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In This Issue

- Advances in the Management of Asthma
- Approach to Headaches
- Encopresis in Children
- Kawasaki Disease – From the 1960s to 2020
- NUH Children's Urgent Care Clinic @ Bukit Panjang
- Recurrent Abdominal Pain in Children
- The Paediatric Eczema Day Programme

In This Issue



In Focus

- 03 NUH Children's Urgent Care Clinic @ Bukit Panjang

Tips

- 04 Recurrent Abdominal Pain in Children
- 05 Approach to Headaches

Insights

- 06 Advances in the Management of Asthma
- 08 Kawasaki Disease – From the 1960s to 2020
- 11 Encopresis in Children

In Addition

- 13 The Paediatric Eczema Day Programme

Specialist In Focus

- 14 Dr Vidyadhar Mali, Senior Consultant

Happenings @ NUH

- 18 Wong Hock Boon Paediatric Masterclass Webinar – Pearls in Paediatrics
- 19 International Recognition for Therapeutic Environment and Patient-centred Design

We would love to hear your feedback on **médico**

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NUH Children's Urgent Care Clinic @ Bukit Panjang

Urgent Care Medicine has been in force for years in America and Europe, offering out-of-hours rapid access to acute medical care for non-emergency conditions requiring urgent attention. This offers the public medical care in a timely manner depending on the acuity of their condition, bypassing long waiting times in the Emergency Department for non-life-threatening ailments. Urgent Care Clinics serve as an intermediary between the Emergency Department and General Practitioners' (GP) clinics and aim to enhance the care provided in the community for conditions that fall out of the scope of GPs.

As the first urgent care clinic for children in Singapore, the NUH Children's Urgent Care Clinic @ Bukit Panjang is an initiative by the paediatric cluster of NUH, the Khoo Teck Puat – National University Children's Medical Institute (KTP-NUCMI). It is set to open its doors in Junction 10 in the 1st quarter of 2021 for children aged 0 to 18 years old. We hope to bridge the gap between GPs, private paediatricians and the NUH Children's Emergency in the western part of Singapore. The aim is to introduce a wider scope of specialised paediatric services to the heartlands for the convenience of our patients.

This will be a walk-in clinic that is led by paediatricians from our cluster and will be opened daily with extended hours from 9am to 11pm. It is equipped with laboratory facilities that run simple blood tests and point-of-care tests, i.e. urine dipstick, capillary blood glucose measurement, rapid swab for influenza, etc., and on-site X-ray facilities. These services will be extended to GPs and private paediatricians in the area and aim to be a welcome addition to the community. A dedicated procedure room allows for suturing of lacerations under local anaesthesia, removal of foreign bodies, burns dressing and management and other minor procedures. We will also house casting facilities to manage simple fractures.



All patients seen at the clinic will have access to a follow-up visit at the KTP-NUCMI outpatient building at the National University Hospital, if the need arises. If a patient's condition deteriorates or he/she is deemed to be out of the management capabilities of the urgent care clinic, transfer to our Children's Emergency for further management will be arranged at no additional cost.

A strong partnership between primary care physicians and the physicians at the urgent care clinic is paramount for the efficient use of medical resources with right siting and appropriate escalation of care in our evolving healthcare landscape. A referral process is in the pipeline for primary care physicians to refer patients either for a full consultation or for specific services at the urgent care clinic. With education and awareness, we envisage that patients will eventually visit the appropriate health service to seek treatment. With the support of the community, we hope that young patients and their families will be able to benefit from a wider scope of paediatric services available after hours.



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Recurrent Abdominal Pain in Children

Recurrent abdominal pain (RAP) is common in children and affects about 10% to 20% of school-going children. The commonly accepted definition of RAP is at least three episodes of pain that are severe enough to affect the activities of the child within a period of three months.

While the causes of RAP may be related to an underlying organic pathology, the most common cause in children is still functional in origin. This was also documented by Apley and Naish in 1958; that in majority of RAP cases in children, no organic causes could be found. Organic pathology of RAP may be due to both gastrointestinal (GI) or extra-intestinal causes. The latter includes urinary tract infection, nephrolithiasis, dysmenorrhoea, and surgical conditions such as appendicitis, ovarian disorders, etc.

Common GI etiologies include infection of the GI tract, carbohydrate intolerance, gastro-oesophageal reflux disease, constipation and abdominal migraine. Rarer GI etiologies leading to RAP include inflammatory bowel disease, eosinophilic disorders of the GI tract and pancreatic diseases. A number of surgical conditions affecting the GI tract can present as RAP, including intestinal malrotation, recurrent intussusception, choledochal cyst and intestinal lymphoma.

