

ORGANIZED BY:



Singapore Paediatric Society

PERINATAL
SOCIETY OF SINGAPORE



PROGRAMME BOOKLET

18 - 20 SEPTEMBER
2026

Grand Copthorne
Waterfront

14TH SINGAPORE PAEDIATRIC AND PERINATAL ANNUAL CONGRESS (SIPPAC 2026)

INNOVATION IN MINIATURE:
PAEDIATRIC AND PERINATAL BREAKTHROUGHS





Table of Contents

Welcome Message	03
Committees	04
Conference Information	05
Overseas Faculty	08
Local Faculty	08
SiPPAC Programme	15
Acknowledgement	25
Abstracts	26





Welcome Message

On behalf of the Organising Committees, we warmly welcome all participants to the **14th Singapore Paediatric and Perinatal Annual Congress (SiPPAC 2026)**.

This year's Congress, held under the theme **"Innovation in Miniature: Paediatric and Perinatal Breakthroughs"** celebrates the advances and innovations shaping the future of child health. We look forward to three days of stimulating learning, exchange, and collaboration.

The scientific programme has been carefully curated to deliver a diverse and engaging experience for all attendees. SiPPAC 2026 features hands-on courses, symposia, interactive discussions, free paper and poster presentations, and sessions led by distinguished international and regional experts. These activities will highlight the latest developments in clinical practice, research, and innovation in paediatric and perinatal care.

This Congress would not be possible without the dedication of our Organising and Scientific Committees, faculty, speakers, reviewers, delegates, and partners. We are especially grateful to our sponsors and exhibitors for their generous support.

We hope SiPPAC 2026 will be a platform not only for sharing knowledge and advancing clinical practice, but also for fostering meaningful connections, exchanging ideas, and inspiring new collaborations across the paediatric and perinatal community.

Once again, welcome to the **14th Singapore Paediatric and Perinatal Annual Congress**. We wish you a rewarding and memorable Congress and hope you leave inspired by the knowledge shared, the connections made, and the innovations shaping the future of child health and perinatal care.

We look forward to seeing you at SiPPAC 2026.

Dr Alvin Chang

President
Singapore Paediatric Society
Singapore

A/Prof Chua Mei Chien

President
College of Paediatrics and Child Health
Singapore

Prof Tan Kok Hian

President
Perinatal Society of Singapore
Singapore



Organising Committee

Organising Chair	Dr Alvin Chang Shang Ming
Organising Co-Chair	Prof Victor Samuel Rajadurai
	A/Prof Chua Mei Chien
Secretary	Dr Sridhar Arunachalam
Scientific Chair	Adj A/Prof Michael Lim
Scientific Co-Chair	Dr Alvin Chang Shang Ming
Entertainment Co-Chairs	Dr Yeo Tong Hong
	Dr Simrita Khurana
	Dr Odattil Geetha
	Dr Khoo Poh Choo
Facilities and Logistic	Ms Van Anh Nguyen
Trade & Exhibition	Mr Steven Chan

Scientific Committee Members

- | | |
|---------------------------------|----------------------------|
| 1. Prof Anne Goh | 8. Dr Petrina Wong |
| 2. Dr Alicia May Lim | 9. Dr Yeo Tong Hong |
| 3. Dr Wong Chui Mae | 10. Dr Ong Lin Yin |
| 4. A/Prof Suresh Chandran | 11. Ms Pamela Tan |
| 5. Dr Abdul Alim | 12. Ms Kimberly Quek |
| 6. Prof Victor Samuel Rajadurai | 13. Ms Tay Yih Yann |
| 7. Dr Ong Eng Keow | 14. Ms Cheryl Seet Jia Lin |

• **Organiser:**



Singapore Paediatric Society





General Information

• DATES

Friday, 18 September 2026

Pre-Congress Workshop: Paediatric Epilepsy Training (PET1) Course

Saturday, 19 September 2026 - Sunday, 20 September 2026

Scientific Symposium

• PRE-CONGRESS WORKSHOP VENUE

St Anne Mother & Child Centre, Mount Alvernia Hospital

Level 6

820 Thomson Road

Singapore 574623

Venue for Lectures, Coffee Breaks and Lunch

Therapy Rooms 1, 2 & 3

• CONGRESS VENUE

Grand Copthorne Waterfront Singapore

Level 4

392 Havelock Road

Singapore 169663

• CONGRESS REGISTRATION

The Registration Counter will be located in the foyer outside the Grand Ballroom, Level 4, Grand Copthorne Waterfront Singapore.

Registration Hours

19-20 September 2026: **0800 - 1700 hrs**

• CONGRESS SATCHEL AND NAME BADGE

Upon registration, delegates will receive a congress satchel and name badge.

All delegates are required to wear their name badges when attending congress sessions and events. In the event of loss, please approach the Congress Secretariat for assistance. A replacement fee may apply.

• EXHIBITION

A state-of-the-art exhibition featuring medical equipment, pharmaceuticals, and allied healthcare applications will be held in the foyer area on Level 4, Grand Copthorne Waterfront Singapore.

Exhibition Opening Hours

Date	Time
Saturday, 19 September 2026	0830 - 1730 hrs
Sunday, 20 September 2026	0830 - 1600 hrs

• CME / CPE ADMINISTRATION

Applicable to Singapore-registered healthcare professionals only.

CME/CPE points will be awarded for attendance at both the **Paediatric Epilepsy Training (PET1) Course** and the **Scientific Symposium**.

To qualify for CME/CPE accreditation, delegates are required to register their attendance twice daily at the congress registration counter:

- **At the start of the congress day**
- **During the lunch break**

Please ensure attendance is recorded at both time points to facilitate accurate accreditation claims.

• LOST AND FOUND

For assistance with lost or found items, please approach the Congress Registration Counter.

• CONGRESS LANGUAGE

English will be the official language of the congress, and all sessions will be conducted in English.

• LIABILITY

The Organisers shall not be held liable for any personal injury, illness, loss, theft, or damage to the property of delegates during the congress.

Delegates are advised to make their own arrangements for travel, medical, and personal insurance coverage.

• DISCLAIMER

While every effort will be made to ensure that all aspects of the congress proceed as scheduled, the Organising Committee reserves the right to make changes to the programme, faculty, venue, or other arrangements as necessary, with or without prior notice.



• FACULTY ROOM

The Faculty Room will be located in the **Toucan Room**, Level 4, Grand Copthorne Waterfront Singapore.

Speakers may use this room to prepare, review, or upload their presentation materials.

All presentations should be submitted in **Microsoft PowerPoint format** via USB drive at least **30 minutes before the scheduled session**. Laptops and workstations will be available for presentation review and minor editing.

POSTER PRESENTATION

Each presenter will be allocated one poster board with a display area of 1 m × 2 m.

Poster boards will be clearly labelled with their respective poster numbers.

Poster Setup

Saturday, 19 September 2026

0800 - 0900 hrs

Poster Removal

Sunday, 20 September 2026

After 1510 hrs

Please ensure posters are removed promptly after the designated display period. The Organising Committee is not responsible for posters left behind after the congress.

• CONGRESS SECRETARIAT

Should you require assistance during the congress, please approach the **Congress Secretariat**, located at the Registration Counter.

The Secretariat will be available throughout the congress to assist delegates with registration, programme enquiries, certificates, and general administrative matters.





Faculty

• OVERSEAS



Christopher Beatty
*Pediatric Neurologist
Nationwide Children's Hospital
United States of America
USA*



Rebecca Marsh
*Clinical Director, Primary Immune Deficiency
Program
Co-Director, Diagnostic Immunology
Laboratories
Clinical Director, HLH Center of Excellence
Professor, UC Department of Pediatrics
Cincinnati Children's Hospital Medical Centre
United States of America*

• LOCAL



Abdul Alim
*Senior Consultant
Department of Neonatology
KK Women's and Children's Hospital
Singapore*



Biswas Agnihotri
*Head & Senior Consultant
Department of Neonatology
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore*



Sridhar Arunachalam
*Senior Consultant
Neonatal and Developmental Medicine
Singapore General Hospital
Singapore*



Tan Hatika Binte Abdul Hakim
*Senior Staff Nurse II
Obstetrics & Gynaecology Department
KidSTART @NUH programme
National University Hospital
Singapore*



Nicholas Beng Hui Ng
*Consultant Paediatrician
Division of Paediatric Endocrinology
National University Hospital
Singapore*



Pauline Chan
*Consultant
Division of Paediatric Allergy
Immunology & Rheumatology
Department of Paediatrics
Khoo Teck Puat
National University Children's Medical
Institute
National University Hospital
Singapore*



Siti Ridzuana Bt Sheik Alaudin
*Senior Staff Nurse
KidSTART @NUH programme
National University Hospital
Singapore*



Faculty

• LOCAL



Esther Chan Hian Li
Associate Consultant
Department of Paediatric Surgery
KK Women's and Children's Hospital
Singapore



Suresh Chandran
Senior Consultant
KK Women's and Children's Health
Singapore



Alvin Chang Shang Ming
Director of Quality, Safety and Risk
Management (QSRM)
Senior Consultant
Department of Neonatology
KK Women's and Children's Hospital
Singapore



Chen Ching Kit
Senior Consultant
Division of Paediatric Cardiology
Department of Paediatrics
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore



Chia Hui Ling
Senior Consultant Plastic Surgeon
SW1 Clinic
Singapore



Chin Hui-Lin
Senior Consultant
Division of Genetics and Metabolism
Department of Paediatrics
Khoo Teck Puat-National University
Children's Medical Institute
National University Hospital
Singapore



Chiong Yee Keow
Consultant
National University Hospital
Singapore



Chong Kok Wee
Head & Senior Consultant
Department of Paediatric Medicine
KK Women's and Children's Hospital
Singapore



Chua Mei Chien
Senior Consultant
Neonatologist
KK Women's and Children's Hospital
Singapore



Mary Daniel
Senior Mentor
Department of Child Development
KK Women's and Children's Hospital
Singapore



Courtney Davis
Senior Staff Physician
Adolescent Medicine Service
KK Women's and Children's Hospital
Singapore



Natalie Epton
Specialist Paediatrician and Neonatologist
SBCC Baby & Child Clinic
(Gastroenterology, Neonatology &
Paediatric Centre)
Singapore



Faculty

• LOCAL



Wang Fan
Nurse Clinician
Nephrology Specialty Nurse
KK Women's and Children's Hospital
Singapore



Ong Eng Keow
Paediatrician
Neonatology and Paediatric Intensive Care
Singapore



Anne Goh
Senior Consultant
Respiratory Medicine and Allergy Services
KK Women's and Children's Hospital
Singapore



James Huang Guoxian
Senior Consultant
Division of Paediatric Gastroenterology,
Nutrition, Hepatology and Liver
Transplantation
Department of Paediatrics
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore



Thowfique Kadavukarayil Ibrahim
Senior Consultant
Neonatology
KK Women's and Children's Hospital
Singapore



Saumya Shekhar Jamuar
Paediatrician
Mount Elizabeth Hospital
Singapore



Liew Woei Kang
Consultant Paediatrician
Paediatric Allergy, Immunology and
Rheumatology Centre
Singapore



Kang Ying Qi
Senior Consultant
Division of Developmental and Behavioural
Paediatrics
Department of Paediatrics
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore



Khoo Poh Choo
Deputy Head and Senior Consultant
Neonatology
KK Women's and Children's Hospital
Singapore



Simrita Khurana
Consultant
KK Women's and Children's Hospital
Singapore



Faculty

• LOCAL



Laszlo Kiraly

Head of Department of Cardiac,
Thoracic and Vascular Surgery
National University Heart Centre Singapore
Group Chief of Cardiothoracic Surgery,
National University Health System, Singapore
Senior Consultant, Head,
Paediatric Cardiac Surgery,
Associate Professor, Department of Surgery,
Yong Loo Lin School of Medicine,
National University of Singapore
Associate Professor, Department of Public Health,
Semmelweis University, Budapest, Hungary
Professor in Medicine (Hon), Semmelweis
University, Budapest, Hungary
National University Hospital
Singapore



Lai Liling

Assistant Nurse Clinician
Advanced Practice Nurse
KK Women's and Children's Hospital
Singapore



Bien Lai Wen Pui

Head and Senior Consultant
Associate Programme Director
Paediatric Dentistry Residency Training
Programme
NDCS Paediatric Dentistry Unit
Singapore



Samantha Lee

Consultant
Department of Paediatrics, Allergy Service
KK Women's and Children's Hospital



Lee Yung Seng

Senior Consultant
Division of Paediatric Endocrinology
Department of Paediatrics
Khoo Teck Puat - National University Children's
Medical Institute
National University Hospital
Singapore



Cheryl Lee

Senior Medical Social Worker
KidSTART@KKH KIDS0-3
KK Women's and Children's Hospital
Singapore



Kevin Liang Wei Hao

Consultant Department of Paediatrics
Deputy Programme Lead of KidSTART@KKH
KIDS0-3
KK Women's and Children's Hospital
Singapore



Valerie Lim

Associate Professor
Speech and Language Therapy Programme
Singapore Institute of Technology
Singapore



Michael Lim

Head of Division & Senior Consultant
Division of Paediatric Pulmonary Medicine
and Sleep
Department of Paediatrics
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore



Alicia May Lim

Consultant
Department of Neonatology
KK Women's and Children's Hospital
Singapore



Faculty

• LOCAL



Simon Ling
Senior Consultant
Neurology Service
Department of Paediatric Medicine
KK Women's and Children's Hospital
Singapore



Ne Ron Loh
Senior Consultant Paediatric Neurologist
KK Women's and Children's Hospital
Singapore



Arjandas Mahadev
Senior Consultant
Department of Orthopaedic Surgery
KK Women's and Children's Hospital
Singapore



Supranee Mathiprechakul
Consultant
KK Women's and Children's Hospital
Singapore



Mohite Sharad Arvindrao
Senior Consultant
Children's Emergency
Khoo Teck Puat – National University
Children's Medical Institute
National University Health System
Assistant Professor, Department of Paediatrics,
Yong Loo Lin School of Medicine
National University of Singapore
Singapore



Odattil Geetha
Senior Consultant
Department of Neonatology
KK Women's and Children's Hospital
Singapore



Ong Lin Yin
Paediatric Surgeon
The Little Surgery Centre
Singapore



Kimberly Quek
Assistant Nurse Clinician
Paediatric Neurology Nurse
National University Hospital
Singapore



Rambha Rai
Senior Consultant
KK Women's and Children's Hospital
Singapore



Victor Samuel Rajadurai
Emeritus Consultant
Neonatology
KK Women's and Children's Hospital
Singapore



Aishworiya Ramkumar
Senior Consultant
Division of Developmental and Behavioural
Paediatrics
Department of Paediatrics
Khoo Teck Puat - National University
Children's Medical Institute
National University Hospital
Singapore



Cheryl Seet
Paediatric Nurse
KK Women's and Children's Hospital
Singapore



Faculty

• LOCAL



Jane Sng Swee Peng
Nurse Clinician
KK Women's & Children's Health Hospital
Singapore



Vina Canlas Tagamolila
Senior Resident Physician
Department of Neonatal and Developmental
Medicine
Singapore General Hospital
Singapore



Daniel Tan
Clinical Psychologist
National University Hospital
Singapore



Tan Meiling Michelle
Senior Nurse Manager
Child Development Unit (CDU)|Community
Family & Child Health(CFCH)-
Nursing|HEADSUPP Programme
Khoo Teck Puat – National University
Children's Medical Institute
National University Hospital
Singapore



Tan Kok Hian
Head, Perinatal Audit & Epidemiology and
Senior Consultant
Maternal Fetal Medicine
KK Women's and Children's Hospital
Singapore



Pamela Tan
Nurse Clinician
Paediatric Gastroenterology and Hepatology
Singapore



Tay Yih Yan
Nurse Clinician
Department of Neonatal and
Development Medicine
Singapore General Hospital
Singapore



Shan Tang
Consultant Paediatric Neurologist
KK Women's and Children's Hospital
Singapore



Teo Yi Ming
Senior Consultant
National University Health Services
Singapore



Stacey Tay
Head of Division & Senior Consultant
Division of Paediatric Neurology
Department of Paediatrics, Khoo Teck Puat -
National University Children's Medical Institute
National University Hospital
Singapore



Thia Xing Hui Michelle
Advanced Practice Nurse
KK Women's and Children's Hospital
Singapore



Elizabeth Tham
Senior Consultant
Division of Paediatric Allergy, Immunology &
Rheumatology
Department of Paediatrics, Khoo Teck Puat -
National University Children's Medical Institute
National University Hospital
Singapore



Faculty

• LOCAL



Terrence Thomas
*Head & Senior Consultant
Neurology Service
KK Women's and Children's Hospital
Singapore*



Shrenik Jitendrakumar Vora
*Senior Staff Physician
Department of Neonatology
KK Women's and Children's Hospital
Singapore*



Sajini Mary Varughese
*Consultant
Division of General Ambulatory Paediatrics
and Adolescent Medicine
Department of Paediatrics,
Khoo Teck Puat-National University
Children's Medical Institute
National University Hospital
Singapore*



Wong Chui Mae
*Senior Consultant Paediatrician
Department of Child Development and
Neonatology
KK Women's and Children's Hospital
Singapore*



Petrina Wong
*Consultant Paediatrician
Gleneagles Hospital
Singapore*



Yeo Kee Thai
*Senior Consultant Neonatologist and Clinician-
Scientist
Department of Neonatology
KK Women's and Children's Hospital*



Yeo Tong Hong
*Senior Consultant Paediatrician
Paediatric Neurologist
Singapore*



Yung Chee Fu
*Senior Consultant
KK Women's and Children's Hospital
Singapore*



Amanda Yeoh Xue Ling
*Staff Nurse
KK Women's and Children's Hospital
Singapore*



Pre Congress Programme

• FRIDAY, 18 SEPTEMBER 2026

Venue: Level 6, St Anne Mother & Child Centre, Mount Alvernia Hospital

Limited seats are available for pre-congress, and registration will close once the workshop is fully registered.

TIME	PROGRAM	SPEAKER
0830 - 0900	Registration with tea and coffee	
0900 - 1140	Session 1: History and differential diagnoses	
0900 - 0920	Welcome to PETI	<i>Dr Yeo Tong Hong</i>
0920 - 0950	Taking the History & Video Opportunities	<i>Dr Terrence Thomas</i>
0950 - 1040	Fits & Funny Turns	<i>Dr Ron Loh</i>
1040 - 1105	Untangling...	<i>All Faculty</i>
1105 - 1140	Febrile Seizures	<i>All Faculty</i>
1140 - 1155	Tea and Coffee break	
1155-1415	Session 2: Seizures and Syndromes	
1155 - 1215	Epileptic Seizures & Epilepsies	<i>Dr Simon Ling</i>
1215 - 1235	The EEG	<i>Dr Yeo Tong Hong</i>
1235 - 1255	Neuroimaging	<i>Dr Terrence Thomas</i>
1255 - 1340	Lunch	
1340 - 1415	Epilepsy Syndromes	<i>All Faculty</i>
1415 - 1545	Session 3: Acute Management and Risks	
1415 - 1445	Epilepsy & Risks	<i>Dr Yeo Tong Hong</i>
1445 - 1515	Epilepsy, Learning & Mental Health	<i>Dr Ron Loh</i>
1515 - 1545	Meaning of & Approaches to Comprehensive Care	<i>All Faculty</i>
1545 - 1600	Tea and Coffee Break	
1600 - 1730	Session 4: Treatment & Co-Morbidities	
1600 - 1630	Acute Presentations	<i>Dr Simon Ling</i>
1630 - 1700	Medical Treatment	<i>Dr Terrence Thomas</i>
1700 - 1730	Wrapping Up!	<i>Dr Yeo Tong Hong</i>
1730	Closing	

MORE
REAL-WORLD EVIDENCE

LESS RSV DISEASE¹



With **OVER 11 MILLION** infants immunised with Beyfortus® worldwide*¹

Beyfortus® (nirsevimab) is the **FIRST DIRECT human monoclonal neutralising antibody against RSV** designed for ALL INFANTS.²



All infants are at risk of RSV disease during their first year of life, especially between 8 and 12 months of age.³

- RSV is the **most common cause of pneumonia and bronchiolitis** in infants less than 1 year old.⁴
- Approximately **1 in 6 children** hospitalised with RSV **required intensive care.**⁵



Beyfortus® is **designed for all infants** for protection against RSV-RTD with **proven high and sustained efficacy** for at least **5-6 months**^{2,6-9}



Beyfortus® **has a favourable safety profile** in clinical trials^{2,6}



Beyfortus® **has demonstrated real-world effectiveness and public health impact**¹⁰⁻¹⁴

Protect all infants with Beyfortus® at birth or at their first visit with you, today.

*Supported by global estimated exposure based on calculation from sales volume data (01 September 2023 through 31 October 2025). The number of children exposed is estimated based on distribution of recommended dose of Beyfortus® administered, considering body weight, season of administration (1st or 2nd) and immunisation plan.¹

RSV, respiratory syncytial virus; RTD, respiratory tract disease.

References: 1. Data on file. Sanofi. 2026. 2. Beyfortus® Product Prescribing Information for Malaysia. 3. Cheah FC, et al. *Vaccines*. 2026;14:59. 4. United States Centers for Disease Control and Prevention (US CDC). Respiratory syncytial virus (RSV) table of contents. Available at: <https://www.cdc.gov/rsv/site.html#gen>. Accessed April 2026. 5. Ng KF, et al. *J Paediatr Child Health*. 2017;53(4):399-407. 6. Griffin MP, et al. *N Engl J Med*. 2020;383(5):415-425. 7. Hammitt LL et al. *N Engl J Med*. 2022;386(9):837-846. 8. Drysdale SB et al. *N Engl J Med*. 2023;389(26):2425-2435. 9. Munro APS et al. *Lancet Child Adolesc Health*. 2025;9(6):404-412. 10. Mallah N et al. *Lancet Infect Dis*. 2025;25(2):62-63 & Supplementary Appendix. 11. Sumsuzzman DM et al. *Lancet Child Adolesc Health*. 2025;9(6):393-403. 12. Lassoued Y et al. *Lancet Reg Health Eur*. 2024;44:101007. 13. Hsiao A et al. *Pediatrics*. 2025;156(2):e2024069510. 14. Torres JP et al. *Lancet Infect Dis*. 2025;25(11):1189-1198.

FOR HEALTHCARE PROFESSIONALS ONLY.





Programme

• DAY 2: SATURDAY, 19 SEPTEMBER 2026

TIME	BALLROOM 1	BALLROOM 2
0815 - 0900	Registration & Opening Address	
0900 - 0945	PLENARY SESSION: Haridas Memorial Lecture <i>Chairperson: Adj A/Prof Michael Lim</i> From Cancer Cure to Cardio-Protection: Preventing Cardiac Sequelae in Paediatric Cancer Survivors <i>Dr. Chen Ching Kit</i>	NURSING SYMPOSIUM 1 <i>Chairpersons: NC Pamela Tan & SSN Cheryl Seet</i> • NUH Exploring Paediatric Nurses' Experiences on Implementing Tele-Dentistry Screening in Preschools in Singapore: A Qualitative Study <i>SNM Tan Meiling Michelle, NUH</i> • NICU Nurture Link Program <i>NC Jane Sng Swee Peng, KKH</i> • Initiation of A Renal Nurse-Led Voiding Clinic <i>NC Wang Fan, KKH</i>
0945 - 10:30	PLENARY SESSION: Stuart Gan Memorial Lecture <i>Chairperson: Dr Liew Woei Kang</i> Rethinking Hemophagocytic Lymphohistiocytosis (HLH): Innovations Driving Better Outcomes Professor Rebecca Marsh Cincinnati Children's Hospital Medical Center, USA	
1030 - 1100	Morning Tea Break & Poster Viewing (POSTER JUDGING) <i>Judges: Dr Alicia Lim, Dr Yeo Tong Hong, Prof Lee Yung Seng</i>	
1100 - 1230	FREE PAPER SESSION <i>Chairpersons:</i> <i>Dr Abdul Alim</i> <i>Dr Sridhar Arunachalam</i> <i>Judges:</i> <i>Prof Anne Goh</i> <i>Prof Stacey Tay</i> <i>Prof Suresh Chandran</i>	NURSING SYMPOSIUM 2 <i>Chairpersons: NC Tay Yih Yann & ANC Kimberly Quek</i> • NUH KidSTART Program <i>SSN Siti Ridzuana Bt Sheik Alaudin</i> <i>SSN Tan Hatika Binte Abdul Hakim</i> <i>NUH</i> • Paediatric sidekick chatbot – An AI chatbot for nurses to support clinical queries <i>ANC Lai Liling, KKH</i> • FasTrackCE – Reducing door-to-treatment time for children with mild to moderate respiratory symptoms or gastroenteritis in the Children's Emergency <i>ANC Thia Xing Hui Michelle, KKH</i> • Experiences and information needs of caregivers of paediatric patients with acute lymphoblastic leukaemia: A descriptive qualitative study <i>SN Amanda Yeoh Xue Ling, KKH</i>

Connecting Innovative Therapies to Patients Wherever They Are



farmamondo.com



FarmaMondo
RESPONSIBLE ACCESS TO SPECIALTY MEDICINES

FarmaMondo Pte. Ltd.
62 Tannery Lane, #05-01
Singapore 347804

Email: apac@farmamondo.com • Tel: +65 6957 0050

We are the trusted business partner to hundreds of hospitals, pharmacies and health agencies, helping them to ensure access to high-quality medicines to alleviate national shortages or lack of commercial availability.

When time and patient outcomes matter most, we're at your side.

Century of Swiss Excellence in Critical Care

100 years of pharmaceutical expertise rooted in Swiss quality standards

When patient lives depend on accessing unlicensed medicines, you need a partner with an uncompromising commitment to quality. Our century-long legacy, Swiss precision, and GDP-certified operations ensure every specialty medication meets the highest safety and efficacy standards because in critical care, there's no room for compromise.



Unmatched Global Access to Life-Saving Specialties

13 offices across 6 regions connecting you to treatments others can't reach

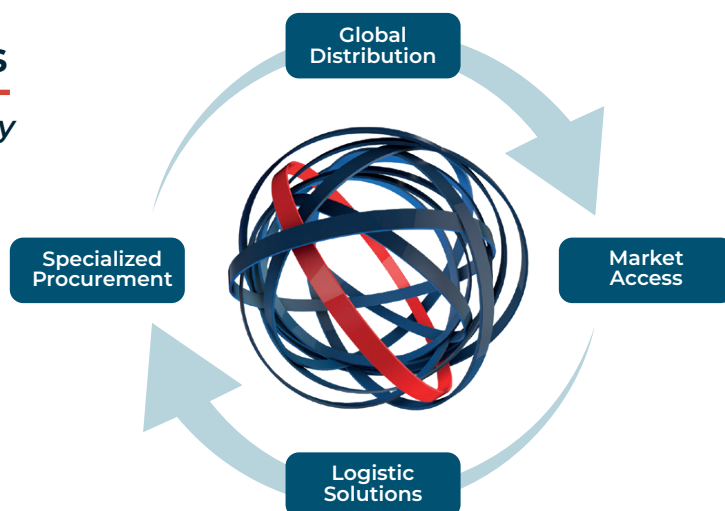
Our global network and direct manufacturer partnerships- both innovator and specialty generic- give you access to critical high quality medicines that would otherwise be unavailable. When a patient's treatment options are limited, our reach becomes unlimited.



End-to-End Procurement Specialists, Not Just Distributors

Dedicated experts navigating the complexity so you can focus on patient care

Unlicensed medicines require specialized knowledge in procurement, regulatory navigation, import/export compliance, and cold-chain logistics. Unlike general wholesalers, our entire organization is purpose-built for ULM complexity. From sourcing to bedside delivery, our specialists handle every critical detail with speed and precision.





