Hysterectomy. Initially we deployed bilateral internal iliac artery balloons but abandoned these in 2017 in favor of retroperitoneal dissection and internal iliac artery (anterior division) ligation, for both time efficiency and urologic safety due to concurrent ureterolysis. In tandem we deployed Cell Saver. Our case numbers peaked at 58/year in 2018 and has since stabilized at 30-40/year as other Ontario centers have formed teams following our 2019 publication of a Canadian Practice Guideline (PMID 31227057). Since then, we have focused on continuous surgical improvements (slow bladder dissection, anterior vault access, selective IIA ligation, summarized in PMID 32007492) and most recently subcuticular skin closure. Post-operative stay is now 2-3 days, with <10% ICU admission and 15% needing bladder repair. Cystoscopy is not routine, and our ureteric injury rate is 1%. Our cumulative experience to date is 250 surgeries. We do offer attempted disease resection when narrow and central, but we counsel strongly against leaving the placenta *in-situ* to attempt conservative resolution. With improvements in both screening and early diagnosis of Cesarean Section Scar Pregnancy (CSP), our Gynecologic team provides a range of late 1st-trimester surgical options, especially laparoscopic disease excision with uterine artery ligation. A small (n=4/5) number of second trimester total laparoscopic hysterectomy procedures with vascular control and intra-abdominal D&E have been performed to date up to 17 weeks' gestation.

Day 1 - Venue: Conference Room 1

Multidisciplinary Dyadic Approach in Caring for At-Risk Families

Dr Chow Wen Hann

*Consultant, General Paediatrics Service, Department of Paediatrics, Division of Medicine
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Paediatrics Academic Clinical Programme*

Ms Tan Shiyun Charmain

*Senior Psychologist, Department of Child Development, Division of Medicine
KK Women's and Children's Hospital, Singapore*

Ms Bavani Govindarasu

*Senior Community Health Visitor, ANCHOR Programme, Division of Medicine
KK Women's and Children's Hospital, Singapore*

Children exposed to adversities may be at a greater risk of developmental delays, behavioural, social-emotional and psychological problems. In the long term, their academic attainment, employment, health and mental wellness may also be impacted negatively. This symposium aims to discuss the impact of adversities on early childhood and showcase pioneering work in infant and caregiver mental health, trauma-informed home visitation and interdisciplinary collaborations. Presenters will review the current state of child protection in Singapore, and the impetus for starting a home visitation program in 2019 aimed at supporting families exposed to adversities, specifically suspected child maltreatment. Three panelists (paediatrician, psychologist, community health visitor) will share the lens and perspective they bring to the work, discuss the home visitation model, the assessment process and the interventions used.

Presentation 1: Adversities and Child Development – Findings from the Anchor Programme

Dr Chow Wen Hann

Our paediatrician will share about the impact of adversities on early childhood, and present specifically the findings from our home visitation programme. The sociodemographic determinants of these at-risk families, the common medical issues, and the extent of the developmental and behavioral concerns in the children will be discussed. Additionally, the impact of caregiver mental health and the effects on the children will also be shared. Finally, the challenges of providing trauma-informed care in a busy tertiary setting, the difficulties in differentiating organic and traumatic symptoms in children, and the unique role that our home visitation program plays in a child protection system that focuses mainly on safeguarding aspects will also be explored.

Presentation 2: Interventions for At-Risk Families

Ms Tan Shiyun Charmain

Our psychologist will give an overview of Anchor's intervention framework. She will also discuss the support provided to our community health visitors through supervision, collaborative support, and training, which serves to ensure families receive timely and effective trauma-informed services, while promoting self-reflection and self-care in home visitors. Reflections on the hurdles of shifting lenses from a behavioural developmental approach to a more trauma-informed one, particularly in an age-group where there have been historically limited understanding and services, to address the unique needs of children who have experienced adversities, will also be shared.

Presentation 3: Health Visitor – Our Anchor

Ms Bavani Govindarasu

Our community health visitor will discuss the various strategies used during the home visitation and reflect on how different families responded. There will also be a sharing on how caregivers were empowered through support and education to take on independent decisions, which helped to improve the adverse circumstances their families may be in. Challenges surfaced in supporting the families and navigating through community partners will also be discussed. Also, the differences eventually made to the families through the program's multidisciplinary inputs and reflective case supervisions will be expounded on.

Day 2 - Venue: Auditorium

Updates on Hypertensive Disorders of Pregnancy

Dr Serene Thain Pei Ting

Head and Consultant, Maternal Medicine Unit

Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Hypertensive disorders of pregnancy, which comprises of chronic hypertension, gestational hypertension, pre-eclampsia and eclampsia, affects about 10% of all pregnant women worldwide, and is one of the leading causes of maternal mortality. There have been recent developments in early pregnancy screening to identify women at high risk for pre-eclampsia, whose risk may be reduced with appropriate and timely initiation of low-dose aspirin prophylaxis. There have also been recent advances in the diagnosis of pre-eclampsia using biochemical markers that can help triage hypertensive pregnancies into different risk profiles to aid in monitoring and management. Hypertension in pregnancy also confers a higher risk for development of cardiovascular disease in the long term, hence the importance of lifelong follow up for this group of women to optimise their long-term health. This talk will provide a comprehensive overview of the latest advancements and best practices in the screening, prevention, diagnosis, management, and follow-up of women diagnosed with hypertensive disorders of pregnancy.

Day 2 - Venue: Auditorium

Hyperemesis Gravidarum

Prof Catherine Williamson

Professor of Women's Health and Honorary Consultant Obstetric Physician

Imperial College London, Institute of Reproductive and Developmental Biology

Hyperemesis gravidarum (HG) is a severe form of nausea and vomiting of pregnancy that affects 0.3-3.6% pregnant women. The recent international consensus definition of the HG specifies that that symptoms nausea and vomiting (one of which is severe) should start before 16 weeks' gestation, that affected women are unable to eat/and or drink normally and that symptoms strongly limit daily activities. Women with HG are unable to maintain food and fluid intake and may become very unwell. HG is associated with severe maternal physical illness, e.g., venous thromboembolism, Wernicke's encephalopathy and potentially fatal arrhythmia. It can result in women being bedbound and unable to work or look after children and is associated with depression and suicidal thoughts. After pregnancy affected women have increased rates of post-traumatic stress disorder. The condition is complicated by increased rates of fetal growth restriction and preterm birth and the children of HG pregnancies have increased rates of adiposity, metabolic disorders and neurocognitive disorders in later life.

This talk will include a discussion of the evidence that GDF-15 is implicated in the pathogenesis of HG, new management recommendations from recent guidelines and will give an update of recent research data.

Day 2 - Venue: Auditorium

The Confidential Enquiries into Maternal Deaths in Malaysia: What Have We Learned in 30 Years

Dr Muniswaran Ganeshan

Maternal Fetal Medicine Specialist

Consultant Obstetrician and Gynaecologist

Pantai Hospital Kuala Lumpur and Institute Jantung Negara, Malaysia

The triennial reports on the confidential enquiries into maternal deaths in Malaysia was established in 1991 with the objective of reducing maternal mortality rates in Malaysia. For the first 10 years, the impact was significant as the maternal mortality ratio was almost halved from 44 to 24.4 per 100,000 live births by the year 2000.

However, this has plateaued for the last two decades, increasing to 68.2 in the COVID era, returning to 24.2 in 2022, which has been the baseline since the year 2000. On a global perspective, although developing countries, with high mortalities have progressively reduced their maternal mortality rates over time with systematic interventions, there has been an increase in the maternal mortality rates in developed nations, especially in the United Kingdom and the United States of America in recent years. Inequalities in maternal mortality and standards of care of women who are vulnerable and deprived were the glaring highlights.

Despite numerous interventions, in the name of implementation of guidelines, legislation, redefining of standards of care, training of doctors and midwives, strengthening available services, dissemination of information and illustration of mothers who could have been saved, the objective of these reports remains unfulfilled in the modern era, particularly in the Malaysian perspective.

After 30 years of analyzing maternal deaths, it is time to relook the impact of these confidential reports. How can we make an impact, appreciating the valuable lessons from the past as we move forward towards elimination of maternal deaths, if ever feasible.

This lecture will discuss these facts in depth, highlighting lessons learned from the past and the desirable way forward if we are to make an impact in reducing maternal deaths in Malaysia and in the region.

Day 2 - Venue: Auditorium

The SingHealth Maternal Medicine Network

A/Prof Tan Lay Kok

Head and Senior Consultant, Department of Maternal Fetal Medicine, Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Academic Vice Chair, Education

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Medical disorders in pregnancy are becoming increasingly important as leading contributors to maternal morbidity and mortality, which in turn also impact perinatal morbidity and mortality. Maternal morbidity and mortality are increased by diseases that pre-date pregnancy, and by complications that arise during pregnancy. Pregnancy induces significant changes in all aspects of physiology and so in treatment, optimal outcomes are achieved where care for pregnant women is guided by consultants with specific pregnancy expertise, with input from relevant physicians. Many of these conditions are uncommon, and therefore advice and care should be provided in designated specialist centres to concentrate expertise and improve outcomes. The reasons for the rising incidence include the older maternal age, maternal obesity and diabetes, cardiovascular diseases which include both congenital heart conditions where improvements in paediatric cardiac surgery outcomes have allowed more patients to survive to adulthood, as well as ischaemic heart conditions. Both KK Hospital and Singapore General Hospital O&G have strongly developed multidisciplinary maternal medicine services where patients attend joint clinics run by a maternal fetal consultant and a physician specialist. The Maternal Medicine Network (MMN) was born out of the need not only to facilitate prompt referrals to needed specialist care and right patient siting, but to also provide pre-pregnancy, antenatal and postnatal care for women who have significant medical problems that pre-date or arise in pregnancy or the puerperium. The model adopted by SingHealth loosely follows that in NHS England, where the MMC provides clinical leadership, chairing the MDT meetings, developing guidelines and referral pathways. Additionally, the aim of the MMC is to provide appropriate education across the network for all clinicians, particularly the identification of acute issues requiring urgent attention.

The SingHealth MMN works with other hospitals and other networks including maternity care, perinatal mental health, neonatology, fetal medicine, surgery, anesthesia and radiology.

Day 2 - Venue: Lecture Theatre

Endometrial Cancer

Dr Wang Junjie

*Head and Senior Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Endometrial cancer is the most common gynecological malignancy in Singapore. In recent years, there have been significant advances in our understanding and treatment of this disease.

One of the key areas of progress in endometrial cancer research is the identification of molecular subtypes that can help guide treatment decisions. Studies have shown that endometrial cancer can be classified into four distinct molecular subtypes, each with unique genetic alterations and clinical characteristics. This knowledge has led to the development of targeted therapies that can be tailored to specific subtypes, improving treatment outcomes for patients.

Surgery plays a crucial role in the management of endometrial cancer, with the primary goal of removing the tumor and determining the extent of the disease. In recent years, there have been several notable surgical advances that have improved outcomes for patients with endometrial cancer. Sentinel lymph node mapping has been shown to be a valuable tool in guiding treatment decisions for patients with early-stage endometrial cancer, helping to tailor adjuvant therapy and improve overall survival. Advances in fertility-sparing surgical techniques, coupled with close monitoring and individualized treatment plans, have made it possible for select patients to undergo conservative surgery without compromising oncologic outcomes.

Day 2 - Venue: Lecture Theatre

Cervical Cancer

Dr Ng Zheng Yuan

*Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Cervical cancer is reducing in incidence, but still has a large disease burden in the developing world. This presentation discusses recent advances in cervical cancer treatment and updates in management guidelines.

Day 2 - Venue: Lecture Theatre

Ovarian Cancer

Dr Lim Yu Hui

*Consultant, Department of Gynaecological Oncology
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Ovarian cancer is one of the more common cancers affecting women and is often diagnosed at an advanced stage. There have been major advances in both surgical and medical treatment of this disease in the past few years which have given ovarian cancer patients better survival outcomes while preserving a good quality of life. In this lecture, we aim to focus on the new updates of treatment options for patients with advanced ovarian cancer.

Day 2 - Venue: Lecture Theatre

Minimally Invasive Surgeries in Gynaecological Oncology

Dr Joella Ang Xiaohong

*Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
Consultant, Division of Surgery and Surgical Oncology
National Cancer Centre, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Dr Ravichandran Nadarajah

*Senior Consultant, Department of Obstetrics and Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

With advances in minimally invasive surgery, we explore the use of novel techniques like vaginal natural orifice transluminal endoscopic surgery (vNOTES) in the management of gynaecological cancers. We highlight the safety and feasibility of performing these radical surgeries in a scarless fashion.

Day 2 - Venue: Conference Room 1

Charting New Frontiers: Exploring the Past, Present and Future of Midwifery Practice

Ms Anna Tan Li Cheng

Senior Nurse Manager, Ward 42

Division of Nursing

KK Women's and Children's Hospital, Singapore

The journey of midwives (MWs) at KK Women's and Children's Hospital (KKH) showcases a remarkable transformation in their roles and responsibilities, emphasizing the elevated capacity of MWs from the past to the present. In the 1960s, midwives were pivotal in providing maternal and child healthcare, especially for home deliveries, due to limited hospital access. They played crucial roles in antenatal and postnatal care, ensuring safe deliveries and healthy outcomes.

As Singapore's economy grew and healthcare infrastructure improved, the shift from home to hospital births led to a more medically led approach to maternity care. During this period, midwives' autonomy was reduced as they took on supportive roles similar to obstetric nurses, primarily assisting in hospital deliveries under the supervision of doctors.

The early 2000s marked a significant turning point. Recognizing the need for more integrated and seamless care, KKH initiated a series of upskilling programs for midwives. They were trained in procedures traditionally performed by doctors, such as Prostin insertion, epidural top-ups, and episiotomy repairs and many more. This role expansion was designed to enrich midwifery skills, provide continuous care to women, and prepare MWs for more independent roles.

By 2008, KKH introduced midwife-led intrapartum care for low-risk women, offering personalized, one-to-one support. This initiative's success and positive feedback led to the establishment of midwife-led clinics in 2010, where MWs provided holistic care throughout pregnancy, labor, delivery, and postpartum. These clinics allowed midwives to manage low-risk pregnancies independently, reducing waiting times and freeing medical teams to focus on high-risk cases.

Today, MWs at KKH are empowered to work autonomously, playing a crucial role in comprehensive, women-centered care. They collaborate closely with doctors, participating in training, simulations, audits, and process improvement projects. This journey highlights the resilience and adaptability of midwives, whose expanded roles have significantly enhanced maternal and child health. The elevated capacity of MWs at KKH underscores their vital contribution to a positive and empowering birthing experience.

Day 2 - Venue: Conference Room 1

Navigating Breastfeeding for a Healthier Tomorrow

Ms Sharon Lee Yit Yin

Senior Nurse Clinician, Lactation Services

Division of Nursing

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Since its inception in 1993, KK Women's & Children's Hospital (KKH) lactation services have evolved significantly, becoming a cornerstone of maternal and child health care in Singapore. This abstract highlights the growth and impact of our services over the past decades.

Initially focused on inpatient care, the program expanded to include comprehensive outpatient support, providing continuous and holistic care for breastfeeding mothers and their infants. Key initiatives included training programs for healthcare professionals, community outreach, achieving accreditation as a Baby-Friendly Hospital in 2014 and the establishment of Singapore's first Milk Bank.

Lactation services have empowered countless mothers to successfully breastfeed, fostering stronger maternal-infant bonds and improving health outcomes. The milk bank has revolutionized care by providing vital resources for infants in need, setting a national standard for excellence. Training programs and community outreach have raised awareness about the importance of breastfeeding and enhanced the capabilities of healthcare providers, creating a supportive environment for breastfeeding mothers. Our Baby-Friendly Hospital accreditation since 2014 underscores our commitment to the highest standards of maternal and infant care.

As we celebrate a century of leadership in Maternity Care, Lactation Services remains committed to advancing maternal and child health through innovative practices and comprehensive support. Our journey from 1993 to today reflects our continuous efforts to improve and adapt, ensuring that every mother and child receives the best possible start in life. The evolution and impact of KKH's lactation services underscore our dedication to excellence and our pivotal role in promoting health and wellness in Singapore.

Day 2 - Venue: Conference Room 1

Advanced Practice Nurse (APN)-Led Neonatal Jaundice (NNJ) Clinic

Ms Lim Hui Koon

Senior Staff Nurse / Advanced Practice Nurse

Nursing Clinical Services, Division of Nursing

KK Women's and Children's Hospital, Singapore

Most neonates develop physiological jaundice of newborn which necessitates frequent NNJ check especially in the first two weeks of their lives. When these newborns are due for a jaundice check on a Sunday or Public Holiday (PH), they used to have to be seen at the paediatric Emergency Departments (EDs) as the polyclinics are closed on Sundays and PHs. This however subjected our vulnerable population of newborns to be exposed to large crowds at the EDs. Moreover, having well babies with NNJ waiting in line at the EDs also meant diversion of resources for the life-threatening emergencies who require immediate care. The APN-led NNJ Clinic, which operates on Sundays and Public Holidays, was hence initiated in December 2017 to bridge the gap to bring greater convenience to parents and caregivers with NNJ babies with reduced waiting time, while easing the ED's load.

From its humble beginnings starting out in a clinic room in the KKH Rehabilitation Centre, the clinic has now moved to the Specialist Outpatient Clinics. The clinic is run by the paediatric APNs with an on-call neonatal consultant available for consultation if required. Being equipped with both medical and nursing knowledge, the APNs aim to provide holistic care to these patients and their families. When necessary, the APNs also incorporate parent-crafting in their clinic sessions to value-add the caregiver experience. Various initiatives to improve work processes, patient safety and caregiver's satisfaction have been implemented throughout the course of these several years. With the growing demand of Mobile Inpatient Care-at-Home (MIC@Home) and being in accordance with the Ministry of Health's ongoing efforts to future-proof the healthcare system in Singapore, the APN-led NNJ Clinic intends to

move in the direction of offering phototherapy for these babies in the comforts of their home, while supporting the mother-baby dyad.

Day 2 - Venue: Conference Room 1

Community Maternal and Child Health: Enhancing Care through Collaboration and Education

Ms Khoo Shi Min

Senior Nurse Clinician / Advanced Practice Nurse

Nursing Clinical Services

Division of Nursing

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Improving maternal and child health (MCH) outcomes remains a critical challenge in many communities worldwide. The foundation of a healthy society is built on the well-being of mothers and children making their health a cornerstone of public health that influences the long-term well-being of entire communities. Evidence suggests that community-based approaches, combined with education and collaborative efforts among healthcare providers, local organizations, and community members, can significantly enhance care delivery and outcomes.

This presentation will explore a multifaceted approach to strengthening maternal and child health services through community engagement, education and interprofessional collaboration, with an emphasis on innovative processes in collaborative and education.

Drawing on recent initiatives and evidenced-based practices, this session will underscore the importance of community-based approaches in improving maternal and child health outcomes. It will highlight how involving community members in the co-design and implementation of health initiatives can lead to better accessibility to healthcare services and create touchpoints for families to take an active role in their health.

The presentation will also discuss the critical role of education – both in providing continuous professional development for community-based nurses and care workers, and in empowering communities to take charge of their health. For healthcare providers, ongoing training in culturally competent care and collaboration across disciplines is essential. For community members, tailored health education campaigns that address local beliefs, practices, and barriers can foster greater engagement and adherence to maternal and child health recommendations.

By fostering a culture of collaboration, education and community ownership, we can create sustainable, scalable models of care for enhancing maternal and child health services.

Day 2 - Venue: Auditorium

Patient Safety in the Delivery Suite – Role of the Obstetric Nurse and Midwife

Ms Rebekah Ramachandran

Senior Staff Nurse, Delivery Suite

Division of Nursing

KK Women's and Children's Hospital, Singapore

The Delivery Suite in KKH attends to a range of complaints from any pregnant woman from 22-weeks gestation and above. The cases that we encounter are usually emergent cases that require immediate care and attention. The nurses are usually the first to greet and attend to these patients and must be equipped with the necessary skills and training to make the right judgment as to what the next level of care required for this patient is. In our department, not all nurses are trained in midwifery. Fresh graduates in nursing, who have no prior obstetric background, are also being assigned to work in this critical area. These nurses are trained in various midwifery skills to ensure safe and prompt care is rendered to our pregnant mothers and their newborns. In the first few months of orientation, our obstetric nurses are exposed to skills such as conducting a normal delivery, performing vaginal examinations, evaluation of the cardiotocography (CTG) trace, and neonatal resuscitation.

When our nurses and midwives can provide an appropriate assessment of the patient's condition, there is a significant impact made on patient safety. The continuous monitoring of the pregnant woman by the nurse and midwife allows the early detection of any complications. Nurses and midwives are also taught to manage obstetric emergencies through regular mock code simulation training sessions. In this way, nurses and midwives are equipped with the knowledge and experience to respond in their appropriate capacity whilst escalating the case to the medical team. These practices lend towards better synergy between the medical and nursing teams, for the ultimate outcome of ensuring a safe and smooth delivery for our pregnant mothers and their newborns.

Day 2 - Venue: Auditorium

The Role of the Consultant Obstetrician in the Labour Ward

A/Prof Tan Lay Kok

Head and Senior Consultant, Department of Maternal Fetal Medicine

Division of Obstetrics and Gynaecology

KK Women's and Children's Hospital, Singapore

Academic Vice Chair, Education

SingHealth Duke-NUS OBGYN Academic Clinical Programme

The consultant obstetrician has many roles essential to the optimal running of the labour ward. Beyond service provision, the consultant provides leadership, team support, teaching, training and guidance, clinical governance from ensuring that guidelines are updated, and evidence based to resolution of complaints and litigations, and research. These domains will be discussed, including examples of clinical situations where consultant input is vital. The contentious issue of whether 24-hour consultant presence in the labour ward will also be debated, as well as conditions where consultants must attend in person. The consultant also serves to improve patient experience, champion safety, reduce per capita cost, improve the working life of O&G providers and ultimately population health.

Day 2 - Venue: Auditorium

Patient Safety in the Delivery Suite – Role of the Neonatologist

Dr Kong Juin Yee

Senior Consultant, Department of Neonatology Division of Medicine

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

This talk will highlight the critical role that neonatologists play in ensuring patient safety during childbirth, addressing the concept that "to err is human" and emphasizing how even minor safety issues can lead to significant adverse outcomes for patients. Drawing from case studies and research, it will outline various types of errors commonly encountered in the delivery suite and their potential impact on neonatal health. The importance of pre-briefing and debriefing sessions will also be discussed. Thorough pre-briefing, including the use of checklists, helps prepare the medical team for various scenarios, ensuring everyone understands their roles and responsibilities. Post-resuscitation debriefing is a crucial tool for reflective learning, enabling teams to analyze what went well and identify areas for improvement, fostering a culture of continuous learning and safety.

The talk will focus on the vital role of teamwork and communication in the delivery suite. Effective communication and strong interdisciplinary collaboration are essential for managing emergencies and complex deliveries. Insights and strategies for enhancing team dynamics, based on extensive experience and involvement in neonatal simulation training programs will also be shared. The aim of the talk is to underscore the importance of a proactive approach to patient safety, demonstrating how neonatologists can lead efforts in reducing errors, enhancing team performance, and ultimately improving outcomes for newborns and their families.

Day 2 - Venue: Auditorium

Patient Safety in Delivery Suite and the Operating Theatre – Role of the Anaesthetist

Dr Singaraselvan Nagarajan

Deputy Head and Senior Consultant, Department of Women's Anaesthesia, Division of Clinical Support Services

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Anaesthesiology and Perioperative Sciences (ANAES) Academic Clinical Programme

The delivery suite and operating theatre for caesarean sections are critical areas where patient safety is paramount. The role of the anaesthetist is pivotal in ensuring that both mother and baby receive the highest standard of care. This talk aims to explore the multifaceted responsibilities of anaesthetists in these settings, highlighting the importance of their expertise in managing pain, ensuring mother's wellbeing, and responding to emergencies.

In the delivery suite, the anaesthetist's role extends to providing effective pain relief through techniques such as epidural anaesthesia. This not only enhances the comfort of the mother but also contributes to the overall safety of the delivery process by allowing for better management of labor complications.

During the caesarean section, the anaesthetist is responsible for administering anaesthesia and maintaining its effectiveness throughout the procedure. This involves continuous monitoring of the patient's cardiovascular and respiratory status, adjusting anesthetic levels as needed, and ensuring prompt intervention in case of adverse reactions.

The talk will also address the importance of teamwork and communication between the anaesthetist and other healthcare professionals, such as obstetricians, midwives, and nurses. Effective collaboration is essential for timely decision-making and coordinated responses to emergencies, thereby improving patient outcomes.

Moreover, the presentation will discuss advancements in anesthetic techniques and monitoring technologies that have significantly improved patient safety during childbirth and caesarean sections. The role of continuous professional development and adherence to clinical guidelines in maintaining high standards of anaesthetic practice will also be emphasized.

In conclusion, the anaesthetist's role in the delivery suite and during caesarean sections is integral to ensuring patient safety. Through vigilant monitoring, expert pain management, and effective teamwork, anaesthetists contribute to the well-being of both mother and baby during one of the most critical times in their lives.

Day 2 - Venue: Lecture Theatre

Life Course Approach to Bone Health

A/Prof Ang Seng Bin

Senior Consultant, Family Medicine Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS Family Medicine Academic Clinical Programme

Osteoporosis is a leading non-communicable disease with the consequence of fractures that results in high morbidity and high mortality leading to both economic and care burden for the society. With a rapidly ageing population in Asia, the number of hip fracture will increase by 2.28 times from 1,124,060 in 2018 to 2,563,488 in 2050 resulting in the direct cost of hip fracture increasing from 9.5 billion United States dollar (USD) in 2018 to 15 billion USD in 2050.

Osteoporosis prevention starts from in utero in the developing foetus. Optimising bone accrual from womb to the peak bone mass immediately after puberty can reduce and delay the onset of osteoporosis thereby reducing fracture burden. These include adequate maternal nutrition and avoidance of lifestyle like cigarette smoking and consumption of alcohol that could adversely affect bone health.

Adequate nutrition especially in protein and vitamin D as well as appropriate weight-bearing exercises can optimise peak bone mass. It has been estimated that the bone accrual during 2 years from onset of puberty is equivalent to bone loss of 30 years after menopause.

For the post-menopausal women, early screening for osteoporosis to ensure timely treatment, falls prevention intervention addressing both intrinsic and extrinsic are key to reducing the burden of osteoporotic fracture and improving the quality of life of women.

Day 2 - Venue: Lecture Theatre

Obesity and Women's Health: Weight Optimisation for Better Women's Health

A/Prof Rukshini Puvandendran

Head and Senior Consultant, Family Medicine Service
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
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Obesity is a complex, chronic and progressive disease defined by excessive fat deposits that can impair health. It is a multifactorial neurobiological condition. Complications of obesity specific to women include polycystic ovarian syndrome, subfertility and female specific cancers like endometrial cancer and breast cancer.

Obesity is also associated with higher risk of many other conditions including cardiovascular disease, diabetes mellitus, sleep apnea, musculoskeletal conditions, depression to name a few.

Gynecological and reproductive health of a woman with obesity has to be addressed as this can affect the long-term health of the woman. Preconception overweight and obesity can have significant adverse effects, including increased risk of infertility, pregnancy complications and transgenerational health impact like offspring obesity and chronic metabolic conditions.

Prenatal and post-natal visits provide opportunities for preventive health advice. Lifestyle remains the mainstay of treatment. This includes diet, activity behavior change, sleep optimization and stress management.

Recently newer treatments including GLP 1 agonists and Contrave (an anti-depressant/ opioid antagonist) have been approved for use in obesity. Metabolic surgery is indicated in extreme obesity.

Day 2 - Venue: Lecture Theatre

Intimacy and Sexual Health for Young Couples in the Reproduction Phase of Life

Dr Jean-Jasmin Lee

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KK Women's and Children's Hospital, Singapore
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Sexual health is fundamental for a person's overall well-being and quality of life and requires a biopsychosocial approach. Healthcare providers (HCP) are in an excellent position to provide a safe environment in which patients and their partners can consensually discuss issues related to sex and sexuality across their life span. Intimacy and healthy sexuality are important for young couples' well-being as they go through different stages in the reproduction phase which includes when they are trying to conceive, during pregnancy and post-partum.

HCPs should be proactive in addressing sexual issues that these couples may experience during these stages. This talk highlights a practical approach HCPs can use in a proactive, integrated, patient-centric and couple-centric approach to broach sexual health issues in their practice. This talk covers a brief overview of the sexual response cycle as well as common sexual health concerns and sexual changes of women when they are trying to conceive, during pregnancy and post-partum. Practical tips will be shared on how to overcome barriers in discussing sexuality-related issues, how to address specific concerns and how to identify more complicated issues that require additional assessment or treatment.

Day 2 - Venue: Lecture Theatre

Postpartum Contraception: Empowering Patients in Informed Decision Making

A/Prof Manisha Mathur

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Postpartum contraception is a critical component of women's reproductive healthcare. Postpartum contraception plays a crucial role in preventing unintended pregnancies, reducing maternal and infant mortality, and promoting healthy birth spacing. Understanding the influence and options available can empower women to make informed choices, promoting healthy birth spacing, and reducing maternal and infant mortality. Hence it is important that healthcare providers must ensure access to comprehensive contraceptive counseling and services during the postpartum period starting in the immediate postpartum period and subsequently at the first postnatal check. This talk aims to examine the influence of postpartum contraception on women's reproductive health and explore available options including immediate postpartum contraception options as well as the long-acting reversible contraceptive (LARC) methods. This talk also explores the evidence-based guidelines for safe prescription of the contraceptive options based on the medical eligibility criteria (MEC) from the United Kingdom, United States and the WHO and compare the recommendations with a local context.

Day 2 - Venue: Conference Room 1

Early Fetal Cardiac Scan Screening in KKH

Dr June Tan Vic Khi

Director, Antenatal Diagnostic Centre

Head and Senior Consultant, Obstetrics Ultrasound and Prenatal Diagnosis Unit

Department of Maternal Fetal Medicine

Division of Obstetrics and Gynaecology

SingHealth Duke-NUS OBGYN Academic Clinical Programme

Fetal cardiac anomalies are the most common congenital malformations in pregnancy. Early evaluation of the fetal heart at the 11-14 week first trimester scan (FTS) has allowed earlier diagnosis of cardiac malformations which affords the benefits of more thorough genetic testing & follow up to assess the condition.

Day 2 - Venue: Conference Room 1

Implementation of First Trimester Pre-Eclampsia Screening in KKH: The New Kid on The Block

Dr Sim Wen Shan

Head and Senior Consultant, Antenatal Risk Assessment Unit

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SingHealth Duke-NUS OBGYN Academic Clinical Programme

Pre-eclampsia is a major cause of maternal and perinatal morbidity and mortality. Early onset disease requiring preterm delivery is associated with higher risk of complications in both mother and babies. Evidence suggests that the administration of low-dose aspirin initiated before 16 weeks' gestation significantly reduced the rate of preterm preeclampsia (< 37 weeks). It is therefore important to identify pregnant women at risk of developing preeclampsia during the first trimester of pregnancy allowing timely intervention. KK Women's and Children's Hospital had started the First Trimester Pre-Eclampsia Screening since 2023, evolving from the traditional risk-factor based screening to that of the Fetal Medicine Foundation (FMF) first trimester prediction model which has been shown to reduce the rate of preterm pre-eclampsia by 62%. This is a major step towards the Healthier SG initiative as women who have had preeclampsia have a 3-4 times increased risk of high blood pressure and double the risk for heart disease and stroke in their lifetime.

The Genetic Testing Journey of Increased Nuchal Translucency

Dr Yang Liying

Senior Consultant, Department of Obstetrics & Gynaecology
Singapore General Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme

Increased fetal nuchal translucency thickness may be associated with aneuploidies, genetic syndromes and structural abnormalities.

In this talk, we will discuss different thresholds for abnormal NT measurement, the role of NIPT, CMA, RASopathy and single gene testing, as well as how to support patients in decision making and managing uncertainty.

Exome Sequencing Improves Diagnostic Yield in Prenatal Diagnosis

Dr Anju Bhatia

Senior Staff Physician, Department of Maternal Fetal Medicine
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme

Congenital anomalies and genetic conditions are noted in approximately 2–5% of pregnancies and are major causes of fetal demise and infant death. Diagnostic testing, in which fetal samples are collected for analysis with chromosomal microarray and karyotype is routinely offered in these cases. A karyotype abnormality is found in 8–10%, whereas a micro-deletion/duplication is identified in another 6% leaving the majority of families without a specific genetic diagnosis. These families must therefore be counseled based on ultrasound findings alone. Counseling is challenging because of the broad differential diagnosis and range of prognoses and expectations. An understanding of the options for screening and diagnosis of genetic disorders in the fetus is important to any perinatal care provider.

As genomic sequencing technology and the interpretation of genomic data continue to evolve, opportunities for fetal genetic diagnosis are expanding. Next-generation sequencing tests may interrogate a single gene, a panel of selected genes, the exome, or the entire genome thus providing much higher resolution. Prenatal exome sequencing has been shown to be a highly efficacious diagnostic genetic test in the presence of fetal structural anomaly, with a reported diagnostic yield ranging between 8% and 55%. Optimization of the diagnostic yield depends on pretest selection, the anomalous anatomical system, and the presence of isolated/multiple structural anomalies. Identifying a genetic diagnosis in the fetus is valuable to aid in pregnancy management decisions, and opportunities for fetal intervention and can be critical for neonatal management. It helps to reduce anxiety and uncertainty for parents. Although it is a powerful diagnostic tool, its use presents challenges that include a lengthy turnaround time, detection of variants of uncertain significance, cost, and concerns for health equity, psychological impact, counseling regarding incidental and secondary findings.