When a child is seen for RAP, it is crucial to take a detailed history and perform a careful physical examination, bearing in mind the common causes mentioned above. Some common red flags are being listed in the table, which may indicate an organic pathology. When clinical history and physical examination are unable to identify an etiology, some screening tests, such as full blood count, erythrocyte sedimentation rate, stool for occult blood and urinalysis, may be performed.



After evaluation, if no organic causes can be found, both the child and parents should be reassured. As the child's and parents' quality of life (QOL) can be affected, psychological consult is often required. The main aim of management would be to teach the child and parents how to cope with the pain so that QOL can be preserved.

Common Red Flags

- Localisation of pain away from central abdominal area
- Pain associated with changes in bowel habit, such as diarrhoea or nocturnal bowel movement or bloody stools
- Pain that wakes the child from sleep
- Constitutional symptoms such as recurrent unexplained fever, loss of appetite, lethargy, weight loss/poor growth
- Pallor or jaundice
- Organomegaly or palpable mass in the abdomen
- Peri-anal abnormalities
- Clubbing or evidence of joint inflammation or unusual rashes such as purpura, erythema nodosum



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Approach to Headaches

Q1. How common are headaches in children and adolescents?

Headaches are common in children and adolescents. It is one of the frequently cited reasons for clinic and emergency department visits. The prevalence ranges from 17% to 90% of children. Headaches are more common in boys than girls before puberty, but the ratio reverses after they go through puberty.

Q2. What are the causes of headaches in children and adolescents?

The most common cause of headache is tension type headache. Children usually say it feels like a rubber band around the head. The pain is usually mild to moderate, occurring in the afternoon or evening after a long, tiring day.

Migraine headaches are the second most common cause of headaches. The pain can be unilateral (in adolescents), frontal or bi-temporal (in children) and described as throbbing or pulsating. This is due to a complex interaction of intracranial nerves and blood vessels. Some children may complain of visual aura preceding the onset of the headache. During the migraine attacks, children often feel nauseated and may vomit. There may be a family history of migraneous headaches. The triggers for migraine are similar to those for tension type headaches. Special triggers may include food such as chocolate and caffeine.



A patient with visual aura seeing flashes of light



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Secondary causes of headaches include sinus headaches, which are usually accompanied with nasal congestion, rhinorrhoea and facial tenderness. Other rarer but more sinister causes include meningitis, idiopathic intracranial hypertension, intracranial haemorrhage or space-occupying lesion.

Q3. How do we manage primary headaches?

The patient (or parent) should keep a headache diary that allows them to identify triggers of the headache. In Singapore, lack of sleep, excessive screen time and stress are common triggers.

There are two arms of treatment for primary headaches. Analgesics such as acetaminophen, NSAIDs or sumatriptan may be used to abort headaches. Medications such as flunarizine, topiramate and amitriptyline are used as prophylaxis or preventers for migraneous attacks.

Q4. When should we refer the child or adolescent to a neurologist?

Patients with these symptoms listed below should be referred early:

- Symptoms of raised intracranial pressure (early morning pattern or nocturnal awakening due to headache; worsening headache while straining)
- Focal neurological deficits
- Change in behaviour or mood, or decline in school performance
- Headaches in the very young (less than 4 years old)
- First severe or worst headache in the child's life
- New persistent or progressively worsening headache
- Change in character from the usual established headache pattern

Advances in the Management of Asthma

Management of asthma in adolescents

The management of asthma in adolescents (children above the age of 12) has seen some significant changes over the past two years. At present, these changes do not affect children under 12 years old. However, there is increasing evidence that these changes are likely to occur in this age group as well. Since 2019, the global initiative for asthma (GINA) no longer recommends treatment regimens with short-acting β 2-agonists (SABA) alone, without inhaled corticosteroids (ICS) for both symptom-driven and daily regimens. The main reasons for these changes are:



1 Zero tolerance for asthma exacerbations and not just asthma-related mortality and

2 Persistently high global asthma mortality and morbidity. In Singapore, the asthma mortality in the population aged five to 34 years old has fallen from seven per million population between 1994 and 1998 to about two per million between 2006 and 2010.¹ This is still higher than in some countries like Sweden. An audit conducted in Singapore revealed 384 severe life-threatening asthma (SLTA) events between 2011 and 2015.²

It is now known that there are two correctable factors that are responsible for asthma mortality/morbidity:

1 The overuse of SABA indicates poor asthma control and adverse health outcomes. Higher SABA use is associated with increased mortality risk.³

2 Inadequate use of ICS leads to poor asthma control and increased morbidity and mortality.⁴

Considering these factors, the current guidelines recommend using combination of beta agonists and ICS where possible. In fact, if one were to replace SABA with fast and Long Acting β 2-agonists (LABA) like formoterol, then a combination of LABA with ICS can be used both as a reliever and a preventer. This is called Single Maintenance and Reliever Therapy (SMART).⁵ The pro re nata (PRN) use of the SMART regimen can be used for step one of asthma management. While the regular use of ICS is still recommended for step two of asthma management, this is hard to achieve practically as a significant proportion of children forget to use their ICS regularly. In this context, it has been shown that the use of PRN SMART therapy is comparable to the use of regular ICS regimen in reducing asthma exacerbations.⁶ Additionally, PRN SMART has also been shown to be better than PRN SABA in achieving long-term asthma control. One of the limitations of the SMART regimen is that patients need to be given clear instructions on the maximum number of inhalations of the SMART inhaler that can be used every day (limiting formoterol to 36 – 72 micrograms per day).

