



SPECIAL DELIVERY

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A NEW PARADIGM OF PREGNANCY CARE



From 1 January 2016, KK Women's and Children's Hospital (KKH) will be launching a six-month pilot offering gestational diabetes mellitus (GDM) screening to all pregnant patients at 24 to 28 weeks gestation.

Report by Rebecca Tse



The new pilot is based on a local study* conducted by researchers from KKH and Duke-NUS Medical School, which found that extending GDM screening to all pregnant women has a better detection rate than targeted screening¹, allowing for wider coverage of timely intervention. The study also found that routine GDM screening is a cost-effective approach to reduce the complications of GDM in Singapore, compared to targeted screening or no screening.

At KKH, a risk factor-based approach to GDM had previously been taken, where targeted screening is offered to pregnant women with clinical characteristics consistent with a high risk of GDM.

"There are many health risks for the mother with GDM and her baby, including pre-eclampsia, preterm labour and birth trauma," says Professor Tan Kok Hian, Principal Investigator of the study, who is also Head and Senior Consultant, Perinatal Audit and Epidemiology Unit, Division of Obstetrics and Gynaecology (O&G), KKH.

"Fortunately, medical interventions for patients with GDM reduce complication rates by as much as 40 percent, giving both the mother and her baby a better prognosis in the long-term. This pilot will help to streamline our practice in our local population, and gain further information to enhance GDM management practices in Singapore and other countries," adds Prof Tan.

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MATERNAL-FETAL HEALTH COMPLICATIONS ASSOCIATED WITH GESTATIONAL DIABETES MELLITUS (GDM)

The pregnant mother with GDM is at increased risk of:

- Miscarriage
- Pre-eclampsia
- Macrosomia (baby weighing more than four kilogrammes at birth)
- Preterm labour

She is also at increased risk of developing type 2 diabetes mellitus and heart disease in future.

The fetus of a pregnant woman with GDM is at increased risk of:

- Stillbirth
- Birth defects
- Brain damage and bone or nerve injuries in the event of traumatic birth
- Shoulder dystocia
- Breathing difficulties
- Too high levels of bilirubin in the blood

Children of women with GDM are also at increased risk of obesity, glucose intolerance and diabetes in late adolescence and young adulthood.



GDM is defined as glucose intolerance with onset or first recognition during pregnancy, and is associated with an increased risk of maternal-fetal health complications.

Pregnant women who are at high risk of GDM include those with:

- Age above 35 years
- Body mass index above 30kg/m²
- A personal history of previous GDM, macrosomia, polycystic ovarian syndrome (PCOS) or poor pregnancy outcomes
- Family history of diabetes
- Excessive weight gain in pregnancy
- Pre-eclampsia or hypertension in pregnancy
- Multiple pregnancy, such as twins or triplets

According to the International Diabetes Federation, 15 percent of women are affected by GDM worldwide, with numbers expected to rise alongside the increasing prevalence of obesity². Asian women are also at greater risk of developing GDM during pregnancy.

Proper medical intervention for patients with GDM can reduce complication rates by as much as 40 percent, giving both the mother and her baby a better long-term prognosis.

As part of the pilot, the hospital will be adopting the International Association of Diabetes and Pregnancy Study (IADPSG) criteria, which are based on data from the international HAPO (Hyperglycemia and Adverse Pregnancy Outcome) study³ – of which KKH was one of 15 participating centres worldwide. The new criteria facilitate higher sensitivity and specificity of diagnosis of GDM.

Singapore General Hospital (SGH) will also be embarking on the six-month pilot trial from 1 January 2016 to offer GDM screening to all pregnant patients at 24 to 28 weeks gestation using the IADPSG screening criteria. Both the Department of O&G at SGH and the Division of O&G at KKH are members of the SingHealth Duke-NUS OBGYN Academic Clinical Programme.

*This study was conducted by Dr Petty Chen, a Duke-NUS Medical School graduate and SingHealth Postgraduate doctor, under the mentorship of Professor Tan Kok Hian and Professor Eric Finkelstein, Health Services & Systems Research Program, Duke-NUS Medical School. The study also utilised the database from GUSTO⁴ – Singapore's largest and most comprehensive birth cohort study, in addition to data from KKH and world literature.

