

IN THIS ISSUE

THE PERSONAL TOUCH

'I Don't Want To' - A book of real-life accounts by children receiving psychiatric care, produced by the Child and Adolescent Mental Wellness Service at KKH, is helping to raise awareness and support for those living with mental health difficulties. Each year, more than 450 children and adolescents are referred to KKH for mental health assessment.

**SPECIAL
DELIVERY**

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The Personal Touch

Building awareness, support and intervention for children and adolescents living with mental health difficulties.

By Dr Shirley Pat Fong, Ms Estelle Lim and Dr Chua Tze-Ern

Mental health difficulties can pose daily challenges to children and adolescents, negatively affecting their physical health, relationships with others and academic performance. The consequences may be long-term, impacting not only the affected child or adolescent, but also their family and friends.

In a community sample of primary school-aged children in Singapore, published in 2007, 12.5 per cent experienced emotional and behavioural problems. Among these children, internalising problems, such as anxiety and sadness, occurred more than twice as often as externalising problems, such as aggressive and delinquent behaviour¹.

A 2009 report showed that among under-14 year olds, autism spectrum disorder is the leading cause of disease burden, with attention-deficit hyperactivity disorder (ADHD) and anxiety/depressive disorders ranking third and fifth respectively².

Additionally, emotional support helplines, such as Samaritans of Singapore (SOS) and Tinkle Friend have reported 50 to 70 per cent increases in the number of calls from children and adolescents in the last five years.

More than a list of clinical symptoms to be elicited and treated, mental health difficulties in children and adolescents can

be greatly debilitating, and benefit from multidisciplinary, team-based care for the patient and family. The earlier these difficulties are recognised and addressed, the better the child's response to treatment and prognosis.

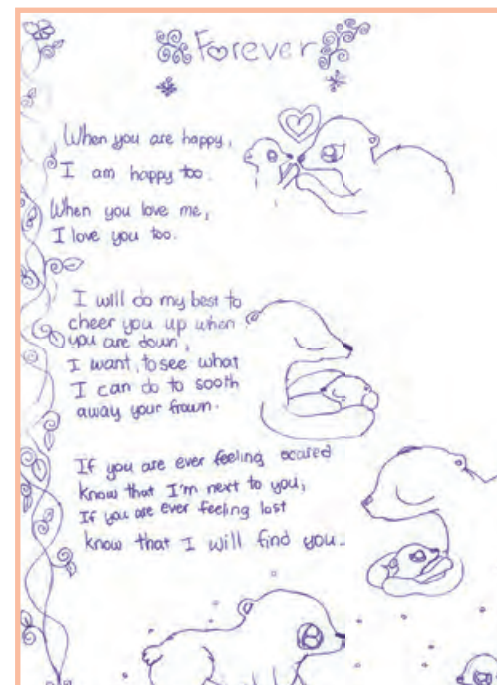
A STRONG NETWORK OF SUPPORT

The Child and Adolescent Mental Wellness Service (CAMWS) comprises a team of psychiatrists, case managers and psychologists, operating within the Department of Psychological Medicine in KK Women's and Children's Hospital (KKH).

The service receives over 450 new referrals yearly, and utilises a consultation liaison model – working jointly with paediatricians, medical social workers, occupational therapists, speech therapists and art therapists – to identify psychosocial and psychiatric issues in children and adolescents that may accompany physical illness, and to offer a comprehensive assessment and multidisciplinary management plan.

Among paediatric patients who are referred within KKH, 25 per cent are patients who have self-harmed or attempted suicide. Nearly 40 per cent are found to have a stress-related disorder, usually precipitated by psychosocial and family difficulties. Other presenting problems include anxiety, low mood and medically unexplained physical symptoms.

Among paediatric patients who are referred to KKH, common presentations include hyperactivity, concentration and learning difficulties, anxiety, academic stress and behavioural problems. ADHD (24%), stress-related disorders (16%) and anxiety disorders (11%) are the most common outpatient diagnoses³.



A poem penned and illustrated by a child who is receiving treatment by the Child and Adolescent Mental Wellness Service, depicting how family support helps her to manage her mental health difficulty.

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During treatment and intervention, psycho-education is provided to the patient and their parents. Further assessment and management may involve liaising with a school counsellor, with parental consent. Depending on the presenting problem, individual counselling, psychological therapy, family therapy and/or medication may also be offered.

HELPING THE CHILD BE HEARD

To build community awareness and support for children and adolescents with mental health difficulties, in 2017, the CAMWS team produced an anthology of real-life accounts

written by paediatric patients aged eight to 16 years, receiving psychiatric care at KKH, titled 'I Don't Want To'. During the writing process, the children and adolescents were guided to reflect on their experiences and to gain fresh perspectives on their problems, resulting in stories of difficult realities that are also full of hope.

Since its release earlier this year, complimentary copies of 'I Don't Want To' have been distributed to school counsellors under the Ministry of Education, to encourage conversations with students experiencing similar difficulties as the book

authors, and to promote healthy help-seeking behaviours.

The team also conducted book readings at several National Library Board public libraries to help caregivers – such as parents and teachers – to understand, accept and support children and adolescents with mental health difficulties.

Ultimately, the book aims to inspire compassion in the community by dispelling the stigma and fear associated with mental health conditions, and bring hope to children and adolescents with mental health difficulties, empowering them to seek help.



UNDERSTANDING MENTAL HEALTH DIFFICULTIES IN CHILDREN AND ADOLESCENTS

'I Don't Want To' is penned by young authors aged eight to 16 years, sharing their anecdotes about living with mental health conditions such as depression, ADHD and autism spectrum disorder.