Other strategies that could be implemented to improve ICS adherence in adolescents could be to promote regular use of ICS such as Ciclesonide or combination formulations such as fluticasone furoate with vilanterol (LABA), as these medications only need to be used once daily. These strategies have proven to be quite useful in our practice. However, it is important to note that they cannot be used on a PRN basis.

Management of asthma in children aged six to 12 years old

There is now increasing evidence for the PRN use of ICS + SABA or ICS + LABA in children aged between six and 12 years old as well. The benefit from symptom-based PRN use of ICS + SABA has been shown to be statistically comparable to the regular use of ICS for both asthma control and asthma exacerbations in this age group.⁷ There is also limited evidence for use of the SMART regimen in children, which has been shown to reduce the rate of asthma exacerbations as compared to the use of regular ICS.⁸ However, greater evidence is required in this age group before guidelines can be changed.

Remembering the basics

While the continued advances in the management of childhood asthma remain promising, the basics of asthma management are still fundamental and cannot be ignored. Time spent on patient and caregiver education, environmental control, demonstration of technique and stressing on adherence is invaluable to the outcome. In our local Singapore milieu, most children with asthma can be well-controlled with low-dose ICS (up to 200 µg/day), provided all the basics above are adhered to. In the older child (> 8 years old), other conditions like somatic cough (previously known as psychogenic cough), cough tic (habit cough) and vocal cord dysfunction (VCD) have to be kept in mind before escalating therapy beyond low-dose ICS.

Our outpatient clinic at the KTP-NUCMI building offers clinical evaluation of children with asthma with judicious and appropriate use of investigations. Asthma nurses help with counselling the child and parent and take elaborate time in teaching and monitoring inhaler technique. Our clinic also offers an asthma hotline for registered patients to contact for any emergencies and needs.

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Kawasaki Disease – From the 1960s to 2020

Who was Dr Kawasaki?

Dr Tomisaku Kawasaki was a paediatrician who saw children in the 1960s suffering from persistent fevers, rashes and other uncomfortable symptoms. He began stashing their records in a special file labelled with the Japanese equivalent of “God Only Knows”! He first described seven such patients at the Japanese Paediatric Association in 1962, but this series was rejected for publication since the prevailing sentiment at that time was that this was an atypical scarlet fever, or a drug reaction. Only five years later was his detailed report on 50 such patients accepted in the Japanese Journal of Allergy. The link between Kawasaki Disease (KD) and coronary artery sequelae was confirmed in the 1970s, and KD made its first appearance in Nelson’s Textbook of Paediatrics at last in 1978. (Some sources even say it was 1992!)

Until his death this year at the age of 95, Dr Kawasaki remained committed to discovering more of the disease that bears his name. Described as “part Sherlock Holmes and part Charles Dickens for his sense of mystery and vivid descriptions,” he remained, at heart, a general paediatrician with astute observational skills, attention to detail and a love for children.

Why is KD important?

KD is an important cause of fever in young children. Its alternative moniker, mucocutaneous lymph node syndrome (the name that Dr Kawasaki gave to it), is an apt summary of the clinical characteristics that define it. Even without therapy, the fever and other symptoms eventually resolve, but the affected child has a 15% to 25% risk of developing coronary artery abnormalities. This makes KD the leading cause of acquired heart disease in developed countries. Therein lies the importance of early recognition, since timely therapy with intravenous immunoglobulin (IVIG) can reduce the long-term cardiac risk to less than 5%.

Clues to not missing the diagnosis:

Diagnostic difficulties abound in KD. There is no definitive test for it. Instead, the diagnosis relies on a child satisfying the following criteria:

1 Fever persisting at least 5 days

2 At least four of the five principal clinical features:

- i. Changes in extremities
 - Acute: erythema of palms, soles; edema of hands, feet
 - Subacute: periungual peeling of fingers and toes in weeks 2 and 3
- ii. Polymorphous exanthema* (diffuse maculopapular, urticarial, erythroderma, erythema-multiforme like, not vesicular or bullous)
- iii. Bilateral bulbar conjunctival injection without exudates
- iv. Changes in lips and oral cavity: erythema, lips cracking, strawberry tongue, diffuse injection of oral and pharyngeal mucosae
- v. Cervical lymphadenopathy (>1.5 cm diameter), usually unilateral

3 Exclusion of other disease with similar findings (e.g. scarlet fever, viral infections like measles, adenovirus, Stevens-Johnson syndrome, toxic shock syndrome)

*The revised Japanese diagnostic guidelines include erythema of the BCG site as part of this feature.