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CLINCHING SINGAPORE'S FIRST MRCOG GOLD MEDAL IN 28 YEARS

Dr Serene Thain has become the first Singaporean doctor in 28 years to win the MRCOG Prize Medal (Gold) – attaining the highest score amongst all candidates worldwide at the recent Membership of the Royal College of Obstetricians & Gynaecologists Part two examinations in November 2015.

Report by Editorial Team



MRCOG gold medallist Dr Serene Thain (centre), with her KKH mentors A/Prof Philip Yam (left) and Prof George SH Yeo (right).

"I am very honoured to have won the prize as a Singaporean and feel deeply privileged to share the same award as previous esteemed winners," says Dr Thain, who is a Senior Resident with the SingHealth Obstetrics and Gynaecology (OBGYN) Residency Programme, and currently practices at KK Women's and Children's Hospital (KKH).

"I attribute this award to so many people who have helped me in the course of my exam preparations. It definitely spurs me on to continue to work hard and do better."

Previous Singaporean winners of the MRCOG Prize (Gold) include: Dr Charles Ng Sen Ark (1970), Dr Yusoff Dawood (1973), Dr Tan Seang Lin (1983), Dr Yeoh Swee Choo (1984) and Dr Tham Kok Fun (1987).

TO GO FAR, GO TOGETHER

Dr Thain credits her achievement to the community of support that rallied around her in the course of her examination preparations.

"In addition to my family members, who were a pillar of support, friends who had recently taken the MRCOG exams imparted words of wisdom and recommendations on exam preparations. I also owe a debt of gratitude to the many mentors and teachers from KKH and Singapore General Hospital (SGH) who have unselfishly imparted their knowledge and experience over the past four years of residency," says Dr Thain.

"In particular, I would like to acknowledge my mentor, Professor George SH Yeo,

who has been extremely encouraging and instrumental in developing my research capabilities. I greatly admire his tireless efforts to improve patient care through prenatal screening and how he stays true to his principles and values. I would like to thank him sincerely for believing in me.

"Associate Professor Philip KL Yam has also been a wonderful mentor, with such a kind personality and an infectious enthusiasm for teaching. His surgical expertise in the operating theatre is certainly an eye-opener, and it has been such an honour to be able to operate with him. Witnessing how much his patients look forward to seeing him is also truly inspirational. I would like to thank him for being an excellent role model to all of us," says Dr Thain.

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INSPIRING A COMMITMENT TO PERFECTION

“Dr Thain has impressed, right from her first year of residency, with her capacity to muster a commitment to perfection.” says Prof Yeo, who is Vice Chair for Research, SingHealth Duke-NUS OBGYN Academic Clinical Programme (OBGYN ACP).

“Her remarkable achievement in obtaining the Gold Medal in the recent MRCOG Part 2 examination, and her rare accomplishments of passing the MRCS and MRCP examinations as well are no mean feat,” adds A/Prof Yam, who is Senior Mentor and Senior Consultant, Department of Gynaecological Oncology, KKH.

“Dr Thain is a statement of what the SingHealth OBGYN ACP, and in an international context, what Singapore can achieve. No achievement can happen in isolation of the support of the community, and I am sure that many have contributed to her winning the MRCOG Gold Medal. Together with her teachers and colleagues, we are proud of Dr Thain,” says Prof Yeo, who is also Chief of Obstetric, Head and Senior Consultant, Department of Maternal Fetal Medicine and Obstetric Ultrasound and Prenatal Diagnosis Unit, KKH.

“It is our hope that she will continue to inspire junior residents to scale new heights, and set new standards of excellence in obstetrics and gynaecological care,” says A/Prof Yam.

DR SERENE THAIN’S TIPS FOR MRCOG EXAMINATION CANDIDATES



“Consistency is the most important element in preparing for the MRCOG examination. It is more of a marathon than a sprint, and therefore stamina is of great importance. There is so much to read and cover in the syllabus, and trying to cover all of it just a few months prior to the examination is not impossible but will make life extremely stressful and make the studying less effective,” says Dr Thain.

“Therefore, one should aim to start reading the relevant guidelines early during one’s normal course of work, as this would not only make preparations nearing the exam easier, but also would be useful in building on knowledge and therefore improve on the management of patients in the real clinical setting.”