To enquire about the 'I Don't Want To' book, please contact Wong Wai Chee at **+65 6394 8598** or **wong.wai.chee@kkh.com.sg**.

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1. Woo et al. Singapore Med J 2007; 48(12): 1100-6 Emotional and Behavioural problems in Singaporean children based on parent, teacher and child reports.
2. Phua HP et al. Singapore Med J 2009; 50: 5 Singapore's burden of disease and injury
3. R Srikanth et al. Characteristics of a Child and Adolescent Liaison Psychiatry service in a tertiary paediatric hospital in Singapore (unpublished)



Dr Shirley Pat Fong, Associate Consultant, Child and Adolescent Mental Wellness Service, Department of Psychological Medicine, KK Women's and Children's Hospital

A child and adolescent psychiatrist, Dr Shirley Pat Fong completed her training in the United Kingdom and her special interests include neurodevelopmental child psychiatry and paediatric liaison.



Ms Estelle Lim, Senior Medical Social Worker, Department of Psychological Medicine, KK Women's and Children's Hospital

Ms Estelle Lim passionately works in collaboration with community partners, such as schools and voluntary welfare organisations, to provide early assessment and intervention for mental health difficulties in students aged seven to 18 years, and to enhance and promote their recovery and the functioning of their families.



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

Dr Chua Tze-Ern is a locally-trained psychiatrist with special interests in perinatal psychiatry and mood disorders. In addition to clinical work, she is actively involved in research, teaching and patient safety.

Strengthening Care And Inspiring Hope

In the continual pursuit of enhancing care delivery and excellence, KKH is launching new initiatives to benefit patients, their families and the community through technological innovation, dedicated, multidisciplinary care and community partnerships.

PAINLESS GLUCOSE MONITORING FOR CHILDREN WITH DIABETES

Self-monitoring of blood glucose is essential for people living with diabetes to manage their condition and remain healthy.

Leveraging on technological advances in glucose monitoring, KK Women's and Children's Hospital (KKH) has started to incorporate a flash glucose monitoring system (FGMS) to help children with diabetes monitor their glucose levels in a more convenient and painless way. The FGMS was approved by the Health Sciences Authority for use in Singapore since mid-2017.

The FGMS comprises a small, flat, circular sensor which is discreetly inserted in the upper arm for up to two weeks and an electronic reader which is light, pocket-size and portable. Once the sensor is inserted, it continuously measures and records the glucose level in the interstitial fluid under the skin of the arm.

The patient and caregivers can wave the reader over the sensor at any time to obtain a reading of their prevailing glucose level, as well as a chart of their recent glucose levels, displayed on the screen of the reader.



Diabetes Nurse Educator and Nurse Clinician, Ms Lim Pei Kwee, guides a paediatric patient on obtaining a glucose level reading using the flash glucose monitoring system.

"Patients with diabetes typically need to monitor their blood glucose levels using the finger-prick test at least four times a day. The FGMS is a useful adjuvant to finger-prick blood glucose testing, as it can keep track of glucose readings more frequently round-the-clock in between the finger-prick blood tests," shares Diabetes Nurse Educator Ms Hui Yuen Ching Angela, Nurse Clinician, Division of Nursing, KKH.

The ambulatory glucose profile that is displayed on the reader enables patients to conveniently observe in real-time the changes and fluctuations in their glucose levels on a daily basis. "Using this glucose monitoring technology, patients can respond faster to fluctuations in their glucose levels through well-timed insulin doses and food intake to keep their glucose levels within a healthy range," explains Ms Hui.

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MANAGING DIABETES BETTER WITH INDIVIDUALISED AMBULATORY GLUCOSE PROFILE

Since July 2017, the Endocrinology Service team has been guiding paediatric patients with diabetes and their caregivers to make full use of the FGMS' capabilities to manage their diabetes better.

"Over six months, more than 70 paediatric patients and their caregivers have learnt how to use the FGMS technology and review their daily glucose readings and profile," adds Diabetes Nurse Educator Ms Lim Pei Kwee, Nurse Clinician, Division of Nursing, KKH.

"We have also found that children and their caregivers are now more motivated to self-monitor their glucose levels due to the convenience and painlessness that the FGMS provides."

The reader also stores a patient's glucose readings for up to three months. Detailed reports of the stored glucose readings can be generated retrospectively by downloading the data from the reader to a computer via a USB cable.

Using reports of individual patient's unique ambulatory glucose profile, the



The flash glucose monitoring system, comprising a sensor (left) which is worn on the arm, and portable electronic reader (right).

KKH Diabetes Nurse Educators are able to provide targeted advice to patients on fine-tuning their dietary choices, meal times and lifestyle activities, as well their insulin treatment, to achieve optimal diabetes management.

"We are constantly exploring better and simpler ways for patients to self-monitor their condition, so as to mitigate the risk of developing diabetes-related complications.

"With the introduction of FGMS being one of such ways, we hope to continue to engage and motivate patients in their on-going journey of managing the chronic condition, and remove the barriers towards optimal diabetes management so that they can experience an active and fulfilling life," adds Ms Lim.

NEW CLINIC FOR COUPLES WITH RECURRENT PREGNANCY LOSS

Recurrent pregnancy loss affects approximately one per cent of couples trying to conceive. To provide a place of care and support for affected couples, KKH has established a dedicated Recurrent Pregnancy Loss Clinic to provide comprehensive assessment, treatment recommendations and psycho-social counselling.