Day 2 - Venue: Auditorium

Healthy Early Life Moments in Singapore (HELMS) – Optimising Metabolic and Mental Health from Preconception to Postpartum Using a Mobile Health Platform

Dr Ku Chee Wai

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Preconception is a critical period to optimize gamete function and early placental development, and achieving optimal health around the conception period has been shown to improve fertility and long-term mother-child health (MCH) outcomes. Changes in social and lifestyle factors have also led to increasing rates of metabolic and mental health problems. However, the current MCH system is ill-equipped for this purpose. Thus, there is an urgent need to translate knowledge into action and implement a holistic lifestyle intervention program that aims to optimize medical, fertility, and lifestyle factors, to improve fertility in the short-term, as well as MCH in the long-term. This single-arm pilot implementation trial aims to recruit 500 women aged 21-40 years with a body mass index of 25-40 kg/m² who plan to have a pregnancy, with interventions delivered before conception, throughout pregnancy, until 18 months after delivery. A holistic lifestyle intervention, comprising 6P and 4S interventions, was developed to address the domains of metabolic health, mental wellness, sleep hygiene, and sexual function. Metabolic health support is delivered with a novel 6P healthy mental model of nutrition, comprising Portion, Proportion, Pleasure, Phase, Physicality and Psychology. The novel 6P tool is designed based on the mental model principle to promote healthy eating and increase physical activity to achieve caloric balance, along with the comprehensive 4S care strategy, Screening, Size, Supplementation, and Sex, during preconception. The intervention will be delivered on a mobile health platform, with modules designed to provide anticipatory guidance, raise awareness, and guide goal setting on lifestyle behaviours. This study will pave the way for future pragmatic trials of this novel model of care that adopts a holistic intervention throughout the life-course, with greater integration of care between primary and tertiary healthcare systems and ongoing community efforts to engage and support women in this journey.

Day 2 - Venue: Auditorium

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

Prof Tan Kok Hian

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KK Women's and Children's Hospital, Singapore

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Senior Associate Dean, Duke-NUS Institute for Patient Safety and Quality (IPSQ)

The Integrated Platform for Research in Advancing Maternal & Child Health Outcomes (IPRAMHO) aims to develop an integrated care model through the translation, implementation, and evaluation of effective population prevention strategies. Established in 2017 with funding from the Singapore National Medical Research Council, IPRAMHO is a collaboration between KK Women's and Children's Hospital (KKH), SingHealth Polyclinics (SHP), and National Healthcare Group Polyclinics (NHGP). This partnership unites Singapore's primary healthcare providers with KKH, the main referral centre for paediatrics, obstetrics, and gynaecology, to advance research in women's and children's health aligned with national goals.

In 2021, IPRAMHO's focus expanded from metabolic health to broader maternal and child health outcomes under the SingHealth Duke-NUS Maternal and Child Health Research Institute (MCHRI). The platform prioritizes metabolic and mental health, offering seeding grants to support pilot data generation and fostering research and implementation science professionals. IPRAMHO has been instrumental in developing consensus and guidelines in Singapore, leading to the publication of seven national guidelines on gestational diabetes, perinatal nutrition, physical activity during pregnancy, 24-hour activity for children, perinatal mental health, and feeding and eating practices for infants and young children.

The IPRAMHO Asia Pacific Maternal & Child Health Network, launched in 2017, includes representatives from countries across the Asia Pacific, such as Malaysia, Thailand, Indonesia, Vietnam, Japan, South Korea, India, Australia, and New Zealand. This network collaborates on maternal health research and has published seven consensus statements on topics including gestational diabetes and perinatal nutrition, along with five combined research studies addressing clinical practices in diabetic pregnancy screening, vitamin D supplementation, and 24-hour activity guidelines for children. Through these efforts, IPRAMHO aims to raise awareness and improve maternal and child health outcomes, optimizing the health potential of women and children across the Asia Pacific region.

Day 2 - Venue: Auditorium

Birth Trauma to the Pelvic Floor

Dr Jill Lee Cheng Sim

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Vaginal delivery is the most common and preferred method of delivery as they are typically low-risk and carry the most benefits to the birthing person and baby and accounts for approximately 80% of births worldwide. Nonetheless, like all procedures, vaginal deliveries can result in complications. These complications include obstructed labour, vaginal tears and postpartum haemorrhage. Obstetric anal sphincter injuries (OASI) have been reported to complicate vaginal deliveries with an incidence of 1 to 6%. Such perineal tears are associated with substantial long-term functional sequelae such as anal incontinence, perineal pain and dyspareunia which result in diminished quality of life for these women affected by OASI. Asians have been reported to have a higher risk of OASI compared to individuals who identify as White in high income countries although research in OASI of Asians residing in Asia remains limited.

This talk aims to discuss risk factors, treatment, and prevention of OASI and its subsequent sequelae of pelvic floor dysfunction, in particular addressing the subject of OASI in the Asian context.

Day 2 - Venue: Auditorium

Oncofertility in Gynaecological Cancers

Dr Felicia Chin Hui Xian

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With the trend of delayed childbearing, an increasing number of women are being diagnosed with gynecological malignancies while still desiring future fertility. Given the improved prognosis and emphasis on survivorship, fertility preservation has become a critical concern for many young patients. Oncofertility, a multidisciplinary field merging oncology and reproductive medicine, offers potential solutions to address this challenge.

Understanding Endometriosis: Evolving Diagnostics and Treatment

Dr Celene Hui Yan Yan

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KK Women's and Children's Hospital, Singapore
SingHealth Duke-NUS OBGYN Academic Clinical Programme*

Endometriosis is a complex, estrogen-dependent inflammatory condition affecting millions of women worldwide, often associated with chronic pelvic pain, infertility, and reduced quality of life. Despite advancements, diagnosing and managing endometriosis remains challenging, with delayed diagnoses and treatment complexities contributing to suboptimal outcomes. This lecture will explore emerging research and innovative strategies that are reshaping the future of endometriosis diagnosis and management.

Laparoscopy was once considered the gold standard for diagnosing endometriosis, but there is now a paradigm shift toward a more patient-centered approach that focuses on the individual rather than solely on endometriotic lesions. A standardized, evidence-based algorithm—incorporating patient history, symptoms, and physical examination—enables clinicians to diagnose endometriosis without invasive surgery. However, this approach must be balanced with the potential risk of overdiagnosis, particularly in younger patients, which can lead to unnecessary hypoestrogenism and anxiety.

In the era of precision medicine, epigenetic profiling and biomarker discovery are poised to revolutionize the diagnosis and treatment of endometriosis. Novel therapeutic strategies must address progesterone resistance, a key feature of the disease, to optimize treatment outcomes. Early, effective interventions will help prevent complications such as infertility and chronic pain sensitization.

The concept of the “endometriotic life” highlights the lifelong impact that endometriosis has on patients, underscoring that it is not just a reproductive disorder but a chronic, life-altering condition affecting emotional, social, and psychological well-being. Recognizing this broad impact encourages a holistic, multidisciplinary approach to care that supports patients in all aspects of their lives, beyond just the physical symptoms.

Surgical Solutions: Exploring the Intersection of Endometriosis Surgery and Fertility Outcomes

Dr Michelle Lim Hui Ping

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Endometriosis brings to mind a very chronic inflammatory pain condition and one that is closely linked to infertility.

Management of patients with endometriosis has to be tailored to each individual's needs and concerns and one of the foremost important questions I ask my patients suffering from endometriosis are their fertility concerns.

Endometriosis surgery can have significant implications for fertility, and the impact often depends on several factors, including the extent of the endometriosis, the type of surgery performed, and individual health conditions.

So on whom do we operate on? The answer may not always be straightforward, and we often have to rely on weighing the advantages and detriments of surgery and our clinical experience in making a collaborative decision with our patients.

Beyond the Bump: Unravelling Fibroids – Clinical Features and Comprehensive Management Strategies

Dr Muhammad Fairuz Abdul Rahman

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Fibroids - or leiomyomas - are very common growths of the uterus. They usually appear during a woman's reproductive years. They vary greatly in size, shape and location, and more often than not lead to symptoms, such as abnormal or heavy menstrual bleeding, dysmenorrhea, subfertility, pelvic pressure or pain, compressive symptoms such as frequent or difficult urination and constipation. Some are asymptomatic - incidentally picked up during a massage or during a pregnancy ultrasound scan. We will be discussing how we tackle the uterine fibroid including the different management strategies - as well as discuss on the issue of fibroid surgery at the time of caesarean section.

Preserving Uterine Integrity: Laparoscopic Myomectomy Techniques and Outcomes

Dr Smita Lakhota Jindal

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Laparoscopic Myomectomy, a minimally invasive surgical procedure for the removal of uterine fibroids, has gained prominence due to its advantages over traditional open surgery, including reduced recovery time, minimized scarring, and less postoperative pain.

The primary objectives of the procedure include effective fibroid removal, preservation of uterine structure, and minimization of intraoperative complications such as bleeding and uterine rupture. The use of advanced laparoscopic techniques, such as intracorporeal suturing and the use of hemostatic agents, plays a crucial role in ensuring the strength and functionality of the uterus.

The risk of uterine rupture during subsequent pregnancies, particularly in patients with large or multiple fibroids, is a critical consideration in the surgical planning and patient counseling phases.

In conclusion, while laparoscopic myomectomy offers significant benefits, careful attention to surgical technique and postoperative monitoring is essential to maintain uterine integrity and optimize reproductive outcomes.

Tiered Based Care for Psychosomatic Presentations – The Resilience in Children and Adolescents with Psychosomatic Symptoms (RECAP) Programme

Dr Delphine Koh Liow Ping

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Division of Medicine
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Ms Yik Chow Meng

*Senior Clinical Counsellor, Department of Psychological Medicine
Division of Medicine
KK Women's and Children's Hospital, Singapore*

Ten (10) to 30% of children and adolescents experience psychosomatic symptoms such as abdominal pains, chest pains, and headaches. Psychosomatic symptoms are physical symptoms stemming from stress and emotions. Most studies in this area focus on treatment of chronic psychosomatic presentations, with psychological intervention being key to treatment.

The Resilience in Children and Adolescents with Psychosomatic Symptoms (RECAP) program is an early intervention initiative developed by KK Women's and Children's Hospital (KKH) for children and adolescents with psychosomatic symptoms. RECAP employs a stepped care model, allowing for early intervention through various means and adopting a task-shifting approach to deliver timely care.

To address children and adolescents with mild psychosomatic symptoms, the RECAP team developed a brief intervention package. This includes brochures, a self-help video, and a 3-session brief intervention manual designed for use by non-psychologists. The team provided training for hospital-based nurses and social workers, as well as community helping professionals such as school counselors and youth-centric social service agency staff. By offering self-help resources and upskilling helping professionals, the program aims to provide early intervention for mild symptoms and prevent their progression to chronic conditions.

For children and adolescents with moderate symptoms, the team developed a 5-session brief intervention program administered by hospital-based clinical counsellors. This approach utilizes the biopsychosocial model and incorporates Cognitive Behavioral Therapy (CBT) strategies to address specific needs. Clinical counsellors also collaborate with schools, treating teams, and parents, providing ongoing psychoeducation to foster better understanding and support systems.

Outcome findings indicate satisfaction among trained professionals and significant symptom improvement in children and adolescents receiving these brief intervention packages. With readily available interventions for mild and moderate psychosomatic presentations, only those with more severe presentations need to access psychiatric and psychological services in the hospital, allowing for better utilization of scarce healthcare resources.

Mission PAWSsible (Paediatric Adolescent Wellness Service): Early Access to Mental Health Care for Children and Adolescents

Dr Ryan Wu Song Lian

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Department of Paediatrics

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KK Women's and Children's Hospital, Singapore

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Dr Samuel Lim Zhi Rui

Associate Consultant, General Paediatrics Service

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The number of children and young persons (CYP) experiencing mental health (MH) distress is on the rise. Globally, 1 in 5 CYP are affected by paediatric MH disorders. In Singapore, a recent study found that 1 in 10 adolescents met diagnostic criteria for a MH disorder. The study also found that 1 in 3 adolescents reported internalizing MH symptoms like depression, anxiety, and loneliness, and 1 in 6 reported externalizing symptoms like hyperactivity, rule breaking and aggression. This is associated with significant morbidity and mortality, with mental diseases accounting for 25% of disability adjusted life years (DALYs) in 15–19-year-olds in Singapore and suicide the leading cause of death in Singaporean youths and young adults.

This increase in paediatric and adolescent mental health (MH) burden has outpaced the expansion of mental health services (MHS), leading to decreased access and delayed care. PAWS (Paediatric and Adolescent Wellness Service) is a novel paediatrician led MHS where general paediatricians attend to children and young persons (CYP) experiencing mental health (MH) distress. They are able to assess, formulate, direct to the appropriate psychosocial intervention, give medications, risk assess and escalate as necessary.

This is also in line with the National Mental health and Well-Being Strategy' aims of expanding capacity of mental health services, enhancing capabilities of service providers for early identification and intervention and also promoting mental health and well-being.

Thus, the induction of PAWS was aimed to improve access to mental health care for children and young persons (CYP) in an effective and efficient manner.

Sleep Disorders in Adolescents: A Tiered Care Approach

Prof Nigel Marsh

*Professor of Clinical Psychology
James Cook University, Singapore*

Obtaining sufficient, good quality sleep is an essential aspect of good health. The deleterious effects of sleep deprivation for physical and mental health are well established. Adolescence is a period of change which can be associated with disruption to established personal routines and attempts to establish new patterns of independent behaviour during the transition to adulthood. Using findings from recent research, an overview of sleep problems and their consequences for Singaporean adolescents will be presented. This will be followed by a description of interventions that show promise for addressing sleep disorders in adolescents and that may be applicable to addressing these problems in Singapore. Using the framework of the Singapore Ministry of Health's Tiered Care Model for Mental Health Care Delivery interventions appropriate for the first three tiers will be presented. For Tier 1 (mental wellbeing promotion) interventions, school-based sleep education programmes can promote the importance of sleep health and improve adolescent sleep. Findings from a recent study conducted in Scotland suggest that such an approach is feasible and acceptable for delivery via the secondary school curriculum. For Tier 2 (low intensity services) interventions, a focus on decreasing bedtime procrastination could be effective. A recent study from the Republic of Korea of a psychological intervention designed for decreasing bedtime procrastination verified the feasibility and acceptability of the intervention and its effectiveness in targeting bedtime procrastination. For Tier 3 (moderate intensity services), an eight-session transdiagnostic intervention is presented. A programme developed and trialed in California demonstrated the efficacy of the protocol and the effectiveness of taking a transdiagnostic approach to improving sleep in adolescents.

The Role of Psychologists in Supporting Individuals with Medical Conditions: Integration of Mental Health in Medical Care

Ms Cheong Xinyi

*Principal Psychologist, Psychology Service
Allied Health Specialties Division
KK Women's and Children's Hospital, Singapore*

Psychological well-being is paramount for those living with medical conditions. However, a significant proportion of those with chronic illnesses experience psychological distress such as depression, anxiety, and stress. These can exacerbate their symptoms and hinder recovery. Poor mental health can also affect compliance with treatment regimens. This presentation explores the psychological impact having a medical condition can have on children and adolescents and the importance of psychological support. It would examine the multifaceted role psychologists play in providing holistic care in collaboration with other healthcare professionals. It would also showcase how psychological interventions can empower patients to play an active role in their own recovery journey.

Perinatal Traumatic Grief: A Patient's Journey to Recovery

Ms Ho Yiling

Senior Principal Psychologist, Psychosocial Trauma Support Service

Division of Medicine

KK Women's and Children's Hospital, Singapore

In Singapore, about 1 in 5 pregnancies end in miscarriage, stillbirth, or foetal death. It is a relatively common occurrence that can cause immeasurable physical and emotional stress, including feelings of grief. The grieving process may be further complicated by the presence of perinatal trauma – a mental health experience characterised by traumatic stress symptoms following exposure to events that were perceived to be threatening to one's or their baby's life or body. When grief co-occurs with traumatic stress, it is commonly known as traumatic grief.

A 2021 systematic review found that 34% of women reported experiencing posttraumatic stress symptoms one month after their pregnancy loss, with 9% still experiencing symptoms at the 3-month mark. Mitigating factors included the level of social support amongst other factors. This observation appeared to corroborate findings by the World Health Organization, about women often feeling either alone in their grief, or pressured to recover while managing significant physical and emotional changes.

This subsequently calls for increased awareness and support for women who had experienced pregnancy losses. As part of today's talk, we are therefore very privileged to have with us a former KKH patient who will be sharing her personal journey of recovering from traumatic grief, following the stillbirth of her child, with a surviving twin.

Mental Wellness for Every Mother

Dr Hong Lin Feng

Consultant, Department of Psychological Medicine

Division of Medicine

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Paediatrics Academic Clinical Programme

Depression and anxiety during and after pregnancy is a significant issue as it not only affects the mother but also results in both short- and long-term adverse effects on the child. Furthermore, mental health can be difficult to talk about hence the importance of screening cannot be further emphasized. After screening, it is also pertinent to explore treatment options whilst considering the unique circumstances during this period such as potential impact on fetal development, pregnancy outcomes and breastfeeding.

Day 2 - Venue: Auditorium

The Birth of Infant Mental Health

Dr Tan Chunzhen

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Dr Abigail Loh Hong Yan

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Infant mental health is primarily concerned with how infants experience the world around them. Infant mental health and wellbeing develop in the context in which they are cared for and are highly dependent on an infant's caregivers. Specifically, infant mental health is the young child's capacity to experience, regulate, and express emotions, form close and secure relationships, explore the environment and learn.

In the early years of ages 0-5, the brain is at its most malleable and open to influences - a time for the greatest potential for change and growth, but also a time that the brain is at its most vulnerable. Our talk aims to highlight the importance of a nurturing, supportive, and structured environment in a child's early years, and how sensitive and responsive caregiving can have multiple positive effects on a child's development and wellbeing. Conversely, adverse childhood events or caregiving challenges can have multiple negative downstream effects for the child even into their adult years. We will hence also share on the need for early intervention for infants at risk and their families and caregivers, and how that has shaped some of our current clinical perspectives and practices.

Day 2 - Venue: Auditorium

The Role of Community Nurses in Identifying and Screening for Mental Health

Ms Rajni D/O Parasuram

Nurse Clinician, Division of Nursing
KK Women's and Children's Hospital, Singapore

The nurse plays a crucial role in supporting the emotional well-being of women and their infants in the community, particularly through identifying and screening for mental health issues. Community nurses are uniquely positioned to detect early signs of mental distress due to their accessibility and rapport with families. They serve as essential liaisons between mothers and healthcare systems, educating them on the importance of mental well-being and encouraging engagement with mental health resources.

One national initiative is the KidSTART@KKH service, where nurses perform maternal mental health screenings at regular intervals to identify mothers who may require additional support. This service not only addresses mental health concerns but also provides antenatal and postnatal holistic care during a critical period in mothers' lives. The service strives to promote maternal well-being by optimizing both the physical and mental health of mothers, promoting child health, and fostering positive parent-child interactions, thereby improving child development outcomes.

Between June 2014 and August 2020, 134 mothers were screened for mental wellness during the antenatal period, at 6 weeks, and 6 months postnatally. Of these, 18% were identified for follow-up during the antenatal period, 8% at 6 weeks, and 12% at 6 months, emphasizing the need for ongoing monitoring and support. Alarming, only 3 of those requiring follow-up during the antenatal period were known to mental health services, highlighting the importance of these screenings.

Community nurses not only facilitate referrals but also provide personalized emotional support, symptom monitoring, medication compliance assistance, and educational resources. These findings reinforce the importance of early mental health screenings, showcasing the vital role of community nurses in fostering healthier outcomes for mothers and their children.

Day 2 - Venue: Lecture Theatre

Chronic Pelvic Pain with Respect to Bladder Pain Syndrome and Pelvic Floor Tension Myalgia

A/Prof Ng Lay Guat

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Singapore General Hospital, Singapore

SingHealth Duke-NUS Surgery Academic Clinical Programme

Chronic pelvic pain is a very debilitating condition that is estimated to affect 26% of the world's women population. This can be caused by various conditions related to the pelvic organs or neurological issues. Incidence of Bladder pain syndrome in Singapore is also increasing. However, the condition is often missed, and diagnosis delayed due to its tendency to mimic more common conditions such as recurrent urinary tract infection. This problem is often further complicated by secondary pelvic floor tension which by itself is another source of pain. In this short lecture I will attempt to describe the process of diagnosis and management of BPS and PFTM.

Day 2 - Venue: Lecture Theatre

Management In a Symptomatic Patient with Faecal Incontinence – Colorectal Perspective

Dr Sharmini Su Sivarajah

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SingHealth Duke-NUS Surgery Academic Clinical Programme

Faecal incontinence is a condition that is suffered silently by many. Besides, it is a topic that is not well understood with sparse and contradicting evidence. The prevalence reaches 18% however this number may be much higher than what is reported in literature. Management of a patient requires a multidisciplinary approach and it may involve other specialities such as urology and gynaecology. Focus of treatment should center on the management of a patient's expectations and the elevation of quality of life. This talk will cover a patient's journey from diagnosis and treatment in a symptomatic patient with faecal incontinence from a colorectal perspective.

Common Pelvic Floor Disorders in Women Across their Lifetime

Dr Kazila Bhutia

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SingHealth Duke-NUS OBGYN Academic Clinical Programme

Pelvic floor dysfunction (PFD) encompasses a broad spectrum of disorders, including urinary and faecal incontinence, pelvic pain, and pelvic organ prolapse, all of which can profoundly affect an individual's quality of life. PFD is a widespread public health concern, with prevalence estimates ranging from 12% to 42%, and it affects women across all age groups, though it is more common in older women. Notably, one in nine women will require surgical intervention for PFD at some point in their lives. As life expectancy continues to rise, particularly in developed countries like Singapore, the aging female population will lead to an increase in PFD cases, further straining healthcare systems and resources.

With the growing prevalence of PFD, there is an urgent need to address its impact on both individuals and healthcare infrastructures. The talk will explore the various risk factors contributing to PFD, including pregnancy, childbirth, menopause, and aging, while also highlighting the importance of early identification. Timely diagnosis and intervention are crucial in preventing the progression of these disorders, reducing the need for more invasive treatments, and improving long-term outcomes.

This talk will also focus on management strategies for PFD, emphasizing the importance of early intervention and preventive measures. By discussing both non-surgical and surgical treatment options, the talk aims to equip attendees with the knowledge and tools to better support women affected by PFD.

Case Based Discussion of Pelvic Floor Disorder Cases Involving MDT

Dr Yvonne Ng Ying Ru

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Singapore General Hospital, Singapore

SingHealth Duke-NUS Surgery Academic Clinical Programme

Pelvic floor disorders (PFD) encompass a spectrum of different functional and anatomical disorders including vaginal and urinary symptoms, incontinence (urinary and/or faecal), obstructive defecation syndrome, and pelvic organ prolapse. The majority of patients are women, and it has been estimated that approximately 24% of adult women have at least one symptom of PFD.

PFD have complex pathophysiology and variable manifestations, making their treatment tedious and management often require input from different disciplines. Previously, the standard was a single-specialty approach to PFD, with urogynaecologists, urologists, and colorectal surgeons with a special interest in PFD assessing and managing patients separately. This resulted in patient dissatisfaction due to residual symptoms, as well as numerous cross-referrals and treatment prolongation.

Multidisciplinary assessment and treatment should thus be conducted from initial assessment with the aim to better understand which specialties should be involved in the patient's care from the start, hence improving outcomes and standardizing treatment. The aim of today's topic is to present the importance of the MDT approach to PFD and the value of different healthcare professionals and specialties.

Day 2 - Venue: Conference Room 1

The Urgent O&G Centre: Where Resilience Meets Compassion ...

Dr Rajeswari Kathirvel

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SingHealth Duke-NUS OBGYN Academic Clinical Programme*

While KKH celebrates a century of leadership in maternity care, I take this opportunity to review its journey in offering emergency care for women in early pregnancy and acute gynaecological conditions. The Urgent O&G Centre (UOGC) operates round the clock and sees both private and subsidized walk-in patients and the Early Pregnancy Assessment Unit (EPAU) offers specialist run appointment-based service for women with early pregnancy problems during weekdays. Both these units follow evidence-based pathways and protocols to offer excellent care for women in need. We use our own data to manage their medical conditions and expectations especially for women receiving methotrexate to manage their early pregnancy complications and those who present with pregnancy of unknown location.

Having borne the brunt of COVID 19 as one of the frontline service providers for KKH O&G, the unit has emerged successfully and more resilient than ever. The medical and nursing teams, along with our colleagues from Office of patient experience and Quality, safety, and risk management work hard together to offer evidence based compassionate care to women who present with miscarriages. Furthermore, our nursing team has been empowered with nurse led protocols for hyperemesis and breast engorgement that has helped them to clinch the 'The Best Nursing Team' Award for 2024. I feel privileged to share our journey with you all in my talk.

Day 2 - Venue: Conference Room 1

Early Pregnancy Scanning Challenges

Dr Julian Kang Hean Leng

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Early pregnancy scanning is a vital component of prenatal care, yet it presents several challenges that healthcare professionals must navigate to ensure accurate and effective outcomes. One key challenge is timing; scans performed too early can lead to unnecessary anxiety for expectant parents due to inconclusive results. Additionally, diagnostic dilemmas often arise in distinguishing between normal early pregnancy variations and complications such as ectopic pregnancies or early pregnancy losses, requiring a high level of clinical expertise.

Technical limitations further complicate early pregnancy assessments. The quality of imaging can be impacted by maternal factors such as obesity or uterine fibroids, and the operator's skill plays a critical role in obtaining accurate results. Moreover, the psychological impact on patients cannot be overlooked. Emotional stress related to early pregnancy complications, coupled with the uncertainty of scan results, highlights the need for sensitive communication and supportive care from healthcare providers.

While early pregnancy scanning is indispensable for monitoring and managing early gestation, these challenges necessitate ongoing improvements in clinician training, technological advancements, and compassionate patient care. By addressing these factors, we can enhance the effectiveness of early pregnancy scans and improve outcomes for both mothers and their babies.

Day 2 - Venue: Conference Room 1

The Role of a Lymphedema Service for a Progressive Disease

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Division of Surgery

KK Women's and Children's Hospital, Singapore

SingHealth Duke-NUS Musculoskeletal Sciences Academic Clinical Programme

Lymphedema is a progressive disease currently with no available cure. The incidence of secondary lymphedema from tumour ablative surgery are likely under reported. In KK Women's and Children's hospital, the lymphedema physiotherapy department are receiving increasing referrals for lymphedema treatment and /or surveillance post cancer ablation surgery. Early detection of lymphedema impacts disease progression. The lymphedema service from the Department of Plastic, Reconstructive Aesthetic Surgery treats active lymphedema and has been in the practice of reducing the risk of lymphedema development with prophylactic lymphatic reconstruction surgery for breast cancer related lymphedema for the past 5 years. Here we will introduce the service to the KK Women's and Children's community on the lymphedema work team and also showcase the impact lymphedema has on patients as a disease spectrum.

ABSTRACTS: POSTER

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Exosomal mRNA Cargo are Biomarkers of Tumor and Immune Cell Populations in Pediatric Osteosarcoma

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Introduction: Undetected cancer cells may persist after treatment of osteosarcoma, leading to recurrence. Thus, more sensitive tests are needed to detect minimal residual disease. Since only smaller circulating RNA species like miRNA have been studied in osteosarcoma, we analyzed potentially transcribable mRNA in blood-derived exosomes from osteosarcoma patients.

Methodology: Exosomes were isolated from the blood of osteosarcoma cases at diagnosis (n=7) and after neoadjuvant chemotherapy (n=5 subset), and from age-matched cancer-free controls (n=3). Additionally, tumor biopsy samples (n=7) were obtained. Exosome isolation was validated with CD9 immunoblot and electron microscopy. Relative abundances of 780 cancer-related mRNA transcripts in the aforementioned sample groups were compared; immunohistochemistry stains of differentially expressed genes between case and control exosomes were subsequently performed on tumor samples.

Results: Exosomes from osteosarcoma cases at diagnosis exhibited higher transcript levels of extracellular matrix protein THBS1 and B-cell markers MS4A1 and TCL1A compared to controls. Immunohistochemical staining revealed strong THBS1 expression on the edges of tumor osteoid and within a subpopulation of tumor cells. Persistent expression of exosomal THBS1 mRNA and THBS1 immunohistochemical staining was observed in a case with metastatic and relapsed disease, suggesting its potential utility as a histological and circulating biomarker for osteosarcoma. MS4A1 and TCL1A were expressed in tumor-associated B cells, indicating differential host immune infiltration.

Conclusion: Putative exosomal mRNA markers of disease burden and host immune response in osteosarcoma were identified, supporting their further study for the development of minimally-invasive tests that can improve minimal residual disease detection in osteosarcoma.

Untargeted Metabolomics Reveals Key Pathways in Threatened Miscarriage: Dysregulated Steroid, Fatty Acid, Folate and Glycosaminoglycan Biosynthesis

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Introduction: Threatened miscarriage affects one in five pregnancies worldwide, causing significant physical and psychological distress due to the uncertainty following pregnancy bleeding. This uncertainty stems from unknown biological factors influencing miscarriage risk. We hypothesize that abnormal metabolism is a crucial factor associated with threatened miscarriage outcomes, and identifying these pathways can improve expectant management.

Methodology: This prospective case-control study enrolled 70 women experiencing threatened miscarriage at 5-12 weeks of gestation at KK Women's and Children's Hospital from March 2017 to November 2022. Among the participants, 38 had successful deliveries, 32 miscarried, and 10 women without threatened miscarriage served as controls. Serum samples collected at presentation were analyzed using untargeted mass spectrometry-based metabolomics, supervised discriminant analysis, and pathway enrichment analyses with Metaboanalyst 5.0 to identify disrupted pathways and biomarkers.

Results: The analysis revealed dysregulation in 14 metabolites and eight metabolic pathways among women with threatened miscarriage who miscarried. The most significantly affected pathway is steroid hormone biosynthesis ($p < 0.001$), with decreased dehydroepiandrosterone-sulfate (fold change, FC=0.92) and estrone-sulfate (FC=0.39), and increased cholesterol-sulfate (FC=1.30). Other pathways include unsaturated fatty acid biosynthesis ($p < 0.05$), with the largest FC observed in palmitic acid (FC=2.02) and stearic acid (FC=1.29), and folate synthesis ($p < 0.05$), notably molybdopterin-precursor-Z (FC=0.85) and 4a-hydroxytetrahydrobiopterin (FC=0.70). Glycosaminoglycan metabolites, essential for embryo implantation, were also reduced in those who miscarried ($p < 0.05$).

Conclusion: We provide initial insights into the metabolic profile of a miscarriage: disruption of steroid, fatty acid, folate and glycosaminoglycan biosynthesis. Further research is needed to validate these mechanisms, potentially enhancing prognostication and identifying therapeutic targets for threatened miscarriage.

Young Infant Sepsis and Neurocognitive Outcomes: A Systematic Review and Meta-Analysis

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Introduction: Sepsis is associated with neurocognitive impairment among neonates but less is known about young infants with sepsis. This systematic review and meta-analysis aim to provide a update of neurocognitive outcomes including cognitive delay, visual impairment, auditory impairment, and cerebral palsy, among young infants <90 days old with sepsis.

Methodology: We performed a systematic review of PubMed, Embase, CENTRAL and Web of Science for eligible studies published between January 2011 and March 2023. We included randomized controlled trials, case-control, cohort studies and cross-sectional studies. Articles not in English language were excluded. Risk of bias assessment was performed using Cochrane risk-of-bias tool and Newcastle-Ottawa Scale. Using the adjusted estimates, we performed random effects model meta-analysis to evaluate the risk of developing neurocognitive impairment among infants with sepsis.

Results: Of 7,909 studies, 23 studies (n=289,597) were included. Majority of studies were conducted in the United States (n=6, 26.0%), and all were performed among preterm infants. Sixteen (69.5%) studies provided follow-up till 30 months. Sepsis was associated with increased risk of cognitive delay [adjusted odds ratio, aOR 1.13 (95% CI: 1.01 - 1.28)], visual impairment [aOR 2.57 (95%CI: 1.14- 5.82)], hearing impairment [aOR 1.70 (95% CI: 1.02-2.81)] and cerebral palsy [aOR 2.48 (95% CI: 1.03-5.99)]. Limitations of this review include significant heterogeneity in the definitions of sepsis, exposure and assessment of outcomes used across studies.

Conclusion: Young infants surviving sepsis are at a higher risk of poorer neurodevelopment. More studies are required for long-term outcomes and among term infants.

Discordant Dose-Response to Enoxaparin Observed in Anti-Xa Low Molecular Weight Heparin Monitoring of a Paediatric Patient with Hyperbilirubinaemia

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Introduction: A seven-month-old patient with cholestatic hepatitis was prescribed low molecular weight heparin (Enoxaparin) to treat portal vein thrombosis and was monitored daily via Anti-Xa LMWH assay. Anti-Xa levels were subtherapeutic despite escalating Enoxaparin doses while the activated partial thromboplastin time (APTT) was progressively prolonged. We aim to examine the lack of correlation between Enoxaparin dosage and Anti-Xa activity and demonstrate the effect of hyperbilirubinaemia interference on chromogenic Anti-Xa testing.

Methodology: We reviewed the patient's clinical data and carried out laboratory investigations to explore possible pre-analytical interferences. STA Compact Max analyser utilizes colorimetric measurement of residual FXa activity to determine the inhibitory effect of Enoxaparin.

Results: Common pre-analytical issues were ruled out after checking the specimens for clot, incorrect fill volume and processing delays. The specimens were found to be icteric which were confirmed by high serum bilirubin levels. Anti-Xa level at the onset of therapy was subtherapeutic and remained subtherapeutic despite increasing Enoxaparin doses while the corresponding APTT was appropriately prolonged. It took six days and a high Enoxaparin dose to reach therapeutic Anti-Xa levels.

Conclusion: Our findings agree with previous publications citing evidence that icteric specimens from patients with hyperbilirubinaemia can increase the optical density measurement of FXa activity, leading to underestimation of heparin activity. Since hyperbilirubinaemia cannot be resolved through redrawing of specimens or ultracentrifugation, clot-based APTT assays should be considered for heparin monitoring. Clinicians and laboratory scientists must be aware of pre-analytical interferences when interpreting Anti-Xa results in the context of hyperbilirubinaemia.

Navigating Infantile Hemangiomas in Preemies: To Treat or Wait – A Clinical Conundrum

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Introduction: Infantile hemangioma (IH) is the most common benign tumor of infancy with the highest incidence in preterm infants. Infants with large facial IH may require further investigation for PHACE syndrome. Treatment with topical or systemic beta blocker such as propranolol is the mainstay of medical treatment in large complicated IH. A preterm very low birth weight (VLBW) infant with infantile hemangioma faces clinical challenges, including accuracy of diagnosis and the decision of whether and when to pursue treatment in the face of potential complications of treatment.