DO

Be consistent and diligent in the preparation process and talk to seniors who have recently passed the examination who can give you tips on how and what to prepare, as well as point out on especially important aspects to know for the purposes of the exam.

DO

Write out a list of what you need to cover for the exam, prepare a timetable one year before the examination and stay close to the planned schedule. This will help ensure that you have enough time to cover all that is necessary and leave yourself enough time for revision in the last two months before the actual paper.

DON'T

It may be tempting to take a long break from work or no-pay leave to study for the examination, but I personally found that continuing to engage in daily work helped to keep me in touch with clinical practice and helped me manage my remaining time after work and on weekends better, as I was required to be more focused during that precious available time.

ABOUT THE SINGHEALTH DUKE-NUS OBGYN RESIDENCY PROGRAMME

The SingHealth Duke-NUS OBGYN Residency Programme is the largest specialist training programme for obstetrics and gynaecology in Singapore. Led by a team of core faculty from KKH and SGH, the programme is accredited by the Accreditation Council for Graduate Medical Education International (ACGME-I), and highly rated for the quality of clinical teaching and its commitment to translational research.

DETECTING THE RIGHT CAUSE

Keeping a sharp eye out for key features can help doctors detect the true underlying cause of vomiting in paediatric practice.

Dr Zaw Lwin, Associate Consultant, Department of Emergency Medicine, KK Women's and Children's Hospital

Vomiting is a common symptom of illness in children, and is one of the top ten reasons for which children are brought to seek medical attention at general practices and the Children's Emergency Department at KK Women's and Children's Hospital (KKH).

While the management of vomiting is a routine practice, managing a vomiting child can be challenging for the healthcare provider as the child is usually distressed, and parents and caregivers are anxious and concerned.

Vomiting is generally defined as the expulsion of gastric contents through the mouth as a result of forceful contraction of abdominal muscles and the diaphragm in a coordinated fashion. This is triggered by the stimulation of the medullary vomiting centre either directly or through the chemoreceptor trigger zone.

Gastroenteritis is the most common cause of vomiting across all age groups. However, causes of vomiting may vary across paediatric age groups; these are summarised in Table 1.

As vomiting can also be a symptom of many other conditions, ranging from benign to life-threatening, it is important to assess the child early for serious underlying causes of vomiting – such as meningitis, intracranial lesions and surgical conditions requiring urgent and timely intervention.

TABLE 1. CAUSES OF VOMITING ACROSS PAEDIATRIC AGE GROUPS

	NEWBORN / INFANCY (0-12 MONTHS)	CHILDHOOD (1-12 YEARS)	ADOLESCENCE (13-18 YEARS)
MORE COMMON	<ul style="list-style-type: none"> Gastroesophageal reflux Overfeeding Gastroenteritis Pyloric stenosis Malrotation Midgut volvulus Urinary tract infection Pulmonary infection CNS infection Sepsis 	<ul style="list-style-type: none"> Gastroenteritis Gastroesophageal reflux Intussusception Urinary tract infection Pulmonary infection Toxic ingestion Medications 	<ul style="list-style-type: none"> Gastroenteritis Urinary tract infection Toxic ingestion Medications Inflammatory bowel diseases Appendicitis Pregnancy Ovarian torsion Ovarian cyst Pelvic inflammatory disease Migraine
LESS COMMON	<ul style="list-style-type: none"> Increased ICP Gastrointestinal obstruction Cow's milk protein allergy Inborn error of metabolism Congenital adrenal hyperplasia 	<ul style="list-style-type: none"> Increased ICP CNS infections Peptic ulcers Pancreatitis Hepatitis Sepsis Inborn error of metabolism Diabetes ketoacidosis 	<ul style="list-style-type: none"> Increased ICP CNS infections Peptic ulcers Pancreatitis Hepatitis Sepsis Cyclical vomiting Psychogenic cause

Note: ICP refers to 'intracranial pressure', CNS refers to 'central nervous system'

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DETECTING THE UNDERLYING CAUSE OF PAEDIATRIC VOMITING

While vomiting can be distressing for both the child and caregiver, it is merely a symptom of an underlying condition, which requires careful evaluation. This includes thorough history-taking, and systematic examination and investigation. Important points to note in the evaluation of paediatric vomiting are summarised in Table 2.