Since the clinical features are non-specific, here are some **clues** to reducing the likelihood of missing the diagnosis:

- 1 The clinical features may occur sequentially, rather than simultaneously. Accordingly, some criteria may not be apparent at the point of physician contact and are only satisfied on history.
- 2 Other clinical clues to KD include:
 - a. "BCG-itis", which is the induration or erythema around the BCG site. This is almost pathognomonic for KD.
 - b. Marked irritability, due to aseptic meningitis, which may not always be accompanied by a bulging fontanelle in an infant.
 - c. Perineal desquamation, which often occurs prior to periungual desquamation. (The latter tends to occur in the second week of illness.)
 - d. Sterile pyuria, which reflects urethritis.
- 3 Presence of an intercurrent infection does not rule out KD. Often, the two may coexist, especially since it is hypothesised that the trigger for this acute vasculitis is an infectious one.
- 4 A normal echocardiogram does not rule out KD, since abnormalities in the coronary arteries usually occur from the second week of illness.
- 5 "Node-first" KD may present like a (primary) bacterial lymphadenitis. Consider KD in the continuously febrile child who shows no response to "appropriate" antibiotics.
- 6 "Incomplete" KD refers to children who do not satisfy the four out of five criteria for KD, but have clinical features supportive of the diagnosis: raised inflammatory markers (CRP ≥ 3 mg/dL and/or ESR ≥ 40 mm/hr, or elevated white blood cell count and/or platelets, anaemia or hypoalbuminaemia), transaminitis, sterile pyuria, hydrops of the gall bladder, or coronary artery dilation. In fact, the 2020 Japanese guidelines define incomplete KD with just three of the six KD criteria (since the Japanese consider fever together with the other five features to make a total of six) as long as there is coronary artery dilation on echocardiography. Approximately 20% to 40% of all KD is "incomplete" and such children are thought to have a worse form of the disease, since this is more likely in infants, and especially since diagnosis is reached later. Evaluation for this should occur in any child with fever for ≥ 5 days and two or three compatible clinical criteria OR infants with fever for ≥ 7 days without other explanation.
- 7 On the other end of the spectrum from incomplete KD, fulminant cases may be represented by children with Kawasaki shock syndrome (sometimes referred to as "Kawashockie"), multi-organ involvement, or vasculitis of medium vessels of other organs.
- 8 An earlier diagnosis (before day 5 of fever) may be made in the presence of >4 principal clinical criteria, particularly when redness and swelling of the hands and feet are present.

What's new in KD?

The efficacy of IVIG in reducing the coronary artery sequelae was proven in a randomised controlled trial in 1984. It is indeed unusual that for a systemic vasculitis like KD, steroids had not been shown to be unequivocally beneficial. Only in 2012 did the RAISE study demonstrate that steroids (with IVIG) reduced the cardiac sequelae in children with severe KD. Although the Kobayashi score used to identify “severe KD” patients has not been validated outside of Japan, many scores exist in an attempt to identify the child with an increased risk of IVIG resistance (i.e. non-resolution of fever and/or other KD features) and, accordingly, increased risk of coronary artery abnormalities.

There is an **increasing move to giving adjunctive steroids (in addition to IVIG) at the outset** to such children.

Therapies beyond IVIG, aspirin and steroids are available for the child with KD who does not respond to initial treatment, or who has clinical and echocardiographic features that confer greater risk for long-term sequelae.

Close collaboration between the Paediatric Rheumatologist and Paediatric Cardiologist is vital for the optimal management of such children, but perhaps the single most important factor in mitigating risk is early diagnosis!

KD in 2020

KD garnered renewed attention in April this year, in the midst of the Coronavirus pandemic, when it was recognised first in Europe that there were severely sick children who had similar features to atypical KD, with evidence of recent infection or exposure to nCoV-2019. Such a clinical presentation eventually was termed “Multisystem Inflammatory Syndrome in Children (MIS-C)” or “Paediatric inflammatory multisystem syndrome temporally associated with COVID-19 (PIMS-TS)” and there is much excitement and research around trying to understand the etiopathophysiology. Nonetheless, how and why specific children should respond to mostly unknown triggers to produce such a constellation of symptoms with an inflammatory predilection for coronary arteries remains, at best, hypothetical. Indeed, Dr Kawasaki was right when he acknowledged that “God only knows”.

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- 1) American Heart Association 2017 Scientific Statement for Kawasaki Disease
- 2) Japanese Circulation Society/Japanese Society for Cardiovascular Surgery 2020 Guidelines for Kawasaki Disease

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Duration of active vascular inflammation is the single most important risk factor of a poor outcome.