"Recurrent pregnancy loss is defined as the loss of three or more pregnancies, and can be associated with a diverse range of causes such as endocrine problems like thyroid disease, abnormalities of the uterus, chromosomal aberrations and antiphospholipid syndrome," shares Dr Liu Shuling, Consultant, Department of Reproductive Medicine, KKH, who leads the Recurrent Pregnancy Loss Clinic.

"Common causes of recurrent pregnancy loss seen by KKH include Asherman's syndrome (scarring of the uterus lining), fibroids, obesity and smoking."

STRENGTHENING THE CIRCLE OF CARE FOR CHILDREN

KKH is partnering Canossaville Children and Community Services (CCCS) in pioneering a new approach to develop a coordinated continuum of care and support available to children and their families through a project called the Circle of Care@ Canossian Eduplex.

Commissioned by the Lien Foundation, the initiative aims to benefit over 900 children between the ages of 18 months and 14 years who are receiving education at Canossian Eduplex, including a population

of children with hearing impairment and/or developmental needs, and their families.

"The Canossian Eduplex includes a preschool, primary school, special school, and student-care centre – providing an ideal setting for evolving an effective, integrated, efficient, and sustainable framework for the coordination of care," explains Dr Hamimah Ahmat, Principal Speech and Language Therapist, Department of Child Development, KKH, who is leading the initiative.

A COORDINATED CONTINUUM OF CARE FOR CHILDREN AND FAMILIES

At present, a KKH multidisciplinary team – comprising a speech and language therapist, educational psychologist, learning support facilitators, and medical social worker – is collaborating closely with CCCS to explore and identify opportunities for integration,

as well as formulate recommendations to its existing practices.

"We are currently at the exploratory stage of the project; looking at services 'as is', identifying gaps and formulating our recommendations with a model or practice framework," shares Dr Hamimah.

"There is good potential and opportunities for enhancing current delivery of care at CCCS in order to optimise child development outcomes holistically, through building the capabilities of educators, allied health professionals and caregivers, and harnessing collaborative efforts in the children's ecology.

"Our shared vision is for the Circle of Care to serve as a springboard for the development of a service framework that would be applicable to the wider community, and eventually develop into a viable model for large-scale care delivery."



Under the guidance of Prof Tan Heng Hao (left), Head, Department of Reproductive Medicine, KKH, Dr Liu Shuling (centre), Consultant, Department of Reproductive Medicine, KKH, runs the Recurrent Pregnancy Loss Clinic with Patient Service Associate Ms Niki Fann.

Due to the complexity of the condition, more than 50 per cent of affected couples may not have the cause of their recurrent pregnancy loss definitively identified, despite extensive investigations. In addition, prolonged loss and grief can be highly stressful, and couples experiencing recurrent pregnancy loss may refrain from open discussion and avoid seeking support from friends and family, out of fear of the perceived stigma surrounding miscarriage.

“Whilst challenging to treat, there is growing evidence that the management

of recurrent pregnancy loss by dedicated clinics can provide excellent prognoses for future pregnancy outcomes among affected patients,” says Dr Liu.

A PLACE OF CARE AND SUPPORT

Many conditions leading to recurrent pregnancy loss, and their treatment options, overlap with care plans for subfertility in couples. Assisted reproductive techniques with in-vitro fertilisation and pre-implantation genetic diagnosis or pre-implantation genetic screening may also be required for these couples.

“The KKH Recurrent Pregnancy Loss Clinic is the first in Singapore to be run by specialists in reproductive medicine – who are experienced in the management of subfertility – with the capacity to refer patients for additional help from medical social workers, psychologists, immunologists and endocrinologists, when necessary,” shares Dr Liu.

Drawing on the expertise of various medical and allied health specialties, KKH is able to provide holistic care for couples with a variety of medical conditions, and be a place of support for them.

“If a couple wishes to and is ready to try for a child again, we will support them through exploring treatment options that are available to prepare them for the next pregnancy,” says Dr Liu.

REFER A PATIENT

Polyclinics and community healthcare practitioners can contact KKH at **+65 6294 4050** to refer patients to the Department of Obstetrics and Gynaecology or the Department of Reproductive Medicine for an assessment on their suitability for referral to the Recurrent Pregnancy Loss Clinic.



The Circle of Care@Canossian Eduplex project team, comprising members from Canossville Children and Community Services (CCCS), and the Department of Child Development at KKH (KKH DCD).

From left to right: Ms Grace Tan, Principal of Canossa Convent Primary School; Ms Seah Yoon Choon, Senior Education Facilitator and Dr Lily Lau, Principal Psychologist, KKH DCD; Ms Julie Conceicao, Principal of Magdalene Kindergarten, Ms Regina Davamoni, Curriculum Developer, Student Care Centre and Sister Marilyn Lim, Supervisor, CCCS; Ms Angela Tang, Principal Education Facilitator, Dr Hamimah Ahmat, Principal Speech Therapist, Ms Catherine Tan, Medical Social Worker and Ms Quinza Lim, Clinical Research Coordinator, KKH DCD; Ms Veronica Tan, former Executive Director and Ms Catherine Michael, Principal of Canossian School; and Ms Oh Shu Jun, Senior Psychologist, KKH DCD.

Not pictured: Ms Raine Too, Senior Learning Support Facilitator and Mr Tang Hui Nee, Deputy Director, KKH DCD; Ms Elizabeth Thambidurai, Social Worker and Ms Judy Lim, Executive Director, CCCS.