TABLE 2. IMPORTANT FEATURES IN THE EVALUATION OF PAEDIATRIC VOMITING

EVALUATION	FEATURES	CONSIDERATIONS
HISTORY TAKING	VOMITING	
	Onset	
	• Acute	Infectious, metabolic, toxins, surgical causes
	• Chronic	Partial mechanical obstruction, IBD, coeliac disease
	• Recurrent or cyclical	Migraine, IEMs, psychogenic cause
	Type	
	• Projectile, forceful	Increased ICP
	• Effortless	Regurgitation
	Nature of vomitus	
	• Bilious	Obstruction distal to the ampulla of Vater
	• Blood	Peptic ulcer, Mallory Weiss tears, oesophagitis, gastritis
	• Undigested food	Gastroesophageal reflux, achalasia, oesophageal diverticulum
	FEEDING PATTERN	Overfeeding
	ASSOCIATED SYMPTOMS	
	• Fever	Infective causes : Gastroenteritis, UTI, sepsis, appendicitis, meningitis
	• Abdominal pain	Surgical and gynaecological conditions, pancreatitis, appendicitis
	• Diarrhoea	Gastroenteritis
	• Constipation	Surgical conditions with mechanical obstruction
	• Dysuria	Urinary tract infection
	• Earache	Otitis media
	• Headache	Increased ICP, CNS infections
	• Recent head injury	Increased ICP
	• Ataxic gait	Intracranial tumours
	• Recent ingestion of toxins	Toxin ingestion
	ASSESSMENT OF DEHYDRATION	
	• Irritability/ lethargy	Moderate-to-severe dehydration
	• Last urine output or change of wet diapers	For assessment of dehydration
PHYSICAL EXAMINATION	GENERAL CONDITION	
	• Altered mental state	Increased ICP, CNS infections, encephalopathy, toxin ingestion
	ABDOMINAL EXAMINATION	
	• Abdominal distension	Surgical conditions with mechanical obstruction, ileus
	• Mass	Surgical conditions
	• Tenderness and rebound tenderness	Surgical and gynaecological conditions, pancreatitis, appendicitis
	• Bowel sounds	Increased in mechanical obstruction, reduced in ileus and peritonitis
	ASSOCIATE FEATURES	
	• Full anterior fontanelle	Increased ICP
	• Facial/scalp bruising	Intracranial injuries, NAI
• Cranial nerve palsies	Intracranial tumours	
• Fundoscopy	Papilloedema (Increased ICP), retinal haemorrhage (NAI)	
• Nystagmus/ abnormal gait	Intracranial tumours	
• Ear discharge	Otitis media	

Note: ICP refers to 'intracranial pressure', IBD refers to 'inflammatory bowel disease', IEM refers to 'inborn error of metabolism', UTI refers to 'urinary tract infection', CNS refers to 'central nervous system', NAI refers to 'non-accidental injury'

Laboratory investigations are indicated only when certain conditions are suspected in the evaluation of a vomiting child. These include: bedside urinalysis in suspected urinary tract infection; bedside glucose test and electrolyte examination if the child is lethargic and has features of dehydration; and full blood count examination if the child has fever without any known source for three or more days. Abdominal X-ray can be helpful in suspected surgical conditions such as intestinal obstruction.



REHYDRATION AND SYMPTOMATIC TREATMENT

Since vomiting is just a symptom of the underlying condition, definitive treatment should be directed to the underlying cause diagnosed by thorough evaluation. However, rehydration of the child and symptomatic treatment play crucial roles in the management of the vomiting child.

Rehydration is key

Mild dehydration in children can be treated by providing oral rehydration therapy at 10 ml/kg/hour for four hours. Children with moderate or severe dehydration should be admitted to hospital for rehydration.

The role of anti-emetics

According to National Institute for Health and Clinical Excellence (NICE) guidelines, ondansetron could increase the success rate with oral rehydration therapy, thereby reducing the need for intravenous fluid therapy. Ondansetron can be administered at a dose of 0.1-0.2 mg/kg/dose for children aged one year and above.

However, there is no evidence to support the administration of other agents, including metoclopramide and dexamethasone. Anti-emetics are indicated only for vomiting due to gastroenteritis; their use is not indicated in post-tussive vomiting, vomiting associated with abdominal distension, significant abdominal pain or tenderness and vomiting after head injury.