Programme

• DAY 2: SATURDAY, 19 SEPTEMBER 2026

TIME	BALLROOM 1	BALLROOM 2
1230 - 1330	Lunch Symposium 1 All Infant Protection-The New Era of RSV Defense with Nirsevimab - Clinical Evidence and Real-World Data Transforming RSV Prevention into Universal Standard of Care <i>Adj A/Prof Biswas Agnihotri</i> - The New Standard of Care: Real-World Evidence Supporting Prevention Guidelines <i>Prof Yung Chee Fu</i> (Educational Grant from sanofi)	Lunch Symposium 2 Rett Syndrome in Singapore: Bridging gaps in diagnosis and advancing treatment strategies - Rett Syndrome in Singapore: Current Landscape and unmet needs <i>Dr Saumya Jamuar</i> - Recognising Rett Syndrome Early: Diagnosis and Emerging Treatment Strategies <i>Prof Christopher Beatty</i> (Educational Grant from FarmaMondo)
1330 - 1400	Lunch (Continues)	
1400 - 1530	SYMPOSIUM 1 Launch of the Diagnosis and Management of Food Allergy Clinical Practice Guidelines <i>Chairpersons:</i> <i>A/Prof Elizabeth Tham & Dr Chong Kok Wee</i> - Management of cow's milk allergy: Bridging Evidence, Guidelines and Clinical Practice <i>Dr Samantha Lee, KKH</i> - Updates in Eczema and Food Allergy management <i>Dr Pauline Chan, NUH</i> - Management of anaphylaxis <i>Dr Samuel Lee, TTSH</i>	SYMPOSIUM 2 Impact Beyond Infrastructure: Delivering Complex Surgery in Resource-Limited Settings <i>Chairperson: Dr Ong Lin Yin</i> - Advancing time: Paediatric cardiac charity missions near to the International Date Line <i>A/Prof Kiraly Lazlo, NUH</i> - Smiles Without Borders: Delivering High-Level Care Anywhere <i>Dr Chia Hui Ling</i> - More than a Mission: Complex Paediatric Surgery in Papua New Guinea <i>Dr Rambha Rai, KKH</i>
1530 - 1540	Tea Break	
1540 - 1600	Tea Symposium 1 <i>Moderator: Ms Sharon Wong</i> The First Clues: Recognising Achondroplasia Before and After Birth <i>Adj A/Prof Chin Hui-Lin</i> <i>Dr Saumya Shekhar Jamuar</i> (Educational Grant by NOVEM[®] Innovating healthcare with excellence)	Tea Symposium 2 Updates on Vaccine - Preventable Respiratory Infections in Infants- Pneumococcal Disease and RSV <i>Prof Lee Bee Wah</i> (Educational Grant by Pfizer)
1600 - 1730	SYMPOSIUM 3 Precision Paediatrics: From Genes to Targeted Treatment <i>Chairperson: Dr Yeo Tong Hong</i> - Beyond Standard Therapy: Targeted Routes in Epilepsy Treatment <i>Dr Shan Tang, KKH</i> - The Genetics of "Wait and See" – When Paediatricians Should Stop Watching and Start Testing <i>Adj A/Prof Chin Hui Lin, NUH</i> - Towards Precision Medicine in Migraine <i>Dr Ne Ron Loh, KKH</i>	SYMPOSIUM 4 Developmental & Behavioural Paediatrics <i>Chairperson: Dr Kang Ying Qi</i> - Myths about Autism: Untruths and Unproven Therapies <i>Dr Aishworiya Ramkumar, NUH</i> - Caregiver Stress in Children with Autism and other Developmental Conditions <i>A/Prof Mary Daniel, KKH</i> - Will kids really outgrow stuttering? Risk Factors, Comorbidities and Clinical Clues for Paediatric Practice <i>A/Prof Valerie Lim, SIT</i>



Programme

• DAY 2: SATURDAY, 19 SEPTEMBER 2026

TIME	BALLROOM 1	BALLROOM 2
1830 - 1900	Registration for Congress Dinner	
1900 - 1930	19TH COLLEGE OF PAEDIATRICS AND CHILD HEALTH LECTURE Paediatric Allergy: A Walk Through Memory Lane and a Leap into the Future Prof Hugo Van Bever, NUS	
1930 - 2130	Congress Dinner Awards Ceremony	

• DAY 3: SUNDAY, 20 SEPTEMBER 2026

TIME	BALLROOM 1	BALLROOM 2
0800 - 0845	Registration	
0845 - 0930	PLENARY SESSION: <i>Chairperson: Adj A/Prof Alvin S M Chang</i> The Microbiome Advantage: Harnessing Bacterial Allies in Early Life <i>Dr Yeo Kee Thai, KKH</i>	
0930 - 1000	Morning Tea Break & Poster Viewing	
1000 - 1130	SYMPOSIUM 5 From Community to Clinic: Advancing Child Health Where It Matters Most <i>Chairperson: Prof Suresh Chandran</i> - KidSTART@KKH KIDS0-3: An Evidence Based Early Intervention Model Addressing Social Determinants of Health <i>Dr Liang Wei Hao Kevin and Ms Cheryl Lee Sue Lynn, KKH</i> - Community Paediatrics - The Road Ahead <i>Dr Chiong Yee Keow, NUH</i> - NNJ@Home- Initiation to Expansion of Home Phototherapy <i>Dr Shrenik Jitendrakumar Vora, KKH</i>	SYMPOSIUM 6 Everyday Paediatric Surgery: What Every Clinician Should Know <i>Chairperson: Dr Alicia May Lim</i> - Paediatric Oral Health 101 - Essentials for Paediatricians <i>Dr Bien Lai Wen Pui, NDCS</i> - Paediatric Orthopaedic Conditions in Everyday Practice <i>Prof Arjandas Mahadev, KKH</i> - The Great Pretenders: Paediatric Surgical Pitfalls for Clinicians <i>Dr Esther Chan Ern Hwei, KKH</i>
1130 - 1300	SYMPOSIUM 7 Diagnostic Dilemmas in Paediatric Acute Care <i>Chairperson: Dr Petrina Wong</i> - Paediatric Chest Infection: Piecing Together The Puzzle <i>Dr Teo Yi Ming, NUH</i> - Point-of-Care Ultrasound in Pediatric Emergency Medicine: From Adjunct to Essential Tool <i>Dr Mohite Sharad Arvindrao, NUH</i> - Head Injury in Children <i>Dr Supranee Mathiprechakul, KKH</i>	SYMPOSIUM 8 Integrated Approaches to Paediatric and Adolescent Care: Mental Health, Safety and Transition <i>Chairperson: A/Prof Chua Mei Chien</i> - High Reliability in the Care of the Paediatric Population <i>Adj A/Prof Alvin S M Chang, KKH</i> - Digital Escapism in Adolescents: Meaning Behind Online Behaviours <i>Mr Daniel Tan, NUH</i> - Ready, Set, Go - Supporting Safe and Structured Transition from Paediatric to Adult Healthcare <i>Dr Sajini Mary Varughese, NUH</i>





Programme

• DAY 3: SUNDAY, 20 SEPTEMBER 2026

1300 - 1400	Lunch Symposium 3 The Missing Piece in Infant Respiratory Protection <i>Chairperson: Adj A/Prof Alvin S M Chang</i> - RSV Prevention in Healthy Infants: Beyond Traditional Risk Factors <i>Prof Kam Kai-Qian</i> - Pneumococcal Disease in the PCV Era: Beyond the Success Story <i>Dr Natalie Epton</i> (Educational Grant from  MSD)	Lunch Symposium 4 <i>Chairperson: Dr Christopher Ho</i> Beyond ORS: Rethinking the Management of Paediatric Diarrhea in the Era of Gut Dysbiosis <i>Dr James Huang</i> <i>Dr. Christopher Ho</i> (Educational Grant from  Abbott)
1400 - 1530	SYMPOSIUM 9: Lifestyle, Technology and Health in the Young <i>Chairperson: Dr Ong Eng Keow</i> - Childhood Obesity: How I Do It <i>Dr Nicholas Beng Hui Ng, NUH</i> - Youth Vaping: Latest Trends, Risks & What Clinicians Should Know <i>Dr Courtney Davis, KKH</i> - Gut Tales – Fighting Bowel Inflammation and Dysbiosis in Children <i>Dr James Huang Guoxian, NUH</i>	SYMPOSIUM 10: Raising the Bar in Neonatal Care <i>Chairperson: Prof Tan Kok Hian</i> - Standardizing surveillance: A NEO-EWS Journey <i>Dr Vina Canlas Tagamolila, SGH</i> - BPD Prevention in very preterm infants: The Ribbon Project <i>Adj A/Prof Biswas Agnihotri, NUH</i> - Rethinking Critical Morbidities in Healthcare: Inevitable Outcomes or Preventable Harm? A Local Data-Driven RC-PC-S Quality Improvement Innovation <i>Dr Thowfique Kadavukarayil Ibrahim, KKH</i>
1530 - 1600	Closing and Afternoon Tea Break	

Disclaimer: Whilst every attempt will be made to ensure that all aspects of the programme will take place as scheduled, the Organisers reserve the right to make appropriate changes should the need arise.



BioGaia®

ONE OF THE WORLD'S MOST RESEARCHED PROBIOTICS¹



Clinically proven in over **270** studies for
gut health and immunity across all ages for:



**Colic &
Regurgitation^{2,3}**



**Acute &
Antibiotic-Associated
Diarrhea^{4,5}**



**Functional
Constipation⁸**



**Functional
Abdominal Pain⁶**



**Irritable Bowel
Syndrome⁷**



**Infection
protection⁹**



Abbott

References: 1. According to the number of published clinical trials on PubMed (Sept 2025). 2. Savino F et al. Pediatrics. 2010;126(3):e526-33. 3. Indrio F. et al. Eur J Clin Invest. 2011; 41 (4): 417–422. 4. Dinleyici EC, et al. J Pediatr (Rio J).2015;91(4):392–396. 5. Dinleyici EC, et al.. Eur J Pediatr. 2025;184 (7):408. 6. Jadresin O, et al. J Pediatr Gastroenterol Nutr. 2017;64(6):925–929. 7. Cruchet S, et al. Front Gastroenterol.2024;2:1296048. 8. Riezzo G et al. Benef Microbes.2018;9(1):51-60. 9. Tubelius P, et al.. Environ Health. 2005;4:25. 10. Forsberg A, et al.. Sci Rep.2020;10(1):18723. SG-26-0173

HIDRASEC® (RACECADOTRIL)

10 AND 30 mg

GRANULES FOR ORAL SUSPENSION



Hidrasec (Racecadotril) is indicated in the complementary symptomatic **treatment of acute diarrhoea** in children and infants older than 3 months.



Novel mode of action: Anti-secretory agent that targets hypersecretion



Quick onset time of 30 mins



WHITE GRANULES



APRICOT SCENT



Acknowledgment

The 14th SiPPAC 2026 Organising Committee wishes to acknowledge and thank the following sponsors for their generous contributions and continued support of the conference:

PLATINUM PARTNER

sanofi

GOLD PARTNERS



INDUSTRY PARTNERS PROGRAM



EXHIBITORS AND OTHERS





Abstracts

• ORAL PRESENTATIONS

AIRWAY STABILIZATION AND LUNG PROTECTIVE STRATEGIES DURING GOLDEN HOUR OF NEONATAL RESUSCITATION: A QI INITIATIVE

KALAIMATHY VEERAPPAN, ALLELIEH JAVIER CAPISTRANO, PAVETHRA ANATHAN, SHARAFAT ALI, AILEEN PUNZALAN, AGNIHOTRI BISWAS

Department of Neonatology, National University Hospital, Singapore

Background/Aim:

Effective airway stabilization during the Golden Hour (GH) is critical to optimize ventilation and reduce lung injury in preterm infants. Variability in early respiratory practices may lead to unnecessary intubation and delayed effective support. This quality improvement (QI) project aimed to standardize early respiratory management for infants born at 24–32 weeks' gestation. The objectives were to: (1) preserve spontaneous breathing using early non-invasive ventilation (NIV), (2) improve accuracy of initial endotracheal tube (ETT) placement and stabilization to reduce repositioning, and (3) promote consistent use of lung-protective ventilation strategies. The initiative also sought to reduce early intubation and improve respiratory stability during the first hour of life through structured team processes.

Methods:

This prospective QI initiative targeted gaps in early respiratory care, particularly inconsistent NIV use and suboptimal first-attempt ETT placement. Interventions were implemented through iterative Plan–Do–Study–Act cycles. Key strategies included structured team pre-briefing and debriefing, simulation-based training, standardized airway checklists, and gestation- and weight-based ETT depth guidelines.

Pre-intervention data from 2024 were compared with post-intervention data from 2025–2026. Supporting measures included capacity building in Less Invasive Surfactant Administration (LISA), use of point-of-care lung ultrasound, earlier surfactant administration, and early initiation of lung-protective ventilation modes such as patient-targeted ventilation (PTV) and volume guarantee (VG).

Results:

Eighty-four neonates in 2024 were compared with 98 post-interventions. Pre-briefing compliance improved from 95% to 99%. ETT repositioning decreased from 20% to 15%. Early intubation declined with increased NIV and LISA use. Median time to surfactant improved from 39 to 34 minutes, reaching 30 minutes in 2026. Normocarbia increased from 71% to 87%, with improved avoidance of hyperoxia (81% to 84%).

Conclusions:

Standardized, team-based interventions improved airway stabilization, reduced invasive ventilation, and enhanced early respiratory outcomes.

Sustainability:

Improvements were sustained through ongoing simulation training, protocol reinforcement, checklist use, and continuous audit with feedback.





NOSOCOMIAL INFECTIONS AMONG PAEDIATRIC PATIENTS HOSPITALIZED DUE TO NON-MEDICAL SOCIAL NEEDS

SEET JIA LIN CHERYL¹, CHANG PEI QI PEARLLY², WU RONGJIE³, KAM KAI-QIAN⁴

¹ *Nursing Clinical Services, KK Women's and Children's Hospital, Singapore*

² *General Paediatrics Service, Department of Paediatrics, KK Women's and Children's Hospital, Singapore*

³ *Division of Nursing, KK Women's and Children's Hospital, Singapore*

⁴ *Infectious Disease Service, Department of Paediatrics, KK Women's and Children's Hospital, Singapore*

Background/Aim:

Children admitted to acute hospitals for safeguarding and social needs assessment are at risk of nosocomial infections. The study aimed to evaluate the incidences of nosocomial infections among children admitted to acute hospital for non-medical social needs.

Methods:

We performed a retrospective cohort study including patients aged 0-16 years admitted for non-medical social needs in 5 inpatient wards in KK Women's and Children's Hospital from November 2025 to January 2026. Four mixed wards consisted of 4-6 cubicles with 4-6 beds each, admitting a combination of medical/infectious and non-medical cases. The remaining non-infectious ward of similar configuration admitted non-infectious cases (adult gynaecological and non-medical paediatric cases). Nosocomial respiratory or gastrointestinal infections was defined as respiratory swabs or stool tests performed > 2 days after admission for clinical indications, respectively. We retrieved clinical information from medical records, and performed logistic regression to assess the risk factors of nosocomial infections.

Results:

There were 162 children with mean age of 8.6 years (SD: 4.9) and length-of-stay of 20 days (SD: 19.0). Forty-six patients (28.4%) developed nosocomial infections: 32 (19.8%) had respiratory infections, 6 (3.7%) had gastrointestinal infections, 9 (5.5%) had both infections. Incidence rate of nosocomial infections was 1.5 episodes per 100 patient-days. Longer length-of-stay (aOR: 1.1, 95% CI: 1.0-1.1, $p < 0.001$) was associated with higher odds of nosocomial infections, while admission to non-infectious ward (aOR: 0.1, 95% CI: 0.03-0.6, $p = 0.008$) was associated with lower odds of nosocomial infections.

Conclusion:

Nosocomial infections were common in children admitted for non-medical social needs. Dedicated non-infectious wards can reduce the risk of nosocomial infections, and better infection control practices are required in managing such patients in acute hospitals.

Sustainability:

Whenever feasible, placement of children with non-medical social needs outside of acute hospitals should be considered to mitigate the risk of preventable nosocomial infections.

ASSOCIATIONS BETWEEN MATERNAL MENTAL HEALTH AND OFFSPRING DEPRESSIVE SYMPTOMS IN MIDDLE CHILDHOOD: EXAMINING SELF-ESTEEM AS A MEDIATOR

TE ZY¹, CHUA KY², LAW EC¹⁻³

NUS Yong Loo Lin School of Medicine, Singapore¹

Department of Paediatrics, Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, Singapore²

*Institute for Human Development and Potential (IHDP), Agency for Science, Technology and Research (A*STAR), Singapore³*

Background/Aim:

Children of mothers with mood disorders are at increased risk for depressive symptoms. Reasons may include low maternal warmth and negative perception of their child's behaviours. There is limited understanding of child resilience that buffers this risk. We explore offspring self-esteem as an underlying pathway explaining the intergenerational transmission of depressive symptoms from mothers to offspring.

Methods:

Prospective data from Growing Up in Singapore Towards healthy Outcomes (GUSTO) cohort were used, including antenatal maternal depression measured by Edinburgh Perinatal Depression Scale (26-28 weeks' gestation), adolescent self-esteem by Rosenberg Self-Esteem Scale (12 years), and depressive symptoms by Children's Depression Inventory, Second Edition (13 years). Path analysis via a structural equation approach modelled self-esteem as a mediator explaining the association between maternal and offspring depressive symptoms, with household income and adverse childhood experiences as covariates.

Results:

Complete data from 630 mother-child dyads were included in the analyses. Antenatal maternal depression was strongly associated with adolescent depressive symptoms ($\beta=0.361$, 95% CI 0.123–0.593, $p=0.003$). In the final path mediation analysis, child self-esteem fully mediated the association between mother-offspring depressive symptoms (indirect effect 0.133, 95% CI 0.006–0.269, $p=0.044$), as the direct effect was no longer significant ($\beta=0.043$, 95% CI -0.094-0.344, $p=0.247$).

Conclusion:

Child self-esteem may be a potential intervention target for reducing intergenerational risk of depressive symptoms.

Sustainability:

Given Singapore's growing adolescent mental health burden and the national priority placed on preventive mental healthcare under MOH's National Mental Health and Well-Being Strategy 2023, targeting child self-esteem within existing school-based and polyclinic services offers a scalable, equity-sensitive strategy to reduce the intergenerational transmission of depression, particularly among socioeconomically vulnerable families

EVALUATING PARENTS' EXPERIENCE OF USING A BLOOD-TAKING GUIDE FOR CHILDREN WITH AUTISM

KOH MY¹, ABDUL MALEK NFB¹, AISHWORIYA R^{1,2}

¹ Child Development Unit, Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, Singapore

² Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background/Aim:

Venipuncture(blood-taking) is frequently associated with distress in children, particularly those with autism spectrum disorder (ASD), due to communication challenges and behavioural rigidity. Parent-mediated preparation strategies, such as visual supports and coping techniques, may improve procedural experience; however, parental perspectives about these remain underexplored.

Objective:

To evaluate parents' experience of using a blood-taking guide and its impact on parental knowledge, confidence, and perceived child outcomes.

Methods:

A caregiver blood-taking guide was developed, incorporating a visual schedule, social story, relaxation techniques, and instructions on preparing the child for the procedure. This guide was offered to all children scheduled for blood tests at a tertiary developmental paediatric clinic. Parents completed pre- and post-intervention surveys assessing baseline knowledge, confidence and experiences after using the guide with scores ranging from 1-10. Chi-square and t-tests were used for statistical analysis.

Results:

A total of 197 pre-intervention and 40 post-intervention responses were analysed. Significant improvements were observed in knowledge of what to expect during venipuncture ($\chi^2=12.5$, $p<0.001$) and how to prepare their child ($\chi^2=16.67$, $p<0.001$).

Parental confidence improved significantly, with higher confidence reported for future procedures (mean 8.03, SD 1.97) compared to baseline (mean 6.68, SD 2.66; $t=3.01$, $p<0.001$). Post-intervention feedback indicated high acceptability: 87.1% found the guide helpful in preparing their child, and overall satisfaction was high (mean 8.43/10). Additionally, 65% reported reduced child anxiety or discomfort.

Individual components of the guide had mean usefulness scores ranging from 3.81 to 4.19 out of 5.

Conclusion:

The blood-taking guide significantly improved parental preparedness and confidence for venipuncture for children with ASD, with high satisfaction and perceived reductions in child anxiety. The guide has potential value in enhancing procedural knowledge and overall parent-child experiences with blood taking.

Sustainability:

The blood-taking guide should be integrated into routine clinical practice with potential expansion to other paediatric clinics for neurotypical children.



ANTI-TUMOR NECROSIS FACTOR (aTNF) POST-INDUCTION DOSING AND IMMUNOGENICITY IN SOUTHEAST ASIAN PAEDIATRIC INFLAMMATORY BOWEL DISEASE (SEA-PIBD)

CHEN XIANG ANG¹, PAMELA SUE YIN TAN¹, SUNITHA VIMALESVARAN¹, MICHELLE LI NIEN TAN^{1,2}, MARION MARGARET AW^{1,2}, JAMES GUOXIAN HUANG^{1,2}

¹*Department of Paediatrics, Khoo Teck Puat-National University Children's Medical Institute, National University Health System, Singapore 119228, Singapore.*

²*Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore 119228*

Background/Aim:

Post-induction aTNF therapeutic drug monitoring(TDM) data in SEA-PIBD remains scarce. We describe SEA-PIBD post-induction troughs and immunogenicity.

Methods:

Single-centre retrospective analysis of PIBD patients <18 years receiving adalimumab/infliximab with induction dosing information was conducted. Post-induction troughs defined as pre-4th dose trough(infliximab) and week-12 trough(adalimumab); early immunogenicity(EI) defined by ADA positivity >10.0AU/mL. Trough targets(week-12 adalimumab >10.0µg/mL; week-10 infliximab >9.0µg/mL) recommended by NASPGHAN 2025. Statistical comparisons used independent samples t-test and Fisher's exact test.

Results:

Fifty aTNF treatment episodes were analysed in 43 patients: CD(78%), UC/IBD-U(22%); median age 11.0(IQR7.0-15.0) years. Adalimumab in 56%; infliximab in 44%. Leading indications: immunomodulator failure(28%), active perianal CD(24%), active luminal IBD(14%).

Median infliximab induction dose across doses 1 to 4, ranged 9.4 to 10.2mg/kg/dose. Median dosing intervals were 2.0(IQR1.7–2.0), 4.0(IQR 2.2–4.0), and 4.0(IQR2.0–5.9) weeks at Doses 2, 3, and 4 respectively. Median trough levels were 25.6(IQR 14.0–36.4)µg/mL pre-dose 2, 16.5(IQR7.7–36.3)µg/mL pre-dose 3, and 9.6(IQR4.2–16.5)µg/mL pre-dose 4, with 43.8%, 45.0%, and 53.0% attaining NASPGHAN 2025 targets, respectively.

Mean induction infliximab dose was higher in patients achieving pre-4th target compared with non-achievers(12.5 ± 6.8 vs 8.6 ± 2.2 mg/kg/dose; $p=0.141$)[Figure 1]. EI occurred in 35.3%($n=6$)[median 38.5, IQR17.5–47.8AU/L], with 33.4%($n=2$) above target.

Median adalimumab dose was 2.0mg/kg/dose(IQR1.6-3.3); 94.1%($n=16$) of adalimumab patients achieved week-12 target(median 16.9, IQR13.1–19.7µg/mL); 17.6%($n=3$) had EI(median 21.1, IQR12.4–34.5AU/L), with 66.7%($n=2$) achieving target.

Conclusion:

Only 53% of infliximab cohort achieved post-induction targets despite receiving higher end of standard dosing. Trough achievers required higher doses (median 12.5mg/kg), versus standard Western induction dosing. Adalimumab achieves excellent post-induction trough attainment, with lower immunogenicity. This disparity may reflect adalimumab's banded-dosing versus infliximab's exact weight-based-dosing. We recommend proactive TDM, as SEA-PIBD may exhibit pharmacokinetic differences from Western cohorts.

Sustainability:

Regional tertiary centre cross-collaboration allows larger sample size with higher statistical power, evaluating if our data remains robust across SEA-PIBD centres.



THE UTILITY OF THE DISTRESS THERMOMETER FOR IDENTIFYING THE NEED FOR MENTAL HEALTH INTERVENTION IN CAREGIVERS OF PRESCHOOLERS WITH DEVELOPMENTAL NEEDS

CLAUDIA YIP WAN ER, SHILPEE RATURI, MAJELLA IRUDAYAM, PRATIBHA KESHAV AGARWAL, LOURDES MARY DANIEL, KOH HWAN CUI

KK Women's and Children's Hospital, Department of Child Development

Background:

Parents of children with developmental disabilities face elevated risk of mental health difficulties. The Distress Thermometer (DT) measures distress on a scale of 0-10 and includes a problem list to identify sources of distress. Its brevity makes it well-suited for busy child development services, though its utility with caregivers of preschoolers with developmental needs remains underexplored.

Aim:

This study examined the DT's utility within DayOne, a caregiver mental health programme for preschoolers with developmental needs, in identifying caregivers with moderate-to-severe depression or anxiety symptoms, and children with high emotional and behavioural difficulties, for targeted interventions.

Methods:

In Phase-1 (2022-2024), 214 caregivers completed the DT prior to their child's first appointment, followed by the PHQ-8 and GAD-7 at the appointment. In Phase-2 (2025-present), a two-step screening process was implemented using a DT cut-off score derived from Phase-1 data: only caregivers scoring above the threshold completed the problem list, PHQ-8 and GAD-7, reducing questionnaire burden. Caregivers completed SDQ, which measures their child's emotional and behaviour difficulties, alongside routine child development evaluation measures at the appointment.

Results:

In Phase-1, analyses revealed that a DT cut-off score of ≥ 3 demonstrated high sensitivity (>0.93) for identifying caregivers with moderate-to-severe depressive or anxiety symptoms.

In Phase-2, 1202 caregivers completed the DT; 748 (62%) scored ≥ 3 , of whom 472 (63%) completed further measures. The DT showed moderate correlations with PHQ-8 ($\rho=.37$, $p<.001$) and GAD-7 ($\rho=.38$, $p<.001$). Children's emotional and behaviour difficulties were significantly associated with caregiver concerns on the problem list for managing child's behaviours ($\chi^2(3)=9.2$, $p=.03$, Cramér's $V=.16$) and feelings ($\chi^2(3)=10.6$, $p=.01$, Cramér's $V=.18$).

Conclusion:

The DT effectively identified caregivers with mental health needs and caregiver-child dyads likely to benefit from parent-child interventions.

Sustainability:

DT's brevity and ease of use support sustainability of a caregiver mental health programme in a specialist child development clinic.

ROBOTIC VS. LAPAROSCOPIC FUNDOPLICATION IN THE PEDIATRIC SURGERY: EXPERIENCE FROM A SINGLE CENTER

GARLICKA K, PRZEPIÓR Z, ZIĘBA K, NZIZA A, ŚCIBSKI K, GAŚIOREK K, GRUBA M, GÓRCKI W, CHRZAN R

Background:

Robotic surgery is increasingly used in adult surgery because it offers three-dimensional visualization, improved instrument articulation, and greater precision. However, its role in pediatric surgery remains debated, as evidence comparing robotic-assisted and conventional laparoscopic approaches remains limited. This study aimed to compare perioperative and postoperative outcomes of robotic-assisted versus laparoscopic fundoplication in children.

Methods:

A retrospective matched cohort analysis was performed including 60 pediatric patients who underwent fundoplication for gastroesophageal reflux disease. Patients were divided into two equal groups according to surgical approach: 30 underwent robotic-assisted fundoplication and 30 underwent conventional laparoscopic fundoplication. Evaluated outcomes included operative time, length of hospital stay, conversion to open surgery, intraoperative and postoperative complications, recurrence of reflux symptoms, and need for reoperation.

Results:

Baseline characteristics were comparable between the two groups. Robotic-assisted fundoplication was associated with longer operative time compared with laparoscopic fundoplication. However, length of hospital stay, conversion rates, complication rates, recurrence of reflux symptoms, and reoperation rates were similar between groups. No clear postoperative advantage of the robotic approach was identified, although the technique may provide ergonomic and technical benefits for the operating surgeon.

Conclusions:

Robotic-assisted fundoplication appears to be a safe and feasible alternative to conventional laparoscopic fundoplication in pediatric patients. Although associated with longer operative time, postoperative outcomes were comparable between both approaches. Larger prospective studies with longer follow-up are needed to determine whether robotic assistance offers clinically meaningful benefits in pediatric antireflux surgery.

EARLY BEHAVIOURAL SLEEP INTERVENTION IMPROVES INFANT SLEEP OUTCOMES: THE NUH SLEEP EASY PROGRAMME, SINGAPORE

OOH GTJ¹, JOHARI NA², GOH DYT¹

¹*Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, National University Health System Singapore*

²*Department of Nursing, National University Hospital, National University Health System, Singapore*

Background:

Behavioural sleep problems are common in early childhood and can adversely affect infant development, caregiver wellbeing and family functioning. Although behavioural sleep interventions are recommended as first-line treatment, the optimal timing for intervention in routine clinical practice remains unclear. This study evaluated whether age influences clinical outcomes following the Tier 2 behavioural sleep intervention in Singapore's Sleep Easy Programme (SleEP).

Methods:

A retrospective service evaluation using routinely collected clinical data (November 2023 - August 2025) was conducted. Infants and toddlers with behavioural sleep concerns received Tier 2 behavioural intervention comprising caregiver education, behavioural sleep strategies and follow-up support. Pre-post sleep scores were analysed by age groups (1–11 months and 12–35 months). Longitudinal changes in sleep scores and caregiver confidence were evaluated using mixed-effects linear regression.

Results:

Of the 986 children referred, 377 attended Tier 2 behavioural sleep intervention. Infants aged 1–11 months demonstrated significant improvement in sleep scores following intervention (mean difference -2.66 ; 95% CI -3.28 to -2.04 ; $p < 0.001$). Longitudinal analysis of 69 infants (155 observations) demonstrated continued improvement over six months, with sleep scores decreasing by 0.38 points per month (95% CI -0.52 to -0.24 ; $p < 0.001$). Caregiver confidence also increased significantly by 0.11 points per month (95% CI 0.06 – 0.17 ; $p < 0.001$). In contrast, children aged 12–35 months showed no statistically significant improvement following intervention (mean difference -1.67 ; 95% CI -3.70 to 0.37 ; $p = 0.095$).

Conclusion:

Behavioural sleep intervention delivered during infancy was associated with significant improvements in sleep behaviours and caregiver confidence, whereas similar improvements were not observed with the toddlers. These findings support early identification and intervention as part of the routine infant developmental care.

Sustainability:

The SleEP embeds evidenced-based Tier 2 behavioural sleep interventions within the existing maternal and child health services using a multi-disciplinary, tiered care model. Its timely identification and early intervention is a scalable and sustainable framework to improve infant sleep outcomes while supporting service evaluation and quality improvement.

Acknowledgements:

The statistical evaluation is supported by students from the Saw Swee Hock School of Public Health, Singapore.

• POSTER PRESENTATIONS

CAN WE SHORTEN THE M-CHAT-R/F? EVALUATING DISCRIMINATING ITEMS AND DIFFERENT SCORING METHODS FOR THE MODIFIED CHECKLIST FOR AUTISM IN TODDLERS, REVISED WITH FOLLOW-UP (M-CHAT-R/F) IN A PRIMARY CARE SETTING

CHUI MAE WONG¹, YELESWARAPU SITA PADMINI¹, GUO XIAOXUAN², RATNAPORN SIRIAMORNSARP², LOURDES MARY DANIEL¹, PRATIBHA AGARWAL¹

*Department of Child Development, KK Women's and Children's Hospital, Singapore
SingHealth Polyclinics, Singapore*

Background:

The M-CHAT-R/F is the most widely used autism screening tool in Singapore. In view of time and resource constraints, a Short Screener was introduced for use in primary care. This utilizes seven M-CHAT items, and failing any one item during Tier 1 screening requires the full M-CHAT-R/F to be administered at Tier 2. The aim of this study was to determine the best discriminating M-CHAT-R/F items and to assess the accuracy of the Short Screener.

Methods:

Data were extracted from a prospective cohort study on 4124 18-month-old children who underwent developmental screening at a primary care clinic. 257 children who screened positive on the M-CHAT-R/F, Parents' Evaluation of Developmental Status (PEDS:DM) or Ages&Stages Questionnaires, Third Edition (ASQ-3) were referred for specialist evaluation with diagnostic outcomes at 4-6 years old. Itemized M-CHAT-R/F data were collected on these 257 children, as well as a sample of 250 screen-negative children. Sensitivity, specificity, positive predictive (PPV), and negative predictive values (NPV) were computed using three different scoring methods: Total, Critical 6, and the 7-item Short Screener.