Delivering A Smoother Patient Experience

A one-stop ultrasound procedure for subfertility assessment, HyFoSy – combined saline sono-hysterography and foam contrast tube sonography – is helping KKH deliver faster, smoother and more comfortable care for patients.

By Dr Teo Sze Yiun

Subfertility is defined as not being able to conceive after one year of regular unprotected sexual intercourse.

As the leading tertiary healthcare provider for women, KK Women's and Children's Hospital (KKH) provides specialised care for a large number of couples presenting with subfertility.

For a female patient undergoing assessment for subfertility, part of the imaging workup includes assessment for fallopian tubal patency. This is traditionally performed via hystero-salpingography (HSG), an X-ray examination where an iodinated contrast is injected into the uterine cavity under fluoroscopic guidance.

Demonstration of free passage of contrast through both fallopian tubes is taken as an indication of tubal patency.

Should the patient further undergo assisted reproduction treatment at KKH, additional evaluation via saline sono-hysterography is commonly performed to evaluate the uterine cavity, uterus and ovaries for any abnormalities.

This study is useful for the detection of intrauterine abnormalities in subfertile women. It has been shown to be highly sensitive and specific in the diagnosis of endometrial polyps, submucosal leiomyomas, uterine anomalies and intrauterine adhesions, which may affect fertility.

ONE-STOP COMPLETE ULTRASOUND ASSESSMENT FOR SUBFERTILITY

In early 2017, the Department of Diagnostic and Interventional Imaging at KKH introduced a new one-stop diagnostic procedure for patients undergoing assessment for subfertility.

Known as HyFoSy (hystero-salpingo foam contrast sonography), the combined procedure consists of a saline sonohysterography study, followed by a tubal foam contrast sonography study in one sitting. This allows for complete imaging assessment of the female pelvic organs by ultrasound alone.

At KKH, HyFoSy is performed by a multidisciplinary core team comprising of specialists, sonographers and nurses. During the study, the uterine cavity is evaluated for configuration and to identify any intra-cavitary abnormality, and the uterus is evaluated for any focal lesion.

Morphological assessment and antral follicle count are performed for both ovaries, as well as sonographic evaluation of the adnexal and the pouch of Douglas regions. Subsequently, the tubes are examined for patency, previously part of the HSG examination.

A relatively new type of material, ExEm Foam contrast, consists of a gel component of hydroxyethyl cellulose and glycerol,

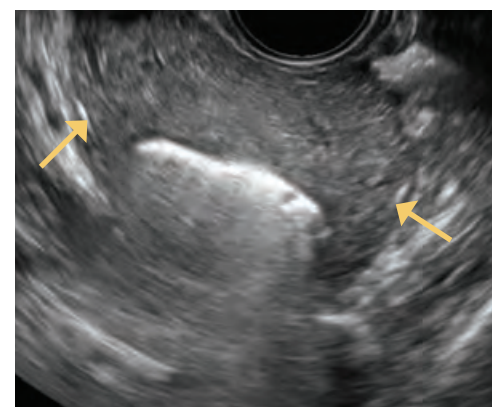


Figure 1. Ultrasound image indicating free flow of ExEm foam contrast through both fallopian tubes (indicated with the yellow arrows), consistent with bilateral tubal patency.

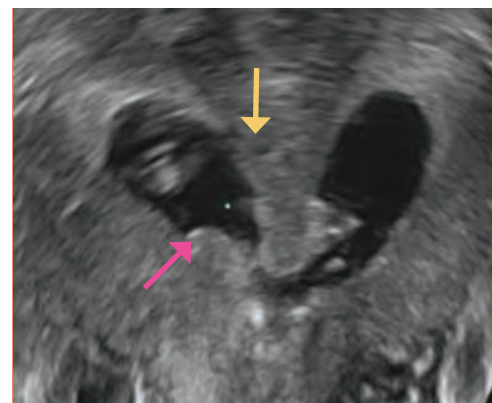


Figure 2. Coronal reconstruction through the endometrial cavity shows the presence of an incomplete midline septum (indicated by the yellow arrow) consistent with a subseptate uterus, a type of Mullerian duct anomaly. Multiple small endometrial polyps are also present (largest polyp denoted by the pink arrow).

as well as purified water, and is the contrast used to assess the tubes. The components are combined just prior to usage, resulting in a foam-like liquid containing micro-air bubbles. This is injected through a catheter into the uterine cavity.

Where both fallopian tubes are patent, the foam contrast is seen to flow through the tubes as bright echoes on ultrasound (Figure 1). Figure 2 demonstrates a subfertile patient found to have a subseptate uterus and multiple small endometrial polyps.

A BETTER PATIENT EXPERIENCE

For the patient undergoing assessment for subfertility, the benefits of HyFoSy are several. The key advantage is the need for only one imaging examination with one cervical cannulation to obtain relevant clinical information, previously necessitating two separate studies.

This provides time and cost savings to the patient, as compared with separate HSG and saline sonohysterography studies, which need to be performed during a certain phase of the patient's menstrual cycle at separate occasions.

During imaging studies for fertility assessment, patients commonly experience pelvic discomfort similar to menstrual cramps. With one rather than two cervical cannulation procedures in HyFoSy, pelvic discomfort associated with distension of the uterine cavity is minimised.

As at October 2017, more than 500 KKH patients have successfully undergone HyFoSy for fertility evaluation, with a proportion finding HyFoSy to be comparatively less uncomfortable than HSG examination.

A randomised controlled trial by VU University Medical Center and Spaarne Hospital in the Netherlands has also found that HyFoSy for tubal patency testing is less painful and less time-consuming for patients, compared with HSG¹.