Symptomatic treatment

Useful symptomatic medication for the management of children with vomiting include: paracetamol for fever, magnesium carbonate for abdominal colic, and barrier cream – such as zinc oxide cream – for perianal excoriation in gastroenteritis.

Home care

Children with mild dehydration can be cared for at home by giving a small amount of clear fluid (no solid food) for eight hours. Bland foods such as porridge, bread, biscuits, bland soups or mashed potatoes can be offered after eight hours without vomiting.

For breast-fed babies, it is advisable to nurse on only one breast for five minutes, every 30 to 60 minutes, for the first eight hours. If the vomiting ceases within eight hours, normal nursing on both breasts should be resumed.

CHILDREN SHOULD BE REFERRED PROMPTLY FOR TERTIARY MANAGEMENT IF THE FOLLOWING DEVELOPS:

- The child is lethargic or develops features of dehydration
- Vomiting is persistent
- There is bile or blood in vomitus
- Vomiting is associated with persistent abdominal pain/tenderness or abdominal distension or severe headache

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Dr Zaw Lwin graduated from Institute of Medicine (1), Yangon, Myanmar, and became a member of the Royal College of Paediatrics and Child Health, United Kingdom in 2003. Dr Lwin also holds diplomas in child health from Royal College of Paediatrics and Child Health, and Royal College of Physicians and Surgeons of Glasgow, United Kingdom.

Dr Lwin became a Fellow of the Royal College of Physicians of Edinburgh, United Kingdom in 2010 and a Fellow of the Academy of Medicine, Singapore in 2015. He has a special interest in paediatric emergency medicine and medical education.

ENDING THE SILENT STRUGGLE

Encouraging mothers to speak out about pregnancy-related emotional problems helps diminish maternal depression and anxiety; aids child health and development.

Dr Chua Tze-Ern, Consultant, Women's Mental Wellness Service, Department of Psychological Medicine, KK Women's and Children's Hospital

Amidst the hustle and bustle that accompanies pregnancy, it is all too possible to overlook the issue of maternal mental health. Patients, family and healthcare providers may assume, for various reasons, that the expectant mother's physical health is the only priority, or that emotional problems are private matters that will eventually sort themselves out.

A Gallup poll conducted from 2009 to 2011 found that Singaporeans are the least likely nationality in the world to acknowledge experiencing common positive and negative emotions¹. Perhaps we as a society have grown used to containing our feelings so that we can cope with daily life without the complication of emotion.

Unfortunately, emotional containment is not emotional wellness; despite Singapore's alleged lack of emotion, our rates of maternal depression and anxiety are comparable with those in international studies.

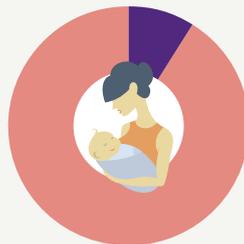
Local studies show that the prevalence of antenatal depression is 12 percent², and that nine percent of new mothers screen positive for postnatal depression six to eight weeks after delivery³. Emerging data from a large longitudinal study of women receiving routine obstetric care at KK Women's and Children's Hospital (KKH) indicate that 46 percent experience antenatal anxiety, which persists in nearly half of these cases.



This stigma needs to be fought, so that mothers requiring psychiatric care can focus on getting well instead of devoting their energies to the concealment of their struggle. ”



12% OF PREGNANT WOMEN IN SINGAPORE EXPERIENCE ANTENATAL DEPRESSION



9% OF NEW MOTHERS SCREEN POSITIVE FOR POSTNATAL DEPRESSION 6-8 WEEKS AFTER DELIVERY

4 IN 5



WOMEN WHO EXPERIENCE POSTNATAL DEPRESSION CAN EXPECT TO RECOVER WITH PSYCHIATRIC CARE.

1 IN 3



ONLY ONE IN THREE WOMEN WHO SCREEN POSITIVE FOR POSTNATAL DEPRESSION IS WILLING TO ACCEPT PSYCHIATRIC CARE.