Results:

Between 230 screen-positive and 250 screen-negative children, there were no significant sociodemographic differences except for more males in the screen-positive group (64.8% vs 50.4%, $\chi^2=10.13$, $p=0.001$). 65 were diagnosed with autism, 127 language delay, 26 global developmental delay and 5 other delays. The Short Screener scoring method of failing ≥ 1 item demonstrated higher sensitivity but lower PPV than the Total and Critical 6 scoring methods. Specificity and NPV were high across all scoring methods. 4 of the 7 Short Screener items were amongst the best discriminating items.

Conclusion:

A Short Screener can be used effectively to identify autism symptoms in toddlers. However, due the lower PPV, the full M-CHAT-R/F should be used in children who fail the Short Screener, in a tiered screening model.



EVALUATION OF UNPLANNED EMERGENCY DEPARTMENT VISITS AND HOSPITAL READMISSIONS AMONG EXTREME AND VERY PREMATURE INFANTS WITHIN 24 MONTHS OF CORRECTED AGE: A SINGLE-CENTRE RETROSPECTIVE COHORT STUDY IN SINGAPOR

LIN JW¹, LOW JM², ZHANG S¹, LOH WL¹, WONG HC³

¹ Department of Nursing, National University Hospital, Singapore

² Department of Neonatology, Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, Singapore

³ Research Office, National University Health System, Singapore

Background:

Extreme and very preterm infants (EVPI; <32 weeks' gestation) are vulnerable to long-term unplanned post-discharge healthcare utilisation. High-income Southeast Asian evidence and stratified data between extreme preterm infants (EPI; <28 weeks') and very preterm infants (VPI; 28-<32 weeks') remain limited. Aims: 1. Compare emergency department (ED) visits and unplanned hospital readmissions (UHR) between EPI and VPI within 24 months' corrected age (CA); 2. Identify socioeconomic, maternal, clinical, and discharge factors associated with ED/UHR among EVPI.

Methods:

This retrospective cohort included EVPI born 2019-2022 at National University Hospital, Singapore. Associations were analysed using modified Poisson regression. Adjusted risk ratios (aRRs) with 95% confidence intervals (CI) were reported.

Results:

43 EPI and 103 VPI were included. EPI had higher UHR rates (53.5% vs 32.0%), paediatric intensive care readmission rates (27.9% vs 3.9%), UHR duration (3 vs 2 days), and shorter time-to-ED/UHR (284 vs 296 days) than VPI. ED/UHR in VPI clustered within 12 months' CA, whereas it showed greater dispersion in EPI across 5-18 months' CA. The top diagnoses across EVPI were febrile illnesses and lower respiratory tract infections. Prolonged mechanical ventilation (aRR 1.01, 95% CI 1.001-1.03) was associated with ED visits. Chinese ethnicity (aRR 0.53, 95% CI 0.31-0.90) compared to other races, natural conception (aRR 0.62, 95% CI 0.39-0.98), severe bronchopulmonary dysplasia (BPD) (aRR 0.19, 95% CI 0.03-1.00) relative to no BPD, cardiac anomalies (aRR 0.50, 95% CI 0.26-0.96), and formula feeding (aRR 0.54, 95% CI 0.32-0.91) had a lower ED visit probability. Intrauterine growth restriction (aRR 3.40, 95% CI 1.29-8.92) and siblings (aRR 2.25, 95% CI 1.10-4.60) had a higher UHR probability.

Conclusion:

EPI exhibited higher-acuity and more variable post-discharge healthcare utilisation than VPI. Associations may reflect differences in care pathways beyond biological factors alone, supporting risk stratification and targeted follow-up.

Sustainability:

Larger multicentre cohorts are required for generalisability.



DIGITALISING NEONATAL NUTRITION: A REAL-TIME DECISION SUPPORT PLATFORM IN THE NEONATAL INTENSIVE CARE UNIT

ALAN ONG^{1,2}, LEE JIUN¹, CHERYL AU MAE YING³, LEE SOKE YEE¹, SHEGUFTA RAHMAN¹, LAU ENCEN¹, SYLVIA PEARLY ANAK ASSOM¹, WONG CHUI YING³, AGNIHOTRI BISWAS¹, LOW JIA MING¹

¹ Department of Neonatology, Khoo Teck Puat—National University Children's Medical Institute, National University Health System, Singapore, Singapore

² Department of Paediatrics, Khoo Teck Puat—National University Children's Medical Institute, National University Health System, Singapore, Singapore

³ Department of Dietetics, Khoo Teck Puat—National University Children's Medical Institute, National University Health System, Singapore, Singapore

Background/Aim:

Optimal nutrition is critical for growth and neurodevelopment in preterm infants. However, neonatal nutritional assessment traditionally relies on manual calculations using multiple reference charts and repeated recalculations, resulting in significant clinician workload, inconsistent nutritional assessment, and risk of calculation errors. We aimed to develop and implement a digital neonatal nutrition decision-support platform to automate nutritional calculations and improve workflow efficiency.

Methods:

A multidisciplinary team (neonatologists, nurses and dietitians) developed a protocol-driven digital nutrition platform after multiple iterations with user feedback testing. It automatically calculates caloric and macronutrient intake, protein-energy ratio and fluid intake from enteral and parenteral sources. Outputs were compared against evidence-based nutritional targets and integrated into clinical documentation workflows. Adoption and utility were evaluated post-implementation.

Results:

Twenty-two users participated. Calculation time improved from approximately 6.1 minutes to < 1 minute per patient (>90% reduction), translating to approximately 183 clinician hours per month (2196 hours annually). User acceptance was high, with 100% (22/22) reporting the calculator being useful and would recommend it to other NICUs. 95% (21/22) reported reduced time spent on nutritional calculations with 91% (20/22) intending continued use. 91% (20/22) had reported manual nutrition calculations to be tedious with 82% (18/22) perceiving manual calculations to be challenging and error-prone. Earlier median regain of birth weight was observed following implementation across all gestational age groups, with the largest improvement among infants born at 28–31 weeks' gestation (15 to 11 days; 27% reduction).

Conclusion:

The digital neonatal nutrition decision-support platform automated complex neonatal calculations, reduced clinician workload, standardised nutritional assessment and achieved high user acceptance.

Sustainability:

By embedding evidence-based nutritional targets directly into workflow, the intervention improved efficiency by reducing cognitive load on clinicians while supporting more consistent and timely nutritional care for NICU infants. This intervention is potentially scalable to other neonatal units.

A RARE CASE OF ABSENT PULMONARY VALVE SYNDROME WITH DOUBLE OUTLET RIGHT VENTRICLE IN A PRETERM INFANT: AIRWAY MANAGEMENT CHALLENGES IN NEONATAL PERIOD

TAN F.L.¹, KHOO M.L.¹, OOI B.S.¹, WONG W.K.¹, TAN M.Y.², ABDUL HAIUM A.A.¹, GOPAGONDANAHALLI K.R.¹

¹Department of Neonatology, KK Women's and Children's Hospital, Singapore.

²Department of Cardiology, KK Women's and Children's Hospital, Singapore.

Background:

Absent pulmonary valve syndrome (APVS) is a rare congenital cardiac anomaly, occurring in approximately 3-6% of Tetralogy of Fallot (TOF) cases. It is characterized by rudimentary pulmonary valve tissue, aneurysmal dilatation of the pulmonary arteries, resulting in critical tracheobronchial compression and severe respiratory compromise. Its coexistence with double outlet right ventricle (DORV) is uncommon and increases physiological complexity.

Case presentation:

We report a preterm infant born at 34 weeks' gestation with antenatally diagnosed TOF type APVS and DORV, who developed severe hypoxaemic respiratory failure immediately after birth due to severe retrograde pulmonary blood flow and critical tracheobronchial compression. Stabilisation required endotracheal intubation, inhaled nitric oxide and ventilatory strategies to avoid air trapping. CT imaging demonstrated massive pulmonary artery dilatation with near-complete bronchial compression. Definitive surgical repair with ventricular septal defect (VSD) closure, right pulmonary artery (PA) reduction, pulmonary valve reconstruction and patent foramen ovale (PFO) closure was performed on day 37 of life. However, prolonged respiratory morbidity persisted, requiring repeat pulmonary artery reduction and tracheostomy. The infant eventually developed severe refractory chylothorax, disseminated intravascular coagulation and multiorgan failure post operatively, and deceased on day 112 of life.

Conclusion:

This case underscores the dominance of airway pathology over cardiac physiology in APVS, the importance of tailored ventilatory strategies, and the prolonged post-operative respiratory challenges despite successful anatomical correction.

Sustainability:

The report findings are sustainable as similar concepts can be applied to future cases of absent pulmonary valve syndrome.

SINGLE CENTER EXPERIENCE OF USE OF RISDIPLAM IN SPINAL MUSCULAR ATROPHY PATIENTS

STACEY KH TAY^{1,2}; MELODY POR³; KIMBERLY QUEK²; LYDIA YEUNG³; FAITH TIEW³; FURENE S WANG^{1,2}

¹*Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore*

²*Department of Paediatrics, KTP-National University Children's Medical Institute, National University Hospital*

³*Department of Rehabilitation, National University Hospital*

Background:

Risdiplam is an oral SMN2-splicing modifier approved for spinal muscular atrophy (SMA). Despite proven efficacy in clinical trials, real-world data from Southeast-Asia remain limited. At the National University Hospital (NUH), Singapore, patients accessed risdiplam via compassionate use from 2021 and subsequently through a national subsidy introduced in August 2024. We describe our single-centre experience.

Methods:

This retrospective observational cohort study included genetically confirmed SMA patients treated with risdiplam at NUH. Clinical and registry data were analysed. Motor outcomes were evaluated in patients with ≥ 6 months of therapy and adequate assessments using the Hammersmith Functional Motor Scale Expanded (HFMSE), Children's Hospital of Philadelphia Infant Test of Neuromuscular Disorders (CHOP-INTEND), Revised Upper Limb Module (RULM), and Six-Minute Walk Test (6MWT). Safety, weight, and qualitative functional outcomes were reviewed.

Results:

Nineteen patients received risdiplam; fourteen had analysable motor data. Most (73%) had SMA Type 2 with three SMN2 copies. Mean HFMSE improved by 2.6 points (range -1 to 8), although one patient declined by five points. Early-treated patients demonstrated CHOP-INTEND gains. Patients with four SMN2 copies maintained ambulation and improved 6MWT performance; one resumed competitive para-sports. RULM demonstrated limited sensitivity to change. Among patients aged >16 years ($n=4$), mean weight increased by 0.98 kg at six months. Adverse effects occurred in 42.1%, predominantly gastrointestinal symptoms, reduced appetite, and fatigue; no serious adverse events occurred.

Conclusions:

Risdiplam was well tolerated and associated with clinically meaningful functional gains across SMA subtypes. Earlier initiation may optimise outcomes. Larger longitudinal studies incorporating patient-reported outcomes are warranted.

APP-SUPPORTED NEONATAL RESUSCITATION REFRESHER TRAINING IN NEPAL: FEASIBILITY AND SKILL RETENTION AFTER HELPING BABIES BREATHE

KAIN VJ¹, BASNET B², BASNET LB³, BAJRACHARYA K⁴, BUDHATHOKI SS⁵, DHUNGANA A⁶, DHUNGANA R⁷, SHRESTHA DL⁸, SANTORINO D⁹, YOUNG J¹⁰

¹*School of Nursing and Midwifery, Griffith University, Australia*

²*Institute of Medicine, Maharajgunj Nursing Campus, Tribhuvan University, Nepal*

³*Department of Health Management and Policy, College of Public Health, University of Iowa, USA*

⁴*Maharajgunj Nursing Campus, Tribhuvan University Institute of Medicine, Nepal*

⁵*Faculty of Medicine, Imperial College London, United Kingdom*

⁶*Choice Humanitarian, Nepal*

⁷*School of Medical Sciences, Kathmandu University, Nepal*

⁸*Ministry of Health, Deukhuri, Nepal*

⁹*Mbarara University of Science and Technology and CAMTech Uganda, Uganda*

¹⁰*School of Health, University of the Sunshine Coast, Australia*

Background:

Helping Babies Breathe (HBB) is a neonatal resuscitation training program developed by the American Academy of Pediatrics for low-resource settings. It teaches birth attendants to assess, stimulate, and ventilate non-breathing newborns within the first minute after birth. Skills can decline after initial training, limiting impact in low-resource maternity settings. This study evaluated the feasibility, acceptability, and six-month skill retention associated with *HBB Prompt*, a culturally adapted, Nepali-language mobile refresher app designed to reinforce neonatal resuscitation practice among frontline healthcare professionals in rural Nepal.

Methods:

In a randomised feasibility study, 62 healthcare professionals completed standard HBB training. Participants were allocated to usual HBB training alone or HBB training plus access to the mobile app. Knowledge and skills were assessed at baseline, immediately after training, and six months using standard HBB assessment tools, including Objective Structured Clinical Examination B (OSCE-B). App use data were analysed and triangulated with qualitative interview data on usability, acceptability, and implementation barriers.

Results:

Both groups improved after HBB training. At six months, the intervention group showed stronger retention of practical resuscitation skills than the control group (mean OSCE-B 22.7 versus 21.7). App-based simulation use was positively associated with knowledge retention ($p = 0.52$, $P < .01$). Interview findings supported the feasibility and acceptability of the app, with participants describing it as a practical, low-cost way to refresh skills in busy clinical settings. Reported barriers included time pressure, ward rotation, and device access.

Conclusion:

Digital reinforcement after HBB training is feasible and may support retention of essential neonatal resuscitation knowledge and skills in low-resource settings. The findings align with paediatric and perinatal priorities for safer early-life care, workforce capability, and technology-supported practice improvement.

Sustainability:

The short-session mobile format, local-language content, and low-connectivity design support repeatable use after initial training. The model could be sustained through local practice corners, trainer-led follow-up, and integration into routine neonatal education programs across comparable maternity settings.

A PHASED DIGITAL HEALTH ARTIFICIAL INTELLIGENCE PROGRAMME FOR SCALABLE, NON-INVASIVE PAEDIATRIC ANAEMIA SCREENING

KHOO P C¹, LAM J C M², CHUA M C¹, LLANORA G V¹, WU Z³, EUSOFF M N³, MUKHERJEE S S³, WONG J³, HOI J T³, FOUSSAT A³, KOSALARAKSA P⁴, SAENGNIPIANTHKUL S⁴

¹*Department of Neonatology, Division of Medicine, KK Women's and Children's Hospital*

²*Children's Blood and Cancer Centre, Paediatric Haematology/Oncology Service, KK Women's and Children's Hospital, Singapore*

³*Danone Research & Innovation, Singapore*

⁴*Division of Nutrition, Department of Pediatrics, Faculty of Medicine Srinagarind, Hospital, Khon Kaen University, Khon Kaen, Thailand*

Background/Aim:

Anaemia is highly prevalent in children under 5 years, affecting 40% worldwide, with iron deficiency being its common cause. It can lead to cognitive impairment in infancy, making early detection crucial for interventions like iron fortification. However standard screening requires blood tests, a costly, invasive step impractical for mass screening. Danone launched a four-phase "Ferrous" study programme to develop a non-invasive, scalable, digital health tool – a smartphone-based artificial intelligence (AI) algorithm¹ for paediatric anaemia screening to bridge this gap.

Methods:

A phased development strategy was implemented. Phase 0 involved a comprehensive literature and market review, which identified that no non-invasive anaemia screening tools found met key requirements for accuracy, cost and childfriendliness) for widespread use. Phase 1 assessed acceptability and usability of three non-invasive devices in 120 children aged 6 months – 6 years; in a subset (N=30), paired laboratory haemoglobin (Hb) measurements and smartphone images from multiple anatomical sites with reference colour strip were collected to develop an initial AI-based Hb prediction model. Phase 2 expanded dataset collection in Singapore and Thailand (N=250, NCT06577727) to train V1.0 model. Phase 3 further expanded datasets in Ivory Coast (NCT07186205; analysis ongoing). Phase 4 is planned in India to improve detection of mild anaemia.

Results:

An example of the Phase 2 combined multi-site model (with a colour reference strip) predicted Hb with a mean absolute error of 0.81 g/dL, achieving 65% sensitivity and 88% specificity for anaemia detection.

Conclusion:

This novel digital technology can estimate Hb from smartphone images and is capable of screening for risk of anaemia.

Sustainability:

The tool enables scalable, low-resource digital screening for paediatric anaemia by facilitating widely accessible screening, timely clinical interventions, and a reduced environmental footprint through non-invasive assessment

SIMSURF – SIMULATION BASED SURFACTANT DELIVERY STUDY – A RANDOMISED CROSSOVER MANNEQUIN TRIAL

LIM YR, ARIDAS MS, TONG WY, KONG JY

¹*Department of Neonatology, KK Women's and Children's Hospital Singapore*

²*Department of Neonatology, KK Women's and Children's Hospital Singapore*

³*Department of Neonatology, KK Women's and Children's Hospital Singapore*

⁴*Department of Neonatology, KK Women's and Children's Hospital Singapore*

Background:

Surfactant replacement therapy is essential in the management of respiratory distress syndrome in preterm infants. Although endotracheal intubation has traditionally been the standard approach for surfactant administration, less-invasive techniques like minimally invasive surfactant therapy (MIST) and laryngeal mask airway (LMA) delivery have gained increasing prominence due to their potential to reduce invasiveness whilst maintaining therapeutic efficacy. Data evaluating technical feasibility and efficiency of these techniques is however limited.

Objective:

To compare procedural efficiency of four surfactant administration techniques in a mannequin simulation environment and evaluate participant confidence and preferences following simulation-based training.

Methods:

A randomized controlled crossover trial was conducted in KK Women's and Children's Hospital utilizing neonatal intubation mannequins. Four methods were evaluated: LMA technique, MIST with video laryngoscope (VL), MIST without VL and Intubation surfactant extubation (INSURE) technique. Rotating trainee doctors and neonatal staff were randomized to different technique sequences using computer-generated randomization. Primary outcome was time to successful surfactant administration. A pre- and post-study questionnaire to assess confidence, technique preferences, procedural challenges and learning experience was also completed by participants.

Results:

Preliminary data from 13 participants was analysed. LMA delivery had the shortest median time (31 seconds) to surfactant administration while INSURE technique with the longest median time (42 seconds). LMA was ranked as the most preferred method by 54% of the participants and the most straightforward technique by 77% of participants. MIST without VL was reported to have the most technical difficulties by 54% of participants. Self-reported confidence in performing surfactant administration increased from 54% before the study to 77% after.

Conclusion:

Preliminary findings suggest LMA may offer the greatest procedural efficiency and ease of use. Feedback from participants also support the role of simulation-based education in developing competency in less-invasive surfactant administration techniques. Our study may help inform future neonatal training programmes and clinical practice

IMPROVING FIRST-ATTEMPT URINE COLLECTION SUCCESS FOR CONGENITAL CYTOMEGALOVIRUS (cCMV) TESTING IN NEWBORNS USING A COTTON BALL-ASSISTED COLLECTION TECHNIQUE

ZHANG SUHE¹; NG PICK GATE²; NG SAU YOKE³, BRYDEN KOH³, NICK TAN³, TAN SHI MIN¹, CHENG SHI YUN¹, AGNIHOTRI BISWAS², CHEW KEAN LEE³, LOW JIA MING²

¹ Nursing Department, National University Hospital, Singapore

² Department of Neonatology, Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, Singapore

³ Department of Lab Medicine, National University Hospital, Singapore

Background/Aim:

Congenital CMV infection, the leading non-genetic cause of sensorineural hearing loss, is typically diagnosed using urine cytomegalovirus polymerase chain reaction (CMV PCR), the gold standard investigation. However, urine collection in newborns remains challenging due to issues of leakage and contamination, particularly in female. Repeated collection attempts may increase nursing workload, heighten parental anxiety, and delay diagnosis. This quality improvement initiative aims to evaluate and validate the efficiency and diagnostic accuracy of a cotton ball-assisted urine collection technique in newborns undergoing CMV PCR testing.

Methods:

A cotton ball-assisted urine collection method was developed and validated in collaboration with the Department of Laboratory Medicine. A sterile cotton ball was placed within a urine collection bag to absorb urine, which was subsequently extracted using a syringe for CMV PCR testing. Analytical validation assessed CMV DNA stability and detectability across viral loads of 300, 1,000 and 10,000 IU/mL. Clinical workflow outcomes were evaluated using retrospective baseline data (February–April 2026) and prospective ongoing pilot implementation data (May 2026).

Results:

Laboratory validation demonstrated that CMV DNA remained detectable across all tested viral loads and storage conditions. The cotton ball method showed minimal viral load change (0.06–0.23 log₁₀ IU/mL) and comparable performance to standard urine collection for qualitative CMV PCR testing. During baseline evaluation, no infants (N=32) achieved first-attempt urine collection using the standard method; females typically required 3–4 attempts. Post-implementation, 9 infants underwent cotton ball-assisted collection; 89% (n=8) achieved successful collection on the first attempt, one required repeat collection due to faecal contamination.

Conclusion:

The cotton ball-assisted technique is simple, low-cost, and scalable innovation that improves first-attempt urine collection success while maintaining diagnostic accuracy.

Sustainability:

The technique utilizes existing supplies and aligns with established nursing workflows, making it both sustainable and scalable across neonatal services. Continued nurse leadership in participation is critical to sustaining this practice.

EVALUATION OF ADVANCED PRACTICE NURSES' PERCEPTIONS AND EXPERIENCES OF A STRUCTURED ULTRASOUND-GUIDED PERIPHERAL INTRAVENOUS CANNULATION TRAINING PROGRAMME

LIM RXW, KHOO SM, CHENG JJSH

Nursing Clinical Services, KK Women's and Children's hospital, Singapore

Background/Aim:

To evaluate paediatric Advanced Practice Nurses' (APNs) perceptions and experiences of a structured ultrasound-guided peripheral intravenous cannulation (USG-PIV) training programme.

Methods:

This pilot study was conducted from April 2025 to February 2026. Eighteen paediatrics APNs were recruited through purposive sampling and completed a comprehensive USG-PIV education programme. The programme included a 30-minute theoretical session on ultrasound physics and paediatric vascular anatomy followed by a two-hour supervised practical session aligned with Miller's Pyramid framework. Pre-programme reading materials were provided. An online post-programme evaluation assessed training effectiveness across multiple domains including content clarity, instructional methods, practical components, equipment adequacy, instructor feedback, session duration, and confidence levels. Six ward-based APNs were independently assessed by two qualified physicians during supervised hands-on practice as clinical competency.

Results:

All participants had prior venepuncture training and were competent but, only 33% had prior experience with USG-PIV. Post-training evaluation revealed excellent programme acceptance: 97% found the skill beneficial, 90% considered it important, and 95% expressed interest in continued learning. Preferred learning methods included hands-on patient training (92%), faculty-led workshops (87%), and simulation-based learning (82%). Key implementation barriers identified were the absence of formal curriculum (85%), limited practice opportunities (78%), and image interpretation difficulties (65%). Participants reported high satisfaction with training and demonstrated strong post-training confidence to practice (Mean 4.6 out of 5). All achieved clinical competency under supervision, with no adverse events reported.

Conclusion:

The USG-PIV training programme was well received and valued for its structured, multimodal design. Participants particularly valued the supervised hands-on component. The programme enhanced existing venepuncture competencies. Highlighted barriers requiring support for better implementation include, more hands-on practice opportunities, improved access to ultrasound equipment, strengthened technical troubleshooting skills, and enhanced pre-programme reading materials. Study limitations include the small sample size and paediatric-specific context which may limit generalisability.

Sustainability:

The structured USG-PIV programme demonstrated high acceptability and effectiveness in delivering ultrasound-guided venous cannulation training for paediatric APNs. Its blended approach integrating theory, simulation, and mentored clinical practice provides a scalable model for broader implementation across paediatric nursing teams.



VARIATIONS IN NEONATAL RESUSCITATION PRACTICE AND INTERVENTIONS: A GLOBAL SURVEY STUDY

LIM AM^A, YEO KT^A, BHARADWAJ S^B, CHONG E^C, DEKKER J^D, FENG Q^E, IMPERIAL ML^F, JIANG SY^G, KAMAR AA^H, KIM HS^I, KITSOMMART R^J, KISHORE KUMAR R^K, KUSUDA S^L, LARA-DIAZ VJ^M, LEE HC^N, ILOH KK^O, NGUYEN TT^P, ROHSISWATMO R^Q, RÜDIGER M^R, SCHMÖLZER GM^S, SOLANO JM^T, SYAHPUTRA R^U, TOOKE LV, TREVISANUTO D^W, OEI JL^X, KONG JY^A

^a Department of Neonatology, KK Women's and Children's Hospital, Singapore (100 Bukit Timah Road, Singapore 299899)

^b Newborn Services, St Mary's Hospital, Manchester University NHS Foundation Trust, Oxford Road, Manchester M13 9WL, United Kingdom

^c Department of Neonatology, RIPAS Hospital, Bandar Seri Begawan, Brunei Darussalam (RIPAS Hospital, BA1710 Bandar Seri Begawan, Brunei Darussalam)

^d Willem-Alexander Children's Hospital, Department of Pediatrics, Division of Neonatology, Leiden University Medical Center, Leiden, the Netherlands

^e Children's Medical Center, Peking University First Hospital, Beijing, China (No. 8, Xi-shu-ku Str, Xicheng District, Beijing 100034)

^f Department of Newborn Medicine, Dr. Jose-Fabella Memorial Hospital, Manila, Philippines (San Lazaro Compound, Tayuman Street, Sta. Cruz, Manila, Philippines)

^g Department of Neonatology, Children's Hospital of Fudan University, Shanghai, China (No. 399 Wanyuan Road, Minhang District, Shanghai, China)

^h Neonatal Intensive Care Unit, Department of Paediatrics, Universiti Malaya, Kuala Lumpur, Malaysia (University of Malaya Medical Centre, 50603 Kuala Lumpur, Malaysia)

ⁱ Department of Pediatrics, Seoul National University College of Medicine, Seoul, Republic of Korea (103 Daehak-ro, Jongno-gu, Seoul 03080, South Korea)

^j Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand (2 Wanglang Road, Khwaeng Siriraj, Khet Bangkok Noi, Bangkok 10700, Thailand)

^k Cloudnine Hospitals, India and The University of Notre Dame Perth, Western Australia (23 High Street, Fremantle, WA 6160, Australia)

^l Department of Pediatrics, Neonatal Research Network of Japan, Kyorin University, Tokyo Japan (6-20-2 Shinkawa, Mitaka-shi, Tokyo 181-8611, Japan)

^m Faculty of Medicine and Health, University of New South Wales, Sydney, NSW, Australia; Academia Mexicana de Pediatría, AC, Mexico (Montecito 38, WTC Piso 35, Oficina 3 Colonia Nápoles, Alcaldía Benito Juárez C.P. 03810, Ciudad de Mexico, Mexico)

ⁿ Division of Neonatology, Department of Pediatrics, University of California San Diego, La Jolla, CA, USA (Rady Children's Hospital, 3020 Children's Way, Mail Code 5008, San Diego, CA 92123)

^o Department of Paediatrics, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State, Nigeria

^p Department of Pediatrics, School of Medicine, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam (217 Hong Bang Boulevard, District 5, Ho Chi Minh City, Vietnam)

^q Division of Neonatology, Department of Pediatrics, Faculty of Medicine, Universitas Indonesia, Dr Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia (Jalan Pangeran Diponegoro No. 71, RW.5, Kenari, Senen, Central Jakarta, Jakarta 10430, Indonesia)

^r Saxonian Center for feto-neonatal Health, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany (Medizinische Fakultät Carl Gustav Carus, Fetscherstraße 74, 01307 Dresden, Germany)

^s Department of Pediatrics, University of Alberta, Edmonton, Canada (Edmonton Clinic Health Academy (ECHA), 11405-87 Avenue, Edmonton, Alberta, Canada T6G 1C9)

^t Department of Neonatology, Universidad Militar Nueva Granada, Asociacion Colombiana de Neonatologia, Bogota,



Columbia (Calle 117 No. 6A-60, Oficina 403B, Bogotá, Colombia)

" Universitas Gadjah Mada, Yogyakarta, Indonesia (Bulaksumur, Caturtunggal, Kapanewon Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281, Indonesia)

" Department of Paediatrics, University of Cape Town, Cape Town, South Africa (Red Cross War Memorial Children's Hospital, Institute of Child Health Building, Klipfontein Road, Rondebosch, Capte Town, 7700)

" Department of Woman's and Child's Health, University of Padova, Padova, Italy (Via Niccolò Giustiniani, 3, 35128 Padova (PD), Italy)

** Faculty of Medicine and Health, University of New South Wales, Sydney, NSW, Australia (University of New South Wales, High Street, Kensington, NSW 2052, Australia)*

Background:

Although neonatal resuscitation is common, variations across different global settings are not well characterised. The aim of the study was to assess the global patterns of various neonatal resuscitation interventions and to explore healthcare professionals' perspectives on the key life-saving interventions.

Methods:

An anonymous, web-based survey was administered to healthcare practitioners engaged in neonatal resuscitation from 37 countries, between April to October 2025. Statistical analyses were stratified by country-specific income levels using the World Bank classifications.

Results:

A total of 434 responses were received- 139 (32%) from high-income countries (HIC) and 295 (68%) from low- and middle-income countries (LMIC). Most respondents (47%) worked in Level III neonatal intensive care units (NICU) with annual delivery rates of more than 2000 per year. The lowest median gestational age for commencing resuscitation was 22 weeks for HIC compared to 24 weeks for LMIC. HIC respondents were more inclined to perform physiologically based cord management for term infants compared to LMIC (13% versus 3%, $P < 0.001$). Initial respiratory support using continuous positive airway pressure (CPAP) was more prevalent in HIC compared to LMICs (82% vs 72%, $p = 0.03$). For term infants, almost all HIC respondents were more likely to start resuscitation at 21% FiO_2 . Of note, sustained inflation techniques were more commonly employed in LMICs (22% versus 7%, $P = 0.0001$). End-tidal CO_2 colorimetric (ET CO_2) detection for confirmation of endotracheal intubation was predominantly used in HICs (65% versus 14%, $P < 0.0001$). The three highest-ranked interventions for preventing mortality were availability of positive pressure ventilation devices and face mask, and temperature regulation. Research practice gaps that practitioners considered most critical for enhancing clinical practice were initial oxygen concentration, temperature regulation, and neonatal provider training frequency.