Lastly, the use of HyFoSy obviates the use of X-rays and spares the patient the small dose of ionising radiation associated with HSG. Nevertheless, patients should be educated that the radiation dose received during a HSG study is extremely small (approximately 0.1mSv). This is similar to the amount of radiation received by a passenger on a return flight between Singapore and Hong Kong.

The introduction of HyFoSy in the imaging workup of subfertile female patients enables

KKH to offer a one-stop assessment of the female pelvic organs, with no associated radiation and minimal discomfort. We hope to continually provide the most modern and specialised services for our patients, and help more couples in their subfertility treatment journey at KKH in the best way possible.

REFER A PATIENT

Polyclinics and community healthcare practitioners can contact KKH at **+65 6294 4050** to refer patients for consultation and assessment on their suitability to undergo tertiary evaluation for infertility.

During primary care assessment of a female patient for suspected subfertility, the clinical criteria for patient referral to undergo tertiary evaluation² is as follows:

- Patients more than 30 years old and who are unable to conceive after regular unprotected intercourse for one year without any known reproductive pathology
- Patients less than 30 years old and who are unable to conceive after regular unprotected intercourse for two years without any known reproductive pathology
- Patients with a known history of reproductive pathology (e.g., amenorrhoea, pelvic inflammatory disease and endometriosis)
- Patients with a known history or reason for infertility
- Presence of medical conditions in males such as varicocele

References:

1. Dreyer K, Out R, Hompes PG, Mijatovic V. Hysterosalpingo-foam sonography, a less painful procedure for tubal patency testing during fertility workup compared with (serial) hysterosalpingography: a randomized controlled trial. *Fertil Steril*. 2014 Sep;102(3):821-5.
2. Loh SF, Argawal R, Chan J et al. Academy of Medicine-Ministry of Health Clinical Practice Guidelines: assessment and management of infertility at primary healthcare level. *SMJ* 2014; 55(2): 58-66



Dr Teo Sze Yiun, Senior Consultant, Department of Diagnostic and Interventional Imaging, KK Women's and Children's Hospital
Head of the Breast Imaging Unit at the Department of Diagnostic and Interventional Imaging, KKH, Dr Teo Sze Yiun is also an adjunct assistant professor with Duke-NUS Graduate Medical School. Dr Teo's subspecialty expertise lies in breast and women's imaging and she is actively involved in clinical work, research and teaching in these areas.

Non-Surgical Correction For Childhood Ear Deformities

Congenital ear deformities occur in one in three children, of which, deformations such as misshapen ears are most common. Ear molding is a highly effective method for the non-invasive correction of ear deformations in newborns, with a success rate of more than 90 per cent if commenced within the first few days after birth.

By Dr Chia Hui Ling

Ear molding to correct deformations in newborns can obviate the need for surgery, provided that molding takes place within the first six weeks of life. After this narrow golden window of opportunity has passed, the molding method becomes less or not effective. Corrective surgery will be the likely recourse, which can only be carried out after four years of age.

Thus, identification of congenital ear deformities and prompt referral for assessment and intervention is extremely time-critical, as the effectiveness of the molding method plummets with age.

COMMON CHILDHOOD EAR DEFORMITIES

Ear deformities can be broadly divided into two categories: deformations and malformations. Deformations form the majority of ear deformities, and are typically misshapen ears with minimal deficiency in

ear cartilage and skin. Common types of ear deformations include cup ears, lidding and helical deformities, which are outlined in Table 1a and Table 1b. Ear deformations are amenable to molding.

Ear malformations are more severe deformities where there is a deficiency of ear cartilage and/or skin. The most severe forms are microtia – where the child has a rudimentary ear appendage, and anotia – where the child has no ear at all.

Ear malformations cannot be fully corrected with molding, and reconstructive surgery is the recommended treatment. The age indicated for surgery to correct ear malformations depends on the type of deformity.

While ear deformations do not affect a child's hearing, studies have shown that children and adults with ear deformities experience significantly more psychological distress, anxiety, self-consciousness, behavioural problems and social avoidance.

NON-SURGICAL EAR SHAPING

Ear molding can be highly effective in correcting ear deformations without surgery when initiated between the second or third day to six weeks of a newborn's life, during which the cartilage is pliable and moldable due to high levels of maternal oestrogen present in the child's circulation. Beyond this period of time, splinting becomes less or no longer effective, and the child can only undergo corrective surgery after four years of age, when the ears have grown to nearly their full size.

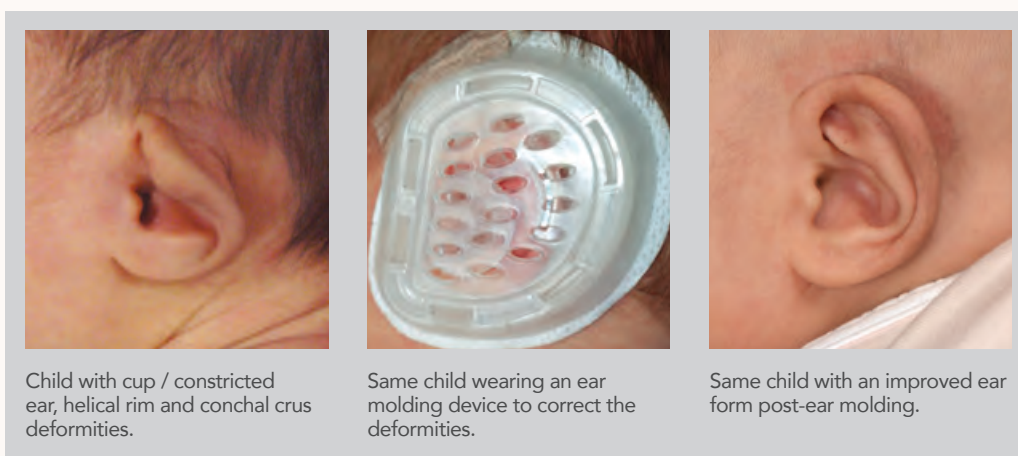
The process of ear molding involves wearing a customised splint continuously for a period of time to correct and maintain the shape of the ear, and the patient is reviewed weekly to monitor the progress of the correction. If initiated early, the duration of molding ranges from two to six weeks, depending on the severity of the deformation. The pliability of the newborn's cartilage allows