Mothers affected by maternal depression and anxiety have greater difficulty maintaining physical health and compliance with obstetric care, and their babies may be smaller and more vulnerable to neurodevelopmental impairment. ”

*Dr Chua Tze-Ern, Consultant,
Department of Psychological Medicine,
KKH*

Mothers affected by maternal depression and anxiety have greater difficulty maintaining physical health and compliance with obstetric care, and their babies may be smaller and more vulnerable to neurodevelopmental impairment⁴. Furthermore, the emotional bonding between mother and child often suffers, putting the family at risk of subsequent psychiatric and social detriment.

The good news is that maternal depression and anxiety respond well to treatment. For instance, four in five women who experience postnatal depression can expect to recover, given psychiatric care. The bad news is that only one in three women who screen positive for postnatal depression is willing to accept this care³.

This suggests the presence of marked stigma about mental illness, perhaps particularly when it is pregnancy-related. This stigma needs to be fought, so that mothers requiring psychiatric care can focus on getting well instead of devoting their energies to the concealment of their struggle.

OVERCOMING BARRIERS

As healthcare providers, we may advance this cause by learning how to identify maternal depression and anxiety and how to help our affected patients. One key skill is distinguishing these conditions from baby blues, which represent a very common emotional reaction to just having had a baby.

Baby blues

A mother with baby blues generally feels weepy and overwhelmed shortly after delivery, but comes out of this state within days or even hours, when she starts gaining optimism about her maternal capabilities, especially if she is given reassurance and support.

Clinical depression and/or anxiety

In contrast, a mother with clinically significant depression and/or anxiety experiences such emotions in a more severe and protracted manner. She may feel so unremittingly miserable or panicky that she has no positive feelings and cannot imagine a tolerable future, and becomes unable to sleep, eat or think healthily.

If these symptoms persist daily for a fortnight and impair her functioning, she is likely to require psychiatric care. It is patients such as these that screening questionnaires, such as the Edinburgh Postnatal Depression Scale⁵, aim to identify. By naming and quantifying relevant emotional experiences (Table 1), screening can help to shed light on symptoms that might otherwise stay silent and suppressed.

Table 1. Symptoms of maternal depression and anxiety

Based on the Edinburgh Postnatal Depression Scale

Feeling sad, miserable and tearful
Not looking forward to enjoyable events
Inability to laugh and see the funny side of things
Difficulty sleeping due to being unhappy
Unwarranted self-blame
Inability to cope with daily activities
Feeling anxious, worried, scared or panicky for no clear reason
Hearing voices when no one is around
Suspecting others of bad or harmful intentions
Thoughts of harming self and/or baby

THE DEPTH OF URGENCY

Patients who are highly agitated, or at acute risk of harming themselves and/or others, should be sent immediately to the 24-hour Emergency Room at the Institute of Mental Health, as they may require urgent admission.

Lower-risk patients, which constitute the majority, may be offered scheduled appointments at the outpatient psychiatric clinics in KKH or National University Hospital, which are the main centres providing perinatal psychiatric care in Singapore.

The Department of Psychological Medicine at KKH comprises psychiatrists experienced in perinatal disorders, psychiatric case managers and psychologists, enabling patients to benefit from the full range of holistic care within one clinic setting.

In addition to medication and in-depth talk therapies, patients with perinatal disorders have access to a dedicated case manager, who can provide personalised therapeutic engagement, psychoeducation, counselling and advice on available resources⁶. Patients may also join support groups and, over time, contribute to research and educational

activities promoting perinatal mental wellness. Together, these measures have helped many women with maternal depression and anxiety to emerge from their illness as healthier and happier mothers.

REFER A PATIENT FOR PERINATAL PSYCHIATRIC CARE

Patients symptomatic for maternal depression and/or anxiety can be referred to the KKH Department of Psychological Medicine for assessment by contacting **+65 6394 2205**.

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Dr Chua Tze-Ern is a psychiatrist with special interests in perinatal and mood disorders. She completed her MBBS and MMed (Psychology) in Singapore, and underwent a year-long Health Manpower Development Plan attachment with the Department of Perinatal Psychiatry in King's College, London. In addition to her clinical work, Dr Chua enjoys research, teaching and writing.