Conclusion:

Adoption of resuscitative interventions differed according to income level of the setting. International guidelines should be adapted to reflect what is realistically achievable across different settings.

ARTIFICIAL INTELLIGENCE-ENABLED HOME-BASED GROWTH TRACKER: DEVELOPING A SMARTPHONE TOOL FOR PAEDIATRICS LENGTH/HEIGHT AND WEIGHT MONITORING

CHAN D^{1,3,4}, CHUA M C², LIM J⁵, HADIMAJA M⁵, EUSOFF M N⁵, MUKHERJEE S⁵, WONG J⁵, FOUSSAT A⁵, YAP F^{1,3,4}

¹Endocrinology Service, Division of Medicine, KK Women's and Children's Hospital

²Department of Neonatology, Division of Medicine, KK Women's and Children's Hospital

³Duke-NUS School of Medicine, Singapore,

⁴Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore,

⁵Danone Research & Innovation, Singapore

Background/Aim:

Regular and accurate monitoring of children's growth (length/height and weight) is essential for early detection of growth challenges or anomalies. However, outside clinical settings, precise anthropometric measurement is challenging, requiring specialized equipment and trained personnel. This highlights the need for accessible solutions for reliable home-based growth tracking.

Methods:

Two prospective studies were conducted to develop smartphone-based Artificial Intelligence (AI) models¹ for home growth monitoring. In the first study (NCT05079776), infants aged 6–24 months had recumbent length and weight measured using WHO-standard methods. Investigators and parents captured smartphone images in both clinic and home settings with a reference card for scale, and these images were used to train an AI model for length and weight estimation. In the follow-up study (NCT06578338), children aged 2–6 years had standing height and weight measured per WHO standards, and investigators and parents similarly collected images/videos of each child (standing, with a reference card) to train a model for height and weight estimation in older children.

Results:

Across both studies, 462 children contributed paired WHO-standard anthropometry and smartphone image/video data. Our results showed that the infant length/weight model achieved Mean Absolute Error (MAE)/Mean Absolute Percentage Error (MAPE) of 1.89 cm/3.18% and 0.56 kg/9.02%, respectively. Separately, the older-child height/weight model achieved MAE/MAPE of 1.97 cm/2.02% and 1.21 kg/7.83%, respectively. Parent responses supported adoption: 92% of infant-study parents and 88% of older-child-study parents found the tools useful, while 88% and 82.5%, respectively, would use them at least monthly.

Conclusion:

A smartphone-based AI growth-tracker can estimate child length/height and weight from images, improving access to growth measurements through parental engagement. Model refinement is ongoing with global datasets.

Sustainability:

The algorithm uses energy efficient ML models suitable for population level assessments.

KNOWLEDGE, ATTITUDE AND PERCEPTIONS OF GENERAL PRACTITIONERS AND PAEDIATRICIANS IN SINGAPORE REGARDING DEVELOPMENTAL BEHAVIOURAL PAEDIATRIC CONDITIONS: A MIXED METHOD STUDY

TAN M¹, YUEN WY², WONG CM^{1,3,4,5}, RAJGOR D¹, R AISHWORIYA^{1,2}

¹Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

²Division of Developmental and Behavioural Paediatrics, Khoo Teck Puat-National University Children's Medical Institute, National University Hospital, Singapore

³Department of Child Development, KK Women's and Children's Hospital, Singapore

⁴Duke-NUS Medical School, Singapore

⁵Lee Kong Chian School of Medicine, Singapore

Background/Aim:

Developmental and behavioural paediatric (DBP) conditions, including autism spectrum disorder (ASD), attention deficit/hyperactivity disorder (ADHD), and dyslexia, represent a growing proportion of paediatric presentations in primary care settings. This study explores the knowledge, perceived areas of need, and clinical challenges faced by general practitioners (GPs) and paediatricians in Singapore when encountering children with DBP conditions.

Methods:

A mixed methods study was employed, comprising a structured online survey administered to GPs and paediatricians, alongside open-ended surveys and semi-structured interviews.

Results:

Of 91 survey respondents, 57 (62.6%) were GPs, 52 (57.1%) practised in public sector settings, and 69.2% had >10 years of experience. On a knowledge quiz about ASD, ADHD, and dyslexia, the median score was 18 out of 20. Fewer years of experience ($p=0.010$) and a higher proportion of DBP patients seen in clinic ($p=0.026$) were associated with higher total scores. 48.4% of respondents reported being 'a little confident' in counselling parents, and 45.1% rated their DBP competency lower than other areas. The most reported challenges were time constraints (85.7%), keeping up with current guidelines (60.4%), and parental reluctance for specialist care (60.4%). Most respondents (82.4%) desired further training on community and hospital support (74.7%), and red flags and referral criteria (72.5%). Reflexive thematic analysis of qualitative data (27 written responses, 7 interviews) identified 8 themes, comprising 4 challenges (lack of updated knowledge, non-conducive clinic settings, parental factors, complex referral pathways) and 4 need areas (additional training and resources, parent education resources, system-level support, and long-term care coordination).

Conclusion:

Frontline clinicians report gaps in confidence and need for practical support to better manage children with DBP conditions.

Sustainability:

There is need for structured training programmes, clearer referral pathways, and improved care coordination to better equip clinicians managing DBP conditions in Singapore.

COMPARISON BETWEEN SODIUM ACETATE AND SODIUM CHLORIDE FOR ARTERIAL LINE PATENCY IN VERY LOW BIRTH WEIGHT (VLBW) INFANTS

SARAH CAELLAINN TAN HUI LIN^{1,2}, MARY GRACE SY TAN¹, SARAH YAO HUI WEN^{1,3}, POON WOEI BING¹, SELINA HO KAH YING¹, SRIDHAR ARUNACHALAM¹

¹*Department of Neonatal and Developmental Medicine, Singapore General Hospital, Singapore*

²*Department of Paediatrics, Khoo Teck Puat - National University Children's Medical Institute, National University Hospital, Singapore*

³*Department of Paediatric Medicine, KK Women's and Children's Hospital, Singapore*

Background:

Metabolic acidosis in preterm infants is associated with increased morbidity. Previous studies have shown that acetate-based parenteral nutrition reduces hyperchloraemic metabolic acidosis in preterm infants. However, whether these benefits extend to low-volume solutions used for arterial line patency remains unknown.

Objective:

To compare acid-base and neonatal outcomes of sodium acetate and sodium chloride for arterial line patency in VLBW infants.

Methods:

Retrospective audit of VLBW infants requiring arterial catheters at Singapore General Hospital. Infants receiving sodium chloride (2024) were compared with those receiving sodium acetate following implementation of a unit practice change (2025). Primary outcomes were serial serum electrolytes, pH, and base excess over the first seven days following arterial line insertion. Secondary outcomes included intraventricular haemorrhage, patent ductus arteriosus, bronchopulmonary dysplasia, retinopathy of prematurity (ROP), and mortality.

Results:

Forty-four infants were included (24 sodium chloride, 20 sodium acetate) with comparable baseline characteristics, including median gestational age (26 vs 26 weeks), birth weight (932 g vs 920 g), sex distribution, and 1- and 5-minute Apgar scores. Trends in acid-base parameters consistently favoured sodium acetate, with base excess reaching statistical significance on Day 3 (median -4.9 vs -7.6 mmol/L, $p = 0.030$) and Day 4 (median -4.6 vs -7.0 mmol/L, $p = 0.007$). Sodium acetate was associated with significantly lower adjusted odds of ROP (OR 0.033, 95% CI 0.001–0.787, $p = 0.035$).

Conclusions:

These findings support sodium acetate as an alternative to sodium chloride for arterial line patency in VLBW infants. The delayed acid-base improvement is consistent with a cumulative acetate effect. Its modest magnitude may reflect the substantially lower acetate dose delivered via arterial line patency (median 1.2 mmol/kg/day versus up to 14.2 mmol/kg/day in previous parenteral nutrition studies). The observed association between attenuated metabolic acidosis and lower ROP incidence is biologically plausible and consistent with previous reports, warranting exploration in larger prospective studies.

MENTAL HEALTH SCREENING FOR PARENTS OF NICU INFANTS: A FAMILY-CENTRED CARE APPROACH

FARHARD ZAAHIRA¹, DE CHAVEZ HELEN¹, TAN JIAXUAN², CHINNADURAI AMUTHA^{1,3}, NG YVONNE PENG MEI^{1,3}

¹ *Department of Neonatology, National University Hospital Singapore, Singapore*

² *Department of Rehabilitation, National University Hospital Singapore, Singapore*

³ *Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore*

Background/Aim:

Parents of premature infants face significant psychological burden during their infant's Neonatal Intensive Care Unit (NICU) admission. Our team studied depression, anxiety, stress, and quality of life scores in parents of premature infants, aiming to identify factors associated with psychological distress, and to implement measures to mitigate their distress.

Methods:

Parents of premature infants (birthweight ≤ 1500 g) admitted to NICU between May 2024 and June 2025 were invited to complete surveys using validated tools: Edinburgh Postpartum Depression Scale (EPDS), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Parental Stressor Scale: NICU and WHOQOL-BREF. The surveys were done at three time points: 7–14 days after infant's admission, 34–36 weeks postmenstrual age, and pre-discharge. A Case Management Officer (CMO) in her role as Family Support Specialist facilitated the surveys, and conducted structured counselling, for parents screened positive for depression, anxiety and stress.

Results:

Of 58 parent pairs, 20% of mothers screened positive for depression on EPDS and 52% on PHQ-9. Among fathers, 38% demonstrated depression, with 22% in the moderate-to-severe range. Anxiety was present in 51% of mothers and 41% of fathers. Stress declined significantly by infants' discharge in both parents. Most parents maintained high quality of life on WHOQOL-BREF (83% mothers, 78% fathers). Lower gestational age and birthweight, and requirement for infant intubation were associated with greater parental psychological burden.

Conclusion:

Parental psychological distress in the NICU is prevalent and associated with infant illness severity. Structured, timely proactive support resulted in reduced anxiety and stress, promoting parental confidence and active participation in caregiving within the NICU.

Sustainability:

Longitudinal mental health surveys using validated tools can identify parental distress. A CMO-led counselling programme effectively supports parents and strengthens the framework of family-centred NICU care.

A RARE CAUSE OF PAEDIATRIC HYPERTENSION: A HEADACHE THAT REVEALED A PARAGANGLIOMA

TAN WR¹, LIM HY², SREEDHARAN AV³

¹General Paediatrics, KK Women's and Children's Hospital, Singapore.

²Neurology, KK Women's and Children's Hospital, Singapore.

³Endocrinology, KK Women's and Children's Hospital, Singapore.

Introduction:

Pheochromocytomas and paragangliomas (PPGLs) are rare neuroendocrine tumours from chromaffin cells. Some present with triad of episodic headache, diaphoresis and tachycardia; others with sustained or paroxysmal hypertension, symptoms related to tumour mass effect or remain asymptomatic.

Case report:

We report a case of a 10-year-old boy reviewed outpatient for one month of headache, exertional chest pain and unintentional weight loss. Headaches were throbbing over the vertex, occurring twice weekly, lasting minutes to hours. Some episodes were associated with vomiting, while two caused nocturnal awakening. He was admitted for hypertensive urgency with highest blood pressure of 184/123mmHg (Stage 2 hypertension threshold 126/89mmHg). On admission, he was normotensive but subsequently developed paroxysmal hypertension. Neurological examination was normal. Brain magnetic resonance imaging (MRI) showed posterior reversible encephalopathy syndrome (PRES). Other hypertensive end-organ damage included left ventricular hypertrophy with impaired systolic function and retinopathy.

Investigation for causes of hypertension showed no renal artery stenosis. Given paroxysmal hypertension and tachycardia, abdominal imaging was performed to evaluate for catecholamine-secreting tumours. Abdominal MRI and gallium-68 DOTATATE positron emission tomography/computed tomography showed four tracer-avid extra-adrenal retroperitoneal lesions involving organ of Zuckerkandl, suggestive of multifocal paragangliomas. Biochemical evaluation showed elevated plasma normetanephrine (>10nmol/L; reference value <0.71nmol/L), metanephrine, 3-methoxytyramine, and serum chromogranin A. Treatment consisted of alpha-adrenergic blockade (phenoxybenzamine) followed by beta-blockade (atenolol), with high sodium and fluid intake. The patient underwent open resection of the lesions. Histopathology confirmed multifocal paraganglioma. Hypertension resolved, retinopathy improved, and plasma metanephrine and 3-methoxytyramine normalised one month after surgery. Genetic testing was done (pending at time of reporting).

Conclusion:

PPGLs should be considered in symptomatic paroxysmal hypertension. Catecholamine-induced hypertensive crises represent an uncommon cause of PRES. Paroxysmal hypertension may not be recognised if blood pressure is measured during normotensive intervals. Repeated blood pressure measurements at every clinical encounter should be performed in children with episodic headaches.

A STANDARDIZED MULTIDISCIPLINARY GOLDEN HOUR CARE BUNDLE IMPROVES DELIVERY ROOM STABILIZATION OF INFANTS BORN <33 WEEKS' GESTATION

ALMAHROUQI N, ARORA P, KADER KA, CHINNADURAI A

Department of Neonatology, National University Hospital, Singapore

Background/Aim:

Delivery room stabilization of infants born <33 weeks' gestation is often affected by delays and practice variation. Timely completion of evidence-based Golden Hour interventions promotes physiological stabilization and may reduce prematurity-related complications. We evaluated changes in completion of five key evidence-based stabilization interventions following implementation of a standardized multidisciplinary Golden Hour care bundle.

Methods:

A retrospective analysis of prospectively collected quality improvement data compared infants born <33 weeks' gestation admitted to the NICU before care bundle implementation (2020) with those managed after implementation (2024–2025). The care bundle incorporated pre-delivery role allocation, structured multidisciplinary communication, protocolized delivery room stabilization, standardized NICU admission processes, simulation-based staff training, and continuous audit with feedback. Five prespecified process indicators—no hypothermia, normocapnia, normal oxygenation, timely surfactant administration (≤ 60 minutes), and antibiotic administration within the Golden Hour—were evaluated.

Results:

A total of 61, 84 and 77 infants were included in 2020, 2024 and 2025, respectively. Following implementation, sustained improvements were observed across most audited Golden Hour components. Avoidance of hypothermia improved from 80% in 2020 to 96% and 98% in 2024 and 2025, respectively. Timely surfactant administration (≤ 60 minutes) increased from 37% to 94% and 100% ($p < 0.001$), while timely antibiotic administration improved from 59% to 84% and 84% ($p < 0.001$). Normocapnia achievement increased significantly (72%(2020), 71%(2024), 83%(2025)) $p < 0.001$. Normal oxygenation demonstrated high compliance of 92% for 2025.

Conclusion:

Implementation of a standardized multidisciplinary Golden Hour care bundle improved compliance with key evidence-based stabilization practices and enhanced the quality and consistency of delivery room care for infants born <33 weeks' gestation.

Sustainability:

Sustainability is supported through standardized clinical pathways, multidisciplinary simulation training, prospective audit with regular feedback, orientation of new staff, and continuous refinement of the Golden Hour care bundle.

NEO BLOOM: EXPLORING PARENT AND STAFF EXPERIENCES TO CO-DESIGN A DIGITAL SUPPORT PLATFORM FOR FAMILIES IN THE NEONATAL UNIT

SICHTER R¹, GROSHENS M¹, PIENAAR J¹, KAPADIA P¹

¹ Neonatology Department, Sunshine Coast University Hospital, Australia.

Background/Aim:

Admission to the Neonatal Intensive Care Unit (NICU) is frequently associated with significant emotional distress, uncertainty, separation, and unmet support needs for families. Neo Bloom aimed to explore parent experiences and staff perceptions of the NICU journey, identify gaps in education and emotional support and inform the development of a co-designed digital support platform.

Methods:

Neo Bloom used a sequential mixed methods design to evaluate parent and staff experiences within the Sunshine Coast University Hospital (SCUH) Neonatal Unit. Phase 1 comprised anonymous online surveys for parents and neonatal staff, exploring support needs, communication, education, family-centred care and digital resource preferences. Quantitative data were analysed descriptively, with thematic review of free-text responses. Phase 2 involved a collaborative workshop with parents and multidisciplinary neonatal staff. Discussions were analysed Braun and Clarke's reflexive thematic analysis framework.

Results:

52 parents and 52 health professionals participated in Phase 1. Parents described their NICU journey as emotionally confronting, with 90% reporting stress and anxiety, alongside uncertainty about their baby's future health and difficulties with bonding. Although most parents reported frequent communication with the healthcare team, unmet information and support needs remained evident. Staff respondents were highly experienced, with two-thirds having more than 10 years of neonatal practice, and identified admission, invasive procedures, and communication breakdowns as the points of greatest distress for families. Workshop analysis identified six overarching themes, reflecting the complexity of the NICU journey, the influence of communication on parental confidence, the importance of parental identity and support, challenges during key transitions and the potential for digital resources to strengthen family-centred care.

Conclusion:

Neo Bloom aims to develop a scalable, locally informed digital support resource that can be integrated into routine neonatal care, strengthened through ongoing parent and staff feedback and adapted for broader implementation across regional neonatal services.

A CLINICAL AUDIT OF ADVANCED CARE PLANNING AMONGST CHILDREN REFERRED TO A PAEDIATRIC HOME CARE SERVICE IN A TERTIARY PAEDIATRIC INSTITUTION

CHOW WSD¹, FLORES RO², ZENG Y², VELASCO JA³, VIEGELMANN GCJ², CHOW CTC², RR P²

¹Duke NUS Medical School, Singapore

²Paediatric Complex Care and Home Care Services, Division of Paediatric Medicine, KK Women's & Children's Hospital, Singapore

³General Paediatrics, Division of Paediatric Medicine, KK Women's & Children's Hospital, Singapore

Background/Aim:

Advance Care Planning (ACP) discussions are recommended early to improve quality of life and align goals of care between patients, their families and the medical team. However, data on paediatric ACP remain limited. This study evaluated ACP implementation, perceived barriers, and its contribution to end-of-life (EoL) care among patients referred to a children's home care service.

Methods:

This retrospective audit reviewed the electronic medical records of deceased patients referred to the Paediatric Home Care Services at KK Women's & Children's Hospital between 1st January 2006 to 31st December 2024. The Paediatric Home Care Services manages patients dependent on medical equipment including feeding and respiratory support. A mixed methods approach was used to collect quantitative (i.e. demographic information, ACP components) and qualitative (i.e. clinical context and reasons influencing ACP discussions) data.

Results:

Out of 181 patients, primary diagnoses ranged from genetic (29.8%), neurologic (26.0%) and cardiovascular (11.0%) aetiologies. A significant proportion were dependent on enteral feeding (68.5%) and respiratory support (45.4%). Only 34.8% had a documented ACP. Formal referral to palliative medicine was made for 36.5% (72.8% to inpatient palliative care, 27.2% to StarPALS, a community palliative care service). Most ACPs were initiated post-referral (31.1%). ACPs were commonly initiated after recognition of serious illness but before clinical deterioration (46.9%). Amongst those without ACPs, reasons included lack of physician discussion (18.6%), sudden death (8.5%), parental unpreparedness (2.5%). 94.0% of ACPs were adhered to at EoL. There was an increased uptake of ACPs by 16.9% post establishment of a complex care service of which one of the care priorities is ACP.

Conclusion:

This study demonstrates that ACPs are respected and translated into clinical practice. However, ACP uptake remains underutilized.

Sustainability:

Future work on understanding barriers to physician initiation and developing strategies to improve earlier ACP engagement, particularly among non-palliative specialties, is essential.

SUCCESSFUL CONTROL OF LATE-ONSET SEPSIS IN A TERTIARY NEONATAL INTENSIVE CARE UNIT IN SINGAPORE: A 20-YEAR IMPLEMENTATION JOURNEY

LOW J.M..^{A,B}, FOO LL.K..^C, AMIN Z..^{A,B}, WANG X..^A, NG Y.P.M..^{A,B}, BISWAS A..^{A,B}, NIDUVAJE K..^{A,B}

^A Department of Neonatology, Khoo Teck Puat – National University Children’s Medical Institute, National University Hospital, Singapore

^B Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

^C Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background/Aim:

To evaluate the effectiveness of phased, evidence-based infection prevention and antimicrobial stewardship measures on late-onset sepsis (LOS) incidence among Very-Low-Birthweight Infants (VLBWI) in an open-bay Neonatal Intensive Care Unit (NICU) in Singapore over two decades.

Methods:

We conducted a service evaluation of VLBWI admitted to National University Hospital from 2002–2025. Period 1 (2002–2015) comprised standard infection prevention bundles and targeted antifungal prophylaxis. Period 2 (2016–2025) added outbreak-specific measures: prioritization of alcohol-based hand rub over tap water for hand hygiene, aseptic arterial blood sampling protocol, peripherally inserted central catheter team, shift to “waterless ICU” practices, ventilator-associated pneumonia prevention bundle, surgical site infection bundle and post cardiac surgery sepsis prevention bundle. The outcome was incidence of blood culture-confirmed LOS.

Results:

Among 1209 VLBWI, 134 (11.1%) LOS episodes occurred. The incidence decreased from 15.4% in Period 1 to 6.1% in Period 2, (OR 0.36; 95% CI 0.24-0.54; $p < 0.0001$) declining from a peak incidence of 27.1% (2002–2003) to 3.5% (2024–2025). Coagulase-negative Staphylococcus sepsis, predominant until 2013, was eliminated in 2018. Fungal sepsis ceased after fluconazole prophylaxis introduction in 2016. Gram-negative LOS incidence was similar in both phases (5.7% vs 4.1%) but decreased from 2018 following environmental reservoir control.

Conclusion:

In open-bay NICUs, standard infection prevention bundles may be insufficient for LOS reduction. A surveillance-driven implementation model can markedly reduce LOS. Our experience highlights the value of environmental source control, multidisciplinary collaboration, and targeted antimicrobial stewardship for LOS prevention in high-risk neonatal populations.

Sustainability:

This implementation model is adaptable to other NICUs globally, particularly in settings where structural redesign is not immediately feasible and can contribute to broader efforts in hospital infection control. As reduction of LOS in VLBWI may reduce antibiotic usage and bed occupancy, these initiatives offer a potentially adaptable framework for neonatal care.

PERSPECTIVES OF HEALTHCARE PROVIDERS ABOUT PARENTAL PRESENCE DURING BEDSIDE PROCEDURES PERFORMED ON CHILDREN: A SYSTEMATIC REVIEW

TEO TJY¹, FARIS AKBAR M¹, XU S¹, VALDEPENAS AH¹ AMIN Z^{2,3}, NG YNPM^{2,3}

¹ National University of Singapore Yong Loo Lin School of Medicine, Singapore

² Department of Neonatology, Khoo Teck Puat - National University Children's Medical Institute
National University Hospital, Singapore

³ Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore

Background:

Invasive medical procedures cause significant distress and anxiety for paediatric patients, which can be meaningfully alleviated by parental presence. We synthesised parents' perspectives regarding their presence during bedside invasive procedures performed on their children.

Methods:

We performed a PRISMA-compliant systematic review (PROSPERO: CRD420251117347) searching PubMed, CINAHL, PsycINFO, and Embase on March 2026. We conducted narrative synthesis guided by the European Social Research Council.

Results:

From 2625 records, twenty-one studies were included: 15 cross-sectional surveys, 3 qualitative interview studies, 4 randomised controlled trials, and 1 quasi-experimental study. Across settings and cultures, an overwhelming majority of parents (78–98%) expressed a desire to be present, driven primarily by the need to comfort their child, fulfil perceived parental obligations, and gain a sense of control. Parental anxiety was significantly lower in parents present compared to those absent. Satisfaction was uniformly higher among parents permitted to be present. Parental presence did not adversely affect clinician performance. Barriers included emotional inability to witness the child's pain, being actively prevented by healthcare providers, and inadequate preparation and support.

Conclusion:

There is a universal desire among parents to be present during their child's invasive procedures. Significant benefits accrue to both parents and children, yet structural and provider-level barriers continue to impede this.

Sustainability:

Findings were mapped onto the Consolidated Framework for Implementation Research. Innovation domain: parental presence yields consistent benefits and does not impair clinician performance. Outer Setting: cultural norms and provider gatekeeping remain significant external barriers, with parents actively excluded despite clear preference. Inner Setting: absence of formal family presence protocols places the decision at individual provider discretion, creating inequitable access. Individuals: parental self-efficacy is enhanced by pre-procedure preparation and designated support roles. Implementation Process: structured briefing, facilitator roles, and institutional protocols are the most effective mechanisms to translate parental preference into consistent, supported practice.

NEONATAL PALLIATIVE CARE IN ASIAN NEONATAL UNITS: WHAT HELPS AND HINDERS IMPLEMENTATION

KAIN VJ¹, CHIN SD², ZHONG Y³

¹*School of Nursing and Midwifery, Griffith University, Australia*

²*Institute of Nursing Excellence and Innovation, New York-Presbyterian Hospital, USA*

³*Centre for Biomedical Ethics and Law, Faculty of Medicine, KU Leuven, Belgium*

Background/Aim:

Neonatal palliative care (NPC) supports infants with life-limiting conditions and their families, yet implementation in neonatal units remains inconsistent. Given the growing emphasis on paediatric and perinatal palliative care in the region, this review examined what Asian studies report about barriers and facilitators to NPC for neonatal clinicians.

Methods:

A systematic review identified 53 papers from 18 countries published between 2000 and 2025. Studies using quantitative, qualitative, and mixed-methods designs were included when they reported clinician perspectives on barriers and/or facilitators to NPC in hospital-based neonatal settings. Studies from Asia settings were identified during data extraction and their findings were synthesised thematically.

Results:

Twenty-seven papers were from Asian and transcontinental settings, from Western and East Asia: mainland China (5), Jordan (5), Iran (4), Saudi Arabia (2), South Korea (2), Hong Kong (1), and India (1), alongside seven studies from Turkey, a transcontinental country spanning Europe and Asia. Across these settings, NPC was commonly limited by inadequate education, absent or unclear policies, insufficient staffing, limited time with families, poor physical environments, and limited counselling or bereavement support. Asian studies also highlighted culturally specific issues: family expectations to continue life-sustaining treatment, religious or cultural discomfort with infant death, hierarchical decision-making, and clinician moral distress when technology prolonged dying. Facilitators included structured education, team agreement, clear clinical guidelines, communication training, family involvement, spiritual support, staff debriefing, and strong prioritisation of pain relief.

Conclusion:

Evidence from Asian settings shows that NPC is valued by neonatal clinicians but remains unevenly embedded in neonatal practice. Education is the most consistent modifiable facilitator, but education alone is insufficient without policies, leadership, staffing, and culturally safe communication pathways.

Sustainability:

Sustainable NPC implementation across Asian neonatal units requires ongoing education, unit-based protocols, interdisciplinary case review, staff support after neonatal deaths, and culturally and locally adapted family communication guidance.

CO-CREATION OF A GROUP-BASED INTERVENTION FOR ADOLESCENTS WITH EATING DISORDERS INVOLVING YOUTH WITH LIVED EXPERIENCE

CHEN YTA¹, NALAWALA NC², CHEW CSE²

¹*School of Health Sciences, Ngee Ann Polytechnic, Singapore*

²*Adolescent Medicine Service, KK Women's and Children's Hospital, Singapore*

Background/Aim:

Adolescents with eating disorders (ED) often have limited understanding of their treatment, which may reduce engagement in recovery during inpatient care. Incorporating lived experience improves the relevance of ED interventions, aligning them more closely with patients' recovery priorities. This study aims to evaluate the impact and acceptability of a group-based intervention to bridge gaps in adolescents' knowledge of eating disorders and treatment in an inpatient setting.

Methods:

Participants were female adolescents aged 12-16 years receiving inpatient treatment for eating disorders (n = 7), all diagnosed with anorexia nervosa (AN), including five first-time admissions and two repeat admissions. Four group-based activities targeting learning outcomes related to eating disorders and recovery were conducted. A 4-point Likert scale questionnaire was administered pre- and post-intervention to assess changes in understanding across 12 items within four domains: Multidisciplinary team roles, ED impacts on health, Strengths and coping, and Motivation and self-reflection, with three items per domain. Paired t-tests were used to compare pre- and post-intervention scores, while participants' feedback was analysed using frequencies and percentages.

Results:

There was significant improvement in 3 assessed domains based on pre- and post-intervention mean knowledge scores. Scores for Multidisciplinary team roles improved from 2.8 ± 0.2 to 3.2 ± 0.5 ($p=0.025$). Scores for ED impacts on health improved from 2.9 ± 0.3 to 3.4 ± 0.5 ($p=0.052$). Scores for Strengths and coping improved from 2.7 ± 0.5 to 3.1 ± 0.4 ($p=0.030$). There was no significant improvement in Motivation and self-reflection. Participants' feedback was positive, with 100% reporting that the activities were engaging, relevant, and improved understanding of recovery.

Conclusion:

This study shows potential for a short two-session group-based intervention to increase adolescents' knowledge across three key domains and was well-received by participants.

Sustainability:

This intervention has been integrated into ward-based routine since March 2026 and is ongoing.

SURVEY OF PARENTAL UNDERSTANDING OF INFECTION CONTROL MEASURES AMONG INFANTS ADMITTED TO THE NICU/SCN

KING JING LAU*, PIAMONTE AGAPE JOY CO^, LEE CHERN CHIEW*, MERCY JOSEPH*, BO CHU LO^, KEE THAI YEO, YEE YIN TAN

Department of Neonatology, KK Women's and Children's Hospital, Singapore

**Neonatal Intensive Care Unit (NICU)*

^Special Care Nursery (SCN)

Background:

Infants in Neonatal Intensive Care Unit (NICU) and Special Care Nursery (SCN) are highly susceptible to healthcare-associated infections. While parental involvement is essential in care of the infant, adherence to infection prevention measures is critical to safeguard this high-risk population.

Aim:

To evaluate caregivers' awareness, understanding, and self-reported compliance with infection control measures in the NICU/SCN and identify areas for improvement.

Methods:

A cross-sectional survey was conducted among 80 parents of infants admitted to NICU/SCN at KK Women's and Children's Hospital, Singapore to assess: how infection control information was delivered, awareness of policies, and intended behaviours when unwell. Data were analysed using descriptive statistics.