Methodology: We report a female preterm infant born at 24+3 weeks of gestation and weighing 690g who developed a large segmental infantile hemangioma over the neck from 3 weeks old.

Results: The infant was born to a mother who had premature rupture of membranes and suspected chorio-amnionitis. She developed a large segmental infantile hemangioma over the neck at 3 weeks of life that progressively increased in size and depth for the next 2 months. Investigations for PHACE syndrome and airway hemangioma were negative. Parents were counselled regarding the risk of exacerbation of chronic lung disease. The infant received treatment with topical timolol and oral propranolol without associated treatment complications.

Conclusion: This case highlights the clinical and decision-making aspects in the treatment of large infantile hemangioma in the very low birth weight preterm infant.

Improved Outcomes in Advanced Nasopharyngeal Carcinoma: Audit of a Tertiary Children's Hospital in Singapore

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Introduction: Nasopharyngeal carcinoma (NPC) is a rare malignancy in children. This audit reviews the clinical features, treatment and outcomes of paediatric NPC cases in KK Women and Children's Hospital (KKH) over 26 years.

Methodology: Retrospective data of NPC patients diagnosed and treated from 1997 to 2023 was analysed. Kaplan-Meier survival curves were constructed to calculate overall survival (OS) and disease-free survival (DFS) estimates.

Results: There were 14 patients in the cohort between 9 and 16 years with a mean of 13.5 years. Majority (71.4%) were male. Nearly two-thirds (64.3%) presented with neck mass. All had advanced disease: five with Stage III and nine with Stage IV, of which three had metastatic disease. All were treated with chemoradiotherapy: a variety of adjuvant chemotherapy protocols before 2010 (n=7), and COG ARAR Protocol after 2010 (n=7). Radiotherapy doses were mainly 60-70 Gy. There were four patients with relapse or disease progression. One relapsed 12 months post treatment, the rest were either non-compliant or defaulted therapy. The only two deaths were patients treated before 2010. One patient with metastatic disease is currently on maintenance capecitabine. Overall OS for the whole cohort was 80% and DFS 65%. OS for patients treated before 2010 was 65% and 100% for patients treated after 2010.

Conclusion: NPC is rare but highly treatable, particularly with current chemotherapeutic protocols in our centre. Most relapses occurred in non-compliant patients, making adherence to therapy extremely important. The utility of maintenance therapy to further improve outcomes needs further evaluation.

Mental Health Difficulties and Help-Seeking Preferences Among Caregivers of Children with Developmental Needs in Singapore

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Introduction

Caregivers of children with developmental needs are known to be at increased risk of mental health difficulties which need to be supported, so that they can facilitate their children's development. This study reports on the levels of depressive and anxiety symptoms, help-seeking preferences, and barriers to seeking professional help, for a local sample of caregivers of children with developmental needs.

Methodology: One hundred and thirty-nine caregivers (103 mothers; Mean age = 36.8years) from Department of Child Development (DCD) at KK Women's and Children's Hospital (KKH) and AWWA completed an anonymous online survey.

Results: On the Patient Health Questionnaire-9, 32.4% (n=45) reported moderate-to-severe levels of depressive symptoms, with 21.6% (n=30) experiencing thoughts of suicide/self-harm. On the Generalized Anxiety Disorder-7, 29.5% (n=41) reported moderate to severe levels of anxiety symptoms. When asked about their likely help-seeking behaviors if they were experiencing a personal/emotional problem, caregivers were most likely to seek help from their husband/wife/partner (64.7%), parent (45.3%), friend (42.4%), or self-help digital platforms (38.1%). Caregivers' desire to solve the problem on their own (77.7%), concerns about financial costs (77.0%) and time (51.8%), difficulty making childcare arrangements (48.2%) and taking time off work (48.2%) were most likely to prevent them from seeking professional help for a personal/emotional problem.

Conclusion: A substantial percentage of the sampled caregivers reported clinically significant depressive and/or anxiety symptoms. Strengthening marital, family and social relationships of caregivers are likely to be acceptable approaches to increase caregivers' coping. More can be done to destigmatize help-seeking with mental health professionals and increase accessibility of such support to caregivers.

Time of Reinitiating Feeds After Onset of Necrotizing Enterocolitis: A Systematic Review and Meta-Analysis

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Introduction: Neonatal management of necrotizing enterocolitis (NEC) involves supportive measures, antibiotics, and stopping enteral feeds. Data on the timing of re-establishing feeds after medical or surgical NEC is limited. We performed a systematic review and meta-analysis on the relationship between reinitiating feeds and post-NEC sequelae in medical and surgical NEC.

Methodology: MEDLINE, Web of Science, and Embase databases were searched for studies up to 2024 reporting the timing of reinitiating feeds after the onset of NEC. A systematic review and meta-analysis were then performed to compare outcomes for early (<7 days) versus delayed (>7 days) initiation of enteral feeds.

Results: Five retrospective, and one prospective, cohort studies were included. Four studies focused on medical NEC, one on surgical NEC, and one on both. In medical NEC patients (176 early, 196 late), early feeding significantly reduced time to full feeds (by 3.83 days, p=0.005) as well as post-NEC stricture rates (1.3% vs 4.8%, p=0.05) compared to delayed feeding. There was no significant difference in mortality rate, CLABSI, or NEC recurrence between both groups. In surgical NEC patients (48 early, 110 late), there was no significant difference in mortality or the need for parenteral nutrition at 28 days between both groups.

Conclusion: The findings suggest that while fasting is an important treatment, delayed feeding beyond 7 days increases time to full feeds and risk of post-NEC stricture in medical NEC. There is no benefit to delayed feeding in surgical NEC. More studies are necessary to validate these findings.

Bridging Gaps in Oral Care for Children with Cancer: Insights from the Parental Perspective

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Introduction: A published survey revealed oral-health-related knowledge, attitudes, practices and barriers of Singapore paediatric oncology nurses (Yee et al 2023). However, understanding of parents' perspectives is limited. The study objective was to understand parental views on oral health for children with cancer.

Methodology: A survey of parents of children diagnosed with cancer at KK Women's and Children's Hospital explored child's dental attendance/referral rate, and parental oral-health-related knowledge, attitudes, practices, abilities and barriers.

Results: Most parents were keen on dental care for their child after cancer diagnosis (86.2%) and agreed that oral hygiene is important before (93.1%) and after (96.6%) cancer diagnosis. However, they reported barriers that largely mirrored those of nurses (Yee et al 2023): (i) child behaviour/tolerance, (ii) child's oral condition, (iii) parental lack of knowledge on dietary and routine oral care, and (iv) lack of access to professional support. In the nurses' survey, 42.9% nurses felt that one barrier to performing oral care for their patients was their belief that parents should be the ones responsible for oral care (Yee et al 2023). However, the present survey showed that some parents perceived it to be the child's own responsibility (20.7%), or dentists' responsibility (3.4%). Although 62.1% recalled receiving a dental referral, almost three-quarters (72.4%) of children had not seen a dentist after cancer diagnosis.

Conclusion: Caregivers faced challenges such as limited professional support and managing the child's behaviour. An Interprofessional Oral Care for Children with Cancer Oral Health Programme has been proposed to address these barriers.

Systematic Lymphatic Repair for Reduction of Postoperative Lymphatic Leak Following Neuroblastoma Resection

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Introduction: Gross total resection of neuroblastoma is associated with lymphatic leaks that can delay postoperative resumption of treatment. To prevent this, we introduced systematic lymphatic repair (SLR), which involved oversewing the entire edge of the disrupted lymphatic plane after neuroblastoma resection. We sought to study the impact of SLR on postoperative lymphatic leak and time to return to treatment.

Methodology: We reviewed 60 neuroblastoma patients who underwent gross total resection at KK Women's and Children's Hospital. Patient, disease, and operative factors were correlated with surgical drainage, treatment delay and length of stay (LOS). Among patients with sufficient records, the interaction between variables associated with drainage, delay and LOS outcomes were compared in 14 patients who had SLR versus 35 historical controls who had targeted lymphatic repair (TLR).

Results: Postoperative drain duration and volume were significantly higher in tumors with ≥ 2 image-derived risk factors (IDRFs) or vessel encasement. Longer LOS was significantly associated with ≥ 2 IDRFs. All forms of suture repair of lymphatics and use of Tachosil™ were associated with significantly longer postoperative drain duration, the former also associated with significantly higher total drain volume – indicating appropriate use of these adjuncts in patients at risk of chyle leak. In patients who had suture repair of lymphatics, SLR was significantly associated with reduced postoperative interval to chemotherapy resumption.

Conclusion: A systematic approach to repair of lymphatic channels following neuroblastoma resection can significantly reduce time to postoperative resumption of treatment.

Parent-Reported Sleep Characteristics and Social-Emotional Outcome at 24 months of Age

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Introduction: Sleep concerns in early childhood are correlated with poorer cognitive and language outcomes, but social-emotional outcome has not been extensively studied. In this study, we investigated the association between sleep characteristics and social-emotional outcome (SE) at 24 months in low-risk children.

Methodology: Longitudinally collected data from Singapore's largest birth cohort study, GUSTO, was analyzed. Parent reported Brief Infant Sleep Questionnaire (BISQ) was used to define sleep characteristics at 6 and 18 months of age. Parent-reported Ages and Stages Questionnaire Social emotional (ASQ:SE) was used to measure SE at 24 months of age (n=424). Maternal education, infant's weight, race and gender were co-variables for multivariable regression analyses.

Results: Longer night-time and total sleep duration, shorter sleep onset latency and higher sleep-schedule consistency at 6 months of age were significantly associated with better ASQ:SE scores at 24 months of age (p=0.003, 0.01, <0.001, <0.001 respectively). However, at 18 months of age, longer total sleep duration, shorter night awakenings, a shorter sleep onset latency and higher sleep-schedule consistency were significantly associated with better ASQ:SE scores (p= 0.04, <0.001, 0.01, 0.01 respectively).

Conclusion: Sleep characteristics observed as early as 6 months of age are associated with variations in ASQ:SE scores at 24 months of age. Better sleep hygiene with shorter sleep onset latency and higher sleep-schedule consistency may help in contributing to better social-emotional competency at 24 months of age. Future prospective studies addressing sleep hygiene at 6 months or earlier are needed to investigate this relationship.

The Effects of Denosumab Treatment on Post-Menopausal Women in KKH: A Prospective Study

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Introduction: Osteoporosis is a chronic disease characterized by low bone density and deterioration of the bone microarchitecture, resulting in a loss of bone strength, increasing bone fragility, and risk of fractures. Denosumab is one of the treatment options for post-menopausal women with osteoporosis. This study aims to evaluate the efficacy and safety of denosumab therapy in post-menopausal women seen at KK Women's and Children's Hospital (KKH).

Methodology: In this prospective observational study, post-menopausal women who were on Denosumab therapy for their osteoporosis treatment from 2012 to 2019 were recruited. The BMD results of these patients prior to denosumab therapy and 3 years after therapy was evaluated. The side effects and complications from the treatment therapy was recorded.

Results: Total 319 post-menopausal women aged 48 to 90 years had completed 3 years of Denosumab therapy. Mean BMD T-scores (SD) of -2.37 (0.6434), -2.08 (0.7227) and -1.9240 (1.0157) at the neck of femoral, total hip and lumbar spine, respectively at baseline. There was significant increase in BMD measurements after 3 years of Denosumab therapy, 3.68% at neck of femur, 4.6% at total hip, and 7.06% at lumbar spine. 10% of the patients experienced side effects such as transient musculoskeletal pain and flu-like symptoms. None had serious allergic reactions. One patient (0.3%) reported atypical femoral fracture and two had osteonecrosis of the jaw (0.6%) during the treatment.

Conclusion: Denosumab treatment was well tolerated and has demonstrated a significant improvement in bone mineral density over a three-year period in post-menopausal women.

Relationship of Demographic and Family-Related Factors on Developmental and Behavioural Outcomes in Young Children Exposed to Adverse Childhood Experiences in Singapore

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Introduction: Adverse childhood experiences (ACEs) are known to result in behavioural and developmental concerns in children. We aimed to study the role of family-related ACEs and demographic factors on above outcomes in young children.

Methodology: Children (<4 years of age) suspected of maltreatment were prospectively enrolled (n=112). Developmental outcomes were evaluated by parent-reported Ages and Stages Questionnaire-3 (ASQ-3), and behavioural outcomes by Child Behaviour Checklist (CBCL). 2 multivariable logistic regression analyses were conducted: (A) presence/absence of ≥ 3 ACEs, and (B) effect of family-related ACEs after controlling for demographics including maternal education and per capita income (PCI).

Results: The mean ACEs score was 2.8 ± 1.5 , with presence of developmental and behavioural concerns in 76% and 27% children respectively. Children with ≥ 3 ACEs had higher concerns on CBCL and lower scores in gross-motor domain ($p < 0.05$). Logistic regression analysis (A) identified lower PCI as affecting ASQ-3 communication ($p = 0.02$) and predisposing to concerns on CBCL ($p < 0.03$), while maternal education <12y predisposed to concerns in personal-social and gross-motor domains ($p < 0.01$). In contrast, in logistic regression analysis (B), substance abuse was found to adversely affected ASQ-3 communication and problem-solving domains ($p < 0.05$), and presence of maternal mental illness predisposed children to concerns on CBCL ($p < 0.05$).

Conclusion: ACEs are associated with poor developmental and behavioural outcomes in young children. Lower family income, presence of substance abuse and maternal mental health issues predisposes the children in this high-risk population to further delays and behavioural concerns. Future studies using a normal population as control might help in elucidating these effects further.

Preliminary Outcomes of DayOne: A Mental Health Support Programme for Caregivers of Children with Developmental Needs

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Introduction: DayOne, a mental health support programme for caregivers of children with developmental needs, was piloted in Department of Child Development (DCD) – a child development specialist clinic. Caregivers were screened and allocated to one of three tiers of support. Tier-1 and 2 caregivers had minimal or mild psychosocial risk and/or mental health needs and were provided with anticipatory guidance on self-care and mental well-being by DayOne care-coordinators (C2s). In addition, Tier-2 caregivers were supported by DCD therapists working with their children. Tier-3 caregivers, with moderate-to-severe psychosocial risk and or mental health needs, were referred for need based individualized support by a DayOne medical social worker, psychologist and/or psychiatrist and received on an average 3.5, 6.9 and 4.4 sessions respectively. This paper reports the preliminary analysis of pre- and post-depression and anxiety symptoms in caregivers in the DayOne programme.

Methodology: One hundred and forty-one caregivers, with 45(31.9%) allocated to Tier-1, 56(39.7%) to Tier-2, and 40(28.4%) to Tier-3, completed patient health questionnaire 8 and generalized anxiety scale 7, 10-12 months after their initial screening. Mixed ANOVA analyses were conducted.

Results: Caregivers in Tier 3 compared to those in Tier 1 and 2 showed a statistically significant reduction in anxiety ($(F(2,138)=9.0, p < .001)$) and depression ($(F(2, 138)=7.9, p < .001)$) symptoms post programme.

Conclusion: Preliminary analysis indicates the effectiveness of DayOne for improving the mental health of caregivers of children with developmental needs in Tier-3. Data collection from the Day One caregivers and a comparison group is on-going.

Unveiling Unique Glucose Responses: Ethnic Variations in Oral Glucose Tolerance Tests for Gestational Diabetes

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Introduction: Gestational diabetes mellitus (GDM) affects one-in-five Asian pregnancies, posing significant maternofetal risks. Ethnic variations in glucose metabolism, reflected in distinct oral glucose tolerance test (OGTT) profiles, remain understudied in multi-ethnic Asian populations. This study aims to investigate the relationship between three major Asian ethnic groups (Chinese, Malay, Indian) and their specific OGTT phenotypes in GDM.

Methodology: We conducted a retrospective review of 3,027 patients from KK Women's and Children's Hospital in 2019. GDM was diagnosed using the International Association of Diabetes and Pregnancy Study Groups criteria at 24-28 weeks. OGTT phenotypes were categorized into four mutually-exclusive groups based on abnormal plasma glucose at: 1) 0-h only; 2) 1-h only; 3) 2-h only; 4) ≥ 2 timepoints (reference). Adjusted multivariate analyses used multinomial logistic regression with robust variances to estimate relative risk ratios (RRRs) for ethnic-specific OGTT phenotypes, adjusting for maternal age, parity, and first-trimester body mass index.

Results: Overall GDM prevalence was 16.8%, highest among Indians (21.5%), followed by Chinese (18.4%) and Malays (14.2%). Indians (RRR 3.05) and Chinese (RRR 2.33) were at significantly higher risk of displaying a fasting-only phenotype compared to Malays. Chinese (RRR 2.88) were also at increased risk of displaying a 2-h post-prandial phenotype as compared to Malays.

Conclusion: Unique OGTT phenotypes exist across different Asian ethnic groups among women with GDM. Existing literature links a fasting-only phenotype to hepatic insulin resistance, while a post-prandial phenotype is associated with peripheral insulin resistance. These mechanistic variations in glucose handling could impact clinical management and efficacy of treatment modalities in GDM.

Performance of Inflammatory Markers to Detect Serious Bacterial Co-Infections in Febrile Infants with Confirmed Viral Infections

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Introduction: Febrile infants <90 days old with serious bacterial infections (SBIs) and concomitant viral infections remain an understudied population. We compare the prevalence of SBIs and evaluate the performance of inflammatory markers in predicting SBIs, between infants with and without proven viral illness.

Methodology: A prospective observational study from December 2017 and July 2022 was conducted at KK Women's and Children's Hospital, involving febrile infants <90 days old ($\geq 38^\circ\text{C}$). We compared SBI prevalence, performance of white blood cell (WBC), C-reactive protein (CRP), procalcitonin (PCT) and absolute neutrophil count (ANC), between infants with and without proven viral illness.

Results: Among 1783 infants, 327 (18.3%) had SBIs, and 653 (36.6%) had proven viral infections. Prevalence of SBI was lower in infants with proven viral illness compared to those without (8.6% vs 24.0%, $p < 0.001$). The greatest difference in AUCs between those with and without proven viral illness was for CRP $> 20\text{mg/L}$ (0.676, 95%CI 0.59 – 0.763 vs AUC 0.727, 95% CI 0.689 – 0.765) and ANC $> 10 \times 10^9/\text{L}$ (0.573, 95%CI 0.487 – 0.659 vs AUC 0.620, 95%CI 0.578 – 0.661). In both groups, CRP $> 20\text{mg/L}$ and ANC $> 10 \times 10^9/\text{L}$ had the highest sensitivity and specificity, respectively.

Conclusion: Febrile infants <90 days old with proven viral illnesses had lower risk of SBIs compared to those without. We caution against relying on a single timepoint or a single inflammatory marker to rule out SBIs among infants with proven viral illnesses, because current markers are less sensitive in this population.

A Rare Case of Septo-Optic Dysplasia Presenting in Neonatal Period with Recurrent Hypoglycemia, Neonatal Cholestasis and Pituitary Hormonal Deficiency

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Introduction: Septo-optic dysplasia (SOD) is a rare congenital disorder occurring in 1 in 10,000 live births. The heterogenous manifestations include triad of endocrine abnormalities, visual impairment and neurological symptoms, and diagnostic criteria is inclusion of 2 among the 3 features.

Methodology: Case study presentation of a neonate with unexplained hypoglycemia with cholestasis.

Results: A term, small-for-gestational-age girl with birth weight of 2696 grams presented with hypothermia and symptomatic hypoglycemia at 9-hour of life requiring maximal glucose-infusion-rate of 5.5mg/kg/min, with recurring pre-feed hypoglycemia episodes while weaning dextrose. Conjugated hyperbilirubinemia was noted in liver function test when she had clay-colored stools on day 9 of life. Critical blood samples on day 12 during hypoglycemia showed low cortisol and growth hormone along with suppressed insulin levels. Further workup revealed multiple pituitary hormone deficiency. Magnetic resonance imaging (MRI) of the brain showed ectopic neurohypophysis at the floor of 3rd ventricle. Fundoscopy showed bilateral optic disc hypoplasia confirmed by MRI orbit which showed right optic nerve and chiasm hypoplasia. A unifying diagnosis of SOD was made after multidisciplinary team approach, and glucocorticoid and levothyroxine replacement was started. Resolution of hypoglycemia and normalization of thyroid function and liver function were achieved.

Conclusion: SOD is a diagnostic challenge, and the constellation of hypoglycemia, hypothermia and neonatal cholestasis should raise suspicion for pituitary hormone deficiency. This case highlights the importance of considering SOD as a differential in neonates with similar presentations, as timely diagnosis with early hormonal replacement helps to reduce morbidity and mortality.

Efficacy and Cost-Effectiveness of Cervical-Ripening-Balloon Versus Vaginal Prostaglandin in the Induction of Labour

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Introduction: We assessed efficacy and cost-effectiveness of cervical ripening balloon (CRB) against vaginal prostaglandin (PGE) in labour induction. Women who attended KKH delivery suite from 2015 to 2017 were prospectively recruited and randomized to either CRB or PGE group.

Methodology: We analysed the time taken from labour induction to delivery, delivery methods, patient satisfaction and costs incurred. Mann-Whitney U test was used (where $p < 0.05$ was statistically significant).

Results: Two hundred and five patients were recruited (102 received CRB, 103 received PGE). In the CRB group, 72 women were nulliparous and 30 were multiparous. In nulliparous women, the average delivery time was 25.8hrs, 31 had normal vaginal delivery (NVD) with costs of S\$4244.00, 6 required assisted vaginal delivery (AVD) costing S\$4467.00 and 35 required caesarean section (CS) costing S\$6890.95. The satisfaction score was 3.5. In the multiparous CRB group, delivery time was 18.9hrs. 27 women had NVD. The satisfaction score was 3.8. In the nulliparous PGE group, 48 had NVD, costing S\$4006, 7 required AVD costing \$4229 and 19 women required CS costing S\$6652.95. The delivery time was 26.2hrs. The satisfaction score 3.1. In the multiparous PGE group, 19 delivery vaginally. The delivery time was 19.9hrs. The satisfaction score was 2.7.

Conclusion: Caesarean rate in the nulliparous CRB group was higher than PGE group and costs incurred were higher. In the multiparous PGE group, more women required caesarean section than the CRB group. CRB method received higher satisfaction scores and would be a better method for multiparous women, while PGE would be better for nulliparous women.

Understanding Effectiveness of Nurse-Led Group Parent Engagement Sessions in Cultivating Strong, Well-Nourished Preschool Children with Healthy Teeth (SWEET)

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Introduction: The prevalence of childhood overweight and early childhood caries (ECC) has increased in recent years but uptake of early intervention has remained consistently low at primary and tertiary healthcare centres. Thus, in collaboration with People's Action Party Community Foundation (PCF) preschools, nurse-led parent engagement (PE) sessions have been piloted in 16 preschools for parents of children identified to be overweight or have ECC. As early childhood presents a golden opportunity to cultivate healthy habits that confers long-term benefits in adulthood, these PE sessions would advise caregivers on parental feeding, physical activity and/or oral health practices. Thus, this study seeks to evaluate the effectiveness of these sessions for parents in the preschool setting.

Methodology: A non-equivalent, active pre-post quasi-experimental comparison group design is used. The study aims to recruit parents of identified children (n=404) who have ECC or are overweight over two years (2024 – 2025), with the last follow-up in 2026. Parent self-reported questionnaires on feeding, physical activity and oral health practices, anthropometric measurements and oral health assessment of children will be collected over a 1-year period (baseline, 6- and 12-month). Session fidelity are monitored and parental feedback will be obtained via anonymous survey.

Results: Not Applicable - Study is due to start in August/September 2024.

Conclusion: This study is currently in progress and findings will inform the effectiveness of nurse-led PE sessions in achieving short-term and sustained positive change in parental feeding, physical activity and oral health practices. Concurrently, feedback gathered from the survey could give insights to possible enablers and barriers in implementing PE sessions in the preschool setting.

The Prevalence of Preterm Birth in A Multiethnic Asian Population in Singapore

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Introduction: Preterm birth (PTB) is defined as delivery before 37+0 weeks of gestation. The global PTB rate is 12%. PTB can be classified as spontaneous birth (SPTB) versus iatrogenic birth (IPTB).

Methodology: This is a retrospective study on PTB at KK Women's and Children's Hospital (KKH) between 2017 and 2023.

Results: The PTB rate in Singapore demonstrated a decreasing trend from 11.0% to 9.9% over seven years. In singleton pregnancies, there is a downward trend of PTB (10% to 8.9%, p<0.001). This is due to a reduction in SPTB. Similar statistical significance is observed in the late PTB group (8.2% to 7.1%, p<0.001). These results are possibly contributed by the introduction of Preterm Birth clinic under One STORK (One Stop Obstetric High Risk) Centre. An increased trend is observed in the iatrogenic delivery of extreme preterm group (0.1% to 0.3%, p<0.001). This is likely secondary to the increased in number of intrauterine deaths. Multiple pregnancies are associated with higher risk of SPTB. A U-shaped trend is observed in the PTB rate over seven years. In 2020, the PTB rate was lowest at 50.5%, likely due to Covid pandemic and temporary cessation of assisted reproductive therapy. Post-pandemic, the PTB rate was up to 85% in 2022.

Conclusion: There is a reduction in PTB rate following the initiation of STORK PTB clinic. Patients with PTB history should be referred for individualized care as PTB is the leading cause of perinatal morbidity and mortality, and a burden on healthcare costs.

Reduce Unnecessary Inpatient Fetal Viability Scans for Obstetric Inpatients

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Introduction: Fetal viability scan (FVS) is an ultrasound examination performed to look for fetal cardiac activity. It is routinely performed bedside for pregnant patients presenting to the Urgent O&G Centre. Often, pregnant patients requiring admission undergo another FVS at the Antenatal Monitoring Clinic (AMC) whilst inpatient. The additional FVS has no value-add to their care and is unnecessary.

Methodology: Root causes for ordering and performing unnecessary FVS were identified following a focus group discussion and prioritized using a pareto chart. Plan-Do-Study-Act (PDSA) cycle 1 implemented email broadcasts, text reminders and visual cue prompts in inpatient medical officers' rooms and computer-on-wheels (COWs). PDSA cycle 2 encompassed the formalisation of a workflow to empower ward nurses as gatekeepers before sending patients for FVS. This was first piloted in ward 44 before rolling out to all O&G wards.

Results: The median percentage of unnecessary FVS reduced from 13% to 5% ($p=0.0481$) following PDSA cycle 1 (November 2021 to May 2022). It further reduced to 0% ($p<0.001$) during the pilot of PDSA cycle 2 (December 2023). This result was sustained when implemented across all O&G wards ($p<0.001$) (February 2024). The median number of unnecessary FVS reduced from six to zero per month translating to cost savings for patients at \$8,640 and time savings for healthcare providers at 62.4 hours per annum.

Conclusion: A formal workflow that empowered nurses as gatekeepers was effective in reducing unnecessary FVS scans. This could potentially be applied to other unwarranted investigations performed in O&G.

Respiratory Outcome in a 32-Week Gestation Baby with Severe Oligohydramnios from Previa Prolonged Rupture of Membranes at 16 Weeks of Pregnancy

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Introduction: Mid-trimester preterm premature rupture of membranes (PPROM) is a complication of pregnancy associated with significant maternal and fetal risks. The ensuing prolonged oligohydramnios can lead to pulmonary hypoplasia, resulting in a stormy immediate neonatal period. Additionally, there is an increased risk of late miscarriage, preterm birth, and chorioamnionitis, contributing to maternal and neonatal septic morbidity.

Methodology: This case report describes the management and outcomes of an infant delivered at 32 weeks after the mother had ruptured membranes at 16 weeks gestation with resulting severe oligohydramnios, which persisted for 4 months.

Results: On day 1 of life, the infant had severe respiratory compromise, requiring high-frequency oscillatory ventilation and nitric oxide. Despite the initial poor prognosis, the infant remained stable with the intervention of various invasive and non-invasive ventilation modalities managed by a multidisciplinary team. He was discharged home after 108 days of intensive care stay. He required non-invasive ventilatory support till 8 months of age, monitored by the home care team.

Conclusion: The exceptionally good respiratory outcome of this case is a rarity for cases in similar clinical circumstances, where the managing team would counsel parents about poor fetal outcomes, and many would proceed to terminate the pregnancies. In this reported case, we highlight the importance of multidisciplinary and interprofessional team management from antepartum monitoring and planning delivery time to subsequent short and long-term postnatal care involving fetal medicine specialists, neonatologists, pediatric cardiologists, respiratory medicine specialists, and home care teams.

Severe Hospitalized Paediatric COVID-19 During Omicron Variant Period

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Introduction: This study aims to review the clinical features of severe COVID-19 infections in children admitted to the high-dependency (HD) and intensive care unit (ICU) in KK Women's and Children's Hospital during the Omicron variant period.

Methodology: Demographic and clinical data from children aged ≤18 years hospitalized for severe COVID-19 infection between 4 February 2022 and 7 January 2024 were extracted. Age-group ≤5years was compared with >5years.

Results: A total of 122 were found of which the first 44 children were evaluated: 56.8% male, mean age 8.7±5.2 years and 34% were ≤5 years old. Prior comorbidity was found in 65.9%. Pneumonia was the most common diagnosis (27.3%), followed by viremic shock (13.6%). Co-infections occurred in 25% of patients. Oxygen therapy was required in 61.4% of patients. Reasons for escalation of care were: ventilatory support (52.3%), inotropic/fluid use (22.7%) and neurological monitoring (11.4%). One patient had multisystem inflammatory syndrome in children (MIS-C), requiring steroids and intravenous immunoglobulin. Remdesivir was administered in 45.5% and antibiotics administered in 63.6% of patients. Comparing age-groups ≤5years versus >5years, the younger age-group had more co-infections (46.7% vs 13.8%, p=0.028, OR 5.46, 95% confidence interval [CI] 1.27-23.81) and more seizures (40% vs 6.9%, p=0.013, OR 9.0, 95%CI 1.53-52.80). No deaths were found in this partial cohort.

Conclusion: This study demonstrates the clinical profile of COVID-19 paediatric patients with severe disease requiring HD or ICU admission during the Omicron variant period. Majority required oxygen/assisted ventilation, and a significant proportion received COVID-19 therapeutics.



Outcomes of Mirabegron for Treatment of Overactive Bladder in Women with Hypertension

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Introduction: Mirabegron, an established treatment for overactive bladder (OAB), is contraindicated in patients with uncontrolled hypertension. Inevitably, there is concern amongst clinicians and patients regarding its use in well-controlled hypertension. In this study, we investigate the efficacy of mirabegron in well-controlled hypertension and adverse effects associated with mirabegron in this population.

Methodology: This retrospective study included women with well-controlled hypertension who used mirabegron for treatment of OAB between 1st of August 2017 to 31st July 2019. Medical notes were reviewed from the time of initiation of Mirabegron up to 12-months post-treatment.

Results: Forty-six patients with OAB and hypertension were included. Most (n=38,73.6%) patients experienced improvement in OAB symptoms after mirabegron. Median urinary frequency improved from 1.5 hours to 2 hours following mirabegron treatment. Half of the patients stopped experiencing nocturia 1 month after starting mirabegron. Most patients experienced improvement in symptoms of urge (76.2%) and urge incontinence (86.4%). Most patients (n=36,78.2%) of these patients did not experience any side effects at all while a small percentage of the patients (n=4,8.7%) experienced anticholinergic side effects. Three patients (6.5%) experienced increase in blood pressure after mirabegron. Despite symptom improvements, only 29.4% were cured.

Conclusion: Mirabegron is efficacious in improving OAB symptoms. It is a safe and well-tolerated drug for patients with hypertension which may need to be continued long-term for symptom control. Home blood pressure monitoring may aid earlier detection of worsening control in the small proportion in whom mirabegron is not suitable.

Optimising Chlamydia Trachomatis Management: An Audit in A Tertiary Women's Hospital

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Introduction: Chlamydia trachomatis is the most prevalent sexually transmitted infection (STI) worldwide, and in Singapore. Untreated chlamydia has clinically significant gynaecological and reproductive implications. Therefore, upon diagnosis, prompt treatment should be initiated. KK Women's and Children's Hospital (KKH) is the largest maternity hospital in Singapore. This study aims to audit the performance of management of genital *C. trachomatis* in our Institution against the 2015 UK National Guidelines. We aim to improve the management of women with *C. trachomatis*.

Methodology: We assessed the percentage of cases offered a recommended treatment, patients offered screening for other STIs and patients who had contact tracing. A retrospective analysis was performed on all patients diagnosed with *C. trachomatis* in 2021.

Results: Two hundred and nine cases met the inclusion criteria. The median age was 21 with 52% of cases within the 19 to 25-year-old age group. Fifty-six percent were pregnant. Majority (61%) were asymptomatic. Among those with symptoms, abdominal pain was the most common complaint (73%). All patients received a suitable treatment within a mean of 8.7 days from diagnosis. Eighty-seven percent received Azithromycin while 12% received Doxycycline. Ninety-one percent were referred to the STI clinic. Among those who attended the STI clinic, 98% were offered screening for other STIs and all were offered contact tracing.

Conclusion: Our institution meets the recommended standard. As most patients in our institution may be pregnant, Azithromycin remains the first-line treatment option instead of Doxycycline. Referral guidelines to the STI clinic should be streamlined to ensure all patients are promptly referred.

Retrospective Analysis of the Prevalence of Human Papilloma Virus Cases During Routine Cervical Screening as Part of the Revised Cervical Screen Singapore: In A Primary Care Setting at Woodlands Polyclinic from 2021 To 2023

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Introduction: Cervical cancer is highly preventable by screening and treating the precancerous stages. Persistent High risk human papilloma virus (HR HPV) may lead on to precancerous stages and cancer. This is the tenth most common cause of cancer in females. In Southeast Asia including Singapore, 3% of females in the population have human papilloma virus (HPV) infection at a given time. 70.4% of invasive cervical cancers were attributed to HPV. The aim is to study the prevalence of Human Papilloma Virus cases during routine cervical screening in a primary care setting at Woodlands Polyclinic from 2021 to 2023.

Methodology: As per the revised cervical screening guidelines 2019, cytology testing is done from 25 – 29 years and HPV testing is done from 30-69 years of age. Data is collected from the clinic team and National Healthcare Group information team. The prevalence is calculated with the number of HPV cases from among all the screening cases for the month.