THE MEDICINE OF MUSIC

Supporting very low birth weight infants and their caregivers through music therapy

Ashley Marie Spears, Music Therapist, Rehabilitation Department; and Mak Wei Lan, Senior Medical Social Worker, Department of Medical Social Work, KK Women's and Children's Hospital

For many parents, childbirth is a joyful experience, mixed with the challenges of newly-expanded responsibilities. However, the delivery of an infant with very low birth weight (VLBW) can result in added parental stress, which can have a negative impact on long-term family relationships and outcomes.

Infants with VLBW weigh less than 1.5 kilogrammes at birth and can be at risk of developmental delays and medical complications. One of the primary causes of VLBW is prematurity, which is a rising trend worldwide. Other causes include multiple births and intrauterine growth restriction.

Due to the infant with VLBW's need for medical care, their parents often face protracted hospital stays, which can lead to feelings of helplessness. Research has shown that stress experienced by parents of infants with VLBW can be strongly correlated with symptoms of anxiety, depression, fatigue, and even sleep disruption¹.

This emotional, physical and financial toll can negatively impact parent-infant bonding. Long-term stressors also include personal strain, financial burdens, as well as family and social disruption. These can put parents at risk of developing mental health issues, even after the child recovers and returns home. Over the years, a correlation has been seen between parents with mental health issues and children with emerging behavioural and developmental problems.

With increased global awareness of these implications, healthcare practices have shifted to directly involve parents in caring for their VLBW infant at a much earlier stage. Parents are encouraged to participate in the daily care of their infant. They are also invited to attend support group discussions as well as educational talks related to their infant's healthcare journey.

Benefits from these comprehensive approaches include decreased parental stress, increased caregiver confidence, infant weight-gain and even cost-savings for families and healthcare systems². With the increased empowerment of parents, smoother transitions of the VLBW infant from hospital to home are being seen as a result.

MUSIC THERAPY FOR PARENTS

KK Women's and Children's Hospital (KKH) manages about 200 infants with VLBW each year, and takes a multidisciplinary approach to providing support to both infants and parents.

KKH's Department of Neonatology has an Early Bird Baby Club* that runs weekly support sessions for parents of infants with VLBW, covering a variety of topics from infant massage to common medical problems to look out for in premature infants after discharge. One of the sessions from this parent support group programme is known as 'It's a Balancing Act.'

Co-facilitated by medical social workers and music therapists, the aim of this session is to provide a safe place for parents to share their experiences, feelings and stressors of having an infant with VLBW. Parents also receive psychoeducation to better understand their stressors and develop healthy coping strategies.

Each session is concluded with an experience of at least one music and relaxation strategy, such as singing, song-writing, or music-and-art pairing. This live experience reinforces self-care beyond discussion and allows parents to have a better awareness of what strategies may work for them personally. One of the best gifts a parent can give their child is to take the time for self-care.

*The Early Bird Baby Club is a parent support group which provides ongoing support and education for parents of premature babies admitted to the Neonatal Intensive care unit (NICU) or the Special care Nursery (SCN). The club is supported by a multidisciplinary team of nurses, allied health professionals and parents of ex-premature infants



MUSIC THERAPY FOR INFANTS

A majority of infants with VLBW are born premature, necessitating neonatal intensive care. Within the neonatal intensive care unit, music therapists work closely with parents to support their infant's current needs through music strategies. These include strategies for soothing, bonding and developmental stimulation that are appropriate for the infant's fragile condition.

Soothing

When soothing an infant by patting them, a caregiver's touch may be random or often impacted by their own anxiety of quickly wanting to calm the child. However, when guided by predictive music, such as a lullaby, the touch is guided by a rhythm and no longer random or sudden. This predictive and familiar quality can help infants learn how to self-soothe quicker and for a longer duration.

Bonding and developmental stimulation

Infants can recognise the melody of songs before they understand the lyrics. Repetitive songs, such as lullabies, provide a safe and predictable environment that supports infants through otherwise invasive care. Parents are encouraged to actively participate during music therapy for the child, to help them better understand their child's behaviours and cues, leading to fewer moments of overstimulation.

Live music provides opportunities for infants to engage directly with the environment around them, and music therapists are trained to address developmental needs through positive sensory stimulation. This may include changes in the music to simulate cause-and-effect play,

or addressing visual tracking through songs accompanied by finger-play.

Music therapists create a non-threatening environment for validation, expression of feelings as well as creativity. Parents also have the opportunity to explore assisted song-writing as an outlet for coping, and to help them bond with their child.