form of non-surgical correction can expect to require less invasive surgery in future to reconstruct their ear form, or no surgery if they find the improved ear form acceptable.

EARLY INTERVENTION CRUCIAL FOR SUCCESSFUL EAR MOLDING

At present, KKH performs ear molding for an average of 50 newborns each year. However, the number of children undergoing ear molding remains low compared to the incidence of childhood ear deformations in Singapore. This may be due to the lack of public awareness of ear molding as a viable and non-invasive corrective measure, as well as the late presentation of patients beyond the optimal age for successful molding.

As some ear deformations in newborns can be subtle and easily missed, caregivers and community healthcare practitioners are encouraged to examine the ears of newborns using the three-step approach outlined in Table 2, to identify less obvious deformations. Generally, the earlier a child receives intervention, the better their projected outcomes. Thus, should an infant be suspected to have an ear deformity, they should be promptly referred for tertiary assessment and diagnosis.



Child with cup / constricted ear, helical rim and conchal crus deformities.

Same child wearing an ear molding device to correct the deformities.

Same child with an improved ear form post-ear molding.

the deformity to be corrected, and the results – after a period of molding or splinting – are permanent.

Possible complications can include minor skin irritation and excoriations from splints and adhesive tapes used during molding. These are self-limiting and often resolve within a few days. Recurrence of the ear deformity after termination of splinting can be a late complication; this is more common in babies who commenced molding later in life.

Ear molding must be carried out by a medical practitioner trained in correcting ear deformities, as it is crucial to identify the

abnormality accurately and customise the splint accordingly. Babies born in KK Women’s and Children’s Hospital (KKH) who have ear deformities are referred to the Department of Plastic, Reconstructive and Aesthetic Surgery for assessment and diagnosis as early as possible after birth. For babies diagnosed with ear deformations, when molding is initiated at day two to three of life, the rate of successful ear correction is more than 90 per cent.

At KKH, molding techniques are also increasingly being used to improve ear malformations. Patients who undergo this

TABLE 1a. COMMON TYPES OF EAR DEFORMATIONS

PROMINENT / CUP EAR



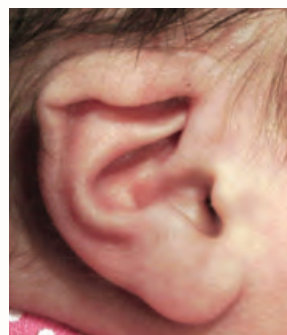
- Prominent ear is an abnormally protruding ear
- Cup ear deformity is an advanced form of prominent ear with an incomplete opening of the ear
- Often characterised by very stiff and resistant cartilage around the scapha and helical rim that can feel as though a string envelopes the helical rim

STAHL'S EAR



- Characterised by a transverse crus extending outward from the anti-helix, rather than continuing upward in a gentle bend as the superior limb of the triangular fossa
- Often presents with multiple or a combination of deformities

LIDDING / LOP EAR



- A folding over the helical rim or upper third of the ear
- Occurs when the superior limb of the anti-helix or the fossa fails to properly form
- Lop ear is the severe expression of lidding




HELICAL RIM DEFORMITY



- Irregularities or compression that may occur anywhere along the entire circumference of the helical rim



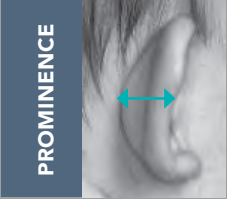
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TABLE 1b. COMMON TYPES OF EAR DEFORMATIONS

CONCHAL CRUS	CRYPTOTIA	MIXED DEFORMITIES
 <ul style="list-style-type: none"> An abnormal fold of cartilage crossing the mid-portion of the concha symba that appears to divide the ear into half Often results in prominent ear 	 <ul style="list-style-type: none"> The ear cartilage framework appears buried beneath the skin with no apparent sulcus (where the ear meets the skull) or skin behind the ear 	 <ul style="list-style-type: none"> A combination of multiple deformities in the ear The child in the photo above has cup ear, helical rim deformity and conchal crus

Identification of congenital ear deformities and prompt referral for assessment and intervention is extremely time-critical, as the effectiveness of the molding method plummets with age.