Results: The proportion of HPV cases in 2021, 2022 and 2023 was consistently above 4%. The annual proportion of HPV cases in 2021 was 5.26%, in 2022 was 5.78% and in 2023 was 4.81%.

Conclusion: The proportion of cases may be much higher than predicted as during the covid 19 pandemic years (2020 -2023), the screening resources in primary care may be diversified and prioritized. HPV testing is highly sensitive and increasing the screening levels, awareness and early treatment combined with HPV vaccination will decrease the incidence rate of cervical cancer in Singapore.

Two Years Outcome of Patients with Anterior Vaginal Wall Prolapse After Abdominal Paravaginal Repair

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Introduction: Pelvic organ prolapse is a common condition and the lifetime risk for surgical intervention is 12.6% by age 80. In patients with advanced anterior vaginal wall prolapse, a transvaginal anterior repair with synthetic mesh was previously performed. However, due to the complications surrounding mesh, an abdominal paravaginal cystocele repair was offered in our center from May to December 2019.

Methodology: Thirty-one women who underwent abdominal paravaginal repair were followed up for two years. The subjective cure rate was the number of patients not complaining of a recurrent lump at introitus. The objective cure rate was the presence of cystocele less than or equal to Baden-Walker Grade 1 during follow-up. Patient satisfaction post-procedure was also evaluated.

Results: Overall patient satisfaction was excellent, with almost all patients being satisfied at 2 years post-surgery. The subjective cure rate was 93.5%, 88.9%, 70.0% and 64.3% at one-month, six-month, one and two years post-operation. The objective cure rate was 90.3% in the first month, 63.0% at six-month and maintained at 40% thereafter. These results are comparable with international data, though recurrence rates were fairly high. Majority of recurrence presented with Grade 2 cystocele and four (12.9%) needed second surgery.

Conclusion: Patient satisfaction remained high despite falling subjective and objective cure rates over two years. This could be due to general improvement perceived by patients compared to their pre-surgery dissatisfaction. This information will be beneficial for both clinicians and patients to make shared decisions about surgical management of advanced anterior vaginal wall prolapse.

Compassionate CARE for Young Mothers: Exploring the Impact of a Specialised Multidisciplinary Antenatal Clinic on Adolescent Pregnancy Support and Empowerment

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Introduction: Our study delves into the intricate needs and concerns of adolescent pregnant mothers aged 21 years and under, and investigates the role of KKH Clinic for the Adolescent Pregnant (CARE) in addressing them. By evaluating the effectiveness of existing interventions and identifying potential gaps, we aim to enhance clinical care for the abovementioned population.

Methodology: Post-clinic visit, participants filled in an anonymous questionnaire. We gathered a total of 52 distinct responses which included demographic details and information about medical, social and emotional issues. Responses took the form of binary choices, ranked preferences, and open-ended replies.

Results: Our results showed that patients' foremost concerns are financial issues, complications during pregnancy/childbirth, and lack of confidence in parenting. Majority commend CARE clinic for providing exceptional emotional support, medical care, and compassionate, friendly staff. Significantly, 98% of participants express willingness to recommend CARE clinic to others facing similar circumstances. Identified areas for improvement include provision of financial advice and more counselling for partners and families. While CARE clinic is heavily subsidised, the main obstacles hindering attendance remain centred on financial limitations and time constraints.

Conclusion: Conclusively, while CARE clinic excels in medical care and fostering a safe, welcoming environment, there exists untapped potential for growth, particularly in addressing financial concerns and providing greater flexibility. Tailoring services to incorporate more family/partner sessions may also help enhance care. Ultimately, these valuable insights position the clinic to better confront evolving challenges and actively respond to the dynamic circumstances of our young mothers.

A Community Approach to Screen and Support for Obesity and Dental Caries in Singapore's Preschools: A Collaborative Pilot Initiative by Mission I'mPossible2

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Introduction: In Singapore, dental caries affects 40% of preschool children. Untreated caries can affect a child's nutrition, growth, development of adult dentition and quality of life. Overweight prevalence of school-going children 7-18 years old has increased from 13% to 16% from 2017 to 2021. This is especially concerning because children who are overweight in childhood often remain so as adults, with many complications such as cardiovascular disease, hypertension and diabetes. Therefore, early detection and intervention for these preventable diseases is critical. A community-based pilot, 'Mission I'mPossible2' (MIP2), was designed to enhance dental health and reduce the prevalence of obesity in preschool children, through a pro-active collaboration between preschools and tertiary healthcare institutions.

Methodology: MIP2 aims to integrate a preventive healthcare approach within preschool settings through routine dental and growth surveillance by educators and community nurses. Complemented with health promotion and educational activities, MIP2 focuses on preventive care and early intervention.

Results: In 2023, 199 and 56 children were identified for dental and growth needs, with a rate of 84% and 48% for nurse-led intervention support, respectively. Concurrently, 73 children were also referred for specialist care. Sixty-one parents provided positive feedback, highlighting the benefits of the integrated healthcare approach in an educational environment.

Conclusion: MIP2 pilots a scalable model that can be replicated in pre-school settings, emphasizing the importance of an integrated healthcare approach for a comprehensive educational environment. This initiative promotes early preventive care in shaping healthier futures for young children in Singapore.

Implantation of Spinal Cord Stimulator for Traumatic Spinal Cord Injury: Report of Two Paediatric Patients

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Introduction: Spinal cord injury (SCI) results in significant loss of function with little advances in cure. Latest systematic reviews showed that electrical spinal cord stimulation (SCS) for chronic SCI is a safe and effective treatment when combined with intensive physical rehabilitation. We aimed to evaluate the use of SCS in improving the functional ability of paediatric patients with SCI.

Methodology: We included patients who were traumatic SCI > six months post-injury, nil active infection or untreated mental health disorder. Pre-trial and post-trial assessments included WeeFIM, Chop-Intend, Walking Index for SCI II, Truncal Assessment Scale for SCI, ASIA scoring, Modified Tardieu Scale, Modified Ashworth Scale, Neurogenic Bladder Symptom Score, Neurogenic Bowel Dysfunction Score, Urodynamics assessment, EQ5D-Y and EMG. SCS was implanted in two patients. Patient A was a four-year-old female with ASIA A SCI at level C4, with SCS implanted six months post-injury at T11-T12. Patient B was a 14-year-old female with ASIA A SCI at level T4, with SCS implanted 11 months post-injury at T11-T12. They received three weeks of intensive rehabilitation.

Results: Patient A demonstrated improvements in her spasticity over her C4-5 muscle groups (MAS 1 to 0), power from 2/5 to 3/5 over her shoulder flexion/abduction and CHOP-INTEND scores (22 to 30). Patient B has improvement in knee extension strength from 0/5 to 3/5 and her transfers. She experienced cellulitis six months post implantation which was treated.

Conclusion: SCS is relatively novel treatment for SCI. This case report suggests that SCS may be a beneficial intervention for paediatric patients with complete SCI.

Functional Outcomes in Patients with Severe Acquired Brain Injury Post Rehabilitation: The KK Women's and Children's Hospital Experience

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Introduction: Acquired brain injury (ABI) comprises both traumatic brain injury (TBI) and non-traumatic brain injury (non-TBI). Functional outcomes depend on factors including type of injury, severity, age and psychosocial factors. This study aims to evaluate the functional outcomes of children with severe ABI enrolled into a structured Neurorehabilitation programme.

Methodology: We conducted a retrospective cohort study on children up to 18 years old with ABI enrolled into the Neurorehabilitation programme between January 2020 and April 2023. Functional outcomes using Functional Independence Measure for Children (WeeFIM) and European Quality of Life 5 Dimension-Youth (EQ-5D-Y) scores were collected at enrolment to rehabilitation, discharge and every six months for a period of one year.

Results: Out of 87 patients, 65 (75%) were males with median age of 8.4 (3.3-14.4) years. 12 had TBI (13%). Median WeeFIM for all improved with time from 18 (18-38.5) at enrolment to 51 (21-76.2) at discharge, 59 (21-109) at six months and 95 (35.7-117.2) at 12 months. The median cognitive subscores plateaued from six months. Median WeeFIM of non-TBI patients showed a larger improvement [18 (18-45) at enrolment to 53 (22-78) at discharge] compared to TBI patients [18 (18-18) at enrolment to 29.5 (18.7-56.7) at discharge]. Mean EQ-5D-Y index was 73.3±13.3 at enrolment and improved to 77.7±13.4 and 77.8±18.3 at six months and 12 months respectively.

Conclusion: Patients with severe ABI who underwent a structured Neurorehabilitation programme were observed to have continued improvement in functional outcomes over 12 months post diagnosis.

Mycoplasma Pneumoniae Pneumonia in Admitted Children Requiring Referrals to Infectious Diseases

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Introduction: *Mycoplasma pneumoniae* pneumonia (MP) is a frequent cause of pneumonia in children. Our audit's aim was to analyze MP referrals to paediatric Infectious Diseases (ID) at KK Women's and Children's Hospital.

Methodology: Data from inpatient ID referrals (including phone consults) for confirmed MP cases by PCR or serology was extracted from January 2023-April 2024. SPSS 29.0 was used for statistical analysis; p value < 0.05 was considered statistically significant.

Results: Sixty-eight were analyzed: 50% male, mean age 8.2±3.4 years. Co-infections occurred in 35.3%: 75% viral, 20.8% bacterial, 4.2% mixed bacterial-viral. Mean CRP, LDH were: 55.9±52.1 mg/l, 557.7±498.4 U/l respectively. Pleural effusions occurred in 45.6%; only 2.9% required chest drainage. Only 4(5.9%) required admission to ICU/High Dependency. Targeted MP antibiotics before ID referrals were clarithromycin (91.2%) and azithromycin (8.8%). Post-ID referral, management changes included: Change antibiotic (35.3%), steroids added (17.6%), antibiotic change+steroids added (33.8%), no change (13.2%). Patients administered steroids were more likely to have high CRP (71.7±56.3 vs 39.3±42.0 mg/l, p=0.009) and high LDH (693.2±620.8 vs 381.9±147.9, p=0.013). LDH ≥350 U/l was associated with steroid usage (OR 59.5, 95% confidence interval 7.2-491.4). Mean duration of fever was reduced post-ID referral 0.9±1.1 days compared to 3.8±1.6 days from admission to ID referral (p<0.001) and before admission 6.7±2.5 days (p<0.001). There were no differences in fever duration post-ID referral between patients administered steroid vs change in antibiotics.

Conclusion: *Mycoplasma pneumoniae* referred to ID service had a marked reduction in fever duration and steroid administration was more likely in patients with high CRP and high LDH.

Concurrent Sepsis Defined by Phoenix Sepsis Score is Associated with Worse Outcomes in Children with Severe Pneumonia: A Post-Hoc Multicentre Analysis

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Introduction: A new definition for pediatric sepsis, Phoenix Sepsis Score (PSS) has been proposed. We aim to evaluate the concurrent sepsis, defined by PSS and associated clinical outcomes in pediatric severe pneumonia.

Methodology: This study was a post-hoc analysis of Severe Pneumonia in Children study, a multicentre observational study. We defined sepsis on day of pediatric intensive care unit (PICU) admission by PSS ≥ 2 and categorised patients into sepsis and non-sepsis groups. Primary outcome was the PICU mortality. Secondary outcomes were duration of mechanical ventilation (MV) and length of stay (LOS) in PICU. Multivariable logistic regression analysis was used to analysis whether concurrent sepsis was a risk factor for PICU mortality.

Results: A total of 519 patients were included. Median age was 1.00 (interquartile range: 0.33-3.25) years, with 209 (40%) female patients. There were 249 (48%) and 270 (52%) patients in the sepsis and non-sepsis groups, respectively. Among the 249 patients with sepsis, 168 (67.5%) had septic shock. PICU mortality was higher in sepsis than the non-sepsis group (50/249, 20.1% vs. 4/270, 1.5%, $p < 0.01$). The AU-ROC of PSS in predicting PICU mortality was 0.80 (95% confidence interval: 0.76-0.83). After adjusting for PIM-3 scores, concurrent sepsis was associated with increased PICU mortality (adjusted odds ratio: 16.42, 95% confidence interval: 5.81-46.4, $p < 0.001$).

Conclusion: Among severe pneumonia children, concurrent sepsis is associated with worse clinical outcomes. Future studies should consider combining PSS with pediatric pneumonia scores to derive novel risk scores in pediatric severe pneumonia.

SuperDADs: A Needs Analysis for Supporting Aspiring Fathers

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Introduction: Fatherhood is a transformative journey which often is accompanied by unique challenges and insufficient support. The objective of this study is to identify factors that affect the needs of Muslim men who are expecting a child with their partner. By understanding these needs, this would seek to empower fathers, fostering a more balanced and fulfilling fatherhood journey.

Methodology: A questionnaire is conducted to obtain data regarding socio-economic background, knowledge and mental preparedness via Edinburgh Postnatal Depression Scale i.e. EPDS before delivery. Participants were identified from clinic visits prospectively from gestational age ≥ 24 weeks.

Results: Thirty-eight participants have been recruited at the prenatal stage. All participants were expecting a singleton pregnancy. Mean body mass index (BMI) of patients from 21-30, 31-40 and 41-50 age groups were 25.8, 28.3 and 25.3 respectively. Data was analyzed utilizing R statistical software and Spearman's rank correlation analysis. Fathers with more avenues to learn about fatherhood had statistically significant better EPDS (Spearman's $r = -0.4098942$, $p\text{-value} = 0.01175$). A negative correlation between BMI and EPDS was found (Spearman's $r = -0.3129317$, $p\text{-value} = 0.06719$). Fathers mentioned financial matters and mental health as concerns during qualitative survey. There is insufficient evidence to show correlation between age, household income, perception of preparedness, marital coping or household relationships with EPDS ($p\text{-value} = 0.8591, 0.7179, 0.7539, 0.2453, 0.4555$ respectively).

Conclusion: Fathers with more educational opportunities tend to have better EPDS prenatally. Postnatal data will allow comparison of EPDS before and after delivery. We hope that this needs analysis will establish key factors to support fatherhood.

Comparison of Newer Definitions of Bronchopulmonary Dysplasia with Current Definition to Determine the Best Definition to Predict Neurodevelopmental Impairment and Respiratory Morbidities in the First 2 Years of Life in Extremely Low Birth Weight Infants

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Introduction: Bronchopulmonary dysplasia (BPD) is associated with significant morbidity and mortality. The current 2001 National Institute of Child Health and Human Development (NICHD) definition has some limitations in classifying infants on high flow nasal cannula. Recent studies to redefine BPD have based its predictive ability on neurodevelopment impairment (NDI) and respiratory morbidities at 2 years of life. The aim of this study is to compare discriminative performances of 2019 Jensen and 2018 NICHD definitions with the 2001 NICHD consensus definition in outcome predictions.

Methodology: Single-centre retrospective cohort study of extremely low birth weight infants born in 2017-2020. Discriminative performance was assessed for outcomes by measuring the areas under the receiver operating characteristic curve (AUROC)

Results: Mean weight was 818 ± 132 g and mean gestational age was 26.4 ± 1.98 weeks for the 237 infants in the study cohort. Significant shifts in BPD grading were observed with 40% having severe BPD (2001 NICHD) as compared to 11% (2018 NICHD, $p < 0.001$) and 4.6% (Jensen, $p < 0.001$) definitions. All 3 definitions showed equally good discriminating power for predicting respiratory morbidity (AUROC 0.783, 0.770 and 0.772 respectively) while they were equally low in predicting NDI (AUROC 0.555, 0.583 and 0.551 respectively).

Conclusion: The 3 definitions were comparable in their predictive capability. However, none of the definitions showed a significant advantage over one another in discriminative performance. Hence the 2001 NICHD definition is not inferior to the 2018 NICHD and 2019 Jensen definitions and can be continued as the standard of practice.

Early Experience of A New Combined Urogynaecology and Colorectal Surgery Pelvic Floor Clinic

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Introduction: The combined pelvic floor clinic (CPFC) was initiated in KK Women's and Children Hospital providing joint care by Urogynaecology and Colorectal. This study aims to characterise patients seen at CPFC through identifying symptom clusters patterns. Other goals include reviewing management strategies compared to international standards.

Methodology: This is a single-centre, retrospective cohort study of medical case record review for all patients seen at CPFC between 1 September 2020 and 17 January 2024, Data was deidentified and analysed with Institutional Review Board approval.

Results: One hundred and forty-six patients were included in this study, mostly post-menopausal women (n=85, 58.2%), seen over 49 clinics, commonly referred by Urogynaecology (n=104, 71.2%) and 71.9% have ≥1 reason for referral (n=105). The most common presenting complaint is faecal/ flatus incontinence (n=83, 56.8%). 79.5% (n=116) were diagnosed with combined colorectal and urogynaecological conditions. The most common urogynaecological condition diagnosed is pelvic organ prolapse (n=47, 39.0%). 32.1% (n=47) were discharged after the first visit, 42.5% (n=67) attended ≥ 1 follow-up. Conservative management included biofeedback (n=42, 28.8%), physiotherapy (n=79, 54.1%), counselling (n=6, 4.1%), lifestyle (n=81, 55.5%), medications (n=65, 44.5%) and pessary (n=20, 20.1%). Surgical management included 46 offered surgeries (31.5%) – with 37.5% combined surgeries (n=6) performed.

Conclusion: CPFC is beneficial in reducing multiple visits, surgical interventions and recovery time. We advocate more studies to be performed to evaluate long-term outcomes.

A Retrospective Analysis of Risk Factors Affecting Obstetric Anal Sphincter Injuries (OASIS) Rates in Singleton Vaginal Births

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Introduction: The RCOG has reported OASIS rates of 6.1% in primiparous and 1.7% in multiparous women. Our aim is to investigate OASIS rates in Singaporean women and further define other possible associated characteristics in this population.

Methodology: This retrospective study assessed data of 7740 singleton vaginal births, out of 11628 total births, with the exclusion of multiple pregnancies and deliveries via caesarean section over the year 2021. The data analysis was further characterised in relation to potential maternal and fetal risk factors.

Results: One hundred and thirty-one out of 7740 women following singleton vaginal births sustained OASIS. This accounts for an overall incidence rate of 1.76%, with 2.94% in primiparous compared to 0.74% in multiparous women. Logistic regression performed revealed a statistically significant difference for primiparity with odds ratio (OR) 2.35; assisted deliveries with OR 2.47; and episiotomy performed with OR 2.45; in association with OASIS. Subgroup analysis for interaction of OASIS between episiotomy and parity showed a significant correlation in OASIS rates for multiparous women but a statistically insignificant difference for primiparous women who had an episiotomy.

Conclusion: As OASIS could impact physical and psychological maternal health, it is crucial for rates to be reduced. Hence, it is important to recognise modifiable factors such as whether to perform an episiotomy. Although episiotomy is often thought to be done as an intervention to reduce OASIS risks, findings from this study suggest episiotomy should not be routinely performed in multiparous women and should only be done selectively at the discretion of the operator to reduce risk of OASIS.

Using Data Analytics to Unveil Intraventricular Hemorrhage Risk Factors in the NICU

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Introduction: Intraventricular hemorrhage (IVH) is a major complication of prematurity and can lead to poor short- and long-term outcomes. Although ideal, it is often difficult to monitor the real-time trends of care indicators in the neonatal intensive care that is associated with occurrence of clinical morbidities, including IVH. We propose to utilise data analytics tools and develop data pipelines to enable real-time visualisation of clinical trends of clinical care quality.

Methodology: To enable real-time monitoring of clinical drivers of IVH, we focused on the intricate relationship between three variables that are associated with its occurrence — hypercarbia / hypocarbia, hypothermia, and the extensive usage of inotropes (dopamine, dobutamine, adrenaline, noradrenaline, vasopressin, hydrocortisone). We created a data visualisation tool using real-time clinical data from the current hospital data infrastructure.

Results: This workflow was created in close consultation with the IVH Workgroup from the Department of Neonatology. We extracted relevant data (Jan-Dec 2023) from infants born <1500gm and admitted to KKH NICU. Data was extracted from the eHInTs (Electronic Health Intelligence System) and verified with data from the electronic medical records system. Data was subsequently pre-processed, normalized and analyzed. Transformed data on Microsoft Excel was then imported to Tableau for the creation of an interactive dashboard. This pipeline creates a channel that flows from eHInTs to Excel and Tableau that can be replicated at regular intervals.

Conclusion: This data analytics workflow highlights the ability of leveraging on data informatics tools to generate relevant, timely data that can inform patient care and quality improvement initiatives in the NICU.

Specialized Hyperplasia Clinic: Personalized Care and Clinical Outcomes in Endometrial Hyperplasia

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Introduction: Since July 2021, KK Women's and Children's Hospital established a dedicated hyperplasia clinic (HPC) to provide individualized care for endometrial hyperplasia patients. A clinical audit assessed treatment choices and clinical outcomes.

Methodology: Women diagnosed with endometrial hyperplasia at HPC received comprehensive care, including holistic counselling on treatment options and early referrals to specialists.

Results: From July 2021 to December 2022, 177 women were reviewed, median age 40 years (range 22-67). Of these, 36 had atypical hyperplasia and 141 had non-atypical hyperplasia. Non-atypical hyperplasia: Most patients (87/141, 62%) chose oral progestin. Nine patients underwent surgery, with one diagnosed with stage 1A adult granulosa tumor post-operatively. Atypical hyperplasia: 17 patients participated in a study with medical treatment. Outside the study, oral progestin was most common (11/19, 58%). Patients on LNG-IUS regressed in 4.09 months on average, compared to 5.82 months for oral progestin. Two patients on oral progestin underwent surgery; one had stage 1A grade 1 endometrial cancer, and the other was diagnosed with atypical hyperplasia post operatively. One patient on LNG-IUS had a biopsy indicating possible neoplasia. Three chose surgery initially, with one diagnosed with stage 1A grade 1 endometrial cancer post-operatively, with known history of colon cancer. Fertility outcomes: in non-atypical hyperplasia, two IVF referrals with one live birth; two conceived spontaneously with one live birth. In atypical hyperplasia, two conceived spontaneously, with one live birth.

Conclusion: A subspecialized HPC provides continuity of care and tailored treatment options, benefiting patients based on their reproductive needs.

Singapore Housing Index and Prevalence of Serious Bacterial Infections Among Febrile Infants

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Introduction: Following national initiatives to improve maternal/child health, the sociodemographic characteristics of febrile infants at risk of serious bacterial infections (SBIs) have not been investigated. This study aims to examine the relationship between Singapore Housing Index (SHI) and presence of SBIs, along with SBI outcomes, among young febrile infants.

Methodology: A secondary analysis was conducted on infants \leq three months old who presented to a paediatric Emergency Department with temperature $\geq 38^\circ\text{C}$ between December 2017 and 2021. SHI was categorized into low, medium and high groups. The primary outcome was presence of SBIs. Secondary outcomes included the need for resuscitation/inotropes/High Dependency/Intensive Care Unit/ventilator/emergent antibiotics. We performed multivariable logistic regression to study if SHI was independently associated with SBIs and SBI outcomes.

Results: Among 1001 infants, the median age was 32 days (Interquartile Range 10-60), with 224 infants (22.4%) diagnosed with SBIs. The SBI rates between low, medium, and high SHI groups were 16.5%, 21.6%, and 27.1% respectively ($p=0.07$). Adjusted for age, male sex, delayed presentation, and initial temperature, high SHI was associated with higher odds of SBI compared to low SHI (adjusted Odds Ratio 2.143, 95% CI 1.158-4.136, $p=0.02$). No significant association was found between SHI and severe outcomes.

Conclusion: Following national initiatives in Singapore, young infants from low SHI were not at greater risk for SBIs. Additionally, there was no association between SHI and severe outcomes. These findings suggest that sociodemographic factors as measured by SHI may not impact the risk of SBIs in febrile infants.

Comparison of Gender Risk Profiles of Adolescents Who Present to the Emergency Department with Self-Harm and Suicide Attempts

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Introduction: The current adolescent mental health crisis poses grave implications for population health and human potential. This study aims to examine the gender risk profiles in a cohort of adolescents who self-harm or attempt suicide.

Methodology: Medical records of patients aged 10 to 19 who presented to the Emergency Department for suicidal or self-harm attempts in the year 2021 were reviewed. Risk characteristics of male and female patients were compared.

Results: Two hundred and twenty-one unique patients with a mean age of 14 years old, attended the ED 260 times for suicidal or self-harm attempts. 85.5% were females. Majority had intentional drug overdose (70.8%). 19.5% had prior healthcare visits for medically unexplained symptoms, and 15.4% had healthcare visits for common mild illnesses in the 1 year prior. Stress-related and emotional coping difficulties (52.9%), together with mood and anxiety difficulties (53.8%), were the most prevalent mental health issues. A higher proportion of males had suicidal intent (46.5% vs 33.3%) and attempted to jump from a height (18.8% vs 5.8%). More males had neurodevelopmental disorders and conduct disorders (21.9% vs 6.3%), while more girls had eating disorders (18.0% vs 3.1%). Peer relationship issues were frequent stressors in girls, and a higher proportion had past histories of self-harm or suicide attempts.

Conclusion: Adolescents presenting with medically unexplained symptoms and mild medical illnesses should be screened for psychosocial distress. Prevention strategies to build psychological resilience should apply to both genders. Boys with developmental or conduct disorders require more targeted interventions.

Automated Pain Detection via Facial Expression for Adult Patients Using Artificial Intelligence

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Introduction: Self-reported pain scores are often used for pain assessments and require effective communication. Observer-based assessments are resource-intensive and require training. We developed an automated system to assess the pain intensity in adult patients via changes in facial expression.

Methodology: The patients' facial expressions were videotaped from a frontal view using a customized mobile application. The collected videos were trimmed into multiple 1-second of video clips and categorized into three levels of pain: no pain, mild pain, or significant pain. A total of 468 facial key points were extracted from each video frame. A customized Spatial Temporal Attention Long Short-Term Memory (STA-LSTM) deep learning network was trained and validated using the keypoints to detect pain level through analyzing facial expressions in both spatial and temporal domains.

Results: Two hundred patients were recruited, with 2,008 videos collected and clipped into 10,274 1-second clips. Among these clips, a total of 8,219 (80%) balanced and normalized data were randomly chosen for STA-LSTM training, while the remaining 2,055 (20%) data were set aside for validation. By differentiating the polychromatic levels of pain (no pain versus mild pain versus significant pain requiring clinical intervention), we reported optimal performance of STA-LSTM model, with the accuracy, sensitivity, recall, and F1-score being 0.9217, 0.9215, 0.9215, and 0.9215 respectively.

Conclusion: Our proposed solution has the potential to facilitate objective pain assessment in inpatient and outpatient healthcare settings and allow healthcare professionals and caregivers to perform pain assessment with accessible infrastructure.

Parent- and Teacher-Rated Impairments in Executive Function Predicts Abnormal Total and Hyperactive Behaviors in Preschoolers by Strengths and Difficulties Questionnaire

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Introduction: Executive Function (EF) impairments might be associated with behavioral concerns in preschoolers. The Strengths and Difficulties Questionnaire (SDQ) is used to screen for behavioral difficulties and the Behavior Rating Inventory of Executive Function - Preschool version (BRIEF-P) to assess EF. This study hypothesized that EF difficulties predict abnormal SDQ Total Difficulty (TD) and Hyperactivity scores.

Methodology: Retrospective analyses were conducted on 72 preschoolers, aged four to six. All children had BRIEF-P ratings, and parent and/or teacher-reported SDQ (SDQ-P/T). Problem scores on BRIEF-P were defined as T-scores >64. Logistic regression analyses controlling for demographics and Developmental-Profile-4 Cognition and Communication scores were conducted to identify the individual and composite EF subscales which predict abnormal TD and Hyperactivity scores.

Results: Abnormal SDQ-P TD scores were predicted by BRIEF-P Parent problem scores on Inhibit ($p=.002$), Inhibitory-Self-Control Index (ISCI) ($p<.001$) and Global-Executive-Composite (GEC) ($p<.001$). In contrast, abnormal SDQ-P Hyperactivity scores were additionally predicted by problem scores on Emotional Control ($p=.018$), Shift ($p=.003$) and Working Memory (WM) ($p=.022$). Similarly, BRIEF-P Teacher problem ratings on Inhibit ($p=.006$), Shift ($p=.036$), ISCI ($p=.002$) and GEC ($p=.007$) predicted abnormal SDQ-T TD scores. However, abnormal SDQ-T Hyperactivity scores were predicted by WM ($p=.005$) and Emergent-Metacognition-Index (EMI) ($p=.001$) together with Inhibit ($p=.002$), ISCI ($p=.010$), and GEC ($p=.016$).

Conclusion: Executive dysfunction as reported by parents and teachers in Inhibit, ISCI and GEC scales were consistently associated with Hyperactivity and overall behavioral difficulties. Thus, addressing these specific deficits in intervention strategies might be helpful in mitigating behavioral concerns.

Association Between Temperament, Night-Sleep Trajectories and Social-Emotional Competency in Early Childhood: A Prospective Study

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Introduction: Sleep concerns in early childhood are associated with poorer cognitive outcomes. However, the association between child's temperament, sleep, and social-emotional competency (SE) has not been studied.

Methodology: Prospectively collected data from GUSTO study was used. SE was assessed at 24 months by parent-reported Ages & Stages Questionnaires: Social-Emotional (ASQ:SE). Previously defined and published night-sleep trajectories from 3 to 24 months (Cai et al., 2023), and the Revised Infant Temperament Questionnaire (RITQ) from Carey's Temperament Scale at 9 months were assessed for their relationship to SE at 24 months, individually and in a combined multivariable regression analysis after controlling for child's gender and birth weight, and maternal ethnicity and education.

Results: Both night-sleep trajectories and RITQ were significantly associated with ASQ:SE (n = 318). As compared to short variable night-sleep trajectory, moderate and long consistent sleep trajectories were associated with better ASQ:SE (p < 0.01). In RITQ, better adaptability and higher rhythmicity were significantly associated with a better ASQ:SE at 24 months (p < 0.01 respectively). Similarly, in the combined multivariable regression analysis, better adaptability, higher rhythmicity scores in RITQ and consistent night-sleep trajectories were significantly associated with better ASQ:SE (p = 0.02, 0.01 and 0.04 respectively).

Conclusion: Consistent night-sleep trajectories and better adaptability and higher rhythmicity scores are associated with higher SE at 24 months in children. Therefore, advocating consistent sleep schedules in infancy, irrespective of child's temperament, might promote optimal SE. Further studies examining the effect of earlier temperament on sleep might help to clarify this effect.

Leveraging Data Analytics for Prevention of Neonatal Infections in the NICU

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Introduction: Despite advances in neonatal intensive care, sepsis remains a significant cause of morbidity and mortality among very-low-birthweight (VLBW) infants. Monitoring trends in predictors of quality care for this morbidity remains important yet challenging due to clinical workload and laborious data extraction processes. This lack of visibility hinders the ability to identify and respond to changes in clinical patterns and data trends.

Methodology: The creation of a real-time visualisation aid to monitor changing trends in clinical predictors of quality care. This multi-step process involves input from specialist clinicians, mapping of electronic health records data, extraction of data, processing of data and subsequent development of a dashboard.

Results: The data-driven approach involved collaboration with the Sepsis workgroup from the Department of Neonatology. After determining key drivers leading to neonatal sepsis in VLBW infants, clinical data from the Electronic Medical Record (EMR) system was mapped to the Electronic Health Intelligence System (eHIntS), and extracted. This data was exported into Microsoft Excel for preprocessing, verification and analysis and then imported into Tableau for visualisation. A monthly data pipeline was established to ensure timely data visualisation, resulting in a dynamic and interactive dashboard with easy navigation through infection rates, antibiotic utilisation rates, and line utilisation.

Conclusion: The potential offered by data analytics is profound, equipping clinicians with essential tools to drive continuous quality improvement initiatives. This integration of data pipeline, from extraction to preprocessing and dashboard visualization, provided a panoramic view of key metrics and important insights which help clinical decision-making to improve care.

Resilience and Emotions of Frontline Obstetrics and Gynaecology Healthcare Workers During the COVID-19 Pandemic

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Introduction: Singapore was one of the earliest countries affected by the novel coronavirus disease-2019 (COVID-19) outbreak. On 7 February 2020, Singapore Ministry of Health stepped up its alert level from yellow to orange, signifying that the disease is severe and spreads easily from person-to-person, although the disease is being contained.

Methodology: This was a cross-sectional retrospective descriptive study involving doctors and nurses who were on isolation duty from 7 February 2020 to 30 April 2020. The brief resilience scale (BRS) and additional survey questions were used to evaluate resilience.

Results: A total of 50 doctors and 51 nurses worked in the isolation team during the study period. The response rate was 96.0%. Most respondents had normal resilience (76.3%). There was no statistically significant difference in the mean resilience scores by age ($p=0.700$) and years of experience ($p=0.918$). Doctors and male HCWs had significantly higher BRS than nurses and female HCWs. Out of 97 respondents, 27% reported positive attitudes when informed of their assigned isolation duties but 81% expressed negative emotions. The most common responses of "What makes you happy during isolation duties?" showed that supportive team members with good teamwork made the isolation duties of HCWs more enjoyable.

Conclusion: In conclusion, the main stressor stems from concerns over personal and family safety, while positive attitudes at work, and healthy and supportive work environments are key factors keeping the HCWs happy and productive. Understanding these helps us implement measures to reduce stress and promote positivity and good working relationships among HCWs.

Experience of Solyx™ Single-Incision Sling System in a Urogynaecology Centre in Singapore

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Introduction: Stress urinary incontinence (SUI) is estimated to affect between 4-35% of women worldwide and can greatly impact a woman's quality of life. Solyx™ is a Single Incision Sling (SIS) System which aims to treat female SUI in a minimally invasive and efficient way with potentially lesser complications.

Methodology: This study describes our two-year experience with the Solyx™ SIS. We retrospectively analysed the data of 26 women who underwent surgery with Solyx™ SIS by a single surgeon from November 2017 to December 2019. The pre-operative parameters, intra-operative details, and follow-up data were collected.