Results:

Survey respondents were predominantly fathers (55%), with most surveys conducted in SCN (57.5%). Two-thirds of infants admitted for 1 week to 1 month during the survey. Eighty percent of parents reported receiving infection control information on first day of admission, and 90% received verbal education from healthcare workers. While 96.2% noticed hand hygiene and visitation posters, only 59.5% of NICU parents scanned the QR code for detailed information.

Although 98.8% identified hand hygiene information as the most useful information provided, only 38% correctly recognised handwashing with soap and water should be performed for 40–60 seconds. Regarding illness-related visitation, 86.1% reported they would not visit if unwell. However, 3.8% would consider visiting despite illness and 6.2% would resume visits immediately after recovery. Only 78.8% reported consistent mask-wearing and hand hygiene before and after infant contact.

Conclusion:

Despite high awareness of infection control measures, gaps persist in policy engagement and illness-related visitation practices. Targeted reinforcement, particularly household exposure risks and post-illness visitation guidance, is needed to strengthen infection prevention in NICU/SCN.

Sustainability:

Infection control education will be integrated into routine parental admission orientation and reinforced through healthcare worker education, poster, QR code resources and periodic audits.

EFFECT OF DEVELOPMENT SUPPORT PROGRAM IN ADDRESSING NEEDS OF PRESCHOOLERS PRESENTING WITH BEHAVIOURAL AND EMOTIONAL CONCERNS

LIM JYS^{1,2}, MITTAL RA¹, TAN BLF¹, DANIEL LM¹, CHOO HTS¹, AGARWAL PK¹

¹MOH Holdings Pte Ltd, Singapore

²Department of Child Development, KK Women's and Children's Hospital, Singapore

Background/Aim:

Development Support Program (DSP), a community program in Singapore, involves early identification and short-term focused intervention for preschoolers with mild developmental needs. In this study, we aimed to investigate the outcomes of a sub-population of preschoolers with behavioural and emotional (B&E) concerns enrolled in DSP in 2022.

Methods:

Retrospective analysis on 117 Kindergarten-1 (K1) children recruited in 2nd and 3rd quarters of 2022 was conducted. The primary outcome was developmental concerns in DSP graduates at end of Kindergarten2 (K2). Secondary outcomes included response to therapy, number of therapy packages received, and any ongoing needs at end of intervention.

Results:

The mean age of children at enrolment was 57.4 months and majority were males (87/117, 74.4%). Below average Brigance III scores for academic development were present in a minority (41/117, 35.1%) with majority having abnormal prosocial and hyperactivity scores on Strengths and Difficulty questionnaire (72.6% and 82.1% respectively).

Minority of children had only B&E concerns (30/117, 25.6%). Among those with two or more diagnoses, developmental motor delay (52/87, 60.0%) was the most common secondary diagnosis. Majority of the children were recommended occupational therapy (77/117, 65.8%) followed by psychological therapy (36/117, 30.8%) as their first package. Improvement after the first package was noted in majority (81/92, 88.0%), although almost all of them were recommended a second therapy package (80/91, 87.9%).

At the end of K2, developmental concerns were present in 63/117 (53.8%) children, and 53 were referred for additional therapy such as occupational therapy (24/53), language therapy (15/53) and literacy (13/53).

Conclusion:

DSP resulted in improvement of behavioural and emotional concerns in majority of children. However, approximately 54% still had developmental concerns at the end of K2.

Sustainability:

Regular outcome monitoring and extending support for these children in primary school can support sustained improvement.

APPETITE TOOLBOX: A PILOT TRIAL TO ENHANCE EATING SELF-REGULATION SKILLS AMONG CHILDREN LIVING WITH OVERWEIGHT AND OBESITY

GIAM XYF¹, LEE YJ¹, OOI SQD^{2,3}, LEE YS^{2,3}, LIM YY^{2,3}, & MCCRICKERD K^{1,2}

¹ *Institute for Human Development and Potential, A*STAR, Singapore*

² *Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore*

³ *Paediatrics, National University Health Systems, Singapore*

Background/Aim:

The proportion of Singapore children with overweight / obesity is increasing. Strengthening children's eating self-regulation skills, a predictor of energy intake and adiposity, could protect against overeating. This study evaluates the efficacy, acceptability and feasibility of 'Appetite Toolbox', a behavioural support intervention designed to complement diet-focused strategies and improve children's appetite awareness and eating self-regulation skills.

Methods:

Children aged 6 to 13 years with BMI z-score ³ 85th percentile were recruited alongside their primary caregiver (n = 77 dyads) via clinician referrals and social media advertising and randomised into intervention and waitlist-control groups. Grounded in Cognitive Behavioural Therapy and Appetite Awareness Training principles, the intervention consisted of six-weekly 1-hour group sessions delivered online. Efficacy was measured using appetite knowledge test, computerised portion selection task and caregiver questionnaires, collected pre- and post-intervention. Acceptability and feasibility were assessed using intervention attendance, progress notes, and parent-child interviews collected postintervention.

Results:

Children showed improved appetite knowledge scores and selected smaller computerised portions ($p < 0.05$) and caregiver questionnaires revealed lower food responsiveness and eating speed in children post-intervention ($p < 0.05$). Most children (74%) attended all sessions, though caregiver involvement was limited. Children with higher engagement levels tend to demonstrate awareness of their eating pattern. Children's practice of appetite awareness outside of intervention varied based on motivation and home environment. Interviews revealed some caregivers lacked understanding on importance of eating self-regulation to support children. Hybrid delivery was suggested to improve engagement.

Conclusion:

'Appetite Toolbox' improved children's appetite awareness and some eating self-regulation skills. However, limited caregiver involvement may constrain reinforcement of these skills at home.

Sustainability:

This intervention shows potential for adaptation given its well accepted content and effectiveness in improving appetite knowledge. Incorporating caregiver-focused components through education and practical strategies may strengthen home environment to facilitate and sustain children's eating self-regulation skills.

AN AI-BASED MODEL TO SUPPORT EARLY-LIFE GUT MICROBIOME CONFIGURATION ASSESSMENT FROM STOOL IMAGES AND METADATA

ANNE GOH¹, CHIANG WEN CHIN², LEE BEE WAH^{3,4}, NG RUEY TERNG⁵, JILL WONG⁶, SANKHA MUKHERJEE⁶, AGATHE FOUSSAT⁶, JOVERLYN GAUDILLO⁷, FRANCESCO CANONACO⁷, ENZO ACERBI⁷, CHRISTOPHE LAY^{4,6}, SIRA NATHAPISAL⁸

¹ KK Women's and Children's Hospital, Singapore

² Chiang's Children Allergy and Asthma Clinic, Singapore

³ The Child and Allergy Clinic, Singapore

⁴ Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

⁵ University Malaya Medical Centre, Malaysia

⁶ Danone Research & Innovation, Singapore

⁷ Minutia.AI, Singapore

⁸ Faculty of Medicine, Thammasat University, Thailand

Background/Aim:

Interest among parents and healthcare professionals in understanding a child's gut microbiome is increasing; however, stool sample collection is not always practical. This study aimed to develop an algorithmic predictive model to estimate a child's gut microbiome configuration from stool image(s) and metadata. i

Methods:

An observational study (NCT05847543) was conducted in Singapore, Malaysia, and Thailand collecting stool images, stool samples and metadata from 440 children aged 0 to 18 months old. An existing computer vision algorithm was applied on stool images to predict stool consistency and colour. Microbiome profiling was performed using 16S rRNA sequencing. Microbial cliques (groups of interacting microbes participating or driving specific biological processes) were learnt using Latent Dirichlet Allocation. Stool image derived features and metadata were used to predict microbial clique activation probabilities, which classify typical and atypical gut microbiome patterns.

Results:

The model achieved ROC AUC of 0.70 (95% CI before weaning [0.59 - 0.79] for children older than 1 month, and after weaning [0.63 - 0.76]), showing that stool images and metadata contain measurable signal for identifying activated functional microbial cliques. The top predictive features for functional microbial cliques included stool colour, consistency and frequency, delivery mode, age, feeding regime and dietary patterns, highlighting that stool characteristics and metadata are important for model performance.

Conclusion:

The model demonstrates potential to support prediction of typical and atypical gut microbiome configurations by leveraging computer vision analysis on stool images with metadata, without stool sample collection. Such approach offers a convenient, non-invasive tool in paediatric settings; however, stool sample microbiome sequencing remains the gold standard for microbiome determination.

Sustainability:

The solution empowers parents with actionable insights and reassurance to seek medical advice when needed, without putting the burden on parents to collect stool samples.

SURVIVAL OUTCOMES IN INFANTS WITH PERSISTENT PULMONARY HYPERTENSION RECEIVING INHALED NITRIC OXIDE

NOVIANINGRUM MTK¹, WIBOWO T¹, ANGGRAINI A¹, SAFRIDA EN¹, HAKSARI EL¹

¹*Department of Child Health, Faculty of Medicine, Nursing and Public Health, Gadjah Mada University, Dr. Sardjito General Hospital, Yogyakarta, Indonesia*

Background/Aim:

Persistent Pulmonary Hypertension of the Newborn (PPHN) is a life-threatening condition characterized by elevated pulmonary vascular resistance, right-to-left shunting, and severe hypoxemia. Inhaled Nitric Oxide (iNO) is selective pulmonary vasodilator widely used in the management of PPHN. However, data regarding clinical outcomes and factors associated with survival in low-and-middle-income settings remain limited. This study aimed to evaluate clinical outcomes of infants with PPHN treated with iNO in tertiary neonatal intensive care unit.

Methods:

A retrospective observational study was conducted among infants diagnosed with PPHN who received iNO therapy during 2024-2026. Data collected included demographic characteristics, underlying pulmonary disease, oxygenation index (OI) at iNO initiation, occurrence of pulmonary edema, presence of shock, and survival status. Associations between clinical variables and outcomes were analyzed using Fischer's exact test, followed by logistic regression.

Results:

Twenty-seven infants with PPHN received iNO therapy during the study period. The overall survival rate was 55.6%. Neonatal pneumonia was the most common underlying condition, whereas congenital diaphragmatic hernia had the lowest survival rate(25%). Neither bivariate nor multivariate analyses demonstrated a significant association between underlying pulmonary disease and mortality($p=0.311$) or pulmonary edema($p=0.728$). Pulmonary edema occurred in 40.7% of infants and was associated with lower mortality compared with infants without pulmonary edema (18.2%vs62.5%; $p=0.047$). No significant differences were observed in OI at iNO initiation($p=0.696$) or survival between infants with and without shock($p=0.299$).

Conclusion:

Underlying pulmonary disease was not independently associated with mortality or pulmonary edema. Pulmonary edema was associated with improved survival, however, given the limited sample size, this finding should be interpreted cautiously and warrants further investigation in larger studies.

Sustainability:

Strengthening local evidence on the use of iNO may support more efficient utilization, optimize neonatal intensive care resources, and improve outcomes in infants with PPHN.

ASSOCIATION OF ANTIBIOTIC EXPOSURE IN VLBW INFANTS AND THEIR OUTCOMES: A RETROSPECTIVE AUDIT IN SINGAPORE GENERAL HOSPITAL (SGH)

GLORIA LEE CHUN YAN¹, MARY GRACE TAN¹, HO KAH YING SELINA¹, SRIDHAR ARUNACHALAM¹

¹ Neonatal and Developmental Medicine, Singapore General Hospital (SGH)

Background

Antibiotic stewardship is growing in increasing importance in the neonatal intensive care unit (NICU). A retrospective audit was performed to evaluate the associations of duration of antibiotic exposure in very low birthweight infants (VLBW) (<1500g) and their outcomes (bronchopulmonary dysplasia (BPD), necrotising enterocolitis (NEC), intraventricular hemorrhage (IVH), patent ductus arteriosus (PDA), retinopathy of prematurity (ROP), post menstrual age and length of hospital stay).

Methodology

Clinical data of VLBW infants admitted to Singapore General Hospital (SGH) NICU from two epochs: Epoch 1 (2013-2014) and Epoch 2 (2021-2022) were retrieved and reviewed, as there was a practice change to lesser duration of antibiotics for early onset sepsis (EOS) (3-5 days vs 7 days). Data was analysed using Statistical Package for the Social Sciences (SPSS) to determine the associations between antibiotic duration and their outcomes while their relationship were studied using Fischer's exact test.

Results

Length of antibiotic duration for EOS was significantly shorter in 2021-2022 (4 days $\pm$ 1.939) as compared to 2013-2014 (7 days $\pm$ 1.695). Baseline characteristics were comparable across the two epochs with a mean gestational age of 28 $\pm$ 2 weeks and mean weight of 1030g $\pm$ 254.34g. The antibiotic duration for late onset sepsis was unchanged with a median of 7 days (2013-2014: 7 $\pm$ 5.990, 2021-2022: 7 $\pm$ 6.486). No difference was noted in the major morbidities and mortality with shorter duration of antibiotics. Antibiotics $\geq$ 7 days was associated with statistically significant stage 2 ROP in the first epoch and increased length of stay in the second epoch.

Conclusion

Shorter course of antibiotics when clinically indicated is safe & does not lead to adverse outcomes. Longer and fixed duration antibiotic regimes do not always add any advantage with a risk of increasing morbidities and length of hospital stay.

Sustainability

The analysis of results is repeatable and reproducible.

INTEGRATING FAMILY FOCUS INTERVENTION (FFI) TO ROUTINE MENTAL HEALTH SCREENING FOR PARENTS OF PRETERM INFANTS IN THE NICU: EARLY IDENTIFICATION AND INTERVENTION FOR PSYCHOLOGICAL DISTRESS

FARHARD ZAAHIRA¹, TAN JIAXUAN², DE CHAVEZ HELEN¹, NG YVONNE PENG MEI^{1,3}, CHINNADURAI AMUTHA^{1,3}

¹*Department of Neonatology, National University Hospital Singapore, Singapore*

²*Department of Rehabilitation, National University Hospital Singapore, Singapore*

³*Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore*

Background/Aim:

Parents of preterm infants admitted to the Neonatal Intensive Care Unit (NICU) are at increased risk of psychological distress. This project aimed to identify depression and anxiety through routine mental health screening and provide timely psychosocial intervention and support.

Methods:

Parents of NICU infants born at National University Hospital from January to December 2025 with birthweight $\leq 1,500$ g and/or gestational age ≤ 32 weeks were invited to participate. Screening utilised EPDS, PHQ-9 and GAD-7. Parents with positive screens received counselling, Family Focus Intervention (FFI), and specialist referral when indicated.

Results:

70 eligible mothers and 70 eligible fathers, 44 mothers and 42 fathers completed screening. Among mothers, 13 (29.5%) screened positive for depressive symptoms, with severe anxiety identified in 4 (9%), all of whom also screened positive for depression. Of these 13, 10 received psychosocial intervention and 9 completed repeat screening, of whom 8 demonstrated improvement. 1 mother showed persistence of symptoms at review but was not compliant for further follow up, while 1 other was referred to Psychiatry. Among fathers, 3 (7%) demonstrated clinically significant symptoms, all of whom received psychosocial intervention. 1 demonstrated symptom resolution on repeat screening; 2 did not complete repeat screening. Post-discharge follow-up indicated that contactable parents reported coping well.

Conclusion:

Integrating FFI to routine mental health screening enabled early detection and timely management of psychological distress among NICU parents. Most parents who engaged in follow-up demonstrated improvement in symptoms, highlighting the potential value of FFI in promoting emotional wellbeing, enhancing coping, and supporting family adaptation during a highly stressful period. Embedding FFI within family-centred neonatal care may strengthen psychosocial support for parents of preterm infants.

Sustainability:

The programme has been embedded into routine NICU case management workflows using standardised screening, referral, and follow-up processes, supporting sustainable monitoring and intervention for parental mental health.

A SURVEY OF BURNOUT AND SECONDARY TRAUMATIC STRESS AMONG PROFESSIONALS WORKING WITH VULNERABLE CHILDREN

NGIAM XIN YING,¹ HO JIA YING,² LIM CHONG CHEE BRYAN,³ YELESWARAPU SITA PADMINI¹

¹ Department of Child Development, KK Women's and Children's Hospital, Singapore

² Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

³ Department of Medical Social Work, KK Women's and Children's Hospital, Singapore

Background/Aim:

Professionals supporting children with adverse childhood experiences (ACEs) and their families may be at increased risk of burnout and secondary traumatic stress (STS), i.e. emotional distress experienced when hearing about a traumatic event second-hand. Our study aimed to describe the prevalence of burnout and STS among these professionals, and their relationship with compassion satisfaction (CS).

Methods:

Professionals in the social services and healthcare sectors who work directly with such vulnerable children received e-mail invitations to complete an anonymous online survey. Data collected included respondents' demographic characteristics, profession, employer and years of service, and responses to the Professional Quality of Life Measure (ProQOL 5.0) questionnaire that include measures of CS, burnout and STS.

Results:

Of 73 survey responses received March-April 2026, most (56.2%) respondents were social workers (SWs), followed by protection officers (POs) (26.0%). Professionals from Singapore's Ministry of Social and Family Development's (MSF) Protective Services (PSV), community agencies and hospitals were represented.

82.2% of respondents had moderate-to-high burnout scores. SWs and POs had the highest mean scores among professions ($p=0.032$), while MSF PSV and community-based professionals had higher mean scores than hospital-based professionals ($p=0.022$).

67.1% of respondents had moderate-to-high STS scores. MSF PSV and community-based professionals had higher mean scores ($p=0.01$) and incidence of moderate-to-high scores ($p=0.003$) than hospital-based professionals. Younger respondents had higher STS mean scores ($p<0.001$) and incidence of moderate-to-high scores ($p=0.001$).

Burnout was positively correlated with STS ($p<0.001$) and negatively correlated with CS ($p<0.001$).

Conclusion:

There is a high prevalence of moderate-to-high burnout and STS among professionals working with vulnerable children, especially SWs, POs, MSF- and community-based professionals and younger professionals. CS appears protective against burnout.

Sustainability:

Our findings suggest that professionals working with vulnerable children could benefit from additional support for their mental well-being, thus ensuring sustained, effective care for vulnerable children and their families.

ROBOT-ASSISTED VS. LAPAROSCOPIC NISSEN FUNDOPLICATION IN CHILDREN: AN UPDATED META-ANALYSIS WITH SYSTEMATIC LITERATURE REVIEW

GAŚIOREK J, GARLICKA K, ŚCIBSKI K, KLIMECZEK-CHRAPUSTA M, STOLARZ K, PREINL M 2, BOGUSZ B, GRUBA M, GÓRECKI W

Jagiellonian University Medical College, Department of Pediatric Surgery

Background/Aim:

This updated meta-analysis with systematic review aimed to enhance the understanding of robotics in surgical GERD treatment by comparing the reliability and efficacy of two surgical approaches for Nissen fundoplication in pediatric patients: conventional laparoscopy (LNF- laproscopic Nissen fundoplication) and robot-assisted laparoscopy (RNF- robotic Nissenfundoplication). RF has gained increasing popularity among pediatric surgeons in recent years.

Methods:

Major electronic databases were searched for studies comparing LNF and RNF, including publications from their inception through October 2024. Safety outcomes assessed included intra- and post-operative complications and conversions to laparotomy. Efficacy measures included length of hospital stay (LOS), total operative time (OT), analgesia requirements, gastrostomy needs, and cost-per-procedure. This meta-analysis was conducted using a random-effects model.

Results:

Major electronic databases were searched for studies comparing LNF and RNF, including publications from their inception through October 2024. Safety outcomes assessed included intra- and post-operative complications and conversions to laparotomy. Efficacy measures included length of hospital stay (LOS), total operative time (OT), analgesia requirements, gastrostomy needs, and cost-per-procedure. This meta-analysis was conducted using a random-effects model. Initially 601 articles were identified, however only 10 met our inclusion criteria and were included in this study, comprising a study group of 499 children. The pooled analysis found no significant differences in patient characteristics between the LNF and RNF groups. Furthermore, no statistically significant differences were identified between the two techniques regarding conversions to open surgery, OT, LOS, or postoperative complications.

Conclusion:

We conclude, that the findings of this meta-analysis indicate that RNF and LNF are comparable in terms of safety and efficacy parameters. However, until certain clinical benefits are proven, the use of RF instead of LF can be justified by other advantages, such as better ergonomics, elimination of tremors, and a greater range of wrist motion, to offset the additional costs associated with its initial acquisition and monthly maintenance.

SURVIVAL FOLLOWING TWIN-TO-TWIN EXSANGUINATION IN PRETERM MONOAMNIOTIC TWINS: MANAGEMENT OF SEVERE ANAEMIA, ACUTE KIDNEY INJURY AND PULMONARY HAEMORRHAGE WITH PERITONEAL DIALYSIS.

BOON SIEW OOI¹, SIEW LE CHONG², JIA YING CELESTE YAP², ODATTIL GEETHA¹

¹ *Department of Neonatology, KK Women's and Children Hospital, Singapore.*

² *Department of Paediatric Medicine, Nephrology Service, KK Women's and Children Hospital, Singapore.*

Background:

Monochorionic monoamniotic (MCMA) twin pregnancies carry significant risk, including co-twin demise and acute twin-to-twin exsanguination leading to profound anaemia, cardiovascular instability, and severe acute kidney injury (AKI). Peritoneal dialysis (PD) in premature neonates remains challenging due to technical difficulties, including catheter malfunction, dialysate leakage, and infection risk. We describe the successful use of PD in a critically ill preterm infant with severe AKI following twin-to-twin exsanguination.

Case presentation:

A preterm female infant (31+6weeks, birth weight 1.56kg) was delivered following MCMA co-twin demise due to cord entanglement. She presented with hypovolaemic shock requiring extensive resuscitation, fluid boluses, blood transfusion, and dual inotropic support. She subsequently developed severe anuric AKI secondary to acute exsanguination, progressing to stage3 AKI with peak urea 19mmol/L and creatinine 487µmol/L. Despite conservative management (fluid restriction, avoidance of nephrotoxins, albumin infusion, and diuretics), renal function did not improve. By day 18 of life, she developed severe pulmonary haemorrhage with fluid overload requiring extensive resuscitation, with high mortality risk. Peritoneal dialysis was initiated on day 19 of life due to worsening respiratory compromise. Establishing peritoneal access was technically challenging; a multi-fenestrated biliary drain was successfully adapted as a PD catheter, improving patency and reducing occlusion. To our knowledge, the use of a biliary drainage catheter as an alternative peritoneal dialysis access has not been previously reported in the newborn population. Following PD, the infant achieved euvolaemia with improvement in renal function and clinical stabilisation. She was subsequently transferred to a national dialysis and transplant centre for ongoing care.

Conclusion:

This case demonstrates the feasibility of PD in critically ill preterm low-birth-weight infants with severe AKI following MCMA complications. Adaptive strategies, including the use of alternative catheter devices, can overcome technical barriers and may expand current practice beyond conventional thresholds.

Keywords:

Monochorionic monoamniotic twins, twin-to-twin exsanguination, acute kidney injury, peritoneal dialysis



A CLINICAL AUDIT OF CHILDREN WITH MEDICAL COMPLEXITY WITH TRACHEOSTOMIES IN A TERTIARY INSTITUTION

TAN HC¹, WONG PWK¹, FLORES RO², GUO H², THOMAS B³, KOH LH⁴, TAY SY⁴, TAN GXJ⁴, ANICETE R⁴, CHEN YH⁵, MOK JXT⁵, VIEGELMANN GCJ², CHOW CC², LEE GS², RR P²

¹General Paediatrics, Department of Paediatrics, KK Women's and Children's Hospital, Singapore

²Complex & Home Care Services, Division of Paediatric Medicine, KK Women's and Children's Hospital, Singapore

³Paediatric Respiratory Medicine, Department of Paediatrics, KK Women's & Children's Hospital, Singapore

⁴Paediatric Otolaryngology, Department of Paediatric Surgery, KK Women's & Children's Hospital, Singapore

⁵Paediatric Speech & Language Therapy Service, Department of Allied Health, KK Women's & Children's Hospital, Singapore

Background/Aim:

A significant proportion of children with medical complexity require tracheostomies and multidisciplinary care. This pilot audit aimed to evaluate the indications and outcomes of children with medical complexity (CMCs) who underwent tracheostomy.

Methods:

We conducted a retrospective audit of CMCs admitted to KK Women's and Children's Hospital, Singapore from 2005-2020 who underwent tracheostomy. Demographic data, primary diagnoses, pre- and post-tracheostomy respiratory parameters, tracheostomy characteristics, medical and developmental outcomes were extracted from electronic medical records and analysed descriptively.

Results:

A total of 17 CMCs who underwent tracheostomy between the age range of 14 days to 14 years old were included. The most common underlying conditions were genetic disorders (52.9%) and neurologic or neuromuscular disorders (35.3%). Prior to tracheostomy, 76.5% of patients were intubated and ventilated with 35% requiring $FiO_2 \geq 50\%$. 58.8% of patients experienced at least one re-intubation. All tracheostomies were performed electively. Shiley tubes were mostly used (82.4%). Post-tracheostomy, 35.3% required Continuous Positive Airway Pressure (CPAP) or bilevel pressure support, while 47.1% were able to wean to room air.

For post-tracheostomy outcomes, 58.8% had tracheostomy-related complications (33% had granulation tissue and 11% had tube dislodgement). 5.9% had airway emergencies. 35.3% required glycopyrrolate or hyoscine patch for secretion management. In the long-term, 11.8% subsequently developed autism, attention deficit or hyperactivity or intellectual disability. 52.9% received early intervention services. 88.2% remained dependent on nasogastric tube or gastrostomy feeding. 33.3% needed trachea-cutaneous fistula surgical repair post-decannulation. Poor secretion management (11.8%) was the main reason for decannulation failure.

Conclusion:

In this cohort of CMCs, tracheostomy creation facilitated reduction in respiratory support requirements. Nevertheless, substantial long-term healthcare needs persisted, including airway, feeding and developmental challenges, reinforcing the need for longitudinal multidisciplinary management.

Sustainability:

Prospective monitoring of clinical, developmental and caregiver-related outcomes will be essential to guide future service improvements and enhance patient and family-centred care.



COMPARISON OF FIREFLY AND BILIBLANKET PHOTOTHERAPY DEVICES IN THE MANAGEMENT OF NEONATAL HYPERBILIRUBINEMIA

LIM, H. K.¹, ZENG, Y.¹, SHANDRA BOS, L.¹, ABDUL, A.², CHENG, S. H. J. J.¹

¹ *Nursing Clinical Services KK Women's and Children's Hospital, Singapore*

² *Department of Neonatology KK Women's and Children's Hospital, Singapore*

Background/Aim:

Neonatal jaundice (NNJ) is a prevalent condition in newborns and remains a leading cause of neonatal hospital admissions worldwide. Effective treatment of jaundice requires therapeutic intervention with phototherapy, using machines that vary in design, irradiance levels, and user-friendliness. This study compared the effectiveness of an LED phototherapy device and a fibreoptic blanket device in the treatment of NNJ.

Methods:

A retrospective comparative study was conducted from September 2024 to June 2026 among neonates enrolled into KKH@Home - Home Phototherapy service. Infants were treated with either the LED phototherapy unit or the fibreoptic blanket device based on parental preference. Demographic characteristics, NNJ risk stratification, baseline serum bilirubin (SB) levels, duration of phototherapy, rate of SB reduction, need for treatment escalation, and adverse events were evaluated.

Results:

A total of 431 neonates were included in the study, of whom 342 received LED phototherapy and 89 were treated with the fibreoptic blanket. Both devices were effective in reducing serum bilirubin (SB) levels. The LED phototherapy machine showed a higher mean rate of SB reduction (7.0 $\mu\text{mol/L/hr}$ versus 3.1 $\mu\text{mol/L/hr}$) and a shorter overall duration of phototherapy compared to the blanket (average duration of 14 hours versus 21 hours). No significant differences in adverse events were observed between the two groups.

Conclusion:

Both the LED phototherapy and fibreoptic blanket devices were safe and effective for NNJ treatment. Selection of phototherapy modality should consider clinical severity and efficacy, patient-care factors and resource availability.

Sustainability:

Findings of this study can be used to guide future equipment procurement and replacement decisions. An evidence-based criteria for selecting phototherapy devices based on effectiveness, costs and operational needs can also be established.

DIAGNOSTIC TRAJECTORIES AND SCHOOL PLACEMENT OUTCOMES IN PRE-SCHOOL CHILDREN WITH GLOBAL DEVELOPMENTAL DELAY: A RETROSPECTIVE COHORT STUDY

DEEPTI VERMA¹, DAYANA BINTE KAMARUDIN¹, FELICIA TAN BAI LING¹, LINDA TAN¹, NORFARAHIN BINTE MATAWI¹, LOURDES MARY DANIEL¹, RASHMI ARUN MITTAL¹, PRATIBHA AGARWAL¹

¹ Department of Child Development, KK Women's and Children's Hospital, Singapore

Background/Aim:

Global developmental delay (GDD), defined as delay across multiple developmental domains, is among the common neurodevelopmental presentations in early childhood. Despite its prevalence, long-term outcome data remain limited. This study describes the diagnostic trajectories and educational recommendations at Primary 1 transition among children initially diagnosed with GDD.

Methods:

A retrospective longitudinal cohort study, conducted at a tertiary developmental paediatric centre in Singapore, comprising of children born in 2016 with an initial diagnosis of GDD (n=300). Data extracted included demographics, Early Intervention Programme (EIP) duration, school placement recommendations at Primary 1 transition, and primary diagnoses recorded at final clinical review beyond age 5 years. Categorical variables were reported as frequencies and percentages, and continuous variables as means with standard deviations.

Results:

The mean age at initial presentation was 3.2 ± 1.4 years, with a male predominance (65.3%). Malay children were over-represented at 33.7%, and 43.0% of families reported household incomes below SGD 3,000 per month. Majority of children completed EIP, with a mean enrolment period of 2.0 ± 1.2 years. The most common primary diagnosis at final review (n=253) was autism spectrum disorder (ASD; 38.3%), followed by developmental language disorder (26.9%), intellectual disability (8.3%), and developmental academic disorder (5.9%). Notably, 4.7% achieved normal developmental outcomes. Special education placement was recommended for 39.0% (n=117).