TABLE 2. THREE-STEP APPROACH TO IDENTIFYING EAR DEFORMATIONS IN CHILDREN

STEPS	NORMAL APPEARANCE	ABNORMAL APPEARANCE	NAME OF DEFORMATION
1  <p>OUTER RIM (HELIX)</p>	<ul style="list-style-type: none"> Smooth and rounded 	<ul style="list-style-type: none"> Flattening of the rim Pointy or pixie ears Notching or abnormal folding of the rim 	<ul style="list-style-type: none"> Lidding Stahl's ear Helical rim deformity
2  <p>INNER BOWL (CONCHA)</p>	<ul style="list-style-type: none"> Partial crus Height of concha around one-third of the height of the ear 	<ul style="list-style-type: none"> Prominent crus Large conchal bowl 	<ul style="list-style-type: none"> Conchal crus Prominent ear
3  <p>PROMINENCE</p>	<ul style="list-style-type: none"> The distance between the rim and the head should not exceed 7mm 	<ul style="list-style-type: none"> The distance between the rim and the head is 8mm or more 	<ul style="list-style-type: none"> Prominent ear or cup ear



Dr Chia Hui Ling, Consultant, Department of Plastic, Reconstructive and Aesthetic Surgery, KK Women's and Children's Hospital

Dr Chia has a special interest in plastic surgery pertaining to women and children, including paediatric plastic surgery, breast reconstruction and aesthetic surgery. In 2015, she underwent training in craniomaxillofacial surgery under the AOCMF Fellowship Program in United Kingdom and further completed a fellowship in plastic surgery with the JW Lee Center for Global Medicine at Seoul National University Hospital, South Korea.

Big Hearts of Gold

Every year, big-hearted volunteers at KK Women's and Children's Hospital (KKH) work tirelessly to bring smiles, comfort and respite to women and children battling serious illnesses, through the hospital's volunteer programmes.

"Care is so much more than delivering medical treatment, and we are delighted and honoured that members of the community of all ages and backgrounds are joining in our mission of providing compassionate care that makes patients feel better from the inside out," shares Assistant Director of Nursing, Ms Teresa Ng, who leads the KK Alpine Blossoms Breast Cancer Support Group.

In a myriad of ways, volunteers at KKH play integral roles in making a difference to the lives of patients. They conduct play sessions with children in the clinics and wards to dispel fear and apprehension, and bring music and performances to provide times of relief and distraction to patients along their journey to recovery.

Many volunteers are also courageous survivors of illnesses who return to partner KKH in caring and assisting others through support groups such as the KK Alpine Blossoms Breast Cancer Support Group, Women's Cancer Support Group and Menopause Support Group.

"Their warm hearts and cheerful smiles are a source of strength and hope for our patients and their families, and greatly enrich our staff's lives as well. Our volunteers are indeed very precious to us," says Ms Ng.

**MAKE A DIFFERENCE TODAY,
JOIN US AS A KKH VOLUNTEER**

Please visit www.kkh.com.sg/volunteer
or email volunteer@kkh.com.sg

BRINGING JOY TO PATIENTS



Ms Tan Shumin, a recipient of the KKH Outstanding Volunteer Award 2017.

Ms Tan Shumin has been putting smiles on patients' faces for six years, as an active member of KKH's Ward Entertainment programme and the Caring Clown Unit.

The 26-year-old leads a group of long-time friends in engaging young patients through songs, magic tricks, story-telling and balloon-sculpting, providing them distraction from pain or unease while recuperating in an unfamiliar environment.

"Every session in the ward is always fulfilling," shares Ms Tan. "It is very heartening to see smiles on patients' faces, their families joining in our sing-along and activities, and how their spirits are livened up by our presence."

The road to recovery can be filled with uncertainties, and even the strongest may need a helping hand or appreciate an encouraging word.

"When I see how the hospital staff and families interact with patients – especially those who are visually impaired and bed-bound – their care and unconditional love really touches me. Each time I volunteer, I am constantly reminded to always love, care and cherish the people around me. It gives me more drive to do more and keeps me motivated to volunteer," Ms Tan adds.

A FRIEND IN TIMES OF NEED



Ms Susan Ginsberg, a recipient of the KKH Distinguished Volunteer Award 2017.

Ms Susan Ginsberg, a 20-year veteran volunteer and core member of the Women's Cancer Support Group (WCSG) at KKH, supports women battling gynaecological cancer and their families through activities such as art therapy and counselling.

"It is never easy finding out that you have cancer. When I knew I had cancer, I was in pieces," Ms Ginsberg recounts. "But after my surgery at KKH, I gained strength physically and emotionally each day, and when the opportunity came for me to give back, I seized it and have not looked back since."

Many volunteers of the WCSG are also cancer survivors who have fought the battle themselves.

"We provide a listening ear to patients and their families, and most importantly, we assure them that they are not alone in the journey to recovery," Ms Ginsberg shares.

"Today, KKH has become my second home. You have made me feel better – in health and as a person – as I experience the beauty of giving hope and joy to others going through similar situations."



Dedication That Makes A Difference

By Lisa Loh

KK Women's and Children's Hospital (KKH) is an academic medical institution leading in the holistic treatment of high-risk medical conditions in women and children. The Development team at KKH facilitates opportunities for members of the community, organisations and corporations to partner the hospital in improving the lives of women and children.

With an increasing awareness of the importance of philanthropy in bettering healthcare, the Development team receives gifts throughout the year; some designated for research to benefit patients with specific conditions, and others in support of patients requiring financial support for medical treatment. Every gift received makes an impact on a human life.

Rachel (not her real name) was one of these lives. During her second week at kindergarten, she began experiencing pain in her neck and vomiting. Rachel was diagnosed with medulloblastoma – a malignant primary brain tumour –

at the base of her skull, subsequently undergoing two neurosurgeries and six weeks of radiotherapy, followed by eight doses of chemotherapy.

With the cancer in remission, Rachel began her journey of transition back to school, with support from the neuropsychologist, occupational therapists and speech therapists. However, as the demands of schooling and psychosocial interaction increased, Rachel experienced greater difficulty keeping abreast of her peers. A neuropsychological assessment of her cognitive skills revealed a pattern commonly detected in child survivors of brain disease, and more areas requiring intervention emerged over time.