Results: The average age of patients was 60.2 years old with a mean parity of 2.5. The average surgery duration was 113.5 minutes with an average blood loss of 214.6 ml. There were no significant intra-operative complications related specifically to insertion of Solyx™ SIS. Twenty-three patients (88.5%) required an indwelling catheter (IDC) for a mean duration of 4.2 days. Two patients (7.7%) had persistent voiding difficulties and required readmission. All patients attended their 1- and 6-month follow-up appointments while 25 patients (96.2%) attended their 12- and 24-month appointments. Subjective cure rate was noted in 96.0%, 96.2%, 100.0% and 100.0% of patients at 1, 6, 12 and 24 months respectively. The objective cure rate is 86.4%.

Conclusion: The short to medium term cure rates and peri-operative complications for Solyx™ SIS were comparable to other mid-urethral sling surgeries in existing literature. This study showed the procedure to be largely of good efficacy and safety profile.

Impact of Healthcare Provider Support on Breastfeeding Decisions in A Local Tertiary Hospital

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Introduction: The World Health Organization recommends exclusive breastfeeding for 6 months. However, the National Breastfeeding Survey 2021 shows that local exclusive breastfeeding rate at 6 months is extremely low at 3.3%. The support of healthcare providers can impact a mother's decision to initiate and continue breastfeeding. We aimed to explore the impact of healthcare providers on breastfeeding practices among Singaporean mothers.

Methodology: A survey was conducted at KK Women's and Children's Hospital outpatient clinics from 4 to 22 March 2024. Mothers aged above 18 years with children younger than 12 months were asked about reasons for choosing to breastfeed and sources of support through their breastfeeding journey.

Results: There were 408 respondents. Majority (80.9%) had discussions on breastfeeding with healthcare professionals antenatally, with 66.4% of exclusively-breastfeeding mothers citing medical advice as a key reason for their decision to breastfeed. Approximately half the breastfeeding mothers felt they benefited from the assistance of doctors, nurses and lactation consultants to sustain breastfeeding after the initial postpartum period. However, 51.2% of respondents shifted to formula feeding due to advice from medical and nursing staff.

Conclusion: The survey results highlight the positive and negative influences that healthcare professionals have on a mother's approach to breastfeeding. The ability of doctors, nurses and lactation consultants to provide consistent, evidence-based information from pregnancy to the postpartum period is crucial for breastfeeding success. Standardised clinical pathways, with emphasis on early referral to lactation services and easy to follow algorithms to minimise formula supplementation, may help improve local breastfeeding rates.

The Diagnostic Dilemma in Ovarian Ectopic Pregnancy

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Introduction: Ovarian ectopic pregnancy (OEP) diagnosis is typically challenging because of its rarity and similar sonographic appearance to bleeding corpus luteum cyst, hemorrhagic cyst, and tubal ectopic pregnancy. Incidence of OEP is reported to be 0.5%-1% of all ectopic pregnancies (EP).

Methodology: A 32-year-old female, G3P2 7+1weeks amenorrheic, presented with lower abdominal pain for a day. Her BHCG level was 43392IU/L and transvaginal ultrasound (TVUS) showed bilateral ovarian cysts and a right adnexal mass which was separate from the right ovary. Intraoperatively, there was 450mls of hemoperitoneum, a 3cm left functional cyst and a 5cm right ruptured OEP with active bleeding.

Results: TVUS is the first-line imaging for EP due to its convenience and low cost. Yet, sonographic identification of OEP is often difficult because it can mimic appearance of ovarian cysts and blood clot. Unlike Spielberg's diagnostic criteria which are observed intraoperatively, there is no established TVUS diagnostic criteria for OEP. The proposed ultrasonographic diagnostic criteria for OEP are thick-walled, echogenic rings with internal anechoic area within the ovary, presence of ovarian cortex, and an increased ring echogenicity as compared to ovarian stroma. In cases of inconclusive assessment, consider interval scan, or consult another radiologist for second opinion. In OEP management, laparoscopy is the gold standard. Adequate counselling is important when discussing surgery, especially in cases where pre-operative imaging is not confidently diagnostic.

Conclusion: OEP diagnosis remains a challenge till this date. Multivariable predictive models can be developed to assist in pre-operative OEP diagnosis.

A Longitudinal Study of Psychological Distress and Changes in Body Mass Index in Adolescents with Overweight / Obesity in Singapore

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Introduction: Childhood obesity is rising globally, including in Singapore, with many physical and psychosocial health consequences. The primary aim of the study is to investigate the change in body mass index (BMI) over three to 15 months amongst adolescents with overweight/obesity presenting with or without psychological distress. The secondary aim is to determine predictors of change in BMI.

Methodology: Adolescents (11 to 17 years) were recruited from KK Women's and Children's Hospital (KKH) Weight Management Clinic from June 2022 to January 2024. Upon recruitment, participants completed the Young Person's Clinical Outcomes in Routine Evaluation (YP-CORE) questionnaire as a measure of psychological distress. Significant psychological distress was indicated by scores above age- and gender-based cut-offs. Demographic and anthropometric data were collected at recruitment and three to 15 months later. BMI was analysed as a percentage of the 95th percentile BMI (%95th BMI), calculated using age- and gender-specific Centers for Disease Control and Prevention (CDC) growth charts. Data was analysed using SPSS version 29.0.

Results: A total of 86 participants were analysed. Of the participants, 44%(n=38) had psychological distress. There was less improvement in BMI in adolescents with psychological distress, compared to those without psychological distress (-1.7 ± 7.2 vs -5.2 ± 8.4 , $p=0.045$). Female gender ($\beta=4.24$, $p=0.016$) and lower household monthly income ($\beta=4.70$, $p=0.022$) were significant predictors of less improvement in BMI.

Conclusion: Adolescents with overweight/obesity with psychological distress experienced less improvement in BMI compared to those without psychological distress. The study findings lend evidence to support potential early psychological interventions.

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Assessing Signal Loss and Accuracy of The Novel Ambulatory Fetal Electrocardiography with Computerized Cardiotocography in the Antepartum and Intrapartum Stages

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Introduction: Electronic fetal heart rate (FHR) monitoring is vital in the antepartum and intrapartum periods to detect fetal compromise and reduce neonatal morbidity and mortality. Traditional wired cardiotocography (CTG) limits mobility, birthing positions, and faces challenges in obese women and maternal heart rate detection. Wireless non-invasive fetal electrocardiography (NIFECG) offers flexibility and improves prenatal care access but has limitations like signal interference and limited accuracy data. This study examines NIFECG signal loss, compare FHR accuracy between NIFECG and CTG, evaluates UC accuracy of NIFECG, and review clinician-patient acceptability.

Methodology: This prospective cohort study was conducted from April 2021 to June 2022 at KK Women's and Children's Hospital. Women aged ≥ 21 with singleton pregnancies ≥ 37 weeks gestation were included. Participants underwent 40 minutes of concurrent CTG and NIFECG. Signal loss was calculated in 3.75 second epochs. FHR accuracy was assessed using Bland-Altman and Passing-Bablok Regression analyses. UC was evaluated using a four-fold contingency table. Acceptability was measured with a questionnaire.

Results: One hundred and twenty-four paired traces were collected, with 73/124 (58.9%) meeting the International Federation of Gynaecology and Obstetrics signal loss criteria. 21/32 (65.6%) were accepted in the intrapartum subgroup. Bland-Altman (bias: -0.4, limits-of-agreement: [-9.0, 8.1]) and Passing-Bablok (slope = 0.97, 95%CI: 0.97-0.98) showed high agreement between NIFECG and CTG. Using CTG as the gold standard for UC monitoring, NIFECG showed a specificity of 0.96 (95%CI: 0.94-0.97) and sensitivity of 0.90 (95%CI: 0.89-0.92). 90.1% of participants preferred NIFECG.

Conclusion: NIFECG could be a viable alternative as it showed high accuracy and acceptance.

A Retrospective Review of the Medical Management of Ectopic Pregnancy and Pregnancy of Unknown Location with Methotrexate at a Tertiary Centre in Singapore

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Introduction: An ectopic pregnancy (EP) can be a life-threatening condition which can be managed either surgically, medically, or expectantly. Medical management has grown in popularity and several studies have reported good success. A retrospective review of the medical management of EP and pregnancy of unknown location (PUL) was conducted in KK Women's and Children's Hospital (KKH).

Methodology: A one-year retrospective study involving 135 women with EP or PUL who received MTX was studied. Demographical data, types of EP, pattern of clinical presentation, treatment progress, serum beta-hCG levels, and the outcomes were analysed.

Results: The overall success rate of MTX treatment in our study was 77%. The success rate of MTX treatment was related to the initial beta-hCG level, with a treatment success as high as 88% in women with initial beta-hCG level less than 1500 IU/L ($p < 0.0001$) and this reduced significantly with rising beta-hCG level. Of note, there were no successful outcomes for the patients with a beta-hCG level of more than 5000 IU/L in our study.

Conclusion: The overall success rate for MTX treatment in our study was comparable to the studies reported in literature. The success rate was dependent on the initial serum beta-hCG level and not on the presenting symptoms, the size of the adnexal mass, or the presence of free fluid on ultrasound scan. Therefore, systemic MTX treatment for EP and PUL in a carefully selected group of women is a safe alternative to surgery

Effect of Development Support Program in Addressing Needs of Preschoolers Presenting with Language Concerns

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Introduction: Development support program (DSP), a community program, involves early identification and short-term focused intervention for preschoolers with mild developmental needs. In this study we aimed to investigate the outcomes of a sub-population of preschoolers with language concerns enrolled in DSP in 2019 who received speech and language therapy (SLT).

Methodology: Retrospective analysis on 48 Kindergarten-1 (K1) children recruited in DSP and who received DSP-SLT was conducted. The developmental outcome of DSP graduates at end of K2 was examined and any ongoing needs were identified.

Results: The mean age of children was 57.8 ±3.6 months and majority were males (60.4%). Two-thirds of children had 2 or more diagnoses (32/48, 67%) with developmental academic delay being the most common secondary diagnosis (17/48, 35%). Improvement after first package of SLT was noted in majority children (46/48, 96%). However, 85% of the children (41/48) were identified to have ongoing needs requiring a second package of SLT. At the end of K2 year, persistent concerns were noted in 25/48 (52%) children, and 14/48 (29%) were referred for additional therapy such as language (5/14), education (5/14), or multiple therapies (4/14).

Conclusion: Improvement in language skills with DSP-SLT was observed in majority of K1 children. However, concerns in academic ability and/or language skills were still present in 50% of the children at the end of K2 and about 30% of them required additional therapy. Therefore, extending the support for such children in primary school might be helpful to mitigate long-term effects.

Development and Validation of an Evaluation Questionnaire for the Healthy Early Life Moments in Singapore (HELMS) Program

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Introduction: Global fertility rates are declining due to metabolic and mental health challenges in women trying to conceive. The Healthy Early Life Moments in Singapore (HELMS) Program, initiated by KK Women's and Children's Hospital, addresses these challenges through mobile health (mHealth)-enabled lifestyle interventions. However, the lack of validated evaluation tools for such programs hinders assessing their feasibility and acceptability.

Methodology: We aim to develop and validate a comprehensive evaluation questionnaire to determine if the HELMS preconception program's implementation outcomes were achieved. Questionnaire development was informed by a literature review and a two-step validation process: content validation by five content experts and face validation by 20 HELMS participants. Content validation was assessed using the scale content validity index (S-CVI), based on the criteria of relevance, clarity, simplicity, and ambiguity. Face validation with participants was performed based on these criteria, and ease of completing the questionnaire. Internal consistency was assessed using Cronbach's alpha among 11 participants.

Results: For content validation, the questionnaire achieved good S-CVI values of 0.93, 0.91, 0.94 and 0.71 for relevance, clarity, simplicity, and ambiguity, respectively. The questionnaire was modified after feedback from content experts. The revised version was presented to HELMS participants, scoring highly for relevance (100%), clarity (95%), simplicity (95%) and non-ambiguity (90%). 95% of participants did not encounter any problems. A Cronbach's alpha of 0.94 demonstrated good internal consistency.

Conclusion: The HELMS evaluation questionnaire has demonstrated acceptable content validity, face validity, and internal consistency, with great potential to be adopted for the systematic evaluation of similar mHealth-based lifestyle intervention programs globally.

Clinical Factors Associated with Abnormal Chest X-Rays in Febrile Paediatric Patients Presenting with Respiratory Symptoms at Children's Emergency

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Introduction: Children with respiratory symptom is the leading cause of presentation to the Children's Emergency (CE) Department at KKH. The aim of this study is to identify variables associated with abnormal chest X-Rays (CXR) in febrile patients with respiratory symptoms, and to optimize the workflow of diagnostic and treatment process in CE.

Methodology: This was a retrospective study of febrile paediatric patients with CXR done for respiratory symptoms seen at CE of KKH from January to December 2016. The study was approved by Institution Review Board. The patients were divided into 2 groups for fever duration 1 week or longer: (1) normal CXR and (2) CXR may need or requiring further action as reported by radiologist. Variables captured include patient demographics, vital signs, duration of fever, respiratory symptoms, triage class and final disposition.

Results: There were 30413 CXRs done at CE of KKH in 2016, with 22835 (75%) patients presenting with respiratory symptoms. Out of these patients, 16458 (72%) had fever, 2415 (10.6%) had fever 1 week or longer, in which 1422 (58.9%) CXR might need or required further action. Average age and gender distribution were similar in both groups. The logistic regression results showed younger female, distress in respiration and lower SpO₂ were significantly associated with abnormal CXR.

Conclusion: There is potential to improve the workflow for CXRs at Children's Emergency by optimizing the guidelines for ordering CXRs.

Evaluation of Unplanned Reattendances to the Pediatric Emergency Department – A Five-Year Study

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Introduction: Unplanned reattendances (UR) are an important quality indicator in the emergency department (ED). We aimed to compare patient characteristics between children who attended a pediatric ED with and without UR. We also aimed to study the association between healthcare delivery factors such as timing of the attendance, patient load, changeover months for rotating junior doctors, supervision presence, UR rate.

Methodology: We performed a retrospective, single-center cohort study of patients <18 years old who visited the ED between January 2018 and March 2023. UR was defined as a revisit within 72 hours of the index ED visit. We collected data on demographics, attendance data and clinical characteristics. Logistic regression was performed for factors independently associated with UR, after adjusting for age, patient acuity, timing of attendance, presence of senior doctor supervision, rotation months for junior doctors, and diagnostic category.

Results: Out of the 544711 eligible children, 24734 (4.5%) reattended the ED within 72 hours, of which 10915 (44.1%) of them were hospitalized on their reattendance visit. The independent factors associated with UR were young age (age < 3 years old: aOR 1.829 95%CI 1.71-1.958, p<0.001), high acuity P2+ (aOR 1.345 95%CI 1.303-1.389, p<0.001), attendance in the evening (aOR 1.068 95%CI 1.038-1.098, p<0.001) and night (aOR 1.411 95%CI 1.358-1.465, p<0.001), gastrointestinal diagnosis (aOR 1.826, CI1.757-1.898; p<0.001) and respiratory diagnosis (aOR 1.334, CI 1.296-1.374, p<0.001).

Conclusion: We identified independent risk factors for UR that could guide resource allocation. Future studies should investigate if targeted interventions may reduce UR in these at-risk populations.

Effectiveness of Enhanced Enteral Nutrition on the Clinical Outcomes of Critically Ill Children: A Systematic Review and Meta-Analysis

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Introduction: Standard enteral nutrition (SEN) is commonly used to provide basic nutrition for critically ill children. Non-immune and immune enhanced enteral nutrition (EEN) are available and may be more beneficial for this population. There is a lack of summative studies to reflect effectiveness of and conclude whether EEN should be part of SEN provided for this population that are at higher risks of malnutrition and immunocompromisation.

Methodology: Systematic search within seven bibliologic databases and the grey literature was performed for randomised controlled trials comparing EEN against SEN or placebo among critically ill children on duration of ventilation, hospital length of stay (LOS) and in the intensive care unit (ICU), mortality, nitrogen balance and incidence of sepsis. Meta-analysis was performed, and heterogeneity was assessed using Chi² and I² statistics. Z-statistic and GRADE were used to assess overall effects and certainty of evidence.

Results: Twenty-four studies involving 4301 critically ill children were identified and majority had low risk bias. Meta-analysis of 23 studies revealed overall non-immune and immune EEN did not significantly improve any clinical outcomes. However, subgroup analysis revealed energy-EEN significantly shortened hospital LOS (Z=1.96, P=0.05) and ICU LOS (Z=2.72, P=0.007), omega-3-EEN significantly shorten ICU LOS (Z=2.98, P=0.03), and nitrogen balance was significantly improved using mixed immune-EEN (Z=2.21, P=0.03). Certainty of evidence was very low.

Conclusion: Overall, EEN is not effective in improving clinical outcomes of critically ill children. Given moderate to substantial heterogeneity, results must be interpreted with discretion. EEN should not be recommended as nutritional therapy compared to SEN.



Safety of Short-Term Peripheral Inotrope Infusion in Critically Ill Children

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Introduction: In critically ill children, peripheral inotropes offer a less invasive treatment option compared to central venous access. This study evaluates the safety profile of inotropes given via peripheral intravenous route.

Methodology: Critically ill children ≥ 3 years old requiring inotropes for < 36 hours were included. Data on vasoactive medication types, duration, and extravasation events were collected.

Results: Between June 2023 and March 2024, 19 pediatric patients were supported with peripheral inotropes. Median age was 11 [interquartile range (IQR): 8.5 -13] years. Administration was conducted through intravenous cannulas sized between 21 to 24 gauge. Of these, 14 (74%) were admitted via the emergency department. All these patients were started on noradrenaline. One (5%) patient presented with hypovolemic shock and 11 (58%) with septic shock. 5 (26%) patients subsequently required central venous line insertion within 36 hours of admission to the pediatric intensive care unit. 14 (74%) were successfully managed on peripheral inotropes without the need of central venous access. There were no incidents of extravasation. Median vasoactive score and duration of inotropic support was 10 (IQR: 5- 10) and 480 (IQR: 190-615) minutes, respectively. Median PICU stay was 2 (IQR: 1-3) days. There was no mortality.

Conclusion: Short-term peripheral inotropes are potentially safe in pediatric shock, reducing the need for invasive procedures and mitigating associated risks

Spontaneous Rupture of Leiomyosarcoma

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Introduction: Aware about rare Uterine sarcomas and complication of spontaneous rupture.

Methodology: A 42-year-old woman, para 2 was admitted to our hospital for constant abdominal distension and abdominal pain, slight fever and shortness of breath. Her menstrual flow had become heavier and more painful in recent years. She was found to have a twenty-week pelvic mass that was tender, with a distended abdomen. She was diagnosed with ruptured leiomyosarcoma with extensive pulmonary embolism with low oxygen level. The Rapid Multidisciplinary Care of Patients with Pulmonary Embolism team recommended a palliative and medical approach given the patient's unfavorable prognosis and her advanced oncologic disease. She is a foreign worker and is struggling with financial constraints, which is another obstacle to her treatment.

Results: She was brought back to her home country by air ambulance about one week after admission and needed oxygen on the way there. In her hometown, she received three cycles of chemotherapy (paclitaxel/carboplatin) and a repeat CT scan showed residual lung metastasis. The multidisciplinary team decided to complete six cycles of chemotherapy and scheduled surgery. Both benign and malignant uterine masses, if they are located near the serosa, they may bleed into the abdomen due to rupture of an artery or vein secondary to increased abdominal pressure can. Menstruation and pregnancy, trauma and essential hypertension as the causative factors.

Conclusion: If the patient suffers from pressure symptoms of a giant tumour and massive fluid inside, a surgical treatment option should be considered to prevent this rare complication,



Characteristics and Outcomes of Obstetric Anal Sphincter Injury (OASI) Patients in a Combined Perineal Clinic

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Introduction: Obstetric anal sphincter injuries (OASIs) affect 6% of nulliparous and 2% of parous women, with Asian race being a recognised risk factor. In 2022, Singapore's largest maternity hospital established a perineal clinic with a urogynecologist and pelvic floor physiotherapist to provide comprehensive care for post-OASI patients. This study aims to characterise patients seen at the new perineal clinic and determine short to medium term outcomes of women following OASI.

Methodology: This retrospective study analyses data from 62 patients seen at the clinic between January 2022 and December 2023.

Results: Patient characteristics included age, ethnicity (Asian:N=62,100%), parity (multiparity:N=16,25.8%), BMI (BMI ≥30kg/m²:N=9,14.5%), and smoking status (N=2,3.3%). Obstetric factors comprised mode of delivery at the time of OASI (instrumental delivery: N=22,35.4%), fetal birth weight (macrosomia ≥4kg:N=1,1.6%), and gestational age with a median (interquartile range) of 39(2) weeks. The most common grade of OASI was 3A (N=30,48.4%), followed by 3B (N=16,25.8%), 3C (N=9,14.5%), and 4 (N=6,9.7%). Common symptoms 3-6 months postnatally included urinary incontinence (N=34,54.8%), flatus and fecal incontinence (N=11,17.7% each), perineal pain (N=6,9.7%), and sexual dysfunction (N=19,30.6%). Pelvic floor physiotherapy (PFPT) adherence increased by 59.7% post-clinic attendance. Most (82.3%) patients were discharged after the initial visit, while 17.7% received referrals to other specialists. Notably, 5 women with previous OASIs successfully delivered vaginally without further injury.

Conclusion: This study underscores the value of a multidisciplinary perineal clinic in addressing short to medium-term post-OASI symptoms. Improved PFPT adherence and successful vaginal deliveries post-counseling highlight the clinic's efficacy. These findings contribute to better understanding and management of OASI-related morbidity.

Skin Prick Test Wheal Sizes, Food-Specific IgE Levels with Component Testing As Predictors of Food Challenge Outcomes

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Introduction: The diagnosis of immediate-type food allergy is made by a history consistent with an IgE-mediated reaction, coupled with evidence of sensitization in either a skin prick test (SPT), or food-specific IgE (slgE). An oral food challenge (OFC) remains the gold standard for confirming a diagnosis. The diagnostic accuracies of SPT and slgE vary between different foods and patient populations tested. We aimed to examine the diagnostic performance of SPT and slgE tests in children who had undergone an open OFC; and seek to determine decision thresholds with 95% positive predictive value (PPV).

Methodology: A five-year retrospective review was performed on all open OFCs conducted in children ≤18 years old, to peanut, egg, cow's milk, wheat, between 2018 to 2022, in KKH. SPT and slgE results performed within six months of OFC, were being analyzed.

Results: A total of 740 OFCs were conducted for peanut(n=304), cooked hen's egg(n=263), cow's milk(n=99) and wheat(n=74). A positive SPT (≥3mm) yielded generally high sensitivity/NPV but low specificity/PPV for peanut, egg and cow's milk. The threshold with 95% PPV was achieved for SPT at a cut-off of 12.5mm(peanut), 11.0mm(egg) and 6.0mm(wheat). Decision thresholds were achieved for Ara h 2-slgE at 2.95kUA/L and for ω-5 gliadin-slgE at 2.25kUA/L. Test with the largest AUC for peanut was Ara h 2-slgE (0.77); for egg was SPT (0.81); for wheat ω-5 gliadin-slgE (0.64).

Conclusion: Findings of this study can inform clinical practice in the care of children with food allergy, allowing for better risk stratification in OFCs.



Improving Miscarriage Patient's Experience in Urgent O&G Centre

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Introduction: Urgent Obstetrics and Gynaecology Centre (UOGC) handles around 120 miscarriage patients monthly, who face significant physical and emotional challenges. Feedback highlighted issues like a lack of compassionate care, poor empathetic communication, inconsistent management guidelines, and an inadequate environment for mourning. This feedback emphasized the need for better support and care for these vulnerable patients.

Methodology: A miscarriage workgroup of doctors, nurses, and the Outpatient Patient's Experience team identified key areas for improvement: empathetic communication, standardized miscarriage management protocols, and a conducive bereavement environment. They developed strategies including revising hospitalization leave policies, distributing miscarriage information pamphlets, providing a quiet room for bereavement, and conducting communication workshops using the 5Es framework. Simulation sessions and case study discussions emphasized empathetic care and communication for miscarriage patients, focusing on handling grief and pregnancy loss.

Results: Statistical t-tests were conducted to compare the six indicators of patient's feedback namely, patient recommendation rate, confidence and trust, awareness of medical information, attentive listening, patient involvement in care decisions, and consistency in providing information and care. Statistical analysis indicated significant improvements (p-value <0.05) in all six indicators after the various implementations.

Conclusion: The multidisciplinary workgroup's initiatives led to significant improvements in patient satisfaction by standardizing workflows, enhancing healthcare worker's empathetic care and communication with the miscarriage patients. Patients were well-supported in their journey of grief. Continuous monitoring and patient feedback are essential to sustain these improvements and ensure high-quality care and support for miscarriage patients.

The Disclosure Experiences of Childhood Sexual Abuse by Male Survivors in Childhood: A Qualitative Systematic Review

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Introduction: The disclosure of childhood sexual abuse is a complex and multifaceted process that is understood to be more difficult for men due to prevailing social and gender norms. Victims often delay their disclosure until they reach adulthood where their childhood trauma has compounded, consequently negatively impacting their mental well-being. While studies with a central focus on adult male survivors of childhood sexual abuse are increasing, systematic reviews that cover this topic are limited.

Methodology: Five databases were searched. Published and unpublished literature were included in the search. Studies were screened by title and abstract by two independent reviewers against a set of inclusion criteria and for methodological quality using the Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research. Qualitative data was extracted through a standard data extraction form and meta-synthesis was performed.

Results: A total of 726 articles were retrieved. 14 articles were included in this review, involving 413 adult men from a range of ethnicities. Six overarching themes detail different aspects of the disclosure experience: (1) fear concerning repercussions of disclosure, (2) self-denial or distortion of reality, (3) necessity for conducive environment for disclosure, (4) sociocultural barriers to disclosure, (5) positive and (6) negative outcomes of disclosures.

Conclusion: This review provides insights into the disclosure experiences adult male survivors of child sexual abuse. The findings provide recommendations for directions in clinical practice and future research.

Single-Center Outcomes of Selective Fetal Growth Restriction in Monochorionic Twins

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Introduction: The aim is to audit the outcomes of cases of selective fetal growth restriction (sFGR) in MC twins managed at KK Women's and Children's Hospital.

Methodology: We performed a retrospective review of sFGR MC Twin cases from our FMC database. sFGR was defined as an estimated fetal weight below the 3rd centile in one twin and the case was classified Type I to III based on Umbilical Artery Doppler flow pattern in the smaller twin at the presentation.

Results: During this period 271 women enrolled with MC twin gestations and 62 were recognized with sFGR. (Type 1=50, Type 2= 2, Type 3=10). The majority 80.6%(50/62) were early-onset (<24weeks).Eleven cases of MC twins were with an anomalous fetus (Type 1=8, Type 3=3).Two mothers had pregnancy-induced hypertension. All cases were followed by a fortnightly growth scan and a weekly Doppler assessment. Median gestational age at delivery was 34.3 weeks, 29.3weeks, and 33.4weeks in Type1, Type2, and Type 3 respectively. Three cases with Type 3 sFGR underwent selective termination (Bipolar cord coagulation=1; Radiofrequency ablation=2) and rest were managed expectantly. Both cases of Type 2 miscarried. Liveborn rates were 97.2% in Type 1, 58.3% in Type 3.

Conclusion: Type 1 sFGR is characterized by good perinatal outcomes when managed expectantly, which represents the most reasonable management strategy for most affected cases. Prenatal management of Type 2 and Type 3 sFGR should be individualized according to gestational age at diagnosis, the severity of growth discordance, and the magnitude of Doppler anomalies.

Machine Learning Approaches to Predict Postoperative Pain After Spinal Morphine Administration in Caesarean Delivery

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Introduction: One of the significant barriers of optimal Caesarean pain management is the lack of clinically relevant strategy to early identify women at greater risk of significant pain. Machine learning methods used in developing predictive models for postoperative pain may not be generalizable in Caesarean settings. We compared the predictive performance of six modelling technique in predicting the primary outcome of significant pain (maximum postoperative pain score on movement ≥ 3 at 13th to 24th hour after the administration of spinal morphine after Caesarean delivery.

Methodology: The study cohort comprised 6,561 patients with an incidence of significant postoperative pain of 7.9%. A total of 120 clinical variables was extracted from the medical records, with 23 further selected to enhance the algorithm accuracy. We randomly selected 80% of patients (n=5,248) as training cohort followed by validation (n=1,313).

Results: Ridge regression demonstrated the best performance with both full (AUC: 0.649) and selected (0.719) feature sets. By reducing the number of features, four modelling techniques (Ridge regression, LASSO, Elastic net, XGBoost) were similar in AUC (0.704–0.719), sensitivity (0.644–0.695), specificity (0.644–0.705), PPV (0.155–0.179), NPV (0.949–0.955) in predicting significant postoperative pain. These were attributed to the top three variables, mainly the last recorded postoperative pain score (on movement) before prediction point, mean and standard deviation of each hour's maximum postoperative pain score (at rest) at 0th to 12th hour.

Conclusion: Future work will focus on prospective validation and integration into risk stratification practices for clinical practice.

Transvaginal Natural Orifice Transluminal Endoscopic Surgery for Gynaecological Conditions: Initial Singapore Experience

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Introduction: Transvaginal route for natural orifice transluminal endoscopic surgery (vNOTES) is a novel minimally invasive surgical approach where surgeons access the pelvic cavity through the vagina using minimally invasive surgical instruments to perform gynecological surgeries.

Methodology: All women who underwent vNOTES in our tertiary centre between April 2021 and May 2024 were included in this retrospective analysis. Patient and perioperative data was extracted and analysed.

Results: Two hundred and fifteen patients underwent vNOTES in the study period, out of which 187 patients underwent hysterectomy, 28 underwent adnexal surgery, 2 had concomitant cystectomy and 3 patients underwent high uterosacral ligament suspension. The mean operative time was 98.5 (± 38.1) minutes with a mean estimated blood loss of 156.9 (± 182.3) ml. The mean length of stay was 1.6 (± 1.0) days. Average pain score on post operative day 1 (POD1) was 1.77 ± 1.63 based on visual analogue scale. Two intra-operative conversion to laparoscopic surgery was needed, one due to difficulty to enter Pouch of Douglas and one due to concerns of pelvic hematoma. Three patients had post-operative vault hematoma with one needing interventional radiology drainage and two were managed conservatively.

Conclusion: Without the need for an abdominal incision and shorter operating times, patients experience less postoperative pain and quicker recovery. Our initial experience with vNOTES is similar to those findings published in tertiary care settings worldwide. vNOTES represent a safe alternative to conventional surgery and should be considered for suitable patients.

Extensive Myomectomy OF 196 Fibroids for Diffuse Uterine Leiomyomatosis

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Introduction: Diffuse uterine leiomyomatosis is a rare condition where the uterus is diffusely enlarged and studded with innumerable confluent myomatous nodules. Women with diffuse uterine leiomyomatosis may suffer from menorrhagia, infertility and a large pelvic mass.

Methodology: A case study of a thirty-three-year-old nulliparous married woman who presented with an enlarging abdominal mass and menorrhagia complicated by severe anaemia. Her haemoglobin was 4.7g/DL at the time of presentation. Examination revealed a 20-week size bulky uterus. Ultrasonography showed a uterus that was 18 x 11 x 9cm in size, with multiple fibroids involving the entire myometrium and endometrial cavity. The largest fibroid was 8.8 x 8.5 x 5.5cm. The ovaries were unremarkable.

Results: In view of her age, the patient chose the fertility sparing option of an open myomectomy. Intraoperatively, the uterus was found to be studded with multiple myomatous nodules throughout the entire myometrium. The endometrial cavity was carpeted with nodules. An extensive myomectomy was performed with a longitudinal incision of the uterine corpus, during which 196 fibroids were removed. The uterus was then reconstructed carefully in multiple layers. Anti-adhesion barriers were placed over the uterus as well as the endometrial cavity to prevent adhesions after the surgery.

Conclusion: Diffuse uterine leiomyomatosis is a rare condition that can be challenging to treat in a woman desiring fertility. Management options including an extensive myomectomy versus hysterectomy and possible surrogacy should be discussed.

A Systematic Review on The Psychosocial Impact of Paediatric Chronic Intestinal Failure on Children and Their Families

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Introduction: Children with Chronic Intestinal Failure (CIF) are usually dependent on Total Parenteral Nutrition (TPN) – a life-saving intravenous therapy administered at home, allowing the child to grow and survive. These children and their families face psychosocial and practical challenges. Medical Social Workers in the hospital play an important role by addressing the psychosocial aspects of illness. Our current understanding of this topic is limited to practice wisdom. This review aims to describe what is known about the psychosocial impact of CIF on children and their families.

Methodology: We conducted a systematic review of literature published up until February 2022. Three databases, CINAHL, PsycINFO and PubMed, were searched. Systematic data extraction was performed and a narrative approach to data synthesis was conducted. Papers were included if they described original research published in a peer-review journal and focused on children with CIF and their family.

Results: Sixteen papers with 473 patients across five countries were included. Common findings include caregivers' emotional difficulties due to the intensive treatment demands and unpredictable nature of illness. Children and families' participation in social activities were limited as they are homebound. Caregivers expressed the need for respite but experience difficulties receiving it. Recent studies report that family's close involvement in child's care increases family functioning.

Conclusion: As studies in Asia are limited, further research is necessary to determine if there are any contextual differences influencing the psychosocial impact. An elaboration of the findings and implications to practice will be presented in the poster.

Evaluation of a Peer Support Training Programme for Healthcare Workers in An Acute Hospital in Singapore

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Introduction: The 'Mutual Care II' – a peer support training conducted by the Medical Social Work Department, KK Women's and Children's Hospital (KKH) – aims to train healthcare professionals to provide peer support to enhance workplace mental health resilience. A total of 97 learners participated in the programme which was delivered six times over two years. An evaluation was undertaken to measure if the training has met learners' needs and to discover if they have been able to apply the skills learnt.

Methodology: Two anonymous online surveys were used at different time points to gather the required data. The first evaluation, administered immediately after the training ended, measured learners' learning experience. The second evaluation, administered between 3 to 12 months post-trainings, measured learners' perception of their ability in applying the skills learnt. Descriptive and thematic analyses were performed.