Conclusion:

More than one-third of children initially diagnosed with GDD subsequently received a diagnosis of ASD, underscoring the importance of early and ongoing ASD surveillance. These findings highlight the need for structured follow-up and proactive transition planning.

Sustainability:

This retrospective cohort methodology is readily replicable across other tertiary centres and successive birth cohorts, enabling longitudinal benchmarking over time. Findings provide an evidence base for sustained resource planning in early intervention services, supporting the development of timely, diagnosis-specific, and equitable neurodevelopmental care pathways in Singapore.

REFRACTORY MYCOPLASMA PNEUMONIAE PNEUMONIA IN CHILDREN – A RETROSPECTIVE AUDI

TAN H.C¹, WONG P.W.K¹, YAO S.H.W¹, SHETTY S.S¹, LI J²⁻⁵, TAN N.W.H²⁻⁵, KAM K²⁻⁵, NADUA K.D²⁻⁵, SEOW C.W²⁻⁵, THOON K.C²⁻⁵, YUNG C.F²⁻⁵, CHONG C.Y²⁻⁵

¹Department of Paediatrics, KK Women's and Children's Hospital, Singapore

²Infectious Disease Service, Department of Paediatrics, KK Women's and Children's Hospital, Singapore

³Duke-NUS Medical School, Singapore

⁴Yong Loo Lin School of Medicine, National University of Singapore, Singapore

⁵Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

Background/Aim:

Mycoplasma pneumoniae (MP) is a common but fastidious pathogen causing paediatric pneumonia. There is an increasing incidence of refractory MP pneumonia (RMPP) with inadequate clinical response after 48-72 hours of macrolide therapy.

Methods:

We conducted a retrospective audit of children admitted to KK Women's and Children's Hospital (KKH) from November 2023–September 2025, with laboratory and radiologically-confirmed MP pneumonia, who were referred to Infectious Disease (ID) doctors for suspected RMPP. Steroids were generally recommended if serum LDH was >380 U/L.

Results:

210 RMPP children were included (median age of 8.0 years, IQR 5.2- 10.0). 39.5% of patients had co-infections. Pleural effusion occurred in 37.1%, with 9.0% requiring chest drainage. 4.7% required high-acuity care. 99.1% of patients were on macrolides before ID involvement. Mean febrile days were 6.7(±2.5) days before admission, 3.66(±1.6) days from admission to ID referral, 0.75(±1.0) days after ID referral ($p<0.001$) and 6.4(±2.6) hospitalization-days.

Due to persistent fever, management changes were: change in antibiotics (26.2%, majority to doxycycline), steroids added (20.0%), antibiotic change with steroids (37.6%), no change (12.4%), indomethacin ±antibiotic change (3.8%). Peak serum LDH was higher among those given steroids (57.6%), compared to those without (median 517.5 U/L, [IQR] 416.8–739.3] vs. 340.0 U/L [IQR 281.5–411.5] respectively, $p<0.001$). Peak serum LDH had an AUC of 0.82 for determining steroid use, while LDH ≥ 428 U/L had a sensitivity of 73.9% and specificity of 79.5%. There were no differences in hospitalization-days across different treatment groups; however, febrile days post-ID referral differed by <1 day between steroid only and indomethacin groups ($p=0.044$).

Conclusion:

Serum LDH ≥ 428 U/L is useful in identifying the need for steroids in children with RMPP. Timely referral to ID is useful in reducing hospitalization-days.

Sustainability:

Serum LDH-guided management supports standardized, evidence-informed steroid use in RMPP, promoting efficient and sustainable inpatient care.

A LOCAL SURVEY OF SUBSPECIALIST NURSES & MEDICAL SOCIAL WORKERS' ATTITUDES TOWARDS ADVANCED CARE PLANNING (ACP) IN A TERTIARY PAEDIATRIC INSTITUTION

ZENG, Y¹, FLORES, RO², VIEGELMANN, GC, CHOW CTC², RR, PRAVIN²

1 Nursing Clinical Services, KK Women's & Children's Hospital, Singapore

2 Children's Complex and Home Care Services, KK Women's & Children's Hospital, Singapore

Background/Aim:

In children with complex medical conditions that are life-limiting or life-threatening, early mortality may be expected. Advance Care Planning (ACP) enables proactive alignment of end-of-life care with the child's clinical needs and the family's preferences.

Methods:

An online survey was conducted to assess subspecialist nurses' and medical social workers' (MSWs) knowledge, attitudes, communication confidence, and perceived barriers related to ACP in KK Women's & Children's Hospital. The survey examined five domains: ACP knowledge and training, attitudes and beliefs, communication competence, barriers to ACP initiation, patient and caregiver-related factors.

Results:

Of 39/61 (64.0%) healthcare professionals who participated, comprising 79.0% nurses and 21.0% MSWs, 67.0% had >10 years of experience. Despite this, 67.0% never received formal palliative care training, and 82.0% had never facilitated an ACP discussion. The majority (82.1%) of participants felt that ACP as an essential component of care for patients with complex or life limiting conditions. However, in the nursing subgroup, only 12.9% felt adequately skilled to conduct ACP as compared to 87.5% in the MSW subgroup.

Overall, 79.5% believed ACP could reduce suffering for children and families with reasons being respecting autonomy (89.7%), easing decision making burden (79.5%), and supporting care transitions (74.4%). Top three barriers to ACP creation amongst healthcare workers included lack of knowledge (77.0%), lack of confidence (74.0%) and personal/cultural views (38.0%). ACP tools & templates (79.0%), more in-depth ACP training (77.0%), and palliative care team support (59.0%) were top three drivers cited to boost confidence in ACP creation.

Conclusion:

Most healthcare workers value ACP for children with life-limiting conditions but lack the confidence and knowledge to initiate discussions; targeted training is needed to address these gaps and support effective ACP facilitation.

Sustainability:

With the results from this study, we hope to integrate paediatric ACP into routine practice, supported by internal training for healthcare providers to better support patients and their families.

SHORT- AND LONG-TERM OUTCOMES OF A TARGETED CONGENITAL CYTOMEGALOVIRUS INFECTION SCREENING APPROACH AMONG INFANTS BORN ≥ 35 WEEKS GESTATION

YEE YIN TAN¹, KAVITHA SOTHIRASAN¹, PIH LIN TAN¹, POH CHOO KHOO¹, CHAN CHING YEE², MATTHIAS MAIWALD³, KOH CHENG THOON⁴, KEE THAI YEO¹

¹Department of Neonatology, KK Women's and Children's Hospital, Singapore

²Department of Otolaryngology, KK Women's and Children's Hospital, Singapore

³Department of Pathology and Laboratory Medicine, KK Women's and Children's Hospital, Singapore

⁴Infectious Disease Service, KK Women's and Children's Hospital, Singapore

Background:

Cytomegalovirus (CMV) is a leading cause of congenital viral infection, with an estimated global incidence of 1–6%. However, the burden of congenital CMV (cCMV) in Singapore and the region remains poorly defined.

Aim:

To describe clinical outcomes within the first two years of life among infants with cCMV identified through targeted screening based on failed newborn hearing screening and/or small-for-gestational-age (SGA) status.

Methods:

This is a singlecentre retrospective cohort study of infants with cCMV identified between 1 June 2022 and 31 December 2023. Data on maternal and infant demographics, clinical investigations, treatment, complications, and neurodevelopmental outcomes up to two years were collected and analysed.

Results:

Twentyseven out of 1905 infants screened, were diagnosed with cCMV - incidence of 14.2 per 1,000 infants (1.4%). Screening was predominantly prompted by SGA status (81.5%). Among affected infants, 76.2% had detectable CMV DNA on blood PCR, 37% had abnormal cranial ultrasonography findings, 14.8% failed automated auditory brainstem response screening and none had ocular involvement. Six infants (22.2%) received valganciclovir therapy. Neutropenia was the most common adverse effect (66.6%), followed by transaminitis (33.3%) and thrombocytopenia (16.6%). Even so, 83% completed the six month treatment course. Twentyfive of 27 infants with cCMV and hearing involvement were followed to two years. ENT referral was required in 36%, and 16% had confirmed hearing impairment on followup, corresponding to 2.1 per 1,000 infants screened. All with hearing impairment received antiviral therapy, and half required hearing aids. Developmental surveillance using the Ages & Stages Questionnaire identified three infants at risk of delay. By two years, neurodevelopmental impairment incidence was 3.1 per 1,000 screened.

Conclusion:

Targeted screening effectively identified cCMV, particularly in SGA infants. The higher incidence of confirmed neurodevelopmental impairment suggests lateemerging deficits, supporting the need for ongoing audiological and developmental followup.

Sustainability:

Long term regular hearing surveillance and developmental monitoring is crucial.

A LONGITUDINAL AUDIT OF CAREGIVER WELL-BEING IN A COMPLEX CARE SERVICE IN A PEDIATRIC TERTIARY INSTITUTION

RR P¹, VIEGELMANN GCJ¹, LEE GS¹ CHER Y¹, FLORES RO¹, CHOW CC¹

¹*Complex & Home Care Services, Division of Paediatric Medicine, KK Women's and Children's Hospital, Singapore*

Background/Aim:

Caregivers of children with medical complexity (CMCs) frequently experience significant psychological stress and emotional burden, which may affect both caregiver well-being and patient outcomes. This study evaluated longitudinal changes in caregiver stress, depression, and perceptions of child health and quality of life within the CMC subpopulation.

Methods:

Data were collected from 149 caregivers enrolled in a complex care programme between May 2019 and June 2026. Caregiver outcomes were assessed at baseline, 6 months, and 12 months using the Perceived Stress Scale (PSS) and Patient Health Questionnaire-9 (PHQ-9). Caregivers also completed KIDSCREEN measures and reported their perceptions of their child's general health status.

Results:

Baseline caregiver stress levels were predominantly moderate, with a mean PSS score of 18.7. Mean stress scores decreased to 15.4 at 6 months and remained stable at 15.7 at 12 months. The proportion of caregivers reporting high stress declined from 8.2% at baseline to 2.7% and 2.1% at 6 and 12 months, respectively. Similarly, depressive symptoms improved over the first 6 months, with mean PHQ-9 scores decreasing from 6.3 at baseline to 4.3 at 6 months although it increased to 5.2 at 12 months. The proportion of caregivers reporting moderate-to-severe depression also decreased across follow-up periods. Parent-reported child health demonstrated positive trends, with reductions in ratings of poor health and sustained proportions reporting good, very good, or excellent health. KIDSCREEN responses suggested generally favourable perceptions of child well-being and functioning over time.

Conclusion:

Support from a complex care service was associated with sustained improvements in caregiver psychological well-being and positive perceptions of child health over a 12-month period, highlighting the value of integrated family and patient-centred care models.

Sustainability:

These findings support the long-term sustainability of integrated complex care services as an effective approach to enhancing outcomes for both caregivers and CMCs and to reduce caregiver burnout and strengthen caregiver resilience.

DIAGNOSTIC OUTCOMES AND SCHOOL PLACEMENT RECOMMENDATIONS AFTER EARLY INTERVENTION IN PRESCHOOLERS: A LONGITUDINAL COHORT STUDY

RASHMI ARUN MITTAL, LINDA TAN, DAYANA BINTE KAMARUDIN, NORFARAHIN BINTE MATAWI, FELICIA TAN BAI LING, DZURANI TARIH, MAJELLA IRUDAYAM, PRATIBHA AGARWAL, LOURDES MARY DANIEL

Background / Aim:

Early intervention programmes are recommended for supporting preschoolers with moderate-severe developmental delays. However, limited studies have examined long-term diagnostic outcomes and educational placement at transition to primary school. This study investigated diagnostic outcomes and special-school (SpEd) placement recommendations among children enrolled in the Early Intervention Program (EIP), focusing on those with a suspected diagnosis of Autism or Global Developmental Delay (GDD).

Methods:

Retrospective longitudinal cohort study analysed 2016-born preschoolers, referred to a tertiary developmental and behavioural clinic, and subsequently enrolled in EIP. Clinical and demographic data were collected from medical records. Primary outcomes included diagnostic outcome at ≥ 5 -7 years and SpEd placement recommendation at transition to primary school. Statistical analyses included independent t-test and Chi-square test for continuous and categorical variables respectively.

Results:

A total of 879 preschoolers born in 2016 (77.1% males, 72.8% with suspected Autism, mean age: 3.2 ± 1.2 y), were enrolled in EIP for a mean duration of 2.1 ± 1.1 years. Among demographic parameters, parents of children with suspected GDD had a lower educational status and household income compared to those with Autism ($p < 0.05$).

Majority of children with suspected Autism retained the diagnosis at ≥ 5 -7 years (83.9%; 465/554). In the GDD group, the commonest primary diagnosis at ≥ 5 -7 years was language disorder (33.8%; 64/189), while 26.5% (50/189) and 13.7% (26/189) had Autism and Intellectual disability respectively. SpEd placement recommendation rates were 64% (355/554) in Autism group Versus 29.1% (55/189) in the GDD group ($p < 0.001$). Among these, 56% (200/355) and 78% (43/55) were recommended for customised curriculum respectively ($p = 0.002$).

Conclusion:

The above results underscore the importance of regular monitoring during EIP and highlight the need for early transition planning, particularly given the substantially higher diagnostic stability and SpEd placement recommendation rates in children suspected of Autism as compared to GDD.

Sustainability:

The study being a retrospective cohort study is repeatable and sustainable.

EARLY EMPIRICAL OSELTAMIVIR THERAPY IN HOSPITALIZED CHILDREN WITH SUSPECTED VIRAL PNEUMONIA LEADS TO FASTER FEVER DEFERVESCENCE: A PROSPECTIVE OBSERVATIONAL STUDY

REBECCA B¹, RAJAN R¹ ANNIE C¹, REBEKAH G², IPE G¹, ADHIKARI D³, ROSE W¹

Departments of ¹Pediatrics, ²Biostatistics, ³Pediatric Emergency medicine, Christian Medical College, Vellore, Tamil Nadu, India.

Background/Aim:

Influenza is a common cause of community-acquired pneumonia in children. Oseltamivir is an antiviral agent that is used for its treatment. We aimed to study the difference in fever defervescence among children receiving empirical Oseltamivir for Influenza like illness (ILI), compared to standard medical treatment (SMT).

Methods:

We conducted an observational study between April and December of 2024. Children admitted with lower respiratory illness who fulfilled the ILI criteria were included. Children receiving oseltamivir (cases), and those who received SMT (controls) were compared for the outcomes. The primary objective was to determine the difference in time taken for fever defervescence. The secondary objectives were to assess the difference in requirement of oxygen support, intensive care, duration of hospitalization, and survival.

Results:

There were 309 children during the study period, 160 received empirical Oseltamivir and 149 got standard medical care. The majority were males (66.6%), with presenting symptoms of cough (99%), fast breathing (97%), fever (77%), vomiting (16.5%) and loose stools (5.8%). Cases had higher proportion of high flow oxygen requirement (61.2% vs 42.9%, $P=0.001$). Fever defervescence was faster in cases than in controls (2.3 vs 2.6 days, $p=0.018$). Earlier administration (day 1 vs day 2) of Oseltamivir was associated with faster fever defervescence (2 vs 3 days, $p=0.0001$) and reduced duration of hospitalisation (5 vs 6 days, $p=0.0004$). The total duration of hospitalization was longer in cases when compared to controls (6 vs 4.8 days, $p=0.0001$). The need for intensive care was comparable between the groups. All children except for one had good recovery.

Conclusion:

Among hospitalized children with probable viral pneumonia, treatment with Oseltamivir had faster fever defervescence (especially if initiated earlier).

Sustainability:

Empirical oseltamivir, hastens the fever defervescence, thereby helps optimize bed utilization, reduces health-care costs, and resource sustainability during the peak seasonal viral surges.

FACTOR ASSOCIATED WITH MORTALITY IN NEONATES WITH HYDROPS FETALIS ADMITTED TO A TERTIARY NICU IN INDONESIA

GINA PUSPITA¹, TUNJUNG WIBOWO¹, ALIFAH ANGGRAINI¹, ELYSA NUR SAFRIDA¹, EKAWATY L HAKSARI¹

Departement of Child Health , Faculty of Medicine , Nursing and Public Health , Gadjah Mada University , Dr.Sardjito General Hospital , Yogyakarta, Indonesia

Background/Objective:

Hydrops fetalis is a rare but life-threatening condition characterized by generalized edema and fluid accumulation in at least two fetal compartments. Despite advances in neonatal intensive care, mortality remains high. This study aims to determine factors associated of mortality caused by hydrops fetalis.

Methods:

A retrospective cohort study was conducted using medical record of neonates with hydrops fetalis at NICU of Sardjito Hospital, between 2021-2026. Hydrops fetalis was confirmed based on clinical manifestation with fluid accumulation in body compartments. Neonates who died during resuscitation and incomplete medical records were excluded. Gestational age, birth weight, neonatal resuscitation, Apgar score, anemia, and thrombocytopenia analyzed with statistical Chi-square test, followed multivariate logistic regression.

Results:

Among 31 identified neonates with hydrops fetalis, 22 met inclusion criteria for analysis. Seven neonates (32%) survived, while 15 (68%) died. The mean gestational age was 33 ± 3.2 weeks, and the mean birth weight was 2310 ± 746 grams. Cardiac abnormalities were identified in (40.9%) cases. The most common manifestation were pleural effusion (90%) and subcutaneous edema (81%). Bivariate analysis showed that Apgar score 1-minute (OR 16.13 ;95% CI 1.77-142.86 ; $p=0.014$) and 5-minute (OR 0.36 ;95% CI 0.16- 0.79) ; $p=0.004$) and anemia (OR 1.63 ;95% CI 1.48-20 ; $p=0.02$) were significantly with mortality. In multivariable logistic regression , no statistically significant, likely due to the limited sampel size. Correlation analysis demonstrated that the 5-minute Apgar score had the strongest association with mortality ($r=-0.683$, $p<0.001$)

Conclusion:

Low Apgar scores and anemia at birth were significantly associated with mortality among neonates with hydrops fetalis..

Sustainability:

Apgar score and anemia assessment are simple and readily available parameters that can be incorporated into routine NICU admission protocols for neonates with Hydrops fetalis. Their use may support early risk stratification, guide clinical decision-making, and improve resource allocation and patient outcomes

SAFEGUARDING CHILDREN WITH MEDICAL COMPLEXITY: A SCOPING REVIEW OF ABUSE AND NEGLECT IN CMCs

NING NG¹, EN QI SEAH², WONG WANLIN², GUADALUPE CARA VIEGELMANN³, CHOW CHU-TIAN CRISTELLE³, PRAVIN RR³

¹*Duke-NUS Medical School, Singapore*

²*Paediatric Medical Social Worker Department, KK Women's & Children's Hospital, Singapore* ³*Paediatric Complex Care & Home Care Services, KK Women's & Children's Hospital, Singapore*

Background/Aim:

Children with medical complexities (CMCs), due to severe chronic conditions and functional limitations, require substantial health services and are vulnerable to neglect or abuse by caregivers, resulting in adverse biopsychosocial consequences. This study aims to map the risk factors for, and types of neglect or abuse experienced by CMCs.

Methods:

A scoping review was conducted using systematic searches of Medline, EMBASE, CINAHL and Web of Science databases on 19 October 2025. Studies involving CMCs aged 0-21 years old that described types of, or risk factors for neglect, were included.

Results:

Eight papers met the inclusion criteria of 3508 studies screened. Physical neglect of CMCs (87.5%), medical, emotional, social (75.0% each), sexual (37.5%) and educational neglect (12.5%) of CMCs were reported. Numerous caregiver-related risk factors for neglect were identified, including financial burden (87.5%), stress (75.0%), health issues (75.0%), lack of education (62.5%), poor trust or communication with healthcare providers (37.5%), and limited social support (25.0%). Additional risk factors included ethical dilemmas from medical professionals regarding reporting suspected neglect (25.0%) and limited healthcare access (12.5%).

Conclusion:

This review highlights multiple risk factors for and types of neglect CMCs experience, underscoring the role of caregivers in shaping outcomes for this vulnerable population. Although not within local context, several studies have also discussed the potential impact of child welfare interventions on CMCs including institutional or foster care placements. Current evidence remains limited, largely descriptive, and Western-centric, with minimal research addressing the specific and unique needs of CMCs in Asian contexts, including Singapore. Further interventional and evaluative research is needed to elucidate risk factors and develop strategies to mitigate neglect and abuse of CMCs worldwide.

Sustainability:

Future research on preventive and therapeutic interventions may inform child protection guidelines and policies, while supporting reforms to improve financial and social support for caregivers.

MULTIDISCIPLINARY CARE FOR CHILDREN WITH MEDICAL COMPLEXITY (CMC): A SCOPING REVIEW OF MEDICAL, NURSING, AND SYSTEMIC BARRIERS AND PROPOSED SOLUTIONS TO DELIVER PERSONALISED CARE FOR CMCS

MADHUMITHA AYYAPPAN¹, GUADALUPE CARE VIEGELMANN², CRISTELLE CHOW CHU-TIAN², PRAVIN RR²

¹ *Duke-NUS Medical School, Singapore*

² *Paediatrics Complex Care & Home Care Services, KK Women's and Children's Hospital, Singapore*

Background/Aim:

Children with medical complexity (CMCs) are children with chronic conditions causing significant functional limitation, requiring substantial healthcare needs including life-sustaining medical technologies. Multiple care models exist globally, each, shaped by healthcare systems and sociocultural contexts. However, gaps persist across medical, nursing, and systemic domains. This scoping review aims to present an updated review of existing literature to identify these gaps and synthesise proposed solutions.

Methods:

A scoping review was conducted. Eligible studies included qualitative, quantitative, and mixed-methods research involving paediatric patients aged 0–21 years defined as medically complex or fragile. Included studies focused on identifying gaps or proposing solutions. Five electronic databases were searched till October 13, 2025. Relevant data was extracted and analysed using thematic analysis.

Results:

273 studies were included in the final analysis from 14,327 records screened. Thematic analysis identified three major gaps: (1) Fragmentation and inequities within healthcare systems (including variability in access and service delivery), (2) poor coordination of care and challenges during transitions (between hospital and community settings) and (3) significant burdens on caregivers and constraints faced by healthcare providers (including emotional and resource-related challenges). Proposed solutions were largely systemic, focusing on (1) strengthening health system infrastructure and access, (2) implementing integrated and coordinated care models, and (3) empowering caregivers and providers through support, training, and research.

Conclusion & Sustainability:

This review highlights significant gaps in the care of CMCS. Findings can inform improvements in clinical practice, nursing care, and healthcare policy. Proposed solutions should be contextualised to the individual needs of each CMC and their family.

EARLY CHILDHOOD SLEEP PRACTICES, PATTERNS, AND AWARENESS OF GUIDELINES IN SINGAPOREAN PARENTS AND CHILDREN

LIN W^{i,ii}, CHIONG Y.K.^{i,ii}, LIU M.R.^{i,iii}, SHAH M.A.T.S.ⁱ, YUEN W.Y.^{i,ii}, LEE Y.S.^{i,ii}, TARDIFF T^{i,iii,iv}

ⁱ Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

ⁱⁱ Khoo Teck Puat-National University Children's Medical Institute, National University Hospital, Singapore

ⁱⁱⁱ Centre for Holistic Initiatives for Learning and Development (CHILD), Yong Loo Lin School of Medicine, National University of Singapore, Singapore

^{iv} Institute for Human Development and Potential (IHDP), Agency for Science, Technology and Research (A*STAR), Singapore

Background/Aim:

We aimed to describe sleep patterns and practices of young children and their parents in Singapore, and examine predictors of child sleep duration to identify parental practices associated with better sleep outcomes in children.

Methods:

This was a prospective, multi-centre, cross-sectional study conducted at local health care clinics in Singapore. This study was conducted at local health care clinics in Singapore and included 500 parent-child pairs with newborns through 6-year-old children who had not yet begun formal schooling.

Results:

While the average duration of sleep in children is at the lower end of recommendations, 24.5% of 6 to 12 month old children and 10.8% of 1 to 2 year old children do not get the minimum recommended hours a day. The majority of their parents are also not getting minimum recommended sleep durations. Important predictors of child sleep duration were the timing of bedtime, bedtime practices that do not foster independent sleep and the lack of accurate parental awareness of sleep guidelines in early childhood. Only 50% of children slept at 9 p.m. or earlier, 67% of parents utilized bedtime practices that did not foster independent sleep habits and only 34% of parents reported correct awareness of sleep durations appropriate for their child's age.

Conclusion:

Accurate parental awareness of sleep guidelines and the practice of healthy sleep habits like earlier bedtimes and putting children to sleep independently were associated with better sleep outcomes in young children.

Sustainability:

Findings from this study highlight modifiable parental knowledge and practices associated with improved child sleep duration and sleep quality. As sleep health education can be incorporated into existing maternal and child health touchpoints such as antenatal classes, well-child visits and community parenting programmes, the identified practices represent sustainable, scalable opportunities to improve sleep outcomes for children and families.

THE LAPLACE'S LAW PARADOX: ATYPICAL LESSER CURVATURE GASTRIC PERFORATION VIA SYNERGISTIC NON-INVASIVE MECHANICAL VENTILATION BAROTRAUMA AND INDOMETHACIN-INDUCED ISCHEMIA IN AN EXTREMELY PRETERM INFANT

KALIAPPAN SIVANESWARY, JITENDRAKUMAR VORA SHRENIK, KHOO MAY LYN JOYCE, GOPAGONDANAHALLI KRISHNA REVANNA

Department of Neonatology, KK Women's and Children's Hospital, Singapore

Background/Aim:

Neonatal gastric perforation (NGP) is an uncommon, devastating surgical emergency affecting 1 in 29,000 live births. While classical teaching dictates that pressure-induced NGP occurs along the highly distensible greater curvature via Laplace's Law, atypical locations remain poorly understood. Non-invasive intermittent mandatory ventilation (NIMV) post-extubation can inadvertently cause severe aerophagia and gastric over-distension. Concurrently, indomethacin therapy for patent ductus arteriosus (PDA) eliminates prostaglandin E₂ (PGE₂)-mediated cytoprotection and mucosal autoregulation. This case details a rare "multi-hit" pathogenesis resulting in an anomalous lesser curvature perforation in an extremely preterm, small-for-gestational-age (SGA) infant.

Case Presentation:

A 25-week, asymmetrical SGA female infant required initial surfactant therapy and a standard course of intravenous indomethacin on day 2 of life for a hemodynamically significant PDA. Following successful extubation to NIMV on day 8, she acutely developed marked abdominal distension, feeding intolerance, and respiratory compromise on day 12. Free intraperitoneal air was confirmed via abdominal radiographs. Immediate surgical exploration via laparotomy revealed a 2–3 mm linear perforation located unexpectedly at the upper anterior lesser curvature, surrounded by localized ischemic foci extending toward the gastric fundus. The defect was successfully repaired using a primary two-layer closure, accompanied by aggressive peritoneal washout.

Discussion/Conclusion:

This case presents an atypical gastric perforation resulting from a unique intersection of mechanical barotrauma and pharmacological compromise. While, as per Laplace's Law, spontaneous gastric perforation usually occurs at the greater curvature, this instance highlights how NIMV-driven gas trapping created an asymmetrical air pocket, producing intense shear stress against the rigid, anchored lesser curvature. This mechanical strain was compounded by indomethacin-induced vasoconstriction of the left gastric artery, which was already compromised by baseline SGA placental insufficiency, leading to focal transmural necrosis at the lesser curvature. Clinicians must maintain a heightened index of suspicion for abdominal distension when combining positive-pressure non-invasive ventilation with NSAID therapies in micro-preterm infants.

OPTIMISING CAREGIVER PREPAREDNESS FOR PAEDIATRIC TRACHEOSTOMY CARE: A DESCRIPTIVE ANALYSIS OF CAREGIVER TRAINING REQUIREMENTS AND DISCHARGE READINESS

GUO. H¹, WONG. PWK², TAN. HC², FLORES. RO¹, THOMAS. B³, KOH. LH⁴, TAY. SY⁴, TAN. GXJ⁴, ANICETE. R⁴, CHEN.YH⁵, MOK. JXT⁵, VIEGELMANN.GCJ¹, CHOW. CC¹, LEE. GS¹, RR. P¹

¹Complex & Home Care Services, Division of Paediatric Medicine, KK Women's and Children's Hospital, Singapore

²General Paediatrics, Department of Paediatrics, KK Women's and Children's Hospital, Singapore

³Paediatric Respiratory Medicine, Department of Paediatrics, KK Women's & Children's Hospital, Singapore

⁴Paediatric Otolaryngology, Department of Paediatric Surgery, KK Women's & Children's Hospital, Singapore

⁵Paediatric Speech & Language Therapy Service, Department of Allied Health, KK Women's & Children's Hospital, Singapore

Background/Aim:

Discharge of children with medical complexity (CMC) with tracheostomies requires caregivers to acquire complex knowledge and skills to safely manage airway care at home. Understanding caregiver characteristics and training requirements is essential for developing effective nurse-led education programmes to facilitate safe transitions from hospital to home. The aim was to describe the demographic profile of caregivers of children with tracheostomies and examine the duration and intensity of caregiver training required to achieve discharge readiness.

Methods:

A descriptive retrospective review was conducted on 31 paediatric tracheostomy cases. Demographic characteristics of caregivers, and tracheostomy caregiver training (CGT) parameters were analysed. Training outcomes included duration of training and number of tracheostomy-specific CGT sessions delivered before discharge.

Results:

Mothers aged 26-35 years old constituted most primary caregivers (86.1%). Fathers aged 26-35 years old were the predominant secondary caregivers (77.4%). The majority of caregivers were married (93.5% primary, 87.1% secondary). Most families resided in public housing (71.0%). 83.9% were eligible for means-tested subsidies. 51.6% employed a domestic helper. Prior to tracheostomy, 41.9% received one-time counselling, and 83.9% used mannequin-based training prior to return demonstration on the CMC. All caregivers were assessed as competent before discharge home. The mean CGT duration was 82.6 (± 89.3) days (median 54 days), requiring an average of 16.4 (± 10.7) tracheostomy-specific sessions (median 13 sessions). Common causes of CGT delay or interruption was clinical instability of patient (58.1%), caregiver work commitments (48.4%), unwell caregiver (38.7%) and awaiting for helpers (16.1%). 32.3% of children travelled overseas with a tracheostomy in situ (60% travelled by air).