Today, with ongoing help from her neuropsychologist and family, Rachel is steadily making gains across many intellectual and academic areas. She attends a social skills training programme to help her navigate the challenging social dynamics of adolescence and life transitions, such as the move from primary to secondary school.

Children with acquired brain impairment from medical conditions often suffer late effects, over many years, as their brain matures. Promising improvements may merge into new challenges, and they require periodic reassessment of their abilities to help them attain goals and manage their learning and emotional needs.

To help more children like Rachel, KKH launched the CCF Psychosocial and Supportive Care Programme for Paediatric Oncology in 2017, with financial support from a transformational gift by the Children's Cancer Foundation.

The transformational gift is distinguished by its unique capacity to play a significant part in creating and developing unique programmes that benefit patient care. While such transformational gifts provide the ability to propel large-scale programmes, the Development team facilitates other gifts not only to benefit patients in need, but also to honour the memory and courage of others who had bravely fought their illnesses.



In loving memory of his wife, Mr Jeremy Sim generously donated the proceeds of his 20-year collection of Star Wars memorabilia to the KKH Health Fund to help needy women and children patients.



Mr Jeremy Sim receives a certificate of appreciation from Mr Melvin Tan, Deputy Director, Development, KKH, for his efforts to give hope and save lives.

CELEBRATING A LIFE WELL LIVED

During the Singapore Toy Game and Comic Convention in September 2017, amongst the throng of science fiction fans in attendance was Mr Jeremy Sim – there to sell his 20-year collection of Star Wars memorabilia and donate the proceeds of the sale to the KKH Health Fund (KKHFF).

The generous gesture was in memory of his late wife, Madam Camella Fong, who had passed away in May 2017 after battling neuroendocrine metastasis cancer.

The two-day event was filled with beautiful moments. Some attendees came to support Mr Sim’s meaningful effort, while others came to offer comfort.

“Camella was a very charitable person who frequently donated to the poor and contributed milk powder to needy families with children. She believed in giving back to society,” Mr Sim shared, describing the giving nature his wife had.

“Even in death, she wished to donate her belongings to charity. But I decided to

donate my precious Star Wars collection – which I have been building since I was young – instead, and keep her belongings in memorial.”

Established in 2002, the KKHFF is dedicated to raising funds for disadvantaged women and children patients who are in need of financial help for their medical expenses, in the hope of giving them the freedom to focus fully on recovering. Over the last few years, the fund disbursed an average of more than \$2 million, providing much needed support to more than 600 patients annually.

During times of difficulty, help is synonymous with hope. There is dire need for both. Families struggling to take care of an ailing child or sick family member often experience much frustration and tough situations. Philanthropic efforts from donors from all walks of life go a long way towards helping these families and individuals to know that they are not alone in their fight.

“It is a privilege to be given the chance to facilitate and create opportunities for donors and well-wishers to make a real difference

to the lives of our patients. Through their generosity, they have brought hope to many of our women and paediatric patients.

“We are indeed thankful to every one of our supporters who have dedicated their time and donated their contributions to enable the best possible care that our patients can receive,” says Mr Melvin Tan, Deputy Director, Development, KKH.



For more information on how you can support philanthropy efforts at KKH, please contact Lisa Loh at **+65 6394 8439** or **development@kkh.com.sg**.

COMING TOGETHER AS A COMMUNITY OF CARE



An embryologist with the KKIVF Centre, Ms Nadia Zulbahary helps couples fulfil their dreams of starting a family by facilitating their in-vitro fertilisation treatment.



Passionate about enhancing patients' experience at KKH, Chief Nurse Ms Ng Gaik Nai spearheads patient care and safety in the hospital with initiatives to advocate change and uphold excellence.



The safe and smooth delivery of care to patients depends on reliable medical equipment. Assistant Biomedical Engineer Mr Mohamed Basheer S/O Kader Sultan commits his time and effort towards maintaining the biomedical equipment in KKH.



A/Prof Timothy Lim, Head and Senior Consultant, Department of Gynaecological Oncology, KKH, specialises in caring for women suffering from cancer and mentors doctors-to-be to improve healthcare for women and children.



A cancer survivor and dedicated volunteer with the KK Alpine Blossoms Breast Cancer Support Group, Ms Kelly Ang befriends, supports and journeys alongside cancer patients through their treatment and recovery.

PATIENTS. AT THE HEART OF ALL WE DO.



**KK Women's and
Children's Hospital**
SingHealth

ABOUT KK WOMEN'S AND CHILDREN'S HOSPITAL

Founded in 1858, KK Women's and Children's Hospital (KKH) is a recognised leader and Singapore's largest tertiary referral centre for Obstetrics, Gynaecology, Paediatrics and Neonatology. The 830-bed academic medical institution leads in patient-centred management of high risk conditions in women and children. More than 500 specialists adopt a compassionate, multi-disciplinary and holistic approach to treatment, and harness medical innovations and technology to deliver the best medical care possible.

Accredited as an Academic Medical Centre, KKH is a major teaching hospital for all three medical schools in Singapore, Duke-NUS Medical School, Yong Loo Lin School of Medicine and Lee Kong Chian School of Medicine. The Hospital also runs the largest specialist training programme for Obstetrics and Gynaecology and Paediatrics in the country. Both programmes are accredited by the Accreditation Council for Graduate Medical Education International (ACGME-I), and are highly rated for the high quality of clinical teaching and the commitment to translational research.



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