Results: In the first evaluation, learners reported a high sense of content relevance, satisfaction, and engagement throughout the training ($n=85$). Experiential and interactive learning strategies employed were key. In the second evaluation, learners reported a moderate to very strong on-the job application of key skills learnt ($n=43$). Findings suggest that learners who completed their programme more than a year ago rated themselves lowest in their ability to apply the skills.

Conclusion: It is vital to apply adult learning principles, develop aids and post-training activities to facilitate skills application.

A Call to Action: Examining the Psychological Impact of On-Call Duties on Medical Social Workers in a Hospital Setting in Singapore

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Introduction: The KK Women's and Children's Hospital Medical Social Work (MSW) Department has been offering on-call service, providing after-hours support during crises. A review was conducted in 2023 due to concerns over stress and anxiety experienced by MSWs. From the review, greater flexibility was introduced when scheduling duty rosters. Specifically, it changed from a fixed assigned week to self-selection of duty days according to preset criteria (e.g., 7-days). The aim of this study was to determine whether the new scheduling process reduced MSWs' psychological burden related to on-call duties.

Methodology: Pre- and post-implementation surveys were administered to measure MSWs' psychological well-being. The Mental Well-being Scale (Adapted DASS-21 scale) was used. Both surveys included additional open-ended sections to elicit their views regarding existing and new scheduling process. Descriptive and thematic analyses were performed.

Results: Findings from the pre-implementation survey and adapted DASS-21 suggest that MSWs experienced normal to moderate depressive symptoms, moderate anxiety symptoms and moderate to severe stress symptoms relating to on-call duties ($n=25$). Findings from the post-implementation survey showed an overall decrease to the normal range in the depressive, anxiety and stress symptoms ($n=15$). MSWs attributed it to increased agency and flexibility in scheduling their duties and shorter on-call periods which led to shorter rest disturbances and improved work-personal life balance.

Conclusion: Our findings align with existing research. First, prolonged exposure to crisis situations adversely affects individuals' psychological well-being. Second, empowering MSWs with control to schedule their on-call duty helps in reducing their psychological burden.

Caregivers' Experiences of Caring for Young Children of Incarceration Mothers

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Introduction: Maternal incarceration often results in kinship care arrangements of their children. Family life is profoundly altered for everyone involved. For caregivers, the strain of caring for children in difficult circumstances can drain their internal and external resources. What we know about the challenges of these caregivers comes from anecdotal experience, practice wisdom, and existing literature. Limited studies exist in our local context. This study sought to understand caregivers' experiences in caring for a young child of an incarcerated mother. The goal was to provide space and opportunity to hear the voices, feelings, opinions, and experiences especially when their and the children's lives are affected by policies and procedures that may not be designed with their needs in mind.

Methodology: The study employed a qualitative methodology using semi-structured. Thirteen face-to-face interviews were conducted with five fathers, seven grandparents and one family friend. All interviews were transcribed verbatim and Template Analysis approach was used for data analysis.

Results: Caregivers struggle with unresolved grief regarding mother's pre-prison behaviors and experience relationship strains which compound during the incarceration period. Caregivers also struggled to talk to the children about their mother's whereabouts due to uncertainty over age-appropriateness of disclosure and fear of stigmatization. There is a constant dilemma of wanting the child to remain connected to their incarcerated mothers yet no confidence in their parenting abilities.

Conclusion: Our caregivers appeared to be very resilient and determined to continue with the caregiver's role. There seems to be a strong belief in family preservation.

Role of Youth Connect Associate in Prevention of Youth Mental Health Issues

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Introduction: KK Women's and Children's Hospital (KKH) Children's Emergency (CE) has been seeing a growing number of adolescents presenting with mental health concerns and probable somatisation, such as headache and abdominal pain. Youths with somatic symptom and psychosocial stressors often face challenges related to coping skills, access to resources and support systems. This highlights the crucial need for early intervention. The Youth Connect Programme (3-year pilot) and Youth Connect Associate (YCA) role were developed to meet needs of this population.

Methodology: A review of existing programme data was conducted to review the role of the YCA.

Results: From January to July 2023, 197 youths seeking help for mental health concerns and/or potential somatic symptoms were referred to the YCA. The YCA, provided psychosocial assessment; harnessed relevant self-help multi-media resources for effective psychosocial support and psychoeducation for patient and caregivers; and facilitated close looped right-siting of intervention to school and community resources. Out of the initial 197 referrals, the YCA team successfully facilitated 75 closed-loop referrals to community agencies, while providing invaluable self-help resources to the remaining patients. Over 90% of the youths and more than 89% of the caregivers had reported positive feedback regarding the YCA service. The qualitative feedback from both youths and their caregivers underscores the invaluable benefits of the YCA service particularly in facilitating timely mental health support.

Conclusion: In view of the positive feedback received thus far, there are plans to scale up the YCA service to more clinics in KKH.

Pilot Transition Readiness Programme for Children with Haemophilia

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Introduction: An effective transition from a pediatric to adult hospital brings about positive health outcomes including treatment compliance and increased self-efficacy over one's illness. Transition readiness, key to successful transition, is influenced by factors like patient's self-efficacy and the level of parental involvement in health management. Often, low readiness levels impede effective transition and increase the likelihood of poor health outcomes. The KKH Haematology service attends to 100 hemophilia patients yearly with approximately five patients who meet the age criteria (18 years old) for transition. As part of the multidisciplinary team, medical social workers (MSWs) assess the psychosocial needs of patients and family members during this process.

Methodology: In July 2023, we piloted a transition readiness checklist to monitor patient's self-management skills and knowledge in transition preparation. Domains such as 'Knowledge about condition,' 'Medication management' and '(Healthcare) appointments' were covered. In four months, ten male patients ranging from 12 to 20 years old have completed the checklist.

Results: Preliminary results showed that most patients perceived themselves to be confident of self-management skills but may not necessarily have the corresponding knowledge nor were able to demonstrate actual self-management skills.

Conclusion: While there were challenges in implementing this tool, the checklist provided a structured guide to track development and progress in patient's confidence in self-management yearly. It also allowed MSWs to conduct focused interviews, assessments, and plan interventions to improve readiness levels. There are plans to develop the checklist by including other domains beyond self-management.

The DayOne Program Design: A Psychosocial and Mental Health Model of Care for Caregivers of Children with Developmental Needs

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Introduction: Caregivers of children with developmental needs are at a higher risk of mental health challenges. Singapore lacks a systematic approach to identify and support them. The DayOne Program, a two-year pilot initiated in May 2022, aimed to establish a caregiver mental health model for early identification and support of caregivers of preschoolers with developmental needs, who are experiencing or are at risk of psychosocial distress or mental health challenges.

Methodology: A literature review, focus group discussions and a caregiver survey informed the current state of knowledge and caregiver concerns. These formed the basis for Theory of Change and model formulation.

Results: The pilot introduced universal mental health screening for caregivers of children with developmental needs at the clinic and offered needs-based intervention. A 4-stage intervention model was developed: (a) Stage 1: Engagement of caregivers by Care Coordinators before the child's first consultation to assess the need for expedited appointments; (b) Stage 2: Engagement and screening of caregivers at child's first clinic consultation and categorizing them into 3 distinct support tiers based on their mental health and psychosocial risks, which determined the support needed; (c) Stage 3: Provision of needs-based interventions and ongoing monitoring by the multidisciplinary team (psychiatrists, psychologists, social workers and Care Coordinators). Across all tiers caregivers were provided with universal resources and those with moderate to severe needs were offered 1-1 interventions; (d) Stage 4: Closure and referrals to community-based services.

Conclusion: The DayOne pilot program implemented a multidisciplinary approach for the early identification of caregiver challenges and provision of intervention.

Caring for Caregivers of Children with Special Needs

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Introduction: The "Caring for Caregivers of Children with Special Needs" programme provides home-based counselling and respite care support for the caregivers of children with nursing and/or behavioural challenges. The programme aims to reduce their stress and increase well-being. Caregivers are screened using the Patient Health Questionnaire (PHQ-9), which is a depression screening tool. This is also administered after each counselling session. This investigation aimed to: (a) explore where the programme is at in meeting its intended outcomes, including its preliminary impact on caregivers and, (b) reflect on its implementation process.

Methodology: We explored improvement in caregivers' psychological well-being by examining their PHQ-9 scores. Additionally, five caregivers were selected based on their self-reported low PHQ-9 scores at the point of enrolment despite experiencing stressors that affected their mental and emotional well-being. We examined their PHQ-9 data as well as MSWs' assessments and observations in the context of their individual caregiving and programme experiences.

Results: Over a period of three years, a total of 140 caregivers were enrolled into the programme. 71.3% of these caregivers reported an improvement in their PHQ-9 scores. The qualitative data yielded emergent findings that caregivers may perceive the PHQ-9 as just an administrative exercise and may consider their desired rather than actual mental state when self-reporting. Their scores may also vary widely according to their day-to-day experiences.

Conclusion: Tools to capture aspects of mental well-being other than risk of depression should be considered for the programme.

Circuit Miniaturization – An Effective Blood Conservation Strategy in Paediatric Cardiopulmonary Bypass

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Introduction: In 2020, tubing length of bypass circuit utilized in patients 6 kg and below was reduced, including the 3/16"-1/4" arteriovenous loop and reduction of cardiotomy suctions to 3/16". This circuit was also expanded for use in patients up to 8 kg. We investigated several parameters to evaluate this blood conservation effort.

Methodology: Patients 10 kg or less from January 2014 to December 2018 (Group 1, n = 172) and January 2019 to December 2023 (Group 2, n = 178) were studied. The following data were extracted: body surface area (BSA, m²), bypass time (CPB, mins), hematocrit (%) – prebypass, first and last on bypass, use of modified ultrafiltration (MUF, %), MUF filtrate volume (ml) and total packed red blood cell volume (PRBC, ml) used during bypass.

Results: BSA was similar between the two groups. Median CPB time was also similar 147.5 (IQR = 102.8, 201.8) vs 162.0 (IQR = 113.8, 222.8), p = 0.088. While prebypass and last hematocrit on bypass were similar, the first hematocrit on bypass was higher in Group 2, 26.4 ± 4.3 vs 27.4 ± 4.5, p = 0.025. Total PRBC utilized throughout bypass was also significantly higher in Group 1, median 395 (IQR = 271, 487) vs 290 (IQR = 250, 400), p < 0.001. The use of MUF and filtrate volume were similar between the two groups.

Conclusion: Miniaturization of bypass circuit reduced hemodilution and its expanded use contributed to the results obtained. Future attempts will be to further downsize the circuit.

Introducing the Specialized Pharmacist Education for Children with Idiopathic Arthritis & Laypersons (SPECIAL) program

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Introduction: Patients with juvenile idiopathic arthritis (JIA) patients are frequently non-adherent to treatment due to fears of treatment adverse effects and misunderstanding progression. This affects prognosis, delayed disease resolution and increased complications. Therefore, Specialized Pharmacist Education for Children with Idiopathic Arthritis & Laypersons (SPECIAL) program was implemented for newly-diagnosed JIA patients.

Methodology: Standardized counseling content discussed JIA, management and pediatric-specific adverse effects. After rheumatologists' assessment, newly-diagnosed JIA patients and caregivers received counselling by a pharmacist. Caregivers completed self-administered knowledge questionnaires pre- and post-counseling (range -10 to 10). Post-counseling questionnaire included a satisfaction survey (range 5-35). All caregivers who attended counselling were invited. Knowledge, patient satisfaction scores, median and range of scores were reported. Pre- and post-counseling scores were compared using Wilcoxon signed-rank test, $\alpha < 0.05$ was statistically significant. Time taken for counseling was recorded.

Results: From 1 January 2020 to 30 November 2023, forty-two counselling were conducted (18 full and 24 drug counselling) totaling 46 hours. Overall, 14 surveys were collected, 4 caregivers declined participation. Median age of caregivers was 43 (range 34-57) years. Mostly were Chinese (10/14), and most (9/14) had at least tertiary education. Caregivers' knowledge improved significantly from median score 5 (range 3-10) pre-counselling to 10 (range 6-10) post-counselling ($p = 0.006$). Median satisfaction score was 32 (range 20-35).

Conclusion: The SPECIAL program significantly improved caregivers' JIA knowledge. This was well-received by caregivers and saved 46 hours of consultation time. This prevented charging patients for long rheumatologists' consultations. Future sessions should emphasize on common misconceptions and expanded to other conditions.

Comparison of Clinical Outcomes Between Overnight Warmed and Embryo Transfer Day Warmed Blastocysts in Frozen Embryo Transfer Cycles

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Introduction: Supernumerary embryos generated from assisted reproductive technology (ART) are cryopreserved for future use. For successful implantation to take place, synchronisation between a viable embryo and receptive endometrium is vital. This study aims to evaluate the influence of warming methods on clinical outcomes in frozen embryo transfer (FET) cycles.

Methodology: This retrospective study involved 2368 FET cycles in KKIVF Centre from Jan 2021 to Dec 2022. Only single vitrified-warmed blastocyst transfers ($n = 1445$) were included. Cryopreserved blastocysts were warmed one day before embryo transfer (ET) and incubated overnight (ONW group) or on ET day (ETDW group). Regardless of blastocyst age, surviving blastocysts were transferred into day 5 endometria.

Results: Clinical pregnancy rates (CPR) and live birth rates (LBR) were significantly higher in the ETDW group (CPR: 47.47% vs. 40.47%, $P < 0.01$; LBR: 34.99% vs. 28.78%, $P < 0.05$). For vitrified-warmed day 5 blastocyst transfers, clinical outcomes were comparable in both ONW and ETDW groups (CPR: 51.27% vs. 58.44%, $P = 0.11$; LBR: 37.06% vs. 44.81%, $P = 0.07$). CPR (45.02% vs. 25.71%, $P < 0.0001$) and LBR (32.03% vs. 17.45%, $P < 0.0001$) were significantly increased when vitrified day 6 blastocysts were warmed and transferred on the actual day of ET. 18.42% CPR and 13.16% LBR were achieved when vitrified-warmed day 7 blastocysts were transferred on ET day itself. No pregnancy was achieved in the ONW group.

Conclusion: Overnight warming for vitrified day 5 blastocysts is feasible without compromising clinical outcomes but warming of a vitrified blastocyst on ET day is preferred regardless of blastocyst age.

Abdominal Shielding in Pregnancy during a Chest X-Ray: Necessity or Psychological Comfort?

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Introduction: Pregnant patients often express concerns regarding radiation exposure whenever physician propose chest x-ray (CXR) as part of their diagnostic examination. Our institution currently implements the practice of offering both anterior and posterior abdominal lead shielding to pregnant patients. However, recent studies have also cast doubt on the effectiveness and practicality of employing such shielding devices, particularly concerning patient comfort and practical considerations. This project aims to determine the patient's abdominal entrance dose (AED) associated with and without abdominal shielding.

Methodology: The PBU-50 anthropomorphic adult phantom was utilized to conduct the study with 32 AED readings taken across four various shielding placements, following our institutional CXR setup protocol. Measurements were taken using both Philips Digital Diagnost equipment, and AED doses were measured using electronic personal dosimeters. Readings were averaged for each apron and dosimeter position combination.

Results: The recorded radiation doses were comparable to background readings, showing no discernible pattern in the four-apron configuration. However, posterior positions dose readings exhibited slightly higher doses than anterior position reading across all apron configurations. Unexpectedly, the lowest dose was observed without lead shielding applied.

Conclusion: There is no significant difference between the AED measured in all four configurations and the background radiation. With proper collimation and adequately shielded equipment, Radiography of areas remote from the foetus can be performed at any pregnancy stage without abdominal shielding. In conclusion, providing patient-contact shielding (PCS) is not essential. Nevertheless, we suggest offering it for psychological reassurance to the patient.

Rapid Cycle Evaluation in a Mental Health Screening Program for Caregivers of Preschoolers with Developmental Needs

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Introduction: Caregivers of children with developmental needs are at risk of mental health challenges and may require support. DayOne is a pilot programme in a child development specialist clinic that screens caregivers' mental health and psychosocial needs, and provides needs-based support and intervention. A Rapid Cycle Evaluation (RCE) was utilized to enable continuous quality improvement within DayOne prior to formal evaluation.

Methodology: The Distress Thermometer (DT), a screener used to assess parental distress and fast-track appointments at the clinic, was sent to parents via a text message after their child's clinic referral (DT1) and one week later if no response was received (DT2). The first RCE cycle aimed to improve the completion rate of the DT. Strategies include revisions to the text message personalizing it with their child's name, explaining the relevance of the DT, and emphasizing confidentiality. The timing was also changed. DT1 was sent on weekdays at 1230pm, while DT2 was sent on Saturdays at 10am.

Results: Response rates for DT1 were not significantly different pre- (30.1%) and post-cycle (30.5%, $X^2(1,1253)=0.01$, $p=0.93$). Response rates for DT2 were significantly higher post-cycle (43.4%) than pre-cycle (25.0%, $X^2(1,748)=17.8$, $p<0.001$). The overall DT response rates increased from 44.7% to 60.4% ($X^2(1,1253)=15.89$, $p<0.001$) post-cycle.

Conclusion: Results suggest that changing the message timing of DT2 drove significant improvements in response rates, indicating Saturday morning as an optimal timing. RCE is a useful approach to improve the DayOne model as adjustments could be implemented and evaluated efficiently in a data-driven way.

A Needs Analysis Using the Caregiver's Voice in the Department of Child Development (DCD): The DayOne Program

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Introduction: Caregivers' perspectives are crucial in the development of a responsive model of care in DayOne, a pilot programme in the DCD that screens for caregivers' mental health and psychosocial needs to provide support and intervention.

Methodology: Eight focus group discussions were conducted among 47 caregivers (mean age = 36.5 years, SD = 6.8 years) to understand their needs and experiences parenting their children with developmental issues. There were 19 fathers (mean age = 36.5 years, SD = 5.3 years) and 28 mothers (mean age = 36.5 years old, SD= 8.7 years). Mean age of their children was 3.7 years old (SD=1.5 years). Data was collected till data saturation was attained. Thematic analysis was then performed.

Results: Three key themes informing stress and supporting factors in caregiver's experiences emerged: (i) caregivers' perception of their own parental capabilities and child's developmental progress, (ii) gaps in caregivers' resources to meet the child and family needs, and (iii) concerns about societal judgment and hope for stronger structural support and policies.

The findings revealed significant stressors relating to the caregivers' lived experiences, supporting the need for resource navigation and regular review of caregivers' well-being. Having a community of formal and informal support systems with strong structural support and societal compassion were supporting factors to the caregivers.

Conclusion: These results informed the development of an integrated mental health service model in DCD. More can be done to increase accessibility of family-centric support to caregivers for enhanced collaborative and compassionate care.

The Role of Care Coordinators (C2s) in a Specialist Child Developmental Clinic in the DayOne Program

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Introduction: Navigating healthcare services can be overwhelming for parents newly referred to the hospital for their child's developmental concerns. C2s were incorporated into the DayOne program, a two-year-pilot aimed to screen parents' mental-health and psychosocial risk factors to provide timely support and intervention. The aim is to measure C2s' confidence levels in executing their roles in the DayOne program with the support received.

Methodology: C2s engaged and screened parents who consented to the program and presented results at Case-Filter-Meetings to ensure accurate tiering of needs and recommendations. They provided anticipatory guidance, explored parents' motivation for recommended interventions, and connected parents with resources. Additionally, they conducted check-ins and rescreening, offering emotional support and coping strategies. Throughout the program, C2s received training related to caregiver mental health, child development, family engagement, relational health, and attachment, and had regular supervision by medical social workers. Two internally developed surveys were administered 10 months apart to measure C2s' confidence in their roles.

Results: Within ten months, C2s successfully engaged 1157 parents, and 68.6% consented to the program.

The survey results indicated that C2s' confidence increased in engagement, encouraging parents to express their emotions, risk assessment, facilitating access to self-care, and sharing resources on parenting and developmental milestones.

Conclusion: After receiving supervision and training, C2s had a higher level of confidence in performing their roles. This allowed them to help parents early in their child's journey in navigating common barriers to help-seeking, offering needs-based support, and making services more responsive and accessible for parents.

Safeguarding Transitions: A Quality Improvement Initiative to Reduce Pharmacy Interventions in Obstetric Patient Discharges

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Introduction: In the Division of Obstetrics and Gynaecology (O&G) in KKH, Post-graduate Year 1s (PGY1s) order discharge medications at least one day prior to patients' discharge as part of the pre-planned discharge workflow. Amendments to prescriptions on day of discharge require pharmacy interventions. This results in delays to patient discharges. A multi-disciplinary team was formed to reduce the median percentage of pharmacy interventions for obstetric patients by 15% in 12 months.

Methodology: The common causes contributing to high pharmacy interventions to discharge prescriptions include (a) inaccurate duration of medications (b) changes in medications following ward-rounds and (c) addition of medications (particularly galactagogues). The bundled interventions implemented at different phases were (I) education slides to PGY1s, focusing on common errors addressing (a) and (b) and (II) collective approval by Division of O&G and Medication Safety Committee to add galactagogues under the list of medication permitted for "auto-intervention" and retrospective prescriptions and billing.

Results: Data analysed from 1 July 2022 to 27 October 2022 after phase (I) showed a decrease in median percentage of pharmacy intervention from 57% to 52%. This was further reduced to 35% from 1 February 2023 to 30 May 2023 following phase (II) intervention, with overall median calculated for the study period at 42%.

Conclusion: These solutions reduced the cognitive loads for staff needing to perform interventions to prescriptions. The reduction in time to process and dispense medications had also resulted in activity cost savings that translates into greater efficiency of manpower and resources.

'Next Step' in Caregiver's Early Intervention Journey at the Department of Child Development

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Introduction: The Medical Social Work (MSW) team in the Department of Child Development (DCD) processed all applications referred for the Early Intervention Programme for Infants and Children (EIPIC). All caregivers received a universal referral to the MSW services and/or the Next Step workshop (NSW) with regards to their child's EIPIC application. A review was conducted to better support caregivers with varying levels of needs and capabilities in navigating the complex early intervention landscape. This study illustrates the steps undertaken to increase the effectiveness of support services in meeting caregivers' varying needs.

Methodology: The workgroup did a root cause analysis and instituted two solutions. Firstly, the introduction of a systematic triaging system upon evaluation of the EIPIC referral process. We streamlined the referral for EIPIC support services on a needs-based approach, for NSW to only focus on a specific group of caregivers who needed guidance. Secondly, we curated early intervention resources as a reference for caregivers, empowering them with varying capabilities in their independent decision-making on EIPIC.

Results: MSWs revamped the NSW to meet the needs of a targeted group of caregivers. More than 92.7 percent indicated that NSW helped in their decision-making and action plans while awaiting EIPIC, demonstrating high effectiveness of NSW. The systematic triaging system saved MSW manpower hours by 66.7 percent.

Conclusion: Having a systematic triaging system provided clarity to quickly assess the psychosocial needs and recommend the corresponding appropriate level of support to caregivers.

Food Accessibility and Nutritional Outcomes Among Food Insecure Pregnant Women in Singapore

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Introduction: Food insecurity during pregnancy is associated with higher risks of negative physical outcomes for both mother and child. This study aims to better understand experiences of food insecurity among low-income Singaporean pregnant women and its impact on nutritional status.

Methodology: In this cross-sectional, mixed-methods study, 41 food insecure pregnant women were recruited from KK Women's and Children's Hospital between November 2021 and November 2023, among which 11 in-depth interviews were conducted. Questionnaires, anthropometrical measurements, 24-hour dietary recalls, metabolic and nutritional blood tests were conducted for all subjects. Descriptive quantitative analysis was performed and integrated with qualitative thematic analyses to explain findings.

Results: On average, women were overweight pre-pregnancy (body mass index $26.6 \pm 7.1 \text{ kg/m}^2$), had low haemoglobin and 25-hydroxyvitamin D levels, and elevated cholesterol. Mean calorie intake ($1696.0 \pm 680.0 \text{ kcal}$) did not meet daily pregnancy recommendations. None of the recommended servings for major food groups during pregnancy were met except "Grains". From interviews, effects of financial constraints and how participants managed their food supply supported findings from 24-hour dietary recalls. Strategic decisions to select cheaper food with long shelf lives and prioritisation of satiety often led to relinquishment of fruits and vegetables, albeit recognition that these foods contribute to health eating practices. Pregnancy-related symptoms also inhibited intakes of balanced meals.

Conclusion: Food insecurity led to suboptimal nutritional status and diets in pregnant women locally despite appearing well-nourished. Further exploration of perspectives of food insecure mothers, healthcare providers and welfare organisations are needed to devise long-term solutions to improve food security and alleviate malnutrition.

Can Parents Report Accurately on Their Adolescent's Mental Health? Comparisons of Parent- And Adolescent-Reported Mental Health from a Cohort Study

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Introduction: Mental health is a major global problem, with adolescence being a time of community concern. The mental health status of adolescents is often reported by parents, who may not have an accurate perception of their child's mental health. The aim of this study was to investigate the agreement between parent- and adolescent-reported mental health in an Australian population cohort study.

Methodology: This study used data from participants in the Raine Study (www.rainestudy.org.au). This longitudinal Australian population cohort recruited 2868 mothers and their children born between 1989-1991. Parents completed the Child Behavioural Checklist (CBCL) questionnaire, while their children completed the Youth Self-Reported version of the CBCL. Agreement between parent and adolescent scores on the anxiety and depression sub-scale of the CBCL at ages 14 and 17 years were assessed using Intraclass Correlation Coefficients with two-way random-effects model.

Results: There were N=1024 parents (mean[SD] CBCL score $2.4[3.2]$) and N=989 adolescents (CBCL score $4.2[4.2]$) at age 14 and N=853 parents (CBCL score $13.8[2.9]$) and N=884 adolescents (score $5.0[5.1]$) at age 17 years. There was poor agreement between parent and adolescent scores at ages 14 (ICC 0.27; 95%CI 0.18 to 0.35; $p < 0.001$) and 17 (ICC 0.30; 95%CI 0.1 to 0.46; $p < 0.001$) years. Parents reported higher mental health scores than their children at age 17 years.

Conclusion: Parent-reported responses may inaccurately reflect their adolescent's mental health. This highlights the need for incorporating self-reported measures from adolescents in future research to ensure accurate understanding and better support of adolescent mental health.

Enhancing Allied Health Practice: Training Impact of the Relational-Invitational Approach (RIA) on Practitioners' Collaboration and Client Engagement

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Introduction: Research has shown that effective engagement contributes to improved child and family outcomes. Hence, a practitioner's ability to collaborate with clients and achieve shared goals is crucial. While practitioners are well-equipped with domain specific skills/knowledge, they often lack explicit training for client/caregiver engagement. To address this, a hybrid training programme combining in-person workshops, online learning, and practice groups was developed. The Relational-Invitational Approach (RIA) provides a structured framework and systematic roadmap emphasising adult capacity building, family-centred practice, strengths-based approaches, and a coaching role across six phases.

Methodology: Training effectiveness was evaluated using the Measures of Processes of Care – Service Provider version (MPOC-SP) across three timepoints (TP), (n=118): before RIA training (TP1), after attending the two-day workshop (TP2), and after participating in RIA practice groups (TP3). Paired t-tests were used to analyse the results.

Results: Statistically significant improvements were observed in the two hypothesized subscales across all timepoints, with medium to large effect sizes. Interpersonal sensitivity increased significantly from TP1 to TP2 ($p<0.001$, Cohen's $d=0.72$), TP2 to TP3 ($p=0.003$, Cohen's $d=0.35$), and TP1 to TP3 ($p<0.001$, Cohen's $d=0.93$). Respectful treatment also improved significantly from TP1 to TP2 ($p=0.011$, Cohen's $d=0.50$), TP2 to TP3 ($p<0.001$, Cohen's $d=0.40$), and TP1 to TP3 ($p<0.001$, Cohen's $d=0.75$).

Conclusion: RIA training significantly enhanced practitioners' skills in demonstrating interpersonal sensitivity and treating others respectfully. Findings suggest the effectiveness of integrated training methods in improving skills for fostering engagement. Future directions include evaluating specific aspects of the framework that facilitate adult behaviour change.



Effectiveness of Music Interventions and Music Therapy for Hospitalized Children and Adolescents: A Systematic Review

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Introduction: The purpose of this systematic review was to evaluate the safety and effectiveness of music interventions and music therapy for hospitalized children and adolescents.

Methodology: Four electronic databases (the Cochrane, Ovid MEDLINE, PsychInfo, and CINAHL) were searched for randomized controlled/crossover trial designs published between 1980 and 2022. Eligible studies included music medicine and music therapy RCTs, involving participants from 1 to 20 years of age, and focused on at least one health-related outcome. The systematic review was conducted according to the recommendations of the Cochrane Collaboration and the Cochrane Risk of Bias tool (Higgins, 2011) was used for assessing risk of bias.

Results: From 859 results, fifteen studies met the criteria. Nine of the 15 studies were music therapy and six were music medicine. Qualitative synthesis showed that music therapy and music interventions resulted in significant improvements in pain and anxiety, positively impacted coping with distress, increased compliance with medical procedures or routines, and influenced physiological parameters such as heart and respiratory rates. These findings offer preliminary evidence to support the effectiveness of music with hospitalized children and adolescents. Most importantly, no specific adverse effect or harmful phenomenon occurred in any of the studies and music interventions were tolerated, even enjoyed, by most of the patients.

Conclusion: Music interventions can be safely used in the non-pharmacological management of pain, distress, and anxiety of hospitalized children and adolescents. Furthermore, one to two sessions of active music therapy may support the positive coping behaviours of pediatric populations, especially during procedural support.

Cadences of Caring in Tandem with Family Carers: Breathing, Blessing, and Being in Music

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Introduction: The family of patients receiving palliative care at the hospital may experience stress alongside their loved ones through the latter's journey of accepting a diagnosis, making complex decisions about treatment, coping with various symptoms and pain, managing their expectations, and holding on to hope. This paper will conceptualize music therapy that is grounded in Singaporean culture. Three case examples will illustrate the considerations of music therapy interventions, vulnerability, safety concerns, as well as support for both patients and their caregivers at each level.

Methodology: The *Holding/Supportive* level is the most global level of support and music therapists of all levels may comfortably engage with providing interventions for pain, anxiety, mood, or stress management. At the *Reflective/Expressive* level, music therapists with advanced training may be able to better provide more support at deeper tiers, with supervision. Patients and their family may be ready to explore their feelings about various issues and/or relationships. At the *Eureka!* level, some patients may seek meaning, significance, or insight in their illness experience. Music experiences at this deepest level might be a vehicle for transcendence or transformation.

Results: Through dyadic, family-centered music, group singing, music improvisations, or supportive music imagery, music therapists support patients and family and caregivers by providing non-verbal and musical mediums of communication for expressing feelings, resolving conflicts, and anticipatory grieving processing.

Conclusion: Music therapy practice in a multicultural country calls for heightened awareness into each patient's familial and societal constructs, religious beliefs, as well as cultural heritage.

A Pilot Model of Early Support from Onset of Marriage to Improve Maternal and Child Health Outcomes and Achieve Resilient & Inspiring Families in Singapore

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Introduction: Marital stability is essential for a strong family, with maternal and child health crucial in the first 1000 days. Currently, no programs support couples holistically from marriage onwards, prompting the launch of Project Achieving Resilient and Inspiring Families (ARIF). This initiative, involving KKH clinicians, nurses, social workers, and Singapore's Muslim marriage solemnisers (Naib-Kadis), aims to enhance maternal and child health through socio-religious and medical support, fostering better developmental outcomes and stronger families.

Methodology: Couples were risk-stratified by social and medical needs and received targeted interventions (g: counselling, referrals) from KKH team and Naib Kadis. Resource centres and culturally tailored digital and print materials were established to provide reliable maternal and child health information for couples to independently refer and learn. Additionally, expectant mothers and newborns received pregnancy monitoring, advisory sessions, and health and developmental monitoring.)

Results: In Phase 1 of ARIF (September 2020 – August 2022), 2188 solemnised couples received educational resources and maternal and child forum invitations. Of these, 64.7% enrolled into ARIF, where 19.5% of them were identified to be of higher needs and received tailored support. High mean satisfaction scores ranging from 3.72-4.89 on knowledge, confidence, and support-seeking behaviour and positive feedbacks were obtained. Phase 1 concluded with 39 pregnancies reported and a low dropout rate of 0.85%.

Conclusion: Early support and interventions boosted couple's confidence in family-building, potentially improving maternal and child well-being. A formal analysis is needed; however, the hope is to replicate ARIF in other communities to achieve resilient families.

Caregivers' Perspectives on Parent-Child Group Therapy for Children Aged 18-36 Months with Speech-Language Communication Needs (SLCN)

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Introduction: Research indicates that parent-child interaction and language intervention are critical for children with SLCN. However, high demand for speech therapy (ST) services often results in long wait times for individual services. Group therapy could help mitigate these delays. Past studies have found parent-child group therapy effective in achieving positive language outcomes. This study investigates caregivers' perspectives on such an intervention in our local service delivery context.

Methodology: In July 2023, Department of Child Development (DCD) KKH ST team, introduced a parent-child group therapy service for children aged 18-36 months, identified with SLCN. Caregivers first receive an online language stimulation strategy training via Zoom. Then three weekly group therapy sessions are offered within a month, providing hands-on practice in play. Groups consisted of three to five children with caregivers, with a ratio of one ST to two or three caregiver-child dyads. Post-group feedback surveys (n=53) were conducted from July 2023 to May 2024.

Results: Survey results indicated caregivers remembered strategies better (100%), used strategies in child's language stimulation (98.1%), played with their child (100%), engaged their child (100%), and incorporated strategies into daily routines (94.3%). Caregivers expressed satisfaction and provided positive feedback on the components, small group size, interaction opportunities with other participants, and guidance from STs.

Conclusion: Parent-child group therapy is well received by caregivers, enhancing their ability to implement language stimulation strategies and allows caregivers to support each other. These findings present parent-child group therapy as a viable and appealing intervention model for SLCN.

Examining Parent Experiences and Evaluating the Efficacy of An Online Course for Parents of Children with Language Delay

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Introduction: An online course was developed to provide parents with information on language development while waiting for an initial consultation with a speech therapist. The course consists of three modules on caregiver communication styles, child language development, and language stimulation strategies. The information is delivered via short videos with interactive activities and quizzes (one per module). This study aims to (a) examine parents' experiences with the course and (b) evaluate its efficacy in equipping parents to support their child's communication skills.