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Encopresis in Children

What is Encopresis?

- It is the repeated passage of stool into inappropriate places, whether involuntary or intentional.
- Occurs in a child older than four years old (or of equivalent developmental level).
- One such event occurs monthly for at least three months.
- The behaviour is not due exclusively to the direct physiological effects of a substance (e.g. laxatives) or a general medical condition, except through a mechanism involving constipation.

Epidemiology of Encopresis

- Encopresis reportedly affects 28% of four year olds, 4.1% of five to six year olds and 1.6% of 10 to 11 year olds.
- Encopresis usually presents in children younger than seven years old, although it can present at any age.
- Encopresis can be more common among children with developmental disabilities including attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD) and other developmental disabilities.

Contributing factors to Encopresis

- In more than 80% of children, encopresis is due to functional constipation where retained dry and hard stool distends the rectum, resulting in liquid stool leaving around the stool mass. Distention of the rectum results in abnormal feedback to the stretch receptors in the bowel. As a result, the child often does not receive a signal to defecate.

▶ Functional constipation itself can be contributed by stool toileting refusal, inability to communicate toileting needs, inability to pay attention to body's toileting cues and other reasons.

- Encopresis is not generally caused by underlying psychopathology but can be associated with emotional distress and result in embarrassment, humiliation, punishment and bullying.
- Rarer causes of encopresis include:

- ▶ Damaged corticospinal pathways, bowel inflammation, anorectal dysfunction, undiagnosed Hirschsprung's disease
- ▶ Anxiety or other emotional stressors causing children to impulsively pass stools, without underlying constipation
- ▶ Soiling on purpose, which is so rare that it is best to assume physiological reasons instead

- When evaluating a child with encopresis, also consider the causes of constipation, where necessary.

Signs and symptoms of encopresis secondary to functional constipation include:

- Constipation
- Abdominal distension
- Chronic abdominal pain
- Uncomfortable and infrequent stooling
- Passing large amounts of large-caliber stools in a single sitting that can obstruct the toilet
- Uncontrolled stool accidents – large or small (resulting in soiled underwear or diaper)
- Stool holding with retentive posture, e.g. crossing legs, squatting on heel of foot

Severe constipation can lead to urinary incontinence as:

- The bladder is often compressed by the stool-filled rectum
- Incomplete bladder emptying may be a learned response of a fearful child attempting to withhold stools or a child fearful of toilets
- The emotional consequences of encopresis lead to stress and urinary incontinence

Beyond a thorough history and physical examination, no investigation is usually required for encopresis as the majority of cases are due to functional constipation.

Treatment principles for retentive encopresis due to functional constipation

<p>1 Educate families</p> <ul style="list-style-type: none"> • Educate families regarding the pathophysiology and clinical course of encopresis. • Demystify the shame and blame around stool accidents. 	<p>2 Treat the constipation and clean out the bowel</p> <ul style="list-style-type: none"> • Before encopresis can be treated, first clean out retained stools that are dilating the rectum and affecting continence.
<p>3 Avoid constipation and create regular bowel patterns</p> <ul style="list-style-type: none"> • Maintain soft stools and prevent constipation from recurring. This requires compliance to a high-fibre diet, adequate fluids, laxatives and exercise. • Establish a behavioural plan concurrently to establish regular bowel patterns. • As a child might not develop the urge to defecate for six to nine months after constipation is treated, regular toilet sitting time is necessary. • The use of a toilet diary is encouraged to chart progress. 	<p>4 Preempt and prepare for relapses</p> <ul style="list-style-type: none"> • Constipation and encopresis are often long-term issues, recurring intermittently after initial improvement with treatment. • Prepare the family that long-term compliance to the treatment plan for months or even years is required.

Key takeaway

Physicians should treat constipation proactively, even though constipation is usually a self-limiting, benign, intermittent condition. Some children can develop stool-holding behaviours over time due to the pain associated with defecation secondary to constipation and anal fissures. This results in a behavioural vicious cycle of retentive faecal incontinence that can be hard to remediate and emotionally damaging.

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The Paediatric Eczema Day Programme

One in five children in Singapore suffer from eczema, a chronic, incurable debilitating skin disease that commonly begins in infancy. It is characterised by frequent flares, bacterial skin infections and poor quality of life with sleep disruption and significant psychological and social sequelae. The chronicity and high-maintenance nature of this disease incur a significant financial and social burden, which in turn impacts many families' health-seeking behaviours, family dynamics and compliance to prescribed regimens.

Caregivers are commonly overwhelmed by the extensive skin care needed to achieve long-term control of eczema, and are not able to absorb all information at the first visit. In the long term, they are also often overwhelmed by the intensive skin care plans required for optimal management of their child's eczema flares, and many suffer caregiver fatigue.