Conclusion:

Structured tracheostomy caregiver training enabled all caregivers to achieve discharge competency despite significant training demands. These findings highlight the critical role of nurse-led education in supporting safe transition from hospital to home for CMCs with tracheostomies.

Sustainability:

In future, integrated methods of caregiver training with both virtual and in-person teachings can be considered to ameliorate the caregiver experience.

EMPOWERING FAMILIES OF CHILDREN WITH MEDICAL COMPLEXITY (CMCS) FOR HOME GASTROSTOMY CARE: OUTCOMES OF A NURSE-LED CAREGIVER TRAINING PROGRAMME FOR CMCS IN A TERTIARY INSTITUTION

TAN HC¹, WONG PWK¹, FLORES RO², GUO H², ONG CPC³, ANG B⁴, VIEGELMANN GCJ², CHU-TIAN CC², CHER Y², RR P²

¹General Paediatrics, Department of Paediatrics, KK Women's and Children's Hospital, Singapore

²Complex & Home Care Services, Division of Paediatric Medicine, KK Women's and Children's Hospital, Singapore

³Department of Paediatric Surgery, KK Women's & Children's Hospital, Singapore

⁴Department of Nutrition and Dietetics, KK Women's & Children's Hospital, Singapore

Background/Aim:

Successful transition from hospital to home following gastrostomy insertion depends on caregiver preparedness and confidence. Nurse-led caregiver training (CGT) plays a critical role in equipping families with the knowledge and skills required for safe gastrostomy management. This study evaluated caregiver training outcomes and surrogate indicators of successful adaptation following paediatric gastrostomy insertion following training by home care nurses in a tertiary institution.

Methods:

A retrospective descriptive review was conducted among 37 families of CMCs who underwent gastrostomy insertion. Data collected included caregiver demographics, counselling encounters, training methods, and post-discharge indicators of adaptation. Descriptive statistics were used to analyse outcomes.

Results:

More than half of families (56.8%) received gastrostomy counselling from paediatric home care nurses prior to insertion. Training was conducted using a combination of mannequin- and patient-based teaching (70.3%), allowing caregivers to develop both technical skills and practical confidence. The mean duration from initiation of training to competency was 19.5 ($\pm$ 29.17) days, with median duration of 7.5 days, reflecting variability in individual learning needs and delays were attributed to clinical instability (8.1%) or awaiting the arrival of a helper (5.4%). Caregivers required an average of 3.78 ($\pm$ 1.89) sessions to be deemed competent. 91.9% of caregivers were assessed as competent before first discharge following gastrostomy insertion. Following discharge, support requirements remained low, with caregivers contacting the home care hotline at most once on average. 21.6% of CMCs travelled overseas with a gastrostomy in situ.

Conclusion:

Nurse-led gastrostomy education and competency-based caregiver training help to prepare caregivers for transition to home, resulting in improved competency rates and lower reliance on post-discharge support. These findings support the value of structured caregiver education in facilitating safe transition to home care.

Sustainability:

Standardised and consistent nurse-led training programmes strengthen caregiver self-management capabilities, optimise healthcare resource utilisation, and support sustainable community-based care for CMCs requiring long-term gastrostomy management.

SCOLIOSIS SURGERY IN CHILDREN WITH MEDICAL COMPLEXITIES: OUTCOMES AND THE ROLE OF MULTIDISCIPLINARY TEAM DECISION-MAKING

CHOE CXS¹, KHIN MY¹, LIM SL², LIM BLK³, NG WLS³, LIM YXJ⁴, OOI SYJ³, ZENG YY⁵, VIEGELMANN GCJ⁵, CHOW CTC⁵, RR P⁵

¹General Paediatrics, Department of Paediatric Medicine, KK Women's & Children's Hospital, Singapore

²Paediatric Anesthesia, KK Women's & Children's Hospital, Singapore

³Paediatric Orthopaedics, KK Women's & Children's Hospital, Singapore

⁴Paediatric Neurology, Department of Paediatric Medicine, KK Women's & Children's Hospital, Singapore

⁵Paediatric Complex & Home Care Service, Division of Paediatric Medicine, KK Women's & Children's Hospital, Singapore

Background/Aim:

This study evaluates scoliosis surgery outcomes and the impact of multidisciplinary team (MDT) meetings on surgical decision-making in children with medical complexities (CMCs) at KK Women's & Children's Hospital.

Methods:

A retrospective cohort study of 21 CMCs with scoliosis managed between January 2015 and December 2025. Demographic, clinical, operative and MDT data were extracted from electronic medical records and MDT documentation.

Results:

Of 21 CMCs, 57.1% were female, 66.7% were GMFCS level 5, and 52.4% had congenital/genetic diagnoses. Ten underwent posterior spinal fusion at a mean age of 14.9±3.3 years. Osteopenic fractures were present in 14.3%, while 52.4% were initially managed with spinal bracing. Post-operative complications occurred in 60.0%, most commonly haemodynamic instability (40.0%) and infection (20.0%); pleural effusion, DVT, seizures, blood loss and colonic volvulus also occurred. Mobilisation commenced at a mean of 1.1 days post-operatively and transition from nurse-controlled to enteral analgesia occurred after 4.3±1.9 days. Improvement in spasticity or pain was observed in 70.0%, while 80.0% achieved Cobb angle stability.

Following MDT implementation in May 2022, referrals to Pre-Admission Clinic for anaesthetic review increased by 20.0%, pre-operative respiratory evaluations increased by 20.0%, and surgery deferral rates decreased by 40.0%. There was no difference in PICU length of stay; however, mean inpatient stay decreased from 19.0±12.0 to 9.6±2.1 days. No mortality occurred.

Conclusion:

Scoliosis surgery in CMCs is feasible with acceptable functional outcomes despite high complication rates reflecting patient complexity and increased surgical and anaesthetic risks. MDT meetings supported shared decision-making and perioperative optimisation.

Sustainability:

Findings will inform perioperative pathway improvements, targeted care bundles and resource planning to enhance long-term outcomes for CMCs.

A COST-BENEFIT ANALYSIS OF A WATER-LESS NEONATAL INTENSIVE CARE UNIT

SHARAFAT ALI^A, AGNIHOTRI BISWAS^{A,B}, LOW JIA MING^{A,B}

^A *Department of Neonatology, Khoo Teck Puat – National University Children's Medical Institute, National University Hospital, Singapore*

^B *Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore*

Background/Aim:

Traditional sinks in neonatal intensive care units (NICUs) are recognized reservoirs for multidrug-resistant Gram-negative organisms and may contribute to healthcare-associated infections. We evaluated the clinical and economic impact of transitioning the 32-bed National University Hospital NICU from conventional water-based care to a waterless care model.

Methods:

A comparative cost-benefit analysis was performed using operational and clinical data before and after implementation of a waterless NICU model. Economic modelling assumed an average bed occupancy of 80% (approximately 9,344 patient-days annually). Direct material costs, nursing labour, treatment costs associated with late-onset sepsis (LOS), and bed-day opportunity costs were modelled to estimate the annual economic impact.

Results:

Implementation of the waterless NICU model was associated with reduced environmental bacterial bioburden and a reduction in LOS from 14.8% to 4.3%, equivalent to approximately 50 fewer LOS episodes annually across a 32-bed NICU. Estimated direct treatment cost savings were S\$746,000, with an additional S\$358,900 in recovered bed-day capacity. Routine hygiene processes were estimated to reduce nursing workload by approximately 3,550 hours annually. Although sterile bathing consumable costs increased, replacing water-dependent workflows reduced expenditure on infant milk warming, hand hygiene, plumbing maintenance, water utilities, and environmental validation testing, reducing annual material operating costs from S\$108,805 to S\$54,682 (net annual savings S\$54,123). Overall, the estimated annual savings exceeded the one-time implementation cost of S\$18,850.

Conclusions:

Transition to a waterless NICU model was associated with lower LOS rates, and potential operational and economic benefits. Further evaluation in other neonatal intensive care settings is warranted.

Sustainability:

The waterless NICU model has the potential to provide operational and economic benefits through standardized workflows and reduced infrastructure requirements, supporting adaptation in other NICUs.

SHORT-TERM COMPLICATIONS AND MORBIDITY IN VERY PRETERM INFANTS BORN AT 28–32 WEEKS GESTATION: A SINGLE-CENTRE RETROSPECTIVE STUDY

POH WEN XIEN¹, PANJANGAM PANDIAN² AND ODATTIL GEETHA²

¹ Lee Kong Chian School Medicine, Nanyang Technological university Singapore

² Department of Neonatology, KK women and children hospital Singapore

Background/Aim:

The prognosis of preterm infants has improved considerably over recent decades. While outcomes of extremely preterm infants born at less than 28 weeks gestation are well studied, data on very preterm (VP) infants born 28-32 weeks remain limited. Bronchopulmonary dysplasia (BPD) represents a significant morbidity in this cohort. This study investigates risk factors for moderate-to-severe BPD and associated neonatal outcomes in this population

Methods:

A single-center retrospective study was conducted between January 2020 to December 2022. A total of 240 neonates were stratified using the NICHD 2001 BPD classification into Group A (moderate/severe BPD; n=71, 29.6%) and Group B (no/mild BPD; n=169, 70.4%)

Results:

Group A was characterized by significantly lower gestational age (mean difference -0.88 weeks; $P<0.001$), lower birthweight (mean difference -287g; $P<0.001$), and with lower APGAR score ≤ 6 at 5mins (OR 4.51; $P=0.019$). Group A had, higher rate of intubation at birth (OR 2.68; $P=0.007$), and higher respiratory distress syndrome (OR 4.86; $P=0.004$). They demonstrated greater respiratory support requirements across all modalities. Gastrointestinal morbidity was also significantly higher, including longer total parenteral nutrition duration (OR 3.41; $P<0.001$), later achievement of full enteral feeds, and higher incidence of gastroesophageal reflux (OR 5.20; $P<0.001$) and tube feeding at discharge (OR 4.78; $P<0.001$). Hemodynamically significant Patent ductus arteriosus needing treatment was more prevalent in Group A (OR 4.78; $P<0.001$). Group A had a longer length of stay (mean difference 42.9 days; $P<0.001$) and greater NICU utilization. No significant differences were observed in necrotizing enterocolitis, intraventricular hemorrhage, retinopathy of prematurity, or sepsis.

Conclusion:

Moderate-to-severe BPD confers substantial multisystem clinical burden in VP infants born at 28 32 weeks. Further research is needed to optimize prevention and management strategies in this population.

FIFTEEN-YEAR REVIEW OF ANTENATAL AND POSTNATAL CONGENITAL DIAPHRAGMATIC HERNIA (CDH) IN A PAEDIATRIC TERTIARY CENTRE IN SINGAPORE

TAN Y.R.L.¹, DR TAN V.K.J.², DR CHUA M.C.³, DR AMUDHA J.A.⁴

¹ Department of Paediatric Medicine, Senior Resident, KK Women's and Children's Hospital, Singapore

² Department of Obstetrics & Gynaecology, Senior Consultant, KK Women's and Children's Hospital, Singapore

^{3,4} Department of Neonatology, Senior Consultant, KK Women's and Children's Hospital, Singapore

Introduction:

Congenital diaphragmatic hernia (CDH) is a birth defect associated with significant mortality and morbidity. The aim of this study is to characterize outcomes of CDH in a tertiary centre.

Materials and Methods:

A retrospective audit was conducted on CDH cases managed in KK Women's and Children's Hospital between 2011 and 2026. Data regarding demographic information, maternal and neonatal risk factors, post-surgical outcomes and complications were collected. Information was obtained through the hospital's electronic medical records.

Results:

There were 74 liveborn patients, of whom 54/74(72.9%) were inborn. There were 60 neonates (CDH-NEO), of which 39/74(52.7%) were diagnosed antenatally, and 21/74(28.3%) were diagnosed during neonatal period. Remainder 14/74(18.9%) were diagnosed beyond neonatal period (CDH-POST). Left-sided lesions were noted in 62/74(83.7%).

Pre-operatively amongst CDH-NEO, 33/60(55%) had persistent-pulmonary-hypertension-of-the-newborn(PPHN), of whom 3 required extracorporeal-membrane-oxygenation(ECMO). Ten neonates (10/60,16.7%) demised before surgery. Surgery was performed at mean age of 6.3 days(± 5.3). Overall, 42/60(70%) survived. Amongst CDH-POST, 13/14(92.8%) underwent surgery uneventfully, and all survived.

Post-operatively: CDH-NEO cohort compared to CDH-POST cohort had longer mean ventilation period (11.0 days, ± 14.5 vs. 1.23 days, ± 0.60) and longer hospitalization period (38.2 days, ± 54.3 vs. 6.07 days ± 1.71). CDH-NEO cohort also had post-surgical complication rates in 18/50(36%), including 6/50(12%) requiring ECMO.

On discharge, 13/42(31%) of CDH-NEO survivors required tube feeding, and 4/42(9.5%) required respiratory support. No CDH-POST survivors required homecare support. On follow up, 7/42(16.7%) of CDH-NEO survivors had developmental delay, 4/42(9.5%) had growth restriction, and 9/42(21.4%) re-attended for wheeze.

Conclusion:

Late presentation beyond the neonatal period occurred in a significant proportion of cases, highlighting the risk of missed/delayed diagnosis despite advances in antenatal screening. Overall survival in the neonatal period was 70% and comparable to other centres. These findings provide valuable information for patient counselling, better reflecting the spectrum of disease severity, whilst reinforcing the importance of postnatal vigilance.



STUDY TO EVALUATE THE USE OF THE BEHAVIORAL SIGNS OF RESPIRATORY INSTABILITY (BSRI) SCALE IN TRACKING RESPIRATORY STABILITY IN BABIES WITH BRONCHOPULMONARY DYSPLASIA (BPD) IN SINGAPORE

ONG LJR, BASKARAN D, LAM TJY, TAN YH, CHEN SQ, CHOO JTL, KONG K, QUEK BH

¹Physiotherapy Department, KKH, Singapore

²Occupational Therapy Service, KKH, Singapore

³Physiotherapy Department, KKH, Singapore

⁴Respiratory Service, KKH, Singapore

⁵Neonatal Intensive Care Unit, KKH, Singapore,

⁶Cardiology Service, KKH, Singapore

⁷Nutrition and Dietetics, KKH, Singapore

⁸Neonatology, KKH, Singapore

Background/Aim:

Bronchopulmonary dysplasia (BPD) is a common morbidity in preterm infants requiring prolonged respiratory support and multidisciplinary early intervention. To objectively assess an infant's respiratory stability during therapy sessions, our NICU adopted the Behavioral Signs of Respiratory Instability (BSRI) scale. The BSRI evaluates five domains—interaction, midline control, extension, tachypnea, and work of breathing—each scored from 0–2, yielding a total score out of 10, with higher scores indicating greater respiratory stability. We aimed to describe BSRI trajectories in infants with moderate-to-severe BPD and explore associations between BSRI progression and clinical factors including gestational age, tracheostomy, cystic BPD, and persistent pulmonary hypertension of the newborn (PPHN).

Methods:

We retrospectively reviewed 49 infants with moderate-to-severe BPD admitted between October 2024 and October 2025. Corrected ages (CA) were rounded to the nearest month. BSRI scores collected during physiotherapy and occupational therapy sessions were analysed longitudinally. Associations between BSRI progression and clinical characteristics, including gestational age, tracheostomy, cystic BPD, and PPHN, were examined.

Results:

Forty-five infants (92%) had at least one BSRI assessment; four had no assessments due to severe instability and early mortality. Initial BSRI scores ranged from 3–9 (median 7), while final scores ranged from 6–10 (median 8). BSRI assessments commenced from early infancy and demonstrated progressive improvement with increasing corrected age. By 6 months CA, most infants achieved BSRI scores ≥ 7 , and by 12 months CA many attained the maximum score of 10. Lower gestational age infants generally demonstrated lower initial BSRI scores but showed substantial improvement over time, with trajectories approaching those of more mature infants during follow-up.

Five infants (10%) required tracheostomy for prolonged ventilatory support. These infants demonstrated lower early BSRI scores, typically ranging from 5–7 during the first 3 months CA, but exhibited steady gains over time, with one infant achieving BSRI 10 by 12 months CA. Two infants (4%) had cystic BPD; despite severe pulmonary disease, both ultimately achieved BSRI 10 by 5–12 months CA. Approximately 30% of the cohort had PPHN and demonstrated lower BSRI scores during the neonatal period, although subsequent improvements were comparable to infants without PPHN.

Conclusion:

BSRI was a feasible and informative tool for monitoring respiratory stability during therapy sessions in infants with moderate-to-severe BPD. Scores improved consistently with corrected age across all clinical subgroups, supporting BSRI's responsiveness to developmental and respiratory recovery. Although infants with lower gestational age, tracheostomy, cystic BPD, and PPHN demonstrated poorer initial respiratory stability, substantial longitudinal improvements were observed with ongoing intensive care and early intervention. These findings support the utility of BSRI as an objective outcome measure within interdisciplinary BPD care and suggest that even infants with severe respiratory disease can achieve near-normal respiratory stability over time. Future studies should evaluate BSRI against established respiratory severity measures and explore its predictive validity for long-term outcomes.



Sustainability:

The BSRI scale has been incorporated into routine physiotherapy and occupational therapy assessments within our NICU, making continued data collection feasible without additional equipment or significant resource investment. As BSRI scoring is performed during standard therapy sessions, it imposes minimal burden on clinicians while providing objective longitudinal data on respiratory stability and functional progression. The project supports sustainable quality improvement by enabling ongoing monitoring of infants with moderate-to-severe BPD, facilitating early identification of those requiring additional intervention and allowing benchmarking of outcomes over time. Future expansion of BSRI use across multidisciplinary neonatal care teams and integration into electronic clinical records could further enhance its utility for clinical decision-making, service evaluation, and research. Continued prospective data collection will strengthen local normative data and support validation of BSRI as a meaningful outcome measure in high-risk neonatal populations.

OUTCOMES OF DONOR HUMAN MILK ON VARIOUS PARAMETERS IN PRETERM NEONATES ADMITTED TO NICU: A RETROSPECTIVE STUDY

SHAH V A, L ERENO I, NG M

Singapore General Hospital, Neonatal and Developmental Medicine

Background/Aim:

The introduction of Pasteurized Donor Human Milk (PDHM) has revolutionised neonatal care, for vulnerable preterm infants without access to their own mother's milk. In August 2017, the KK Human Milk Bank (KKHMB), Singapore's first and only human breast milk bank, was established, granting infants across Singapore access to PDHM. Studies have yet to evaluate the short and long term outcomes of preterm infants since the introduction of PDHM in Singapore.

Methods:

This retrospective cohort study included infants born at <33 weeks' gestation and/or with birth weight <1500 g at Singapore General Hospital between 2012 and 2022. Outcomes were compared between infants born before and after the introduction of PDHM in August 2017. Primary outcomes included necrotising enterocolitis, retinopathy of prematurity, chronic lung disease, late-onset sepsis, patent ductus arteriosus, intraventricular haemorrhage, and mortality. Secondary outcomes included time to regain birth weight, time to full enteral feeds, length of hospital stay and growth parameters. Appropriate univariate tests were performed, with statistical significance defined as $p < 0.05$.

Results:

A total of 806 infants were included, comprising 431 infants in the pre-PDHM cohort and 375 in the post-PDHM cohort. Compared with the pre-PDHM cohort, post-PDHM infants had lower rates of NEC $\geq$ Stage 2 (1.3% vs 3.7%, $p = 0.034$), late-onset sepsis (16.8% vs 24.1%, $p = 0.010$) and PDA (34.4% vs 41.5%, $p = 0.038$). Post-PDHM infants also regained birth weight earlier (median 18 vs 24 days, $p < 0.001$) and achieved full enteral feeds earlier (median day of life 21 vs 25, $p = 0.002$).

Conclusion:

The introduction of PDHM was associated with lower rates of NEC, late-onset sepsis and PDA, and earlier attainment of feeding milestones among very preterm and very low birth weight infants.

Sustainability:

Introduction of PDHM into neonatal feeding protocols provides a sustainable strategy to improve outcomes for vulnerable preterm infants when own mother's milk is insufficient.

Sustainability:

The BSRI scale has been incorporated into routine physiotherapy and occupational therapy assessments within our NICU, making continued data collection feasible without additional equipment or significant resource investment. As BSRI scoring is performed during standard therapy sessions, it imposes minimal burden on clinicians while providing objective longitudinal data on respiratory stability and functional progression. The project supports sustainable quality improvement by enabling ongoing monitoring of infants with moderate-to-severe BPD, facilitating early identification of those requiring additional intervention and allowing benchmarking of outcomes over time. Future expansion of BSRI use across multidisciplinary neonatal care teams and integration into electronic clinical records could further enhance its utility for clinical decision-making, service evaluation, and research. Continued prospective data collection will strengthen local normative data and support validation of BSRI as a meaningful outcome measure in high-risk neonatal populations.

OUTCOMES OF DONOR HUMAN MILK ON VARIOUS PARAMETERS IN PRETERM NEONATES ADMITTED TO NICU: A RETROSPECTIVE STUDY

SHAH V A, L ERENO I, NG M

Singapore General Hospital, Neonatal and Developmental Medicine

Background/Aim:

The introduction of Pasteurized Donor Human Milk (PDHM) has revolutionised neonatal care, for vulnerable preterm infants without access to their own mother's milk. In August 2017, the KK Human Milk Bank (KKHMB), Singapore's first and only human breast milk bank, was established, granting infants across Singapore access to PDHM. Studies have yet to evaluate the short and long term outcomes of preterm infants since the introduction of PDHM in Singapore.

Methods:

This retrospective cohort study included infants born at <33 weeks' gestation and/or with birth weight <1500 g at Singapore General Hospital between 2012 and 2022. Outcomes were compared between infants born before and after the introduction of PDHM in August 2017. Primary outcomes included necrotising enterocolitis, retinopathy of prematurity, chronic lung disease, late-onset sepsis, patent ductus arteriosus, intraventricular haemorrhage, and mortality. Secondary outcomes included time to regain birth weight, time to full enteral feeds, length of hospital stay and growth parameters. Appropriate univariate tests were performed, with statistical significance defined as $p < 0.05$.

Results:

A total of 806 infants were included, comprising 431 infants in the pre-PDHM cohort and 375 in the post-PDHM cohort. Compared with the pre-PDHM cohort, post-PDHM infants had lower rates of NEC $\geq$ Stage 2 (1.3% vs 3.7%, $p = 0.034$), late-onset sepsis (16.8% vs 24.1%, $p = 0.010$) and PDA (34.4% vs 41.5%, $p = 0.038$). Post-PDHM infants also regained birth weight earlier (median 18 vs 24 days, $p < 0.001$) and achieved full enteral feeds earlier (median day of life 21 vs 25, $p = 0.002$).

Conclusion:

The introduction of PDHM was associated with lower rates of NEC, late-onset sepsis and PDA, and earlier attainment of feeding milestones among very preterm and very low birth weight infants.

Sustainability:

Introduction of PDHM into neonatal feeding protocols provides a sustainable strategy to improve outcomes for vulnerable preterm infants when own mother's milk is insufficient.

COST-UTILITY OF MATERNAL AND NEONATAL SCREENING STRATEGIES FOR CONGENITAL CYTOMEGALOVIRUS IN SINGAPORE

GAN T,¹ LEE LY², YAO Y¹

¹*School of Public Health, Fudan University, Shanghai, China*

²*Singapore Paediatric Care for Kids, Singapore*

Background/Aim:

Congenital cytomegalovirus (cCMV) can cause lifelong hearing and neurodevelopmental sequelae, yet routine cCMV screening is not implemented in Singapore. Existing economic evaluations have often focused on hearing outcomes, compared a limited range of screening strategies, or were developed outside the local healthcare context. We evaluated no screening, maternal screening, hearing-targeted neonatal screening, and universal neonatal screening incorporating long-term hearing and neurodevelopmental outcomes in a Singapore-specific model.

Methods:

We modelled an annual Singapore birth cohort of 29,864 newborns from the healthcare-system perspective. A decision tree simulated screening, diagnosis and antiviral treatment under no screening, maternal serology with prenatal valacyclovir, targeted neonatal polymerase chain reaction (PCR) testing after failed newborn hearing screening, and universal neonatal PCR screening. Terminal health states entered a 20-year Markov model of hearing status, cochlear implantation and mortality. A neurodevelopmental impairment (NDI) module included cerebral palsy, autism spectrum disorder, epilepsy and visual impairment, accounting for comorbidity. Short-term costs followed decision-tree pathways, while long-term costs accrued by Markov states and transitions, with NDI effects modelled separately. Costs and quality-adjusted life-years (QALYs) were discounted at 3%.

Results:

Compared with no screening, hearing-targeted screening gained 13.405 QALYs at an additional S\$582,853 per annual cohort (incremental cost-effectiveness ratio [ICER]: S\$43,479/QALY). Maternal screening was more costly and less effective than hearing-targeted screening. Universal neonatal screening gained an additional 3.819 QALYs beyond hearing-targeted screening but had a sequential ICER of S\$1,227,088/QALY, above the S\$50,000/QALY willingness-to-pay threshold.

Conclusion:

Hearing-targeted neonatal cCMV screening was the most cost-effective active strategy. It offers a practical route to earlier diagnosis and treatment while avoiding the costs of universal testing.

Sustainability:

Targeted PCR after a failed newborn hearing screen can build on existing clinical pathways, limit additional testing and support scalable implementation.

A RARE CASE OF SCURVY IN A DEVELOPED COUNTRY

TAN WR, JEYANTHI CJ, LER GYL

General Paediatrics, KK Women's and Children's Hospital, Singapore

Introduction:

Scurvy is a historical disease resulting from vitamin C deficiency that is uncommon in the modern era. In developed countries, it is most often seen in children with neurodevelopmental disorders, malabsorption, or highly restrictive diets. Its presentation is often non-specific, with musculoskeletal, cutaneous, dental and systemic manifestations. Although gingival and cutaneous findings are classically associated with scurvy, they may be absent, making diagnosis challenging. Due to its rarity and variable presentation, scurvy is often overlooked, resulting in delayed diagnosis and unnecessary investigations.

Case presentation:

We report a case of a 2-year-old girl who presented with a one-month history of atraumatic bilateral lower limb pain and refusal to weight-bear. She was developmentally appropriate but had a highly restrictive diet consisting predominantly of carbohydrates and fresh cow's milk, with minimal fruit and vegetable intake. Neurological, musculoskeletal and systemic examinations were unremarkable. Blood investigations revealed severe anaemia (haemoglobin 6.0 g/dL) with iron and folate deficiency. Inflammatory markers, markers of high cell turnover, bone profile (calcium, phosphate, alkaline phosphatase and vitamin D), lower limb radiographs and hip ultrasound were unremarkable. Bone marrow aspiration was performed to evaluate for malignancy in view of her symptoms and severe anaemia but was negative. Magnetic resonance imaging of the lower limbs subsequently demonstrated findings consistent with hypovitaminosis C. Plasma vitamin C levels were pending at the time of reporting. She was treated with intravenous vitamin C for one week followed by oral supplementation, together with multivitamins, iron and folic acid. Her symptoms improved rapidly following vitamin C supplementation.

Conclusion:

Although rare, scurvy should be considered in children with highly selective eating habits presenting with leg pain and refusal to walk, even when classical mucocutaneous features are absent. Early recognition is crucial to avoid unnecessary investigations, and treatment with ascorbic acid leads to rapid clinical improvement, making scurvy a readily treatable condition.

VALIDATING CORD BLOOD THYROXINE STIMULATING HORMONE AND SEVERITY OF HYPOXIC ISCHEMIC ENCEPHALOPATHY IN NEONATES

TAN F.L¹, KRISHNAN SG¹, VISRUTHAN N.K¹, V.S RAJADURAI¹, GOPAGONDANAHALLI K.R¹

¹Department of Neonatology, KK Women's and Children's Hospital, Singapore.

Background/Aim:

Perinatal asphyxia with impaired cerebral blood flow and oxygen delivery results in Hypoxic Ischemic Encephalopathy (HIE) in neonates with significant short and long term adverse outcomes.¹ Asphyxiated newborns demonstrate variability in the extent of HIE. Thyroid stimulating hormone (TSH) and T4 at 18-24 hours correlates with encephalopathy and mortality risk, suggesting that thyroid dysfunction may serve as a biomarker of severity.²⁻⁹ However, there have been no studies to ascertain the relevance of cord TSH in severity of HIE. This study investigates the correlation between cord TSH and HIE severity.

Methods:

Single-centre retrospective audit of infants born ≥ 35 weeks' gestation with HIE who underwent whole body cooling between January-2021 to December-2025. Infants with major congenital anomalies or malformations were excluded. Classification of HIE was using Thompson scoring (≤ 10 -mild, 11-14-moderate, ≥ 15 -severe). Cord TSH were compared between the three groups.

Results:

29 infants who underwent whole body cooling were included. Mean gestational age was 38.4 ± 1.5 weeks, mean birth weight was 3084.0 ± 402.0 grams.

Seventeen (58.6%) of our cohort had mild HIE, 8 (27.6%) had moderate HIE and 4 (13.8%) had severe HIE. Our cohort had male dominance, 18 (62.1%) male. 20 infants (69.0%) are delivered by caesarean section. Two infants (6.9%) died due to severe HIE. One-way ANOVA analysis showed that cord arterial lactate was significantly different between mild and moderate (11.12 ± 4.07 vs 17.35 ± 4.24 , $p=0.01$), although not statistically significant between mild and severe, (11.12 ± 4.07 vs 12.2 ± 4.49 , $p=0.16$), and moderate vs severe (17.35 ± 4.24 vs 12.2 ± 4.49 , $p=0.89$).

Cord TSH was significantly different between mild and moderate HIE (11.21 ± 8.51 vs 33.44 ± 31.80 , $p=0.02$), although not statistically significant between moderate and severe HIE (33.44 ± 31.81 vs 10.49 ± 9.33 , $p=0.12$), and mild and severe HIE (11.21 ± 8.51 vs 10.49 ± 9.33 , $p=1.0$). Thyroxine replacement was needed in one infant (3.4%), who had severe HIE.

Conclusion:

Cord TSH differed across HIE severity, and larger prospective studies are needed to evaluate cord TSH as a surrogate marker of severity of HIE.

Sustainability:

The study findings are replicable and sustainable.