Methodology: Feedback forms from January 2022 to March 2024 (n=396) were retrospectively analysed. Parents rated the following aspects of the course: content structure and flow, understanding of content, and difficulty of quizzes and interactive activities. Quiz scores from each module were also analysed. A score of 3 and above on each quiz (maximum score of 5 points) was regarded as a pass.

Results: Ninety-seven percent (97%) of parents found the course easy to follow and understand. Ninety-six percent (96%) of parents reported that the quizzes and activities were set at an appropriate difficulty level. 99% of parents agreed that the course is appropriate for learning to improve their child's communication skills. Quiz pass rates were 62% for caregiver communication styles, 70% for child language development, and 69% for language stimulation strategies.

Conclusion: Parent feedback reflects that the course provides accessible, easy to understand information. Parents generally understood the content and obtained a pass on their first attempt of the quizzes. It would be helpful for future studies to examine parents' abilities to apply strategies following the course.

Do Long Waiting Times for Postnatal Medication Cause Late Discharges?

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Introduction: Bed crunch is a long-standing problem in healthcare institutions resulting in suboptimal utilization of resources. This can potentially affect patient safety and increased costs. In Division of Obstetrics and Gynaecology in KKH, delays in patient discharge from postnatal wards affect admission of patients from Delivery Suite (DS). We surveyed the postnatal wards contributing to this cascading effect to identify if long waiting time for discharge medication was the primary cause for late discharges.

Methodology: A survey was conducted over four days in April and May 2024. Thirty-one postnatal patients with planned morning discharges were included. The time of discharge and the reasons for late discharge were documented for analysis.

Results: Of the 31 planned discharges, 12 (38.7%) were late discharges. Forty-two percent (5) of these were due to patients waiting for discharge medications. They stayed a median duration of 34 minutes (range: 15 to 74 minutes) beyond the stipulated discharge timing which affect the bed turnaround time.

Conclusion: This review confirms our hypothesis that late discharges in postnatal wards are largely contributed by delayed dispensing of the postnatal medications. This impacts on the transfer and admissions of patients from DS. Further studies exploring the possible causes such as adoption rate of ordering pre-planned discharge medication sets by junior doctors one day prior would be useful to help us strategize solutions to optimize DS operations. This requires collaboration between the pharmacists and the junior doctors to ensure that discharge medication is ready before time of discharge.

Challenges Faced by Cytogenetics Lab in Processing Miscarriage and Postmortem Tissues... And New Breakthroughs in Our Lab

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Introduction: Our lab has been processing miscarriage tissues since 1997. In early 2000s, we started receiving postmortem tissues from Histopathology. Implementation of chromosomal microarray (CMA) as an alternative testing methodology from classical cytogenetics, it has further exhibited the importance of correct sampling of tissue type. Our success rate for culture and chromosome analysis for such tissues has risen from 40% to the current 85-90% over the years. We still encounter challenges regularly. However, we also see new breakthroughs while working on the bench, thereby bringing hope and inspiration for a better outcome for our patients.

Methodology: Our existing challenges: (a) unsuitable tissues for culture initiation; (b) fungal/bacterial/yeast contamination at source; (c) non-viability/poor viability; (d) true tetraploidy or culture artefact – analytical challenge; (e) maternal contamination or mosaicism – our bane. New Breakthroughs: (a) digging through the 'mess'; (b) cutting through the clots; (c) revealing the 'gems'

Results: This poster serves as a new baseline for the relevant healthcare professionals/stakeholders overseeing these areas of clinical practices: recurrent pregnancy losses, early pregnancy losses, spontaneous abortions, mid-trimester pregnancy terminations, stillbirths, and postmortems.

Conclusion: This poster aims to raise awareness, educate, and inform the relevant stakeholders using Cytogenetic services within the hospital, as well as servicing external clients. From Clinicians ordering the tests, to best tissue sampling effort, to our culture processing for karyotyping/microarray analyses, we hope to update our colleagues so as to increase the success rates, thus raising the collective professional competency at all levels.

The Mediating Role of Self-Care in Reducing the Effects of Perceived Stress on Depression and Anxiety Symptoms in Caregivers of Children with Developmental Needs

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Introduction: Perceived stress has been positively associated with depression and anxiety. Self-care practices have been promoted across the population as a strategy to reduce perceived stress and risk for mental health difficulties. This study explores the role of self-care in the relationship between perceived stress and depression and anxiety symptoms, for caregivers of children with developmental needs.

Methodology: One hundred and thirty-nine caregivers (103 mothers; Mean age=36.8years) from the Department of Child Development (DCD), KK Women's and Children's Hospital (KKH) and AWWA completed an anonymous online survey that included the Self-Care Practices Scale (SCPS), Patient Health Questionnaire-9 item (PHQ-9), Generalized Anxiety Disorder scale-7 item (GAD-7), and Perceived Stress Scale-10 item (PSS-10). The SCPS had a sub-scale on work self-care practices which 93 caregivers who were employed, also completed. Mediation analyses were conducted.

Results: Personal self-care was a significant partial mediator in the relationship between perceived stress and depression symptoms (Total effect: $\beta=0.11, p<.001$; Direct effect: $\beta=0.09, p<.001$; Indirect effect: $\beta=0.03, p<.001$), and anxiety symptoms (Total effect: $\beta=0.12, p<.001$; Direct effect: $\beta=0.10, p<.001$; Indirect effect: $\beta=0.02, p<.001$). For caregivers who were employed, work self-care was a significant partial mediator (Indirect effect for depression: $\beta=0.03, p<.001$; Indirect effect for anxiety: $\beta=0.02, p<.05$), with personal self-care no longer a significant mediator.

Conclusion: Personal self-care reduced the effects of perceived stress on depression and anxiety symptoms in this local sample of caregivers of children with developmental needs. For those who were employed, work self-care played a more significant role than personal self-care. Promoting self-care in both personal and work domains in caregivers of children with developmental needs, can be an effective strategy for supporting their mental health.

A Collaborative Approach to Improving Risk Assessment Among Children with Developmental Disabilities in the Department of Child Development (DCD)

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Introduction: Research studies highlight a heightened risk of abuse and neglect among children with developmental disabilities, necessitating vigilant risk assessment and intervention strategies within the medical setting. A needs assessment within Department of Child Development (DCD) revealed the lack of competence in managing and supporting cases with child abuse concerns, and the importance of having standardized protocols to refer to Children's Emergency (CE) for further assessment.

Methodology: An interprofessional workgroup, comprising DCD doctors, Medical Social Workers (MSWs) was formed. The following was developed and implemented for DCD: (i) A universal guide, comprising Singapore Sector-Specific Screening Guide for Health Sector (SSSG) and two structured departmental workflows for assessment and/or case management; (ii) An MSW triage roster was introduced to provide consultations; (iii) Training sessions were conducted, focusing on the importance of child protection, the identification of child abuse and the use of workflows; (iv) Subsequently, workflows were piloted with process evaluation through survey forms, to identify gaps in its implementation and structure.

Results: Key findings from the survey indicated: (i) the relevance and usefulness of the workflows in guiding case management; (ii) the crucial accessibility of attaining guidance and support through the triage roster, and (iii) the importance of regular training, focusing on risk assessment and safety planning.

Conclusion: Structured departmental workflows and continual education enhanced professional response and support for child abuse cases. Consultation sessions with MSWs offered platforms for professionals to explore the capacities and needs of families, ultimately leading to more holistic interventions for both the child and the family.

Four-year Review of Radiation Exposure during Nasojejunal Tube (NJT) Insertion Guided by Fluoroscopy in A Paediatric Medical Facility

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Introduction: The neonatal oesophageal sphincters may be incompetent, particularly in premature infants. This may result in increased risk of reflux that predisposes the patient to choking and aspiration with resultant pneumonitis/pneumonia. A nasojejunal tube (NJT) is a long feeding tube inserted per nasal through the oesophagus, stomach and duodenum eventual catheter tip positioned in the proximal jejunum. NJT placement assures safe feeding by preventing gastro-oesophageal reflux since the stomach is effectively bypassed. This retrospective study evaluates the radiation exposure to patients during the procedure.

Methodology: A total of 193 NJT insertion procedures were performed at our institution between January 2020 to December 2023 under intermittent low dose x-ray fluoroscopy. Patients were categorised into several age grouping: 0-, 1-, 5- and 10-year-old and above. Dose area product (DAP) from each NJT procedure and total fluoroscopy duration are presented.

Results: The DAP recorded were 0.25 mGycm², 0.47 mGycm², 0.94 mGycm² and 0.87- mGycm² for the respective age groups; from the youngest to the oldest. There is overall an upward DAP trend with increase in age, in keeping with more dose required for larger patient habitus. However, patients above the age of 10 tend to receive less dose than the 5-10-year-olds, most probably due to better patient procedural cooperation.

Conclusion: In conclusion, this study shows a positive correlation between patient's age and the overall radiation dose administered for the procedure for patients less than 10 years of age.

Preliminary Evaluation of A Caregiver-Training Workshop for Parents of Preschoolers with Anxiety Difficulties

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Introduction: Psychologists provide intervention for preschoolers with anxiety difficulties by working closely with parents as they play a pivotal role in providing supportive responses and promoting healthy coping in their children. The Department of Child Development piloted a three-hour parent only workshop to deliver anxiety-related caregiver-training. This format created opportunity for group learning and support among parents. During the workshop, parents watched informational videos, engaged in discussions, and created a supportive plan to carry out at home. Thereafter, parents and their children attended individual sessions with the psychologists. This study examines whether the workshop improved parents' understanding of anxiety, whether their children showed improvements in their anxiety difficulties across time, and parents' perceptions on the usefulness of the workshop.

Methodology: Four workshops were conducted, and parents of 28 children attended. Parents completed pre- and post-workshop questionnaires about anxiety and a post-workshop feedback form. They rated the extent to which anxiety affected their child's daily functioning at (i) the recruitment call for the workshop; (ii) the workshop; (iii) one-month post-workshop; and (iv) three-months post-workshop.

Results: Post-workshop, parents showed increased knowledge of anxiety ($n=22$, $Z=-3.7$, $p<0.001$). For 11 children with completed ratings at all time-points, the extent to which anxiety interfered with their daily functioning decreased from time-points one-to-two ($Z=-2.6$, $p<0.05$), one-to-three ($Z=-2.3$, $p<0.05$), and one-to-four ($Z=-2.5$, $p<0.05$). All parents who completed the feedback form found the workshop useful ($n=31$).

Conclusion: These preliminary outcomes of the workshop are promising, although further evaluation with a larger sample is necessary.

Alternative Fortification of Pasteurized Donor Human Milk: A Pilot Randomized Controlled Trial

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Introduction: Very low birth weight infants (VLBW) receiving pasteurized donor human milk (PDHM) have poorer growth and may require alternative fortification strategies. We aimed to compare an alternative fortification method with traditional fortification in improving weight gain in VLBWs.

Methodology: This was a pilot randomized controlled trial of VLBWs requiring PDHM at a tertiary hospital. The control group received standard PDHM fortified with a commercial human milk fortifier (HMF). The intervention group received high fat PDHM ($\geq 3.8\text{g/dL}$), fortified with HMF and additional protein of 0.67g/dL . Per department guidelines, high calorie formula (27kcal) was used to optimize growth in all VLBWs when clinically indicated. Primary outcome was malnutrition rate, defined as drop in birth weight z-score of ≥ 0.8 at discharge or 37 weeks, whichever earlier. Secondary outcomes were use of 27kcal, chronic lung disease (CLD) incidence and hospital length of stay (LOS).

Results: Sixty-one VLBWs were randomized. Birth gestation and birth weight z-score were similar between groups. There was a trend towards lower malnutrition rates (control 86.2% vs. intervention 71.0%, $p=0.213$), CLD incidence (control 37.9% vs. intervention 22.6%, $p=0.262$) and hospital LOS [control 63 days (IQR 46 – 83) vs. intervention 57 days (IQR 38-72), $p=0.211$] in the intervention group. The intervention group required less 27kcal [0% of feeds (0 – 3.6) vs. control 7.1% of feeds (IQR 0 – 19.4), $p=0.014$].

Conclusion: Our alternative fortification method reduced use of high calorie bovine formula. A larger trial is warranted to confirm its effect on malnutrition, CLD and hospital LOS.

Sweat Chloride Test for Cystic Fibrosis Screening

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Introduction: Singapore introduced cystic fibrosis (CF) screening as part of the national expanded newborn screening (NBS) programme in 2019. CF causes pancreatic and pulmonary insufficiency if left untreated. Early detection and intervention reduce mortality and morbidity. Here we present and discuss the validation and utility of the sweat test for the confirmation of presumptive positive cases in the primary screening of CF.

Methodology: Validation of the sweat test was performed on ChloroChek Chloridometer system using the principle of coulometric titration. The supplied ChloroChek Reagent Set was used as the titration matrix during the titration process and standard solution was used as a calibration verifier. Intra- and inter- CVs were performed using the ELITech Group Sweat Controls (level 1, 2, and 3). Additionally, External Quality Assurance (EQA) proficiency materials from College of American and Pathologists (CAP), and 3 normal patients were included as part of validation.

Results: The intra and inter-day precision results ($n=50$) were within 0.66-4.34%. The quantitative EQA results were within the acceptable 2SD range, and the qualitative results of the CAP clinical assessment was acceptable. The 3 normal patients control results were negative as expected. The assay was suitable for clinical use and from May 2022 to May 2024, 31 samples were analyzed from both the newborn screening programme and respiratory clinic. Of these, 2 samples were found to be positive.

Conclusion: The ChloroChek Chloridometer system demonstrated good method precision and accuracy. The sweat test was successfully implemented in KKH which improves the specificity of the primary screening for CF.

The Influence of Maternal Touch: Exploring the Effects of Affectionate and Non-Affectionate Touch on Infant Cognitive Development and Exploration Behaviours

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Introduction: Past studies have illustrated the positive effects of maternal touch in managing infants' emotional responses and establishing a secure foundation that allows them to engage in exploration. Based on the understanding that initial maternal tactile engagements critically influence the development of cognitive pathways, this study aims to examine how maternal tactile engagement, specifically affectionate and non-affectionate maternal touches, influence an infant's ability for exploration and cognitive development, particularly on shifting capabilities within cognitive flexibility.

Methodology: Infant cognitive behaviors were assessed through tasks that measure set-shifting abilities (Attention Shifting index) and through the observation of a free-play task illustrating naturalistic play (Infant-initiated Exploration index; Maternal Affectionate (MA) and Non-affectionate (MNA) Touch metric) during the mother-child interactions (N = 40 dyads, Infant age: M = 16.77 months, SD = 4.88, Mother age: M = 32.04, SD = 7.20).

Results: The present study found that longer periods of MA Touch were positively associated with less random exploration and shifting abilities. Instead, infants displayed more focused interactions in physical locations. Conversely, MNA Touch was observed to have no significant relationship with exploration and shifting abilities.

Conclusion: The study's findings emphasized the dynamic nature of Maternal touch, specifically, MA Touch. This preliminary finding has profound implications for our understanding of the critical role that maternal touch plays in the early development of cognitive functions. Thus, encouraging caregivers to engage in affectionate touch could be a strategic focus for interventions aimed at enhancing infant cognitive outcomes of exploration and shifting abilities.

Value-Driven Care for Young Children Newly Diagnosed with Type 1 Diabetes Mellitus – A Local Experience

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Introduction: In 2022, children's diabetes service received a three-fold increase in young children newly diagnosed with T1D with unique challenges, including glucose fluctuations & higher possibility of hypoglycemia. This is a reflective practice review on technology-enabled care of intermittent glucose monitoring systems (isCGM) for newly diagnosed young children with Type 1 diabetes mellitus, a value-driven care approach.

Methodology: Children less than 6 years of age newly diagnosed with Type 1 diabetes mellitus were provided enhanced diabetes education on the utilization and interpretation of isCGM. A follow-up phone call after 2 weeks post-discharge was conducted by the diabetes nurses with the administration of a 'User experience survey for the caregiver.'

Results: Six young children of age 1.6 and 4.6 years old (mean age 2.7) with 4.4 days (SD ± 0.53) length of stay. Five out of six children had a downward trend of glucose level and hypoglycemia requiring a reduction of insulin dosage. One out of six had persistent trended hyperglycemia and ketosis that required a call-back review. Within the User Experience survey, parents strongly agreed and agreed on 10 out of 12 questions such as easy usage and quick access to glucose data that avoided severe hypoglycemia.

Conclusion: This report provided a basis for using technology-enabled and patient-centric care on six young children at initial T1D management with insulin dose adjustment guided by sensor glucose trends. The positive parents' experience and safety in isCGM use for T1D young children, further emphasize our current healthcare context of a value-driven care approach.

Parental Concerns in Vulnerable Families with Young Children in the NorthEast Region in Singapore: Common Themes Identified

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Introduction: Project HOME (HOListic Management & Enablement) endeavors to support and enable vulnerable families with young children, striving for early identification of developmental and health concerns in an attempt to curb potential complications and provide early interventions. We work with community partners (Allkin) and pre-school (NTUC First Campus) in identification and recruitment.

Methodology: *Inclusion criteria:* household income ≤\$4500, children aged 2 months to ≤6 years old residing in the northeast region. *Exclusion criteria:* children/families already enrolled in other programs. Home visits as first touchpoints for more comprehensive assessment of the child in their natural environment provides the team with an understanding of the home environment, allowing the nurses to provide individualized recommendations for child engagement and home safety. Family assessments include social, health and development are conducted prior to and during the home visits.

Results: A total of 282 children were referred, 16 were voided, 9 dropped and 3 withdrew from the program. Parents of 102 children had nil concerns. In the remaining 144 children, common themes of concerns were identified: Child development – 54.8% (n=79), Health – 34% (n=49), Behavioral – 22.9% (n=33), Eating habits – 15.9% (n=23), Growth – 2.7% (n=4), Schooling – 2.7% (n=4) and Dental – 2% (n=3).

Conclusion: As the program is still on-going, the team is in the midst of correlating parental concerns with assessment findings by the trained nurses. After findings are analyzed, it can potentially identify gaps in parental knowledge where a bigger scale program can explore strategies to disseminate educational materials for all parents.

Women's Perceptions and Experiences on Adopting Different Birthing Positions During Second-Stage Labour in Singapore: A Descriptive Qualitative Study

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Introduction: Despite evidence favouring upright labour positions, women in hospital settings often adopt a supine or lithotomy position during second-stage labour. Previous research predominantly delves into midwives' perspectives and experiences, with limited focus on women's experiences, particularly in Asian countries. In Singapore, there are no studies on women's perceptions and experiences with various labour and birthing positions, which hampers the advancement of childbirth practices by offering appropriate support.

Methodology: A descriptive qualitative study design was adopted. Between September and November 2023, participants were recruited from the postnatal wards of a public maternity hospital in Singapore through purposive sampling. Face-to-face interviews were conducted using a semi-structured interview guide followed by inductive manifest content analysis.

Results: Twelve postnatal mothers participated in the study. Manifest content analysis revealed four categories and seven sub-categories: (1) Mixed feelings and assumptions regarding supine and side-lying positions, (2) Factors influencing decisions to adopt different birthing positions, (3) Perceived reasons for not adopting other positions besides the supine position and (4) Willingness to explore and try other birthing positions. Mothers revealed mixed feelings towards the positions adopted due to limited knowledge of alternate birthing positions. Most mothers were only familiar with supine or lithotomy positions, leading to a significant reliance on healthcare providers for positional guidance.

Conclusion: The study's results indicated the need for healthcare professionals to educate mothers more about various birthing positions and their benefits. Future research should explore midwives' perceptions and confidence in supporting alternate birthing positions in the local context.

Bridging The Gap to Enhance Healthcare Experience and Outcomes: Transition from Children to Adult Healthcare

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Introduction: Transition from pediatrics to adult care is a challenging time for Adolescents and Young Adults (AYA) with rheumatic diseases.

Methodology: A web-based survey was administered in February 2023 to transitioned patients. There are two parts to the survey: one to rate their satisfaction on the transition process with 10-point Likert Scale; and the other to rate their transition experiences via 4 domains with each item rated on a 6-point Likert Scale. Data collected were analyzed using SPSS descriptive analyses.

Results: Sixty-three patients were transitioned successfully to adult healthcare system (AHCS) with 83% (52/63) response rate to the web-based survey. Patients rated a median overall satisfaction score of 8.0 (IQR 4.0 – 9.0) on the transition process and >85% of them rated a score of ≥ 4 on their transition experiences, with lower scoring on questions such as “The way of working and dealings with patients in adult care are similar to what I was used to in pediatric care” (81%) and “I do not experience many differences between pediatric and adult care” (77%). Majority of patients reported difficulty in scheduling appointment with adult rheumatologists and ‘feeling out of place’ in the adult rheumatology clinic waiting area. Half of the patients (52%) felt that it was necessary to meet the adult rheumatologist prior to the physical transfer of care.

Conclusion: Despite an overall good satisfaction and experience with the current transition process, there is a need to explore the barriers encountered in the post-transfer period with AHCS.



Experiences and Information Needs of Caregivers of Paediatric Patients with Acute Lymphoblastic Leukaemia: A Descriptive Qualitative Study

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Introduction: The diagnosis of Acute Lymphoblastic Leukaemia (ALL) is a life-transformative experience for both the paediatric patients and their caregivers. Caregivers, often termed as ‘hidden patients’, exhibit a wide array of unmet informational needs during this challenging period. The study aimed to explore the experiences and information needs of caregivers caring for children with ALL across the cancer caregiving continuum.

Methodology: This study used a descriptive qualitative research design. Data were collected from September 2023 to January 2024 using purposive sampling. Participants were caregivers of children with ALL currently undergoing treatment at a local hospital in Singapore. Caregivers aged 21 and above, who served as primary caregivers to children receiving ALL treatment and were able to comprehend English were included. Individual semi-structured interviews were conducted. Data were analysed using thematic analysis.

Results: Eleven caregivers participated in the interview. Six themes from twenty-four subthemes of caregivers' experiences and information needs were identified, namely (1) the cancer journey, (2) complexities of ALL caregiving, (3) challenges in information access and understanding, (4) the evolution of care transitioning to home, (5) psychosocial needs in ALL caregiving, and (6) navigating information sources and preferences.

Conclusion: Findings indicate that caregivers of children with ALL have a myriad of needs, a significant portion of which remain unaddressed. Interventions such as tailoring personalised, accessible, and reliable information to caregiver needs, along with integrating peer support and providing clear guidelines across the different treatment phases are imperative to better support parents in their caregiving journey.

An Exploratory Study on Maternal Perceptions and Preference of Hospital-Based Over Polyclinic-Based Maternity Services in Singapore

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Introduction: Expecting mothers are typically referred to hospital-based antenatal services. In recent years, Singapore has expanded maternity services to be available in polyclinics and community settings, to improve accessibility of such services. Little is known about mothers' perceptions and preferences for maternity services in hospitals and polyclinics. This study aimed to explore the perceptions and preferences of mothers in receiving antenatal and postnatal maternity services in acute hospitals and polyclinics in Singapore.

Methodology: A descriptive qualitative study design was adopted, and data were collected in September 2023. Mothers who were admitted to the participating ward for delivery, 21 years old and above, and able to communicate in English were recruited post-delivery from a maternity care hospital in Singapore. Individual semi-structured audio-recorded interviews were conducted and transcribed verbatim, and data were analysed using thematic analysis.

Results: Thirteen mothers participated in the study. Based on the interviews conducted with the mothers, two themes were identified: (1) Perceptions and preferences for perinatal services and (2) Improving postnatal care. Most of the mothers preferred seeking hospital-based antenatal care and were more inclined to do their postnatal follow-ups in the polyclinics. The findings suggest the possibility of further expanding maternity services in community settings to increase professional support for mothers.

Conclusion: Mothers had generally positive perceptions of maternity services in hospitals and polyclinics. Future research is needed to ascertain these findings in non-English speaking and non-subsidized settings and determine the effectiveness of current polyclinic and community antenatal services.

A Retrospective Review of Common Parental Concerns for Children Seen in Family Nexus@Our Tampines Hub

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Introduction: Healthy families and societies are built on the foundation of maternal and child health (MCH). Family Nexus@Our Tampines Hub, better known as FamNex@OTH, is a one-stop wellness center that provides comprehensive and integrated programs, community-based health and social services in a friendly co-location. The goal of this study was to identify the commonest parental concerns for children so that we can refine and broaden our scope of interventions to enhance health outcomes for parents and child.

Methodology: Children were included if they were aged 0-6 years old and residing in eastern Singapore. Even if a child does not meet the requirements, he can still be enrolled if the programs are deemed beneficial. A total of 42 children were seen in FamNex@OTH between November 2022 and May 2024.

Results: Of the 42 children, 23 (54.8%) were self-referred, followed by roadshows (26.2%), Tampines Care Corner/Family Service Centre/Pre-school (16.7%) and Neighbors (2.3%). Not all parents bring their child for development screening assessment after the primary immunization. As such, the age group of 3 to 5 is the biggest percentage of children observed for both genders, and parents of boys tend to be more concerned than those of girls in terms of their child's behaviour and development. Dental health, picky eaters, and nutritional status will come next.

Conclusion: Findings from this study provide insight on how we can bring support closer to families. FamNex@OTH will continue to build strong partnership with collaborators in enhancing integrated MCH services.

Promoting Influenza Vaccination in Immunosuppressed Paediatric Patients with Rheumatic Diseases

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Introduction: Immunosuppressed patients with paediatric rheumatic diseases (PaedRD) are susceptible to various infections including influenza and at higher risk of severe complications. Vaccination is the most effective way to prevent influenza infection. Latest vaccination guidelines from American College of Rheumatology and European Alliance of Associations for Rheumatology recommended influenza vaccination (IV) for PaedRD patients. We reviewed 164 PaedRD patients from our registry in May 2023 and found that none of them has taken IV in the preceding 12 months. We thus determined to develop an IV recommendation program to increase the IV uptake and better protect them against severe threats posed by influenza infection.

Methodology: The designed program includes a comprehensive recommendation workflow, in which concerns from patients/caregivers are addressed, and shared decisions are enabled. Furthermore, IV status and unexpected side effects are tracked. Immunosuppressed PaedRD patients with quiescent disease were selected for the program. Influenza Vaccine [VAXIGRIP TETRA] Injection 0.5mL was used.

Results: The program was launched in June 2023. By March 2024, 136 eligible patients were recommended, among whom, 94 patients (69%) have received IV. No severe adverse reaction or vaccine-induced disease flare was reported. Common reasons of declining IV were discovered.

Conclusion: Our IV recommendation program achieved significant result in improving vaccination rate and demonstrated the safety of IV in our study. Recommending IV by professionals, addressing concerns and making shared decisions are believed to be key factors in our success. We will continue the IV recommendation in our routine clinical practice.

Evaluation of the APN-Led On-Call Service at The Women's Day Therapy Center (WDTC) at KKH

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Introduction: Chemotherapy patients, particularly those experiencing hypersensitivity reactions, require immediate medical attention, posing a challenge when specialist oncologists are not readily available on-site. Recognizing this, the Gynae-oncology department at KK Women's and Children's Hospital established an on-call service led by Advanced Practice Nurses (APNs) in collaboration with medical oncologists in 2009. This study evaluates the impact of this APN-led service.

Methodology: In 2023, surveys evaluated WDTC nurses' and medical oncologists' experiences using a 10-point scale. medical oncologists' assessed APN-led service awareness, confidence in APN's management, and patient safety. Nurses rated APNs' response promptness, management trustworthiness, and activation comfort. Additional aspects examined included APN response time, patient reviews, code blue incidents, and ICU admissions from 2017-2022.

Results: Medical oncologists and nurses at WDTC demonstrated thorough understanding and robust trust in the APN-led service, recognizing its significant contribution to patient care and safety. Nurses valued the rapid and dependable response of APNs, typically within 0-2 minutes. During a five-year span, APNs evaluated 1,300 patients without encountering any critical incidents, affirming the effectiveness and reliability of the service.

Conclusion: The APN-led service at WDTC has proven instrumental in addressing urgent medical needs during chemotherapy, earning trust and recognition from both medical oncologists and nurses. Its effectiveness in preventing critical events underscores its importance in improving patient safety and care quality. Collaborative efforts between APNs and medical oncologists ensure prompt and comprehensive care for chemotherapy patients, benefiting frontline nurses and ultimately enhancing overall patient outcomes.

Enhancement of Child Health and Development Outcomes Through Early Prevention and Detection Strategies

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Introduction: Project HOME (HOlistic Management and Enablement) is led by Sengkang General Hospital and KK Women's and Children's Hospital in collaboration with NTUC First School and Allkin, targeting vulnerable families with children between 2 months to 6 years old staying in the northeast region of Singapore. Project aims to enhance child health and development outcomes through early prevention and detection strategies.

Methodology: The care modal is based on a multi-agency case management and intervention framework which includes health, social and education domains to support children from household income below \$4500. One hundred and seventy-two (172) children were recruited, home visits were conducted where the necessary developmental assessment and health condition screening were performed. Families were co-managed with pre-school and social sectors partners for relevant issues.

Results: Seventy-Nine (46%) children were found to have missed at least one or more routine Child Development Screening (CDS) at the primary care. A total of 37 referrals to the polyclinic for further assessment were made regarding concerns about development delays, behavioral and health issues. Of which 26 (70%) parent whom child required referrals were agreeable for it, 22 (85%) were seen, 3 (12%) are awaiting to be seen and 12 (46%) had defaulted the appointment.

Conclusion: There is the need to explore on factors influencing compliance with child health surveillance. Research could delve into various aspects such as parental awareness, accessibility of healthcare services, socioeconomic factors and cultural beliefs. Understanding these factors can help tailor interventions to improve compliance rates and ultimately enhance child health outcomes.

Prevalence And Factors Affecting Fear of Childbirth Among Pregnant Women: A Cross Sectional Study in A Maternity Hospital in Singapore

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Introduction: Fear of Childbirth (FOC) is a common phenomenon experienced by pregnant women globally. However, understanding of FOC in Asian populations remains limited. Existing studies have also revealed inconsistent results on the influence of demographic and obstetric factors on FOC. This study aimed to investigate the prevalence of FOC among pregnant women in Singapore, and to examine the association between FOC and various demographic and obstetric factors.

Methodology: A cross-sectional study was conducted among a convenience sample of 257 pregnant women in KK Women's and Children's Hospital in their third trimester with no known pregnancy complications. FOC was measured using the Fear of Birth Scale (FOBS) with a cut-off point of more than or equal to 60 to define the presence of FOC. Pearson's Chi Square tests were used to analyse associations between FOC and the various factors. The collective impact of significant factors was further examined using multiple logistic regression.

Results: The overall prevalence of FOC was 33.1%. Indian pregnant women exhibited the highest likelihood of FOC ($p < 0.01$). Single pregnant women demonstrated a higher prevalence compared to their married or cohabiting counterparts ($p < 0.001$). Nulliparous women ($p < 0.01$) and those with a history of miscarriage ($p < 0.001$) also faced an increased likelihood of experiencing FOC. Age group, education level, and employment status did not exhibit significant associations ($p > 0.05$).

Conclusion: This study provides insights into the prevalence and determinants of FOC in Singapore, opening avenues for future research and underscoring the need for tailored support and culturally sensitive interventions.

From Bedside Vigilance to Empowered Parent: A Descriptive Qualitative Study of Maternal Involvement in the Pediatric Intensive Care Unit

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Introduction: In a fast-paced and stressful intensive care unit, mothers often experienced helplessness regarding their children and hence relegate caregiving to the healthcare team. To the authors' best knowledge, there is no study exploring maternal involvement in the Paediatric Intensive Care Unit (PICU) in the context of Singapore. It is imperative to understand the maternal experiences and needs in the PICU to help alleviate their stressors.

Methodology: Convenience sampling was used to recruit mothers of children hospitalized in a PICU for at least 48 hours in a public tertiary hospital from September to November 2023. Mothers whose children were recently diagnosed with cancer or were terminally ill were excluded from this study. Mothers suspected of child abuse were also excluded. Semi-structured interviews were conducted, and data was analyzed using thematic analysis.

Results: Thirteen participants completed the interviews. Four themes and thirteen subthemes were identified. The themes were: (1) Emotional roller-coaster, (2) Redefining mother's duties, (3) Collaborating with the healthcare team, (4) Barriers to Maternal Involvement. Mothers felt hopeless and anxious but rarely showed outward signs of emotional distress. They reclaimed their role through staying by their child's bedside and worked closely together with the healthcare providers. Maternal involvement was limited by their fear of causing more harm, inconducive spaces and balancing their sick child and other siblings at home.

Conclusion: These findings provide a nuanced insight into maternal experiences and can help to inform enhanced family-centred care hospital policies in areas which could increase maternal involvement through improvement of facilities.

Implementation of IBD Nurse-Led Pre-Admission Assessment at The Largest Pediatric IBD Infusion Unit in Singapore

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Introduction: Children with inflammatory bowel disease (IBD) on biologic infusions require regular admissions. The implementation of a pre-admission assessment helps to reduce medication errors, inter-physician variability and unnecessary delays. Our aim was to assess the feasibility and adoption of a pre-admission assessment system.

Methodology: The IBD nurse developed a pre-admission assessment system: reviewing patient's clinical condition prior to the infusion for 1) disease progression, 2) infusion related complications and 3) latest health status (anthropometry, laboratory investigations, infliximab drug levels and radiological findings). A consensus treatment plan is achieved, following a weekly multi-disciplinary conference. The IBD nurse is empowered to carry out nurse-led consultations and defer the infusion should there be any contraindications. Biologic doses and investigations would be planned beforehand and pre-medications for all patients were standardized. After implementation in 2022, outcomes were assessed via physician group feedback and review of charts from April to September 2022.

Results: Twenty-two of 117 patients required 61 admissions for IV biologic infusions every 6 to 8 weekly (male n=11, Crohn's disease n=21). The implementation of this pre-admission assessment led to reduced medication errors and delays in administration of medications and investigations. It also provided consistency of care to the patient. Positive feedback received included improved consistency, quality of care, communication, safety and efficiency.

Conclusion: As the number of patients on biologics therapies continues to grow, consistency in practice is paramount. The implementation of pre-admission assessments improves communications, reduces delays, errors and enhances the patient care experience.