The Paediatric Eczema Day Programme is an outpatient eczema skin therapy programme, which will provide patients and caregivers intensive, hands-on training in their personalised eczema skin care regimen in a private, unhurried environment in the Eczema Room at the KTP-NUCMI outpatient building and/or the Paediatric Day Therapy at National University Hospital. The Eczema Room has dedicated bath facilities, a dressing area and consultation space, where patients will undergo supervised intensive skin therapy that is tailored to their individual needs.

The provision of unique bathing facilities in the Eczema Room recreates the home environment, where caregivers will undergo practical, hands-on training in the prescribed regimen required for care of the child's skin during and after baths.



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Dedicated bathing facilities in the Eczema Room allow patients to undergo supervised intensive skin therapy that is tailored to their individual needs.

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Those who require an extended therapy session and/or other multidisciplinary services are assigned a bed in the Paediatric Day Therapy, where the patient and caregiver can rest in between therapy sessions. Patients who require a longer duration of supervision will return for repeat follow-up visits during a severe flare to monitor response to therapy.

The Paediatric Eczema Day Programme aims to support and empower caregivers and adolescent patients to gain confidence in performing their skin care regimens, and to improve quality of life of affected patients and their families. Children will also be able to return home with their families at the end of the day, avoiding extended inpatient hospitalisation and separation from their loved ones. Through this, we aim to equip them to sustain long-term control of their disease and to achieve normal functioning in society.



DR ELIZABETH THAM
Head & Consultant

Division of Paediatric Allergy, Immunology and Rheumatology

Department of Paediatrics
Khoo Teck Puat – National University Children's Medical Institute
National University Hospital



DR VIDYADHAR MALI
Senior Consultant

Department of Paediatric Surgery
Khoo Teck Puat – National University Children's Medical Institute
National University Hospital

Q1

What inspired you to specialise in Paediatric Surgery and Paediatric Organ Transplantation?

It may sound like a cliché; but it is true: I became a doctor because it is a noble profession where we have the privilege to heal and alleviate suffering.

The act of performing a procedure and making someone well in the process attracted me to surgery. I also enjoy working among children. Hence, despite having the option of more popular choices for surgical sub-specialisation, I chose to pursue my passion in paediatric surgery.

Q2

What are the most common conditions that you or your colleagues see or treat at NUH Paediatric Surgery's specialist outpatient clinic sessions?

It is not unusual for even medical professionals to ask me what I do beyond circumcisions (or hernias and hydroceles). The niche conditions that a paediatric surgeon treats are congenital malformations such as Oesophageal atresia, Congenital diaphragmatic hernia, Hirschprung's disease, Anorectal malformations and other surgical conditions in neonates. Paediatric hepatobiliary (biliary atresia, choledochal cyst), paediatric urology (obstructive uropathy) and paediatric oncology (hepatoblastoma, Wilms tumour, sacrococcygeal teratoma) are some of the sub-specialisations within paediatric surgery.



*Surgical Outreach for Underserved Locations
Borobudur, Indonesia*



Surgical Outreach for Underserved Locations Cabanatuan, Philippines

Q4

What are the challenges you face as a paediatric surgeon?

Just as children are innocent, they are also delicate and fragile when ill. What may seem like a routine operation for an older person may not be as well-tolerated in a young child who is further weakened by illness. The margins are razor-thin or virtually non-existent.

We must always bear the burden that what we do stays with the child for a lifetime because we are often attempting to re-create or reconstruct what nature could not build normally in the first place!

Q3

What is the most important lesson you have learnt from your patients and their families?

On one hand, we as paediatric surgeons are privileged to be operating on young children and enjoy the satisfaction of the child's recovery and gratitude from the parents. On the other hand, we should never lose sight of the fact that we are merely instruments of healing and that our duty is to try our very best. Humility is an important attribute that should put a paediatric surgeon in good stead, especially when managing challenging cases.



Celebrating National Day 2016 together with my better half, Dr Arati Mali



Summit of Kota Kinabalu



Mount Everest Base Camp

Q5

What recent developments would you consider to be most significant in Paediatric Organ Transplantation and have resulted in better care of patients?

Paediatric organ transplantation has come a long way since the beginning in the 1970s, to the introduction of effective immunosuppression in the 1980s, to various surgical innovations in the 1990s and 2000s. Although established as an effective treatment, paediatric organ transplantation is not perfect. The ultimate goal is to be able to eliminate all complications and maybe even achieve clinically effective organ regeneration that may obviate the need for an organ transplant altogether. Until then, refinements in surgical techniques, minimisation and effective immunosuppression, and high standards of care should maintain the current good outcomes following paediatric organ transplantation.