ESTABLISHMENT OF A NEW INTERDISCIPLINARY BRONCHOPULMONARY DYSPLASIA MEETING IN A TERTIARY CHILDREN'S HOSPITAL

CHU SI HUI¹, TAN YEE YIN¹, GENEVIEVE VILLABLANCA LLANORA¹, JANE SNG SWEE PENG², FENG JIANFEN², CHEN SI QI², ONG CHENGSI³, LINDSEY JEAN ROSS ONG⁴, TRICIA LAM JIE YING⁴, CHIA YI TING⁵, CHEN YU HUI⁵, SAY GUI YU PAMELA⁵, DONABEL BASKARAN⁶, FOO CE YU⁶, POON SZE MIN JASMINE⁶, ONG JING WEN², JOAN CHER YUAN LIN², LIM HUI KOON⁷, LAKSHMI D/O SHANDRA BOS⁷, ALICIA MAY LIM¹, JONATHAN CHOO TZE LIANG⁸, CHENG DUO-TONG⁹, TAN YI HUA⁹, QUEK BIN HUEY¹

Department of Neonatology¹

Neonatal Intensive Care Unit²

Department of Nutrition and Dietetics³

Physiotherapy Department⁴

Speech Language Therapy Service⁵

Occupational Therapy Services⁶

Nursing Clinical Services⁷

Cardiology Service⁸

Respiratory Medicine Service⁹

KK Women's and Children's Hospital

Background:

Advances in neonatal care have improved survival rates among extremely preterm infants, increasing the prevalence and complexity of bronchopulmonary dysplasia (BPD). Optimal management of severe BPD requires coordinated input across neonatology, pulmonology, cardiology, nutrition, and allied health. Despite this, structured interdisciplinary meetings for BPD remain uncommon in many centres. In response, we established a dedicated interdisciplinary BPD meeting at our tertiary children's hospital in September 2024.

Objective:

To describe the patient population, referral patterns, and downstream management changes arising from the interdisciplinary BPD meeting over its initial duration of operation.

Methods:

We conducted a retrospective review of all patients discussed at the BPD meeting between September 2024 and May 2026. Meetings were convened twice monthly. Demographic and clinical data were collected alongside details on management recommendations and patient outcomes. Descriptive statistics were used to characterise the cohort.

Results:

77 patients were reviewed over 40 meetings. 52 patients (67%) were born at less than 28 weeks gestation. All (100%) had severe BPD. 9 patients (13%) eventually required tracheostomy. 62 patients (81%) were referred for follow-up in the Neonatal homecare clinic, while 10 patients (13%) remained inpatient at the time of review. 14 patients (10%) were weaned off ventilatory support and did not require homecare follow up. Three patients died, one prior to neonatal intensive care unit discharge and two following discharge. Following interdisciplinary review, clinical management was modified in 72 cases (94%), including changes to respiratory support, pharmacotherapy, nutritional targets, and developmental follow-up plans. No significant demographic predictors of management change were identified.

Conclusion:

A dedicated interdisciplinary BPD meeting is feasible and clinically impactful in a tertiary paediatric setting, with high rates of management change following review. These findings support the broader adoption of structured multidisciplinary models for complex neonatal respiratory conditions. Future work should evaluate longer-term clinical outcomes and family-reported experience.



BREAST MILK SINGLE-CELL REPORTING (BMSR) FRAMEWORK FOR BREAST MILK CELL ATLAS STUDIES

CHAN MING^A, BHANAVI BAHL^B, KIMBERLY FOO^B, LOW JIA MING^{C, D}

^A Department of Nursing, Changi General Hospital, Singapore

^B Yong Loo Lin School of Medicine, National University of Singapore, Singapore

^C Department of Neonatology, Khoo Teck Puat – National University Children's Medical Institute, National University Hospital, Singapore

^D Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background/Aim:

Human breast milk scRNA-seq has substantially advanced understanding of the breast milk cellular landscape. We systematically reviewed human breast milk scRNA-seq studies to evaluate methodological approaches, consolidate biological insights, and develop the Breast Milk Single cell Reporting (BMSR) Framework to promote standardized reporting of future breast milk single-cell atlas studies.

Methods:

A systematic search of PubMed, Embase, Web of Science, and Google Scholar was performed. Data were extracted on study design, bioinformatic analyses, biological findings, and reporting practices. Methodological domains identified across the literature and additional elements considered essential for reproducibility, transparency, and biological interpretation were synthesized into the BMSR Framework, which was applied to all included studies.

Results:

Of 289 records identified, 16 articles underwent full-text review and 10 studies met the inclusion criteria. Across studies, lactocytes consistently represented the predominant population, while macrophages and T cells were the principal immune cell populations. Longitudinal studies demonstrated dynamic epithelial remodeling and increasing immune heterogeneity throughout lactation, including specialized lactocyte states, T-cell subsets, and associations between cellular composition and maternal characteristics. Application of the BMSR Framework demonstrated consistently high reporting of lactation stage, milk collection and processing protocols, sequencing methodologies, quality-control metrics, computational pipelines, and experimental validation (10/10 studies). Cell isolation procedures and sample viability were reported in 9/10 studies, participant characteristics in 8/10, whereas only 5/10 studies made raw sequencing data publicly available.

Conclusion:

The proposed BMSR Framework synthesizes current methodological best practices into a structured reporting standard for future breast milk single-cell atlas studies.

Sustainability:

As breast milk single-cell datasets continue to expand, the BMSR Framework has the potential to support harmonized reporting, reproducibility, and integration of future breast milk single-cell atlas studies.

CLINICAL AND NEUROPSYCHOLOGICAL CORRELATES WITH GENETIC TESTING IN CHILDREN WITH NEURODEVELOPMENTAL DISORDERS

KONG PEK YAN¹, LOW WEI SHENG¹, SYLVIA KAM PEI RONG², VIDYA RAMASAMY³, RASHMI MITTAL³, PRATIBHA AGARWAL³, SAUMYA SHEKHAR JAMUAR², WONG CHUI MAE³, SANDRA MASCARENHAS³

¹Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

²Genomic Medicine, KK Women's and Children's Hospital, Singapore

³Department of Child Development, KK Women's and Children's Hospital, Singapore

Background/Aim:

Chromosomal microarray (CMA) and whole exome sequencing (WES) are recommended for genetic testing in children with neurodevelopmental disorders (NDD). This study investigates the diagnostic yield of genetic testing, and explores associations between developmental, clinical and neuropsychological profiles, and the presence of pathogenic genetic variants.

Methods:

A retrospective medical records review of 107 children with NDD who underwent genetic testing at a tertiary Developmental and Behavioural Paediatrics service from 2014-23 was conducted. Genetic results were classified as benign, pathogenic, or variants of uncertain significance (VUS). Data on demographics, clinical features, developmental profile at presentation (Ages and Stages Questionnaires; ASQ-3), cognitive ability (Wechsler Preschool and Primary Scale of Intelligence; WPPSI or Stanford-Binet Intelligence Scales; SB-5) and adaptive skills (Vineland Adaptive Behaviour Scales; Vineland-3), were analysed using chi-square tests.

Results:

Mean age of the study cohort was 2.81±0.86 years, 71 (66.4%) were males, and 56 (52.3%) Chinese. 57(53.3%) had autism, 27.9% had dysmorphic facial features, 13.9% microcephaly, 3.0% macrocephaly, and 17.6% had major congenital anomalies. 99 underwent CMA and 27 underwent WES. 26 (24.3%) had a pathogenic genetic result on either CMA or WES with the diagnostic yield on WES higher (44.4%) compared to CMA (13.9%). The pathogenic variant group was more likely to have dysmorphic facial features (44.0% vs 22.8%, $\chi^2=4.250$, $p=0.038$) and abnormal ASQ Gross Motor domain scores at presentation (83.3% vs 38.9%, $\chi^2=10.667$, $p=0.001$). No significant associations were found between pathogenic variants and demographic variables, NDD diagnosis, presence of congenital anomalies, microcephaly, macrocephaly, other ASQ domains, intellectual disability and adaptive scores.

Conclusion:

Our findings support WES as a first-tier diagnostic tool in the genetic evaluation of children with NDD. The presence of dysmorphic facial features and/or significant gross motor delay may serve to indicate a higher likelihood of a pathogenic variant on genetic screening.

Sustainability:

These results are repeatable in clinical genetic testing workflows using WES and CMA for children with NDDs in South-East Asian contexts. Implementing WES as a first tier genetic test, given the higher yield compared to CMA, could open the potential for early genetic diagnosis.

STREAMLINING THE GOLDEN HOUR: IMPACT OF A STRUCTURED MULTIDISCIPLINARY WORKFLOW FOR PRETERM INFANTS

ALMAHROUQI N, ARORA P, KADER KA, CHINNADURAI A

Department of Neonatology, National University Hospital, Singapore

Background/Aim:

Traditional preterm resuscitation often suffers from practice variations, fragmented communication and procedural delays that may compromise physiological stabilization during the first hour of life. Standardizing multidisciplinary team roles and clinical pathways during the Golden Hour (GH) is essential to optimize early stabilization and improve adherence to evidence-based interventions. We evaluated whether implementation of a standardized multidisciplinary GH workflow improved completion of five key evidence-based interventions in preterm infants requiring intensive care at birth.

Methods:

This quality improvement initiative introduced a comprehensive GH bundle incorporating standardized team communication and workflow redesign. Key interventions included: (1) a structured pre-birth briefing to assign clinical roles and anticipate complications; (2) protocolized delivery room resuscitation with a scheduled 10-minute time-out; (3) streamlined NICU nursing protocols; (4) a four-scenario procedural guide directing vascular access according to clinical presentation; and (5) a multidisciplinary post-care debrief.

Results:

Compliance to the key interventions was (1) Pre-birth briefing 71/72(99%), (3) NICU nursing protocols 72/72(100%), (4) four-scenario procedural guide 72/72(100%) and (5) Debriefing 72/72(100%).

Compliance to (2) protocolized delivery room resuscitation with proper documentation was found to be 6/17 (35%) in an audit spanning 3 months from October to December 2025. Reminders to improve compliance were done, and positive impact is seen in a repeat 3-month audit from March to May 2026 with rates of 10/13 (77%).

Implementation was associated with improved completion of key GH components. Success rates in 2025 respectively were: avoidance of hypothermia 98%, normocapnia 83%, normal oxygenation 92% surfactant delivery 100% and antibiotic administration within the first hour 84%.

Conclusion:

A structured multidisciplinary GH workflow improved consistency of care delivery and sustained high compliance with essential physiological and therapeutic interventions in extremely preterm infants.

Sustainability:

Sustainability is supported through standardized protocols, simulation-based staff training, regular multidisciplinary audit, structured feedback and continuous refinement of the GH workflow.



COMPETING HEMODYNAMICS IN A NEONATE WITH VACTERL ASSOCIATION AND INCOMPLETE SHONE COMPLEX: A MANAGEMENT CHALLENGE

ARIDAS MS, OOI BS, GOPAGONDANAHALLI KR

¹*Department of Neonatology, KK Women's and Children's Hospital, Singapore*

²*Department of Neonatology, KK Women's and Children's Hospital, Singapore*

³*Department of Neonatology, KK Women's and Children's Hospital, Singapore*

Background:

Shone's complex is a rare congenital cardiac anomaly involving left sided inflow and outflow obstruction. Clinical outcomes are often determined not just by the anatomical burden of obstruction but also by dynamic haemodynamic interactions between coexisting pathologies.

Case presentation:

We report a late preterm neonate with VACTERL association diagnosed postnatally with incomplete Shone complex, including a parachute mitral valve, borderline left ventricle, hypoplastic aortic arch with coarctation physiology, and multiple septal defects. The initial haemodynamic profile was dominated by duct-dependent systemic outflow obstruction, necessitating early aortic arch reconstruction. Subsequently, progressive mitral stenosis led to worsening pulmonary congestion, requiring mitral valve repair. The postoperative course was complicated by complete heart block, low cardiac output state, and the need for extracorporeal membrane oxygenation (ECMO) support.

Conclusion:

This case highlights the importance of recognising Shone complex as a dynamic haemodynamic condition. Early prioritisation of outflow obstruction and vigilant reassessment of mitral valve pathology are crucial for optimising outcomes.

FROM FRIDGE TO FEEDS

HIANG YY, LIM YY, TAN WL, LEE WY, CHER LH, AW YONG A, PHOA HP.

Ward 86, KK Woman's and Children's Hospital.

Background/Aim:

This project aimed to improve the efficiency of the expressed breast milk (EBM) preparation and warming process by streamlining existing workflows, while empowering parents to take an active and participatory role in their child's hospitalised care.

Methods:

A caregiver-led expressed breast milk (EBM) workflow was established, combining nursing orientation with parent-led preparation and warming of EBM. This workflow was implemented upon patient admission. Caregivers completed a postdischarge survey comprising five questions evaluating satisfaction, safety, and convenience. Ward nurses were also surveyed to assess the workflow's efficiency and its impact on nursing workload.

Results:

Eight parents and 20 nurses participated in the study. Implementation of the caregiver-led workflow resulted in a 50% reduction in nursing time spent on EBM-related tasks, decreasing to approximately 10 minutes per patient.

Among caregivers, 87% perceived the workflow to be safe, while 100% reported ease of access to their child's EBM storage, greater convenience compared to waiting for nurses to warm EBM, and overall satisfaction with the process. Among nurses, 100% agreed that the new workflow was more efficient than the previous process, with 80% strongly agreeing. Additionally, 20% of nurses reported time savings exceeding 30 minutes on EBM-related activities, demonstrating a meaningful reduction in nursing workload.

Conclusion:

The caregiver-led expressed breast milk (EBM) workflow improved nursing efficiency while maintaining high levels of perceived safety and caregiver satisfaction. By reallocating appropriate EBM-related tasks to caregivers, nurses were able to reduce time spent on routine and focus on their clinical responsibilities. Caregivers were concurrently empowered to participate confidently in their child's care, supporting a more family-centred and sustainable model of care.

Sustainability:

The workflow is sustainable as it integrated into routine admission education and requires minimal ongoing nursing input. It's simple, low-cost design supports long-term maintenance and scalability across other wards.

PSYCHOSOCIAL CHALLENGES OF YOUNG ADOLESCENT PREGNANCY: INSIGHTS FROM KIDSTART@ KKH KIDS 0-3 PROGRAMME

LEE, C.S.L¹, SENARI, N¹, CHAN, Q.R¹, CHEN, J¹, VIKNESHAN, K.S¹, THNG, M.F.E¹

¹KIDS 0-3, KK Women's and Children's Hospital, Singapore

Background/ Aim:

Pregnancy among young adolescents aged 13 to 16 years is associated with significant medical, psychosocial, and developmental risks. Physical and psychological immaturity, compounded by social vulnerability, place this population as one of the most at-risk groups in maternal and child health. Young adolescent pregnancy frequently occurs against a backdrop of Adverse Childhood Experiences (ACEs) that influence both pregnancy circumstances and long-term outcomes.

Methods:

A retrospective review was conducted on 36 adolescent mothers aged 13 to 16 years enrolled between 2023 and 2026. Data on psychosocial risk factors, ACEs, maternal outcomes and early infant developmental indicators were analysed descriptively.

Results:

The cohort demonstrated a high burden of psychosocial adversity, including mental health challenges, financial hardship, household dysfunction and history of sexual abuse. Despite these challenges, maternal and infant outcomes were positive; almost all pregnancies reached term, infants had healthy birth weights, and early developmental screening of infants at two and four months were largely age appropriate.

Conclusion:

These findings underscore the importance of early identification and trauma-informed multidisciplinary care. With coordinated and holistic support across healthcare and social services, young adolescent mothers with significant ACEs can be empowered to provide nurturing care for their children and break the intergenerational cycle of adversity.

Sustainability:

The KIDS 0-3 Programme is an integrated health and social system of care aimed at optimising the developmental potential of children from vulnerable families. The programme adopts a preventive, strengths-based approach, providing support through regular home visits tailored to each family's needs. These findings suggest that early, trauma-informed, and integrated interventions can buffer the adverse effects of ACEs in young adolescent mothers. Importantly, sustained support beyond the perinatal period is critical to ensuring that children are raised in safe and stable environments, which are strongly associated with improved cognitive, behavioural, and long-term health trajectories.



PERSPECTIVES OF PARENTS ABOUT THEIR PRESENCE DURING BEDSIDE PROCEDURES PERFORMED ON CHILDREN: A SYSTEMATIC REVIEW

TEO TJY¹, FARIS AKBAR M¹, XU S¹, VALDEPENAS AH¹ AMIN Z^{2,3}, NG YNPM^{2,3}

¹ National University of Singapore Yong Loo Lin School of Medicine, Singapore

² Department of Neonatology, Khoo Teck Puat - National University Children's Medical Institute National University Hospital, Singapore

³ Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore

Background:

Invasive medical procedures cause significant distress and anxiety for paediatric patients, which can be meaningfully alleviated by parental presence. We synthesised parents' perspectives regarding their presence during bedside invasive procedures performed on their children.

Methods:

We performed a PRISMA-compliant systematic review (PROSPERO: CRD420251117347) searching PubMed, CINAHL, PsycINFO, and Embase on March 2026. We conducted narrative synthesis guided by the European Social Research Council.

Results:

Twenty-one studies were included: 15 cross-sectional surveys, 3 qualitative interview studies, 4 randomised controlled trials, and 1 quasi-experimental study. Across settings and cultures, an overwhelming majority of parents (78–98%) expressed a desire to be present, driven primarily by the need to comfort their child, fulfil perceived parental obligations, and gain a sense of control. Parental anxiety was significantly lower in parents present compared to those who were absent. Satisfaction was uniformly higher among parents permitted to be present. Parental presence did not adversely affect clinician performance. Barriers included emotional inability to witness the child's pain, being actively prevented by healthcare providers, and inadequate preparation and support.

Conclusion:

There is a universal desire among parents to be present during their child's invasive procedures. Significant benefits accrue to both parents and children, yet structural and provider-level barriers continue to impede this.

Sustainability:

Findings were mapped onto the Consolidated Framework for Implementation Research. Innovation domain: parental presence yields consistent benefits and does not impair clinician performance. Outer Setting: cultural norms and provider gatekeeping remain significant external barriers, with parents actively excluded despite clear preference. Inner Setting: absence of formal family presence protocols places the decision at individual provider discretion, creating inequitable access. Individuals: parental self-efficacy is enhanced by pre-procedure preparation and designated support roles. Implementation Process: structured briefing, facilitator roles, and institutional protocols are the most effective mechanisms to translate parental preference into consistent, supported practice.



HOME-BASED PALLIATIVE CARE FOR PATIENTS WITH CONGENITAL HEART DISEASE: A SCOPING REVIEW

KOH BWF¹, KANG ZL², CHAN CJH³, LEE LY⁴, TOH YP^{1,2}

¹Yong Loo Lin School of Medicine, National University of Singapore, Singapore

²Hospice Care Association, Singapore

³Department of Paediatric Cardiology, KK Women's and Children's Hospital, Singapore

⁴Singapore Paediatrics Care for Kids (SPARK), Mount Alvernia Hospital, Singapore, Singapore

Background/Aim:

Congenital heart disease (CHD) carries a significant burden of care. Recent advances in management, particularly in high-income countries, have led to increasing surgical interventions and improved survival. Alongside the expansion of telemedicine, there is growing interest in home-based palliative care for this population. We conducted a scoping review to examine existing evidence on home- and community-based palliative care for patients with CHD.

Methods:

A literature search was performed across four databases (PubMed, CINAHL, Embase, PsycINFO), alongside grey literature sources. Studies were included if they were full-text articles in English involving patients with CHD receiving palliative and home- or community-based care. Quantitative data, including patient characteristics, management, and survival outcomes, were extracted using a standardized form. Descriptive statistics and logarithmic transformation were used to summarise findings.

Results:

Thirty studies were included, predominantly from the Americas, comprising 2,937 participants with a mean gestational age of 37.5 weeks (95% CI: 36.4 – 38.5). Left-sided cardiac anomalies were most common 1,796 (61.2%), with 76.0% undergoing surgical palliation. Only 92 palliative care referrals were reported, including 4 (0.1%) antenatal and 88 (2.8%) postnatal referrals. The logarithmic mean age at referral was 1.16 months (95% CI: 0.4 – 1.9 months). The log-transformed mean survival duration was 8.7 months (95% CI: 2.7 – 28.1), with 8.2 months (95% CI: 1.8 – 37.3) spent at home.

Conclusion:

Earlier referral to home-based palliative care is recommended given the complexity of CHD. Further multinational research, particularly from low- and middle-income countries, is required to better understand outcomes and contextual factors influencing home based palliative care.

Sustainability:

The review-based nature of the study ensures sustainability and reproducibility through open availability of already published data.

RARE PRESENTATION OF SIGMOID COLON NECROTISING ENTEROCOLITIS FOLLOWING SEVERE HAEMODYNAMIC COLLAPSE IN A PRETERM INFANT

CHU SI HUI, LIM KIAN, VORA SHRENIK JITENDRAKUMAR

Department of Neonatology, KK Women's and Children's Hospital, Singapore

Background:

Necrotising enterocolitis (NEC) typically involves the ileum, a watershed zone vulnerable to hypoperfusion. Conversely, the colon is traditionally considered protected by robust collateral circulation. While prematurity is the primary risk factor, severe haemodynamic instability and vasopressor use can compromise even vascularly resilient segments. We report a rare case of sigmoid colon NEC following profound cardiovascular collapse, complicated by secondary invasive candidiasis.

Case Presentation:

A 31⁺¹ weeks preterm female infant born via normal vaginal delivery following an uncomplicated pregnancy required invasive ventilation for 5 days and achieved full enteral feeds by day 12 of life. On day 13, the infant experienced acute cardiovascular collapse, necessitating extensive resuscitation including chest compressions, fluid boluses, and the administration of four inotropes, including vasopressin. Following a period of bowel rest on parenteral nutrition, the infant developed abdominal distension on day 16. Abdominal radiography confirmed bowel perforation with evidence of pneumoperitoneum. Emergency laparotomy revealed a perforation in the distal sigmoid colon, with a secondary area of impending perforation in the mid-sigmoid. A 4cm segment was resected, followed by primary anastomosis and the creation of a defunctioning ileostomy. Histopathology confirmed a diagnosis of NEC. Post-operatively, blood cultures grew *Candida albicans*. Workup for systemic manifestations was negative including ophthalmology review, cranial ultrasound and 2D echocardiogram. The infant completed a 6-week course of intravenous Micafungin for presumed haematogenous *Candida* meningoencephalitis.

Conclusion:

Sigmoid colon NEC is a rare, severe complication in preterm infants. This case demonstrates that profound haemodynamic compromise, exacerbated by multi-inotropic support, can predispose vulnerable neonates to NEC in typically well-vascularised colonic segments. Furthermore, clinicians must maintain a high index of suspicion for fungal translocation following NEC-related perforation. Early surgical intervention combined with aggressive antifungal prophylaxis or treatment is essential to managing the significant morbidity associated with intestinal perforation and subsequent systemic candidiasis in vulnerable neonates.

EXAMINING THE EFFECTS OF MATERNAL ANXIETY ON INFANT GAZE PATTERNS IN WORD-LEARNING TASKS

TAN, K. J., LEE, K. M., RAMANATHAN, M., SANTHANAKRISHNAN, P., LOW, N., LEONG, V.

School of Social Sciences, Nanyang Technological University, Singapore

Background/Aim:

Early learning in infancy is an intrinsically social process embedded within mother-child interactions, where caregivers scaffold learning through ostensive cues signalling intent and directing attention. Although maternal anxiety can disrupt such communication, its influence on infants' attentional patterns during learning remains poorly understood.

Methods:

This pilot study investigates how maternal anxiety influences infant gaze patterns during a word-learning task using a digital avatar with controlled social contingencies ($N = 10$). Infants ($M_{\text{age}} = 33.26$ months, $SD = 6.84$, age range = 18.87 – 46.90 months; 7 Females, 3 Males) completed four paradigm sets, each comprising two Teaching and two Testing Phases (Mismatch Negativity Paradigm). Maternal anxiety was measured using the State-Trait Anxiety Inventory; infant gaze analysed using Cross-Recurrence Quantification Analysis (CRQA) during socially guided Teaching Phases, and Auto-Recurrence Quantification Analysis (ARQA) during self-regulated Testing Phases.

Results:

In uncorrected analyses, higher maternal state anxiety during Teaching Phases was associated with longer infant gaze bouts and coordination with the avatar, reflected by higher trapping time (TT) and laminarity (LAM) during CRQA. During Testing Phases, higher maternal state anxiety was associated with lower gaze duration, and higher maternal trait anxiety with more predictable gaze patterns, reflected by higher determinism (DET) during ARQA.

Conclusion:

Early findings suggest maternal anxiety is not simply associated with reduced infant attention, but with differences in attentional organisation depending on the presence of social cues. When ostensive cues were present, infants of higher-state-anxiety mothers displayed stronger coupling to the avatar's gaze. When absent, infants displayed reduced engagement. Higher trait anxiety was associated with more rigid gaze behaviour. Results suggest maternal anxiety is associated with infant attentional regulation through sensitivity to social structure, highlighting caregiving environments' role in early attention.

Sustainability:

Recruitment is ongoing for this study. A larger, powered sample will test these preliminary effects' robustness and repeatability.



CLINICAL PRESENTATION AND MANAGEMENT OF DIGEORGE SYNDROME: A CASE REPORT FROM MYANMAR

HTET KL¹, KHIN WK², THEIN MSD³, YUNG LJ⁴

¹ Neonatal Unit, Central Women's Hospital, Mandalay, Myanmar

² Department of Medical Imaging Technology, University of Medical Technology, Yangon, Myanmar

³ Medical Unit 2, Yangon Children Hospital, Yangon, Myanmar

⁴ Cardiac Medical Department, University of Medicine 2, Yangon, Myanmar

Background/Aim:

DiGeorge syndrome (DGS) is a 22q11.2 microdeletion disorder occurring in 1:3,000 -4,000 live births. Characterized by a classic triad of hypocalcemia, congenital cardiac defects, and immunodeficiency, it ranges from partial hypoplasia to complete aplasia of the thymus and parathyroid glands. Early clinical recognition and multidisciplinary management are crucial for reducing mortality in resource-limited settings, like Myanmar.

Methods:

We retrospectively reviewed the clinical presentation, diagnostic investigations, and multidisciplinary management of an infant presenting with DiGeorge syndrome.

Results:

A full-term male neonate with retrognathia and a high-arched palate developed mild respiratory distress post-birth. On day 8, he presented with afebrile seizures and a systolic murmur. Investigations revealed severe hypocalcemia (6.6 mg/dl), hyponatremia (130 mmol/l), and normal magnesium. Seizures ceased post-intravenous calcium correction.

Further evaluation confirmed profoundly low parathyroid hormone (PTH) and severe Vitamin D deficiency (10.31 ng/mL). Chest and neck ultrasonography suggested thymic hypoplasia/aplasia, while echocardiography confirmed a moderate perimembranous ventricular septal defect (VSD). Due to resource constraints, genetic testing and flow cytometry were unavailable; however, the clinical constellation strongly supported a DiGeorge syndrome diagnosis.

Managed via a collaborative pediatric endocrinology and cardiology approach, the infant was discharged stable on oral calcium and Vitamin D. Follow-up at three months revealed developmental delay (unable to roll over). At 3.5 months, he developed a severe lower respiratory tract infection and septicemia requiring intensive care and unfortunately demised at 4.5 months of age.

Conclusion and sustainability:

The clinical triad of hypocalcemic seizures, dysmorphism, and cardiac murmurs must prompt immediate suspicion of DiGeorge syndrome. In resource-limited settings lacking advanced genetic testing, early clinical recognition serves as a highly sustainable, cost-effective tool. Training frontline clinicians to initiate prompt multidisciplinary stabilization optimizes survival and sustainably reduces high infant morbidity and mortality.



PREDICTIVE PERFORMANCE OF THE TEST OF INFANT MOTOR PERFORMANCE (TIMP) AT TERM AND 4-MONTH CORRECTED AGE (CA) FOR MOTOR OUTCOMES AT 12-MONTH CA IN PRETERM INFANTS

CHEN J¹, LEE X², IMELDA LE^{2,3}, REHENA G⁴, YEO JG^{1,3,5,6}, YEO CL^{1,2,3,6}

¹Duke-NUS Medical School, Singapore

²Department of Neonatal and Developmental Medicine, Singapore General Hospital, Singapore

³Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

⁴Office of Clinical Sciences, Centre for Quantitative Medicine, Duke-NUS Medical School, Singapore

⁵KK Women's and Children's Hospital, Singapore

⁶Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background/Aim:

Preterm infants are at increased risk of later motor impairment, making early identification important. The Test of Infant Motor Performance (TIMP) is used in early infancy, but it remains unclear whether assessment at term corrected age (CA) or 4-month CA better predicts later motor outcomes. This study compared the predictive performance of TIMP at term CA versus 4-month CA for motor outcomes at 12-month CA, assessed using the Peabody Developmental Motor Scales, Second Edition (PDMS-2), in infants born <32 weeks' gestation and/or <1250 g. A secondary aim was to identify risk factors associated with atypical TIMP at each time point.

Methods:

This retrospective longitudinal cohort study included preterm infants managed at Singapore General Hospital between November 2013 and September 2024. TIMP was administered at term and 4-month CA, with scores classified as typical or atypical. Motor outcomes at 12-month CA were assessed using the PDMS-2 and classified as optimal or suboptimal. Logistic regression, receiver operating characteristic analysis, and diagnostic accuracy analyses were performed.

Results:

Atypical TIMP at both term and 4-month CA was associated with suboptimal total and fine motor outcomes at 12-month CA, with larger effect sizes at 4-month CA (OR 7.1, $p = 0.003$ for total motor quotient). Discriminative ability was modest at both time points (AUC 0.56-0.71). Specificity (88.7-93.4%) and negative predictive value (89.2-96.6%) were consistently high, whereas sensitivity (20.0-50.0%) and positive predictive value (20.0-38.5%) were low. Periventricular leukomalacia was associated with atypical TIMP, particularly at 4-month CA ($p=0.005$).

Conclusion:

TIMP at both term and 4-month CA showed modest predictive performance. High specificity and negative predictive value support its utility in ruling out rather than confirming later motor impairment.

Sustainability:

TIMP is routinely used and repeated in neonatal follow-up, making this approach feasible and reproducible in clinical practice.