Patient / Caregiver Involvement in Medication Administration (PCIA)

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Introduction: Medication error rates in hospital is still high despite current robust electronic medication administration records and nursing efforts. Studies have shown that patient empowerment and engagement can enhance medication safety during hospitalization, thereby promoting patients' autonomy and confidence in handling their medication which helps to prevent medication errors.

Methodology: Mixed methods research design was used in the study. Structured survey will be sent out to participant at end of their hospitalization, to reflect on PCIA and its implementation. Medication errors data were also collected and studied during this period. Intervention was trialed in a pediatric medical ward from April to June 2024, using purposive, convenience sampling method. Sampled patients, aged 0 years to 18 years old, had their medication administered themselves or their caregivers during hospitalization. Training will be provided by nurses.

Results: Total of 9 patients/caregivers were recruited and successfully completed the intervention. Feedback from participants were positive, highlighting that the training enabled participants to plan schedules, control medication timing to serve the medication and gain confidence in administering medication that requires technique.

Conclusion: Preliminary results showed increased confidence and positive experiences amongst patients and caregivers. However, nurses faced challenges in training patient and caregivers. More data and support are required to confirm PCIA's impact on patient's empowerment and medication safety; and to ensure sustainable implementation in hospital's setting.

Enhancing the Special Care Nursery's Environment Through Noise Reduction: A Quality Improvement Initiative

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Introduction: The Special Care Nursery (SCN), a level 2 neonatal nursery, admits an average of 1000 babies annually and faces a challenge with high noise levels. This poses risk to the well-being and developmental outcomes of vulnerable infants. High noise levels necessitate louder speaking, causing fatigue and irritation among caregivers and staff. This results in reduced work performance, and increased errors. Multiple activities occurring throughout the day in the SCN surpasses the recommended limit of 45dB(A) by the American Academy of Pediatrics. The project aimed to reduce the median noise level in SCN by 20%.

Methodology: Root cause analysis was performed. Noise levels at five-time intervals were collected pre-and post-intervention. A customized survey was administered to parents and staff. Staff were educated on impact of a noisy environment. Quiet Time was implemented for 1 hour, thrice a day, during which non-urgent procedures were avoided, lights dimmed, and soft instrumental music was played via speakers.

Results: Median noise level decreased by 22-27% post intervention. More than 80% of staff reported improved noise levels, awareness, and perception of noise level. Staff reported that Quiet Time benefitted babies' sleep, enhanced staff mood, communication and work performance. 90% of parents expressed satisfaction with Quiet Time, noting increased opportunities for bonding, optimal environment for kangaroo care, and improved infant calmness and sleep quality.

Conclusion: The project was successful in achieving its goal and was well received by staff and parents, with perceived benefits for the babies, staff and parents.

Nurses' Readiness to Provide Compassionate Care to Patient Experiencing Miscarriage: A Descriptive Exploratory Study

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Introduction: Miscarriage is a common presentation in a local tertiary hospital Urgent Obstetrics & Gynaecology Centre (UOGC). Patients with miscarriage may experience significant emotional grief. It is imperative for nurses to provide compassionate care to ensure miscarriage patients receive optimal support. Nonetheless, little is known about the nurses' experiences and their readiness in the provision of compassionate care to the women with miscarriage.

Methodology: The study aimed to explore UOGC nurses' perceptions on their readiness in providing care for women with miscarriage, identify barriers and support mechanisms and obtain their counsel on the supported care to be provided. A qualitative descriptive study using a thematic analysis were conducted. Purposive sampling of twenty-two UOGC nurses who have experience in providing care to women with miscarriage were recruited to form six focus groups. Ethical approval was obtained from SingHealth Centralised Institutional Review Board.

Results: Nurses were mostly concerned on the care of women with miscarriage, acknowledging that miscarriage can have a significant emotional impact. However, nurses felt stressful and emotionally overwhelmed thereby requiring support from colleagues, supervisors and family. Barriers to providing care included a challenging environment, manpower shortage, insufficient time, inadequate communication skills and training. Nurses recommended specific training on miscarriage and support staff to counsel women with miscarriage to enhance nursing care.

Conclusion: UOGC nurses require support from the organisation to provide education in communication skills and bereavement. This will increase nurses' confidence to provide compassionate care to the women with miscarriage.

Growing Awareness on Oral Health Screening in Prevention of Early Childhood Caries Through an Educational Approach: A Maternal and Child Health Initiation by Changi General Hospital Community Nursing

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Introduction: Tooth decay in children below age of 6 is defined as early childhood caries (ECC). In Singapore, 40% of preschool children are affected by ECC despite the high living standards and affluent society. ECC can be detrimental if it is not managed in time. Untreated cavities may lead to pain, swelling, difficulty eating and sleeping. In severe cases, it may cause damage to the development of permanent teeth and systematic infection. Consequentially, cost for treatment for health services is relatively high. As the benefits of early preventive measures outweigh the consequences and complications of ECC, timely screening and early referral for care are being emphasized. With appropriate training and skills, community nurses (CN) can be empowered to increase preventive efforts in the community by giving oral health education and perform basic screening. This study examined the effectiveness of an oral health education programme for CN.

Methodology: Community Nurses from Changi General Hospital were involved in an oral health education programme which consisted of a pre-test questionnaire, a face-to-face lecture on oral health

Results: Fifty-one out of 54 nurses (94.4%) shown improvement in the oral health knowledge pre-test and post-test scores.

Conclusion: The oral health education programme for CN was effective in increasing their oral health knowledge, acquiring sufficient knowledge to recognize dental caries in children on photographs. Further studies can explore if the effectiveness and accuracy of the oral health education programme and caries recognition can be maintained long-term during physical screening in children.

What's The Gut Got to Do with Emotions? Seasonal Variations in Adolescents Presenting with Gastrointestinal Symptoms in the Children's Emergency Department

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Introduction: In 2023, 293 adolescents attended the Children's Emergency Department (ED) with the symptom diagnosis of abdominal pain, representing 1.45% of all adolescent patients. Additionally, 238 adolescents (1.18%) were diagnosed with functional gastrointestinal syndromes. There is significant scientific evidence demonstrating a strong connection between the gut and emotions and high comorbidity of psychosocial problems with functional gastrointestinal conditions. This study aims to examine if adolescent presentations to the ED with medically unexplained gastrointestinal symptoms follow a similar seasonal pattern to other common psychosomatic symptoms.

Methodology: The frequency of monthly ED adolescent attendances for medically unexplained gastrointestinal symptoms, namely functional gastrointestinal symptoms and abdominal pain, was compared with attendances for medically unexplained headache, hyperventilation, and chest pain from January 2020 to January 2024.

Results: Adolescents with medically unexplained abdominal pain and functional gastrointestinal symptoms followed similar seasonal patterns as with other psychosomatic symptoms like headache, hyperventilation, and chest pain. Troughs were observed during school holidays, while peaks occurred after long school holidays. In July 2021, there was a surge in chest pain reports post-COVID-19 vaccinations, with most testing negative for vaccine-related peri-myocarditis.

Conclusion: Adolescents with medically unexplained abdominal pain and functional gastrointestinal symptoms exhibit seasonal patterns similar to other psychosomatic symptoms. This seasonality may be linked to factors such as academic stress or peer relationship issues at the start of the school year. This highlights the need to consider psychosocial comorbidities in these adolescents. Further studies are required to better understand these associations.

Effectiveness of Interprofessional Education for Medical and Nursing Professionals and Students on Interprofessional Educational Outcomes: A Systematic Review

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Introduction: Ineffective interprofessional communication and collaboration among nursing and medical professionals and students contribute to unsafe practices. Interprofessional education (IPE) provides opportunities to strengthen nurse-physician collaboration and enhance patient care. However, there is inconclusive evidence regarding interprofessional education effectiveness. This review aims to systematically evaluate IPE effectiveness for nursing and medical professionals and students on interprofessional educational outcomes (interprofessional attitudes, perceptions, skills, knowledge, behaviours, and organisational and patient outcomes).

Methodology: Eight databases were last searched on 13 January 2022. This review included published and unpublished randomised controlled trials, quasi-experimental and mixed-method studies in English examining IPE outcomes among nursing and medical professionals and students. Two reviewers independently appraised studies using the Joanna Briggs Institute (JBI) Critical Appraisal Tools and extracted data using a modified JBI data extraction form. Narrative synthesis was conducted. Certainty of evidence was appraised using the Grading of Recommendations, Assessment, Development and Evaluations tool.

Results: This review included 15 studies involving 1185 participants. Improvements were reported in each interprofessional educational outcome after IPE. High-fidelity simulation with multiple scenarios, standardised communication tools, didactic and active learning methods, theoretical frameworks, debriefing sessions, and provider training enhanced IPE effectiveness.

Conclusion: Effectiveness of IPE for nursing and medical professionals and students was demonstrated since improvements were observed for each interprofessional educational outcome. This systematic review addressed literature gaps, demonstrated effectiveness of IPE in clinical practice and academic curricula and provided evidence-based insights that future research can consider enhancing global patient safety standards for optimal patient outcomes and quality of healthcare.

Effectiveness of Acupressure on Postpartum Outcomes: A Systematic Review and Meta-Analysis

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Introduction: Complementary methods like acupressure have been commonly used to manage changes relating to childbearing and labour process. However, studies done to determine its efficacy on influencing the well-being of puerperae have reported mixed findings. This review aims to assess effects of acupressure on pain, time to flatus, uterine involution, breast milk production, fatigue, and mood and emotional well-being in puerperae.

Methodology: Eight databases were searched for English studies published from 2012 until January 2022, with no geographical restrictions. Using a pre-developed search strategy, 901 studies were identified and screened. Randomized controlled trials and quasi-experimental studies that evaluated puerperae above the age of 18, up to 12 weeks postpartum, involving acupressure applied after delivery for any postpartum outcomes were included. Meta-analyses were conducted using RevMan (Version 5.4). Overall effects, heterogeneity, and certainty of evidence were assessed with Z-statistics, Chi² and I² statistics, and GRADE respectively.

Results: A total of 23 studies involving 2107 participants were identified. Methodological quality varied between studies, with most lacking blinding. Meta-analyses revealed that acupressure caused significant improvements in pain (Z=3.08, P=0.002), time to flatus (Z=3.75, P=0.0002), uterine involution (Z=4.00, P<0.0001), breast milk production (Z=4.33, P<0.0001) and mood and emotional well-being (Z=3.03, P=0.002). Certainty of evidence ranged from very low to moderate.

Conclusion: This review reported significant improvements in all outcomes, showing acupressure's potential as a safe non-pharmacological method to positively influence postpartum care and improve symptoms of mothers after delivery. Results must be interpreted with discretion due to substantial clinical and methodological heterogeneity and small sample sizes.

Perceptions of Women on the Use of Complementary and Alternative Therapies During the Postpartum Period: A Mixed-Studies Systematic Review

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Introduction: Postpartum women experience an array of debilitating symptoms after childbirth. Although studies have been done on the effects and safety of the use of complementary and alternative medicine (CAM) during the perinatal and postpartum, limited knowledge has been synthesised on women's perspectives and experiences on CAM. This mixed-studies systematic review aimed to consolidate and synthesize the available evidence on perceptions and experiences of postpartum women on the use of CAM in the postpartum period.

Methodology: Peer-reviewed primary studies involving postpartum women up to 12 months were included for review. Seven electronic databases were searched. The SPIDER framework guided the review question and selection of search terms, with the approach by Joanna Briggs Institute guiding the search strategy. The Mixed Methods Assessment Tool was used to appraise the quality of research studies. Data extraction took place using the Mixed Methods JBI Extraction Form. Data synthesis was done using a convergent integrated approach, with quantitative data being qualitated and analysed to carry out qualitative thematic analysis.

Results: The review included fourteen articles with eleven quantitative and three qualitative studies. Data analysis generated three main themes: 1) motivation behind using complementary therapies, 2) diverse sources of influence and 3) enabling transition to motherhood.

Conclusion: The findings showed that women viewed CAM positively and their perceptions were guided by their families and personal experiences. HCPs can play a greater role in helping women use CAM safely and consistently, and providing education and support.

The Effectiveness of Technology-Based Cognitive Behavioural Therapy on Perinatal Depression and Anxiety: A Systematic Review and Meta-Analysis

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Introduction: Depression commonly affects women in the perinatal period, and is a significant cause of disease burden worldwide. Extensive literature has shown the effectiveness of cognitive behavioural therapy in treating perinatal depression, but little is known about the effectiveness of its technology-based version. The aim of this review was to examine the effectiveness of technology-based cognitive behavioural therapy (TB-CBT) in reducing depressive and anxiety symptoms in women suffering from or at risk of experiencing perinatal depression.

Methodology: Six electronic databases were searched until February 2023 for articles published in English. Random-effect meta-analyses were conducted. Heterogeneity was assessed using the I² statistics and Cochran's Q chi-squared test. Sensitivity analyses and subgroup analyses were also performed, and quality appraisals at the study and outcome levels were conducted.

Results: A total of 16 randomized controlled trials were included in the review. Results from meta-analyses suggest that technology-based cognitive behavioural therapy has a medium effect in reducing perinatal depressive symptoms and a small effect in reducing perinatal anxiety symptoms. Overall, women suffering from or at risk of perinatal depression may benefit from TB-CBT.

Conclusion: This review provided evidence for the effectiveness of TB-CBT interventions for perinatal depressive and anxiety symptoms. Future interventions can be improved by addressing both perinatal depression and anxiety, paying more attention to antenatal women to prevent postnatal mental health issues, and using self-guided mobile applications for accessibility.

Comparing the Efficacy of Phototherapy Using LED Photo Light Versus Fluorescent Light

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Introduction: This initiative seeks to assess the effectiveness of LED phototherapy versus fluorescent phototherapy focusing on total serum bilirubin (TSB) reduction rates and treatment duration.

Methodology: Two PDSA cycles were conducted to compare outcomes between two fluorescent phototherapy devices and a LED phototherapy device (Bililux). Baseline irradiance levels were measured using radiometer for single blue (SB) and double blue (DB) LED devices. The LED phototherapy settings included: SB with two bars (40-50 mW/cm²/nm) and DB with four bars (60-70 mW/cm²/nm). Cycle-1 (March – April 2022) retrospectively analyzed treatment duration and TSB reduction rates from 100 neonates treated with SB and DB phototherapy. Cycle-2 (September 2022) aimed to reduce TSB levels by increasing the intensity of the Bililux device: SB with three bars (50-60 mW/cm²/nm) and DB with five bars (80-90 mW/cm²/nm).

Results: In Cycle-1, Bililux effectively reduced mean treatment duration by 1-2 hours and showed a higher TSB reduction rate of 4.11 µmol/hour for SB. However, for DB, Bililux had a longer mean treatment duration (difference: 3.6 hrs) and lower TSB reduction rate (difference: 0.66 µmol/hour). In Cycle-2, for both SB and DB phototherapy, Bililux had a higher mean treatment duration ranging from 1.73 - 3.47 hours and TSB reduction rate ranging from 0.61 - 1.2 µmol/hour.

Conclusion: Cycle-1 indicated comparable mean treatment durations and TSB reduction rates between fluorescent and LED phototherapy for SB, but less effectiveness for DB phototherapy. Cycle-2 demonstrated that increasing Bililux intensity reduced treatment duration and increased TSB reduction rates for both SB and DB phototherapy.

Effectiveness of Community-Based Family-Focused Interventions on Family Functioning Among Families of Children with Chronic Health Conditions: A Systematic Review and Meta-Analysis

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Introduction: Community-based family-focused interventions can offer support to families of children with chronic health conditions. This review aimed to evaluate the effectiveness of community-based family-focused interventions in improving family functioning, disease knowledge, and child health outcomes among families of children with chronic health conditions.

Methodology: Eight electronic databases (MEDLINE, EMBASE, CINAHL, CENTRAL, PsycINFO, Scopus, Web of Science, and ProQuest Dissertations & Theses Global) and one trial registry (ClinicalTrials.gov) were searched from their dates of inception to October 2022. Meta-analysis was performed under the random-effect model when appropriate otherwise, findings were narratively synthesized. I² statistics and Cochran's Q chi-squared test were used to determine heterogeneity. Quality appraisal was conducted by the Cochrane risk of bias tool and the Grades of Recommendation, Assessment, Development, and Evaluation approach at the study and outcome level, respectively. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines guided this review.

Results: Eight studies were included in this review. Community-based family-focused interventions were viable methods that could support families of children with chronic health conditions. Family-focused interventions that incorporate guided role-playing exercises for parents and children, psychoeducational components, and elements from relationship-focused interventions could support families more effectively. However, current findings are mostly limited to interventions conducted in patients' homes, and the long-term effect of these interventions cannot be determined.

Conclusion: Overall, community-based family-focused interventions have the potential to offer valuable support to families of children with chronic health conditions, and future research could seek to improve the effectiveness of these interventions.

An Advanced Practice Nurse (APN) Led Young Women Breast Clinic in Tertiary Women and Children Hospital, Singapore: A Prevalence Study

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Introduction: An APN-led young women breast clinic was recently introduced in breast center. In the clinic, the APN sees 1) new referrals, aged 35 and below with various breast conditions, 2) follow up benign cases, in collaboration with breast surgeon. The aim is to address conditions such as fibroadenoma, mastalgia, mastitis promptly.

Methodology: The author uses ultrasound and biopsy as diagnostic tools to review prevalence of various breast conditions in the clinic.

Results: Sixty-one cases were seen over six months: 35 new cases and 27 follow-up cases. Out of new cases, 60% were seen for breast lumps; all are benign cases, categorized as fibroadenoma, breast cysts, well-circumscribed hypoechoic nodules with possible benign sonographic features, 20% mastalgia (57% has normal ultrasound study with no discreet lesion, 43% has well circumscribed hypoechoic nodules, with benign sonographic features), 11% for mastitis and 8% for nipple discharge. None of the lesions which required biopsy are cancerous. For follow up cases, 85% are followed up for benign lesions.

Conclusion: Breast lumps and mastalgia are the most common presentations. 100% self-palpable lumps are benign lesions based on ultrasound or biopsy results, mostly fibroadenomas. They are monitored with ultrasound for two years; a biopsy is recommended if nodules become bigger/ changes in appearance. The APN-led breast clinic, using systematic pathway, is cost-effective and safe to investigate and treat breast conditions. For the future evaluation, the author aims to study the large number of cases, and to evaluate patient's satisfaction and clinic waiting time.

Experiences of Men Undergoing Assisted Reproductive Technology: A Qualitative Systematic Review

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Introduction: Many infertile couples undergo assisted reproductive technology (ART) to increase pregnancy chances, with many of them experiencing psychosocial distress. Although research has been performed on women's ART experiences, there is limited focus on men. This systematic review consolidated and synthesized men's experiences with ART to better understand their needs and challenges to support them.

Methodology: Nine electronic databases were searched from the inception date until November 2022. This review included published and unpublished primary studies with qualitative methodologies exploring men's experiences with ART. The screening of studies, methodological assessment, data extraction, and analysis were conducted by two reviewers independently. The data were thematically synthesized.

Results: Fifteen studies were included. An overarching theme of "despair to destiny" was identified, with four synthesized themes: (1) "The roller coaster ride," (2) "What made it from bad to worse?", (3) "What kept men going?", and (4) "Hopeful for the future."

Conclusion: Men undergoing ART experienced struggles, a transition of emotions, and a need for support as they attempted to cope with unknowns while remaining hopeful for future outcomes. There is a need for health care interventions and policies to address the issue to improve the well-being of male ART patients. Interventions should be tailored to the specific support groups that cater to the emotional and informational needs of male ART patients. Future research should focus on the influence of cultural sensitivities on men's ART experiences, to tailor support programs to address their psychological needs during ART.



Exploring Father's Involvement During the Antenatal Period: A Descriptive Qualitative Study

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Introduction: Fathers' involvement during the antenatal period is essential for the overall welfare of the family. However, the few studies conducted in Singapore exploring this topic had largely focused on the fathers' experiences during the postpartum period. This study aimed to explore factors affecting fathers' involvement during the antenatal period using the Social-Ecological Model as a framework.

Methodology: A descriptive qualitative design was used, and participants were recruited from November 2022 to September 2023. Participants were men aged 21 and above, English literate, whose partners delivered at a public tertiary maternity hospital in Singapore. Semi-structured interviews were conducted via phone call and audio-recorded with permission. Audio-recordings were transcribed verbatim and analysed using thematic analysis.

Results: Twenty-two participants completed the interview. Four overarching themes and nine sub-themes were generated. The four themes included: (a) Meaning of father's involvement; (b) Enablers and barriers affecting fathers' participation; (c) Fathers' experience in the healthcare system; and (d) Recommendations to improve fathers' involvement. Expecting fathers were intrinsically motivated to participate during the pregnancy, often relying on family and friends for guidance and resources. Local employers have also been supportive of male employees. However, healthcare providers could better engage fathers during antenatal visits by offering concise educational materials and communicating available support from local social service agencies.

Conclusion: Expecting fathers in Singapore are actively involved and have good support networks during the pregnancy. However, healthcare institutions and the community need to do more to improve support and address the needs of expecting fathers by providing more information during antenatal visits.

Effectiveness of Expressive Writing Therapy for Postpartum Women with Psychological Distress: Meta-Analysis and Narrative

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Introduction: Psychological distress among mothers surpasses the effectiveness of conventional coping methods like cognitive behavioral therapy. Limited research and inconsistent findings undermine the efficacy of alternatives including writing therapy for maternal psychological well-being. This study aims to evaluate the effectiveness of expressive writing therapy versus standard postpartum care in alleviating psychological distress, encompassing of depression, anxiety, or stress, in postpartum women.

Methodology: CINAHL, Cochrane Library, EMBASE, PsycINFO, PubMed, Scopus and Web of Science and grey literature were examined till 27 December 2022, for randomized controlled trials comparing expressive writing against standard care or controlled writing among postpartum women with psychological distress. Cochrane data extraction form and Cochrane Risk of bias tool were used to extract and appraise data, respectively. Meta-analysis data was collected using a random effect model.

Results: Six studies involving 976 postpartum women with psychological distress were retrieved, where most studies have unclear risk of bias. Meta-analysis of five studies showed expressive writing significantly reduce baseline depression and stress scores compared to standard care or controlled writing, with larger effects in individuals with higher baseline depression scores. However, expressive writing had no effect on postpartum anxiety.

Conclusion: Expressive writing is an effective non-pharmacological alternative for postpartum women with depression and stress, but more research is needed for postpartum anxiety. Due to substantial heterogeneity, results must be interpreted cautiously. Postpartum women with psychological distress are encouraged to use the inexpensive expressive writing to promote maternal mental health for the benefit of both mother and child.

Home Phototherapy for Neonates with Jaundice: An Advanced Practice Nurse (APN)-Led Service: Feasible or Not?

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Introduction: Phototherapy is largely performed in local hospitals for neonatal jaundice treatment. However, it is feasible to perform at home as well.

Methodology: Neonates with jaundice requiring single blue phototherapy were identified from inpatient and outpatient settings. Initial triaging on suitability and explanation of home phototherapy service were done by APN. Once recruitment was confirmed, physical assessment on neonate, followed by video consultation on the following day were done. An online survey comprising of 7 questions (5 questions using Likert scale- ranging 1-5; 2 open ended questions) on parental experience with this service was sent to parents upon discharge.

Results: From January 2024 to May 2024, 16 neonates were enrolled in this service. All parents (n=11; 100%) responded were satisfied with this service. They rated APN's performance - 'good' to 'excellent' on professionalism, knowledge, care and concern, and communication skills. Parents were confident and preferred this mode of care as it saved time travelling from home to hospital and allowed comfort of care within the vicinity of home. Hence, they would recommend this service to others. Areas of improvement mentioned were related to quality of eye shield used during phototherapy, structure of machine and more tips on comforting measures of neonates under phototherapy.

Conclusion: The APN-led service on home phototherapy for neonates is feasible as it is timesaving and enhances parental comfort in caring their neonates under treatment at home. The team will continue to explore on alternatives and measures in addressing the areas for improvement.

Intimate Partner Violence and Pregnancy Loss: A Systematic Review and Meta-Analysis of the Current Literature

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Introduction: Both intimate partner violence (IPV) and pregnancy loss are health concerns with increasing prevalence, both affecting the victims greatly. However, the relationship between IPV and pregnancy loss and the type of pregnancy loss that is most likely to occur due to IPV is uncertain. The aims of this review are to investigate whether women who face IPV are at greater risk of experiencing pregnancy loss and to identify the type of pregnancy loss that is most likely to occur in women with a history of IPV.

Methodology: A systematic search on nine databases was conducted. Studies were obtained from inception until January 2023. The Newcastle-Ottawa scale was adopted to assess methodological quality of the included studies. Meta-analysis was performed using the Review Manager 5.4 (RevMan) software.

Results: Forty-two observational studies involving 191,138,874 ever-pregnant women across 23 countries were included. Meta-analyses revealed that the women with undifferentiated IPV were 1.89 times more likely to experience pregnancy loss. Subgroup differences were detected on pregnancy loss between types of pregnancy loss, sample size, and study quality. Subgroup analyses have also shown that stillbirth is most likely to occur in women with a history of IPV.

Conclusion: Our review shows that IPV is related to pregnancy loss and can be detrimental to a woman's pregnancy status and can be fatal. Routined screening of IPV during antenatal checkups and prompt interventions are highly recommended to reduce pregnancy losses from IPV, improving a woman's overall well-being.

Global Prevalence of Stress, Anxiety and Depressive Symptoms Among Pregnant Women: A Systematic Review and Meta-Analysis

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Introduction: Psychological distress such as stress, anxiety and depression during pregnancy is common and can result in detrimental outcomes in the mother and child. Despite this, perinatal mental health disorders are still being neglected in the areas of assistance and research. This review aims to (1) estimate the global prevalence of stress, anxiety, and depression amongst antenatal women and (2) identify the factors affecting prevalence.

Methodology: A comprehensive search across eight database was conducted. Meta-analysis and subgroup analysis were done using Review Manager 5.4 software. Meta-regression and assessment of publication bias (Egger's test) were done using Jamovi. The Newcastle Ottawa Scale (NOS) was used to assess quality of included studies while the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) system was used to appraise the overall quality of evidence.

Results: A total of 90 published studies with 62,373 participants across 48 countries were included in this meta-analysis. Prevalence of stress, anxiety, and depressive symptoms in pregnant women are 31% (95% CI: 3-60), 31% (95% CI: 26-35) and 29% (95% CI: 26-32) respectively. A higher prevalence of anxiety (49%, 95% CI: 29-69) and depressive symptoms (38%, 95% CI: 29-47) was observed in lower income regions.

Conclusion: Findings from this study can contribute as evidence to the growing disease burden on mental health issues among pregnant women. The findings gathered should be used to raise awareness on the importance of addressing mental health disorders among the pregnant women population.

Burn Impetigo Management: A Case Series Review on Pediatric Burns with Evidence-Based Practices

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Introduction: Burn impetigo is an infection of superficial layers of the epidermis that occurs after a burn wound has healed. The wound presents with or without yellowish crusting and gives a denuded appearance. It is painful, can be costly and contributes to longer healing time. The aim of this review is to evaluate current practices in burn impetigo management against evidence-based practices.

Methodology: A retrospective case study was conducted on four patients with burns in 2022/2023. Data on burn depth, number of days to heal, number of days when burn impetigo started, time till the wound fully healed were collected, as well as the primary dressing used.

Results: Of four patients, one developed impetigo due to friction. Two were caused by patients' scratching, and the last was due to moisture related to microclimate. Topical antibiotics were used for three patients and antiseptic gel for one. Three patients healed within ten days while the fourth took twenty-three days to heal. The challenge for the fourth patient was the inability to comply to wound care advice due to his intellectual disability.

Conclusion: According to evidence-based studies, the use of topical antibiotics to treat burn impetigo shortens healing time, seven to ten days, in line with our current practices. Besides focusing on type of dressing materials used, further research can be done to develop strategies for managing patients holistically. Future studies should also include measures to minimize and prevent burn impetigo.

Exploring Views and Readiness of Primary Care Nurses in Providing One-On-One Professionally Mediated Breastfeeding Support (PMBS) in the Central and Northern Regions of Singapore: A Qualitative Case Study

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Introduction: A structured training programme (e-Learning, short attachment with lactation consultant and case discussion) with ongoing peer learning at workplace for nurses was piloted to enhance primary care nurses' knowledge and skills sets in providing one-on-one PMBS. Views and readiness of 12 senior and experienced nurses in women and children health were examined at regular time-points.

Methodology: Using a case-study research strategy, nurses' views and readiness on providing 1-on-1 PMBS was explored. Qualitative data was collected from records of discussions, peer-to-peer evaluations and nurses' reflections. Reading and coding were done, with understanding that readiness comprises of four dimensions – motivation, knowledge, experience and physical influence.

Results: This study found that nurses' views and readiness in providing 1-on-1 PMBS was influenced by (1) interest, (2) learning breastfeeding, (3) learning by doing, and (4) peer learning. Nurses valued and supported each other to acquire "in-depth knowledge" to initiate PMBS. Nurses' reflections and self-evaluation surveys revealed lived experience with breastfeeding improved application of breastfeeding knowledge and skills. Yet, they lacked confidence and were apprehensive in their overall readiness to deliver 1-on-1 PMBS, citing reasons including fear of insufficient time to support the breastfeeding mother and insufficient exposure. There were also barriers and enablers regarding "support", "learning" and "guidance" from peers and seniors.

Conclusion: Structured training and ongoing peer learning has positive impact on nurses' readiness for 1-on-1 PMBS in the primary care. A 'facilitative approach' to ongoing peer learning was perceived more helpful to ready primary care nurses in providing 1-on-1 PMBS.

Effectiveness of Human Milk Application on Health Outcomes of Infants: A Systematic Review and Meta-Analysis

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Introduction: This review evaluates the efficacy of topical human breast milk (HBM) in (1) decreasing the incidence of infection (diaper dermatitis, conjunctivitis and omphalitis) and inflammation (atopic eczema) amongst infants (2) shortening the time of separation of infants' umbilical cords.

Methodology: Using a comprehensive search, randomized controlled trials (RCT) were selected from 7 databases, namely PubMed, CINAHL, Scopus, Embase, Cochrane Library, ProQuest Dissertations and Theses Global and Web of Science until 3 January 2023. RevMan Software (Version 5.4) and Jamovi software were used. Risk Ratio (RR), Mean Difference (MD) and Standardized Mean Difference (SMD) were used to establish the overall effect. Cochrane Collaboration Tool version 1 and Grading of Recommendations Assessments, Development, and Evaluation system (GRADE) appraised the quality of the selected studies and certainty of evidence of the outcomes. Cochran Q and I² were used to evaluate heterogeneity. Sensitivity, subgroup and meta-regression analyses were also performed to explore reasons for heterogeneity.

Results: After the selection process, 20 RCTs with a total of 4036 infants were chosen. The meta-analysis showed that topical HBM was effective in reducing the incidence of infection (RR= 0.63; 95% Confidence Interval (CI): 0.43, 0.92) and shortening the time of cord separation (MD of -1.74, 95% CI -2.45, -1.03) in contrast with comparator groups. However, the effect of topical HBM against atopic eczema was statistically insignificant. Most (80%) of the studies were made up of unclear overall risk of bias. The overall certainty of evidence ranged from low to high.

Conclusion: Topical HBM decreases infection rates and umbilical cord separation time. Investigations should be done to test its effect on infants with atopic eczema.

Enhancing Medication Safety Awareness: Assessing the Impact of NQI Initiatives Through Near-Miss Reporting Rates

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Introduction: The Nursing Quality and Safety Improvement (NQI) team identified a concerning trend of medication errors, often attributed to human behavioral factors such as assumptions, distractions, and rushing behaviors. Various initiatives including bulletins, focused group discussions, safety forums, and patient safety walkabouts were implemented. Near-miss reporting, a comprehensive indicator of safety culture awareness, will be used as an outcome measure to evaluate the effectiveness of these NQI initiatives in increasing nurses' medication safety awareness.

Methodology: The study analyzed near-miss reports collected from April 2020 to March 2023 period before and after the implementation of NQI initiatives. Statistical T-test analysis was conducted to assess the effectiveness of NQI initiatives based on near miss reporting rates.

Results: Pre-implementation phase April 2020 to March 2021 shows a total of seventy (n=70) medication near-miss reports as compared to post-implementation phase April 2022 to March 2023 of ninety-six (n=96) cases. A statistical T-test analysis was conducted and yield a statistically significance (p-value <0.05) increment in near-miss reporting post implementation of NQC initiatives. A significant 27% increase in near-miss medication reports suggests that the initiatives were effective in increasing nurses' awareness of medication safety.

Conclusion: The increase in near-miss reporting rates highlights the success of Nursing Quality's initiatives in enhancing medication safety awareness. Forums and discussions fostered a culture of openness and transparency, allowing nurses to share feedback. This led to improved awareness and vigilance in safe medication administration, with nurses viewing errors as learning opportunities to prevent future occurrences.

Standardise Nursing Handover via Animation to Improve Communication

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Introduction: Effective communication during shift handovers is crucial for safe patient care. Findings suggested that nearly 30% of medication errors were due to ineffective nursing handovers. Nurses use the Situation, Background, Assessment, and Recommendation (SBAR) tool for communication handovers. However, there were no clear guidance or standardization on SBAR proper application during nursing handover. This is especially concerning for our vulnerable neonates or pediatrics. Improper or non-standardized nursing handoff threatens medication safety and potentially fatal outcomes. To address this, an e-learning module with animated videos was introduced to demonstrate standardized communication tools and emphasize the importance of adhering to proper handover processes, aiming to reduce medication errors caused by ineffective communication.

Methodology: Three hundred and fifty nurses participated in the compulsory E-learning module. Medication errors rates resulting from ineffective handover over a period of 12 months pre and post implementation was collected. Statistical T-Test analysis was conducted to evaluate the effectiveness of the E-learning module.

Results: Pre- and post-implementation data of the e-learning module showed a 60% reduction in medication errors related to ineffective nursing handovers, decreasing from pre-implantation of fifteen to post-implementation of six errors. Statistical T-Test indicated a significant improvement ($p\text{-value} < 0.05$) in the medication error rate due to ineffective handovers following the module's introduction.

Conclusion: Evolving healthcare landscape empowers nurses to entice innovative educational tools in the e-learning module. Animation video enhanced realism, familiarity and learning to improve and standardized nursing handover for improved medication safety.