Award for Paediatric Liver Transplant presentation in Seoul, 2015



SAF Volunteer Corps Medical-Trainer Detachment



NUHS Contingent
Commander NDP 2018



Q6

Could you share with us memorable experiences that have made your day?

There is one teenager who came to my clinic for something and was incidentally found to have cancer. This is her feedback and her words say it all!

“Thank you for being a doctor and a surgeon that patients can trust... Life is unpredictable and strange; but people can make a huge difference. I sincerely wish the world would be blessed with more competent, genuine and dedicated doctors like you. Keep fighting for your patients. Thank you for giving me a second chance in life, Dr Mali. Life is precious; every life is important. You are the flag-bearer of hope who never lets us lose hope in life. You hold our hand in the most difficult of times.”

Q7

How do you stay enthusiastic about the work you do?

It is not work when one follows one's passion as his or her chosen profession. The enthusiasm is boundless because it is not work or a job or a task that needs to be completed. It is an ongoing lifelong mission to one's best ability and fitness!

Wong Hock Boon Paediatric Masterclass Webinar – Pearls in Paediatrics

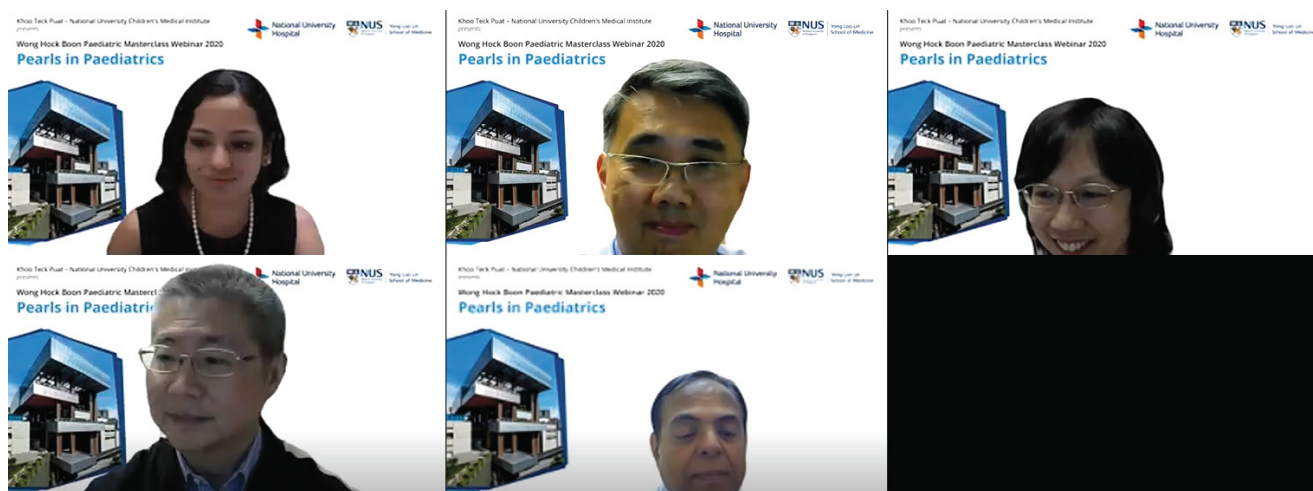
Held annually since 2011, the Wong Hock Boon Paediatric Masterclass has been a regular highlight of the paediatric cluster, attracting local and regional healthcare professionals to connect and share updates in the field of paediatrics. The Masterclass continues our long tradition of excellent teaching and honours the legacy of our founding professor, Emeritus Professor Wong Hock Boon.

In view of the ongoing COVID-19 situation and travel restrictions, we decided to bring this event to a digital platform to continue to reach out to healthcare professionals beyond our shores. Following the positive response of our COVID-19 webinar in April 2020, we organised a half-day session in late 2020, focussing on key paediatric topics ranging from gastroenterology, endocrinology to pulmonary medicine.

Our speakers, who were senior clinicians in the National University Hospital, comprised Professor Lee Yung Seng, Head of the Department of Paediatrics, Khoo Teck Puat – National University Children's Medical Institute, and Senior Consultant of the Division of Paediatric Endocrinology; Associate Professor Loke Kah Yin, Head and Senior Consultant of the Division of Paediatric Endocrinology; Associate Professor Marion Aw, Head and Senior Consultant of the Division of Paediatric Gastroenterology, Nutrition, Hepatology and Liver Transplantation; and Dr Mahesh Babu Ramamurthy, Head and Senior Consultant of the Division of Paediatric Pulmonary Medicine and Sleep. They shared key insights and updates in their respective fields, relevant to general practitioners and paediatricians alike.

The event saw about 600 healthcare professionals including local and overseas clinicians from countries such as Indonesia, Australia, the United States and the United Kingdom, nurses and medical students 'zoom' in on a Saturday afternoon. This is far more than what we could have accommodated in an actual venue. While we lament the lack of physical interaction and networking, such online platforms have opened up new possibilities to reach out to a wider audience regionally.