Music interventions are also utilised for redirection, for example, to increase an infant's endurance for challenging tasks such as strengthening their core muscles during tummy time.

The music therapist works with parents to encourage using specific short songs during routine activities (bathing, dressing, or bed-time) so that transitions may be smoother and fewer fussy behaviors may be observed.

The benefits of music therapy intervention for premature babies include improved self-regulation, enhanced maturation of neural systems, earlier transitions to oral feeding, shortened hospital stays and weight gain³.



COPING WITH CARER'S FATIGUE

Caregivers who are experiencing carer's fatigue may report symptoms such as changes in weight, appetite or sleep pattern, emotional and physical exhaustion, and feelings of irritability, low spirits or helplessness.

As individuals cope differently with stress, it is important to find a healthy coping strategy that suits each person. Some examples include talking to a trusted friend or loved one, exercise, watching a favourite television series, and religion or spirituality.

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Ashley Spears graduated Magna Cum Laude from Queens University with a Bachelors of Music, Degree in Music Therapy and Minor in Psychology. Through the use of music, Ashley helps hospitalised paediatric and women patients cope during their medical stays. She has completed her Neurologic Music Therapy, NMT, training and has a special interest in infant development as well as oncology care.



Mak Wei Lan did her Bachelor of Arts in Social Work at the National University of Singapore. She has completed a Masters of Social Sciences in Behavioural Health at the University of Hong Kong. As a Senior Medical Social Worker in KK Women's and Children's Hospital, her work includes providing psychosocial risk assessment, emotional support and financial assistance to patients and family members, as well as running support groups.

STRIKING FERTILE GROUND

Custom-designed to predict the malignant potential of paediatric ovarian tumours, the Paediatric Risk of Malignancy Index (PRMI) shows promise to improve fertility conservation and surgical morbidity.

Report by Editorial Team



Dr Lee York Tien (left) with Dr Amos Loh, who devised the Paediatric Risk of Malignancy Index.

Dr Lee York Tien, Associate Consultant, Department of Paediatric Surgery, KK Women's and Children's Hospital (KKH), has been awarded the Best Oral Paper Award at the 47th Congress of the International Society of Paediatric Oncology, for his paper on the preoperative evaluation of paediatric adnexal masses through the Paediatric Risk of Malignancy Index (PRMI) to improve ovarian conservation and surgical morbidity.

The paper aimed to evaluate and validate the accuracy of the PRMI – a novel preoperative scoring index for cancer-risk prediction in childhood ovarian tumours,

which was first developed by Dr Amos Loh, Consultant, Department of Paediatric Surgery, KKH and his team¹.

Pilot shows improved ovarian conservation

A pilot of the PRMI in 78 female paediatric patients at KKH, combined with the retrospective review of the management of adnexal masses in 115 female paediatric patients between 2004 and 2014, found that preoperative evaluation of paediatric adnexal masses using the PRMI resulted in improved ovarian conservation and surgical morbidity.

Reduction in unnecessary surgical staging

Dr Lee also noted adaptations in surgical approach and oncological management, such as the increased use of laparoscopic surgical approach and ovarian-sparing surgery, and a reduction of unnecessary surgical staging procedures performed on young female patients.

"While ovarian malignancies in children are rare and constitute only 1 to 1.5 percent of all childhood malignancies, up to 10 to 20 percent of ovarian masses encountered in children are malignant.

Accurate preoperative risk assessment of paediatric ovarian masses is absolutely critical to inform the surgical approach and oncological management in view of optimising fertility preservation in these young patients," says Dr Lee.

Quantifiable factors enable practical clinical use

Designed for practical clinical use, the PRMI is based on easily accessible investigative modalities with a quick turn-around time. In addition to quantifiable clinical factors, the scoring index is uncomplicated while still being able to achieve an optimal positive predictive value.

"Current tools used to predict the malignant potential of ovarian tumors were historically developed for adult patients. However, the profile of ovarian tumors encountered in the paediatric age group differs in biology and behaviour. As such, these scoring systems have limited applicability in the paediatric population," says Dr Loh.

"It is our hope that the PRMI will change the way paediatric ovarian tumours are managed, and maximise options for minimally invasive surgery and ovarian conservation."

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