One other benefit of the virtual session was the ability to have a 'live' engagement session happening while the talks were ongoing. The session ended with an engaging Question and Answer discussion among the panel of speakers. We look forward to welcoming everyone to next year's Wong Hock Boon Paediatric Masterclass!



International Recognition for Therapeutic Environment and Patient-centred Design

Congratulations to the Khoo Teck Puat – National University Children's Medical Institute (KTP-NUCMI) on winning 3 international awards for its outstanding health facility design!

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KTP-NUCMI's overall design was carefully orchestrated so that the environment and interiors serve to provide children and parents a holistic care experience. We are humbled by this international recognition, and it reinforces our commitment to provide holistic care and makes visits to the hospital for our young patients and their families a positive experience.

Professor Lee Yung Seng
Head, KTP-NUCMI, NUH

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On 28 October 2020, KTP-NUCMI received the **2020 IIDA Healthcare Design Award (Ambulatory – Paediatric category)** from the International Interior Design Association, which has a global membership of 15,000+ across 58 countries. The project had earlier received the Best International Health Project 2020 (under 40,000sqm) in September 2020 at the Design & Health International Academy Awards organised by the International Academy for Design and Health that champions salutogenic design (positive impact on human health) principles. Last March, KTP-NUCMI received an honourable mention in the 2019 Architectural Design category of the Outstanding Property Award London, which celebrates the best in architecture, interior design and property development from around the world.

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The centre serves not only to provide tertiary state-of-the-art clinical care but also facilitate education and research in Paediatric and Adolescent Medicine. It serves local as well as international patients and covers the most comprehensive spectrum of clinical services in the country.

Associate Professor Daniel Goh
Senior Consultant, Paediatrics, NUH
(Former Head of Paediatrics and Cluster Chair leading the development of the centre)

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KTP-NUCMI opened in 2019 as a paediatric ambulatory centre that consolidates all of NUH's outpatient paediatric services. Play, interaction and exploration were the key considerations in the design brief to create a child-centred and family-friendly environment. The building houses medical, nursing and clinical support services, including art therapy, dietetics and rehabilitation. From the 14-m high entrance atrium and nature-themed reception, to the themed clinic floors that lead to sky gardens and outdoor playgrounds on each level, the design concept succeeds in creating an enchanting experience for both child patients and caregivers alike. It was funded by a generous donation from the Estate of Khoo Teck Puat in 2010. KTP-NUCMI stands proud as a unique NUHS landmark representing innovative health facility design that influences healing.

OUR FACILITIES

Main Building

Level 2

- Khoo Teck Puat – National University Children's Medical Institute
(Accessible via Kent Ridge Wing Level 2, Lift Lobby 7)

Level 4

- Paediatric Day Therapy
- Shaw-NKF Children's Kidney Centre

Medical Centre

Level 9

- 9A Viva-University Children's Cancer Centre

OFFSITE FACILITIES

NUH Child Development Unit @ Jurong Medical Centre
60 Jurong West Central 3, Level 2, Singapore 648346

NUH Child Development Unit @ Keat Hong
2 Choa Chu Kang Loop, Level 3, Singapore 689687

NUH Children's Urgent Care Clinic @ Bukit Panjang (opening early 2021)
Junction 10, 1 Woodlands Road, #01-22, Singapore 677899

GPLC

NUH GP Liaison Centre

At the National University Hospital (NUH), we recognise the pivotal role general practitioners (GPs) and family physicians play in general healthcare provided within the community. As such, we believe that through closer partnerships, we can deliver more personalised, comprehensive, and efficient medical care for our mutual patients.

The General Practitioner Liaison Centre (GPLC) aims to build rapport and facilitate collaboration among GPs, family physicians and our specialists. As a central coordinating point, we provide assistance in areas such as patient referrals, continuing medical education (CME) training, and general enquiries about our hospital's services.

Through building these important platforms of shared care and communication, we hope that our patients will be the greatest beneficiaries.

FOR ASSISTANCE, PLEASE FEEL FREE TO CONTACT US

Tel: +65 6772 2000 / +65 6772 4829
(GP referral appointments and other enquiries)

Fax: +65 6777 8065
Email: gp@nuhs.edu.sg

NUH Continuing Medical Education (CME) Events

At NUH, we strive to advance health by integrating excellent clinical care, education and research. As part of our mission, we are committed to providing regular **CME** events for GPs and family physicians. These events aim to provide the latest and relevant clinical updates practical for your patient care.

Organised jointly by the **GPLC** and the various clinical departments within **NUH**, our specialists will present different topics in their own areas of specialties in these symposiums.

For more information on our **CME** events,
please visit: www.nuh.com.sg/GPLC