

HONG KONG COLLEGE OF PAEDIATRICIANS
 WORKING GROUP ON CURRICULUM REVIEW
 SYLLABUS PROPOSAL

AREA: Neonatology (Revised on 7 March 2023)

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BASIC TRAINING

TOPICS	SUBTOPICS
Antenatal factors related to neonatology	Fetal growth, development and physiology Maternal conditions and treatment affecting the newborn Peripartum factors affecting the newborn
Pulmonary physiology and pathophysiology	Basic pulmonary physiology as related to neonatal ventilation Common neonatal respiratory conditions: Respiratory distress syndrome Transient tachypnoea of the newborn Neonatal pneumonia Meconium aspiration syndrome Pneumothorax Pleural effusions Apnoea of prematurity Apnoea/hypopnoea in a term infant Congenital pulmonary malformations Congenital malformations causing airway obstruction Congenital anomalies causing respiratory disorders Bronchopulmonary dysplasia
Non-invasive and invasive ventilatory support	Operations of invasive and non-invasive ventilation, ventilation/oxygenation strategies Pressure regulation/targeting Volume regulation/targeting Triggering (pressure/flow/Edi) High frequency oscillatory ventilation (interpretation of frequency, tidal volume and DCO ₂)

	<p>Use of inhaled nitric oxide</p> <p>Importance of PEEP and its relation with functional residual capacity and compliance</p> <p>Interpretation of trends of ventilator parameters</p> <p>Indications for surfactant therapy</p>
Cardiovascular physiology and pathophysiology	<p>Transition from fetal to neonatal physiology</p> <p>Congenital cyanotic heart disease</p> <p>Congenital heart disease and heart failure</p> <p>Persistent pulmonary hypertension of the newborn</p> <p>Principles of management of hypotension in newborn infants</p>
Neonatal neurology	<p>Neonatal encephalopathy</p> <p>Hypoxic-ischaemic encephalopathy and hypothermic therapy</p> <p>Neonatal seizure and seizure management</p> <p>Long-term neurodevelopmental outcomes of newborns with prematurity and/or brain injury</p> <p>Retinopathy of prematurity</p>
Neonatal nutrition	<p>Importance of breastfeeding to normal infants and infants with medical problems</p> <p>Enteral nutrition and parenteral nutrition</p>
Neonatal sepsis	<p>Early onset sepsis and late onset sepsis:</p> <ul style="list-style-type: none"> Risk factors Monitoring and screening of high-risk infants Sepsis evaluation Early recognition of sepsis and/or septic shock Treatment of the septic infant Appropriate use of antibiotics
Prematurity	<p>Complications of prematurity</p> <ul style="list-style-type: none"> Apnoea of prematurity Bronchopulmonary dysplasia Intraventricular haemorrhage Patent ductus arteriosus Periventricular leukomalacia Respiratory distress syndrome Retinopathy of prematurity
Neonatal abnormalities	Recognition and initial management of infants

	with antenatal diagnoses, dysmorphic features, suspected syndromal diagnoses and congenital abnormalities
Common neonatal problems	Neonatal jaundice Neonatal hypoglycaemia Infants with common congenital abnormalities, e.g., urinary tract dilatation Neonatal polycythaemia Electrolyte disturbances in the newborn Haemolytic disorders of the newborn Birth injuries Neonatal abstinence syndrome
Common surgical emergencies	Recognition and initial stabilisation of neonates with surgical emergencies Medical management of newborn infants with intestinal obstruction, e.g., volvulus Congenital gastrointestinal abnormalities, e.g., omphalocele, congenital diaphragmatic hernia Necrotising enterocolitis
Ethical issues in neonatology	Ethical issues related to borderline viability Ethical issues related to redirection of care in a neonate
Examination of the well-appearing newborn	Assessment of newborn maturity Newborn screening assessment
Desirable skills Interpretation of neonatal arterial and capillary blood gas results Interpretation of trends of ventilator parameters Basic skills of surfactant delivery Assessment of Newborn maturity (e.g. New Ballard score) Injection of hyaluronidase for extravasations Neonatal transport - intra-hospital transportation	

Relevant mandatory skills (see essential procedures in Domain 3):

1. Infection control measures
2. Aseptic technique
3. Administration of sedation
4. Blood-taking techniques, including heel prick
5. Peripheral venous cannulation
6. Umbilical venous cannulation
7. Umbilical arterial cannulation

8. Peripheral arterial cannulation
9. Intraosseous needle insertion
10. Lumbar puncture
11. Airway management and resuscitation
 - a. Face-mask seal and positive pressure ventilation
 - b. Intubation (direct laryngoscopy)
 - c. Use of laryngeal mask airway
 - d. Use of oropharyngeal/ nasopharyngeal airway
 - e. Replacing tracheostomy tube
12. Microbiological study specimen collection
13. Bladder catheterisation
14. Thoracocentesis and chest drain insertion
15. Nasogastric tube insertion
16. Exchange transfusion
17. Skills related to cardiopulmonary resuscitation in a neonate

HIGHER TRAINING*

TOPICS	SUBTOPICS
Non-invasive and invasive ventilatory support	Advanced modes of ventilatory support HFOV with volume targeting NAVA NIV-NAVA
Cardiovascular physiology and pathophysiology	Haemodynamic assessments and management of the sick neonate Recognition of need for advanced cardiopulmonary management at tertiary centre Initial management of newborn with critical cardiac conditions
Common surgical emergencies	Perioperative management of neonates with surgical emergencies
Neonatal neurology	The use of second line anticonvulsants (e.g., levetiracetam, topiramate) Use of anaesthetic agents for seizure control Interpretation of aEEG
Genetic disorders	Genetic evaluation of newborns
Haematological disorders	Neonatal thrombocytopenia Neonatal coagulation disorders
Renal disorders	Neonatal acute kidney injury Recognition of need for advanced renal management at tertiary centre

Desirable skills

Intubation **by** video laryngoscopy

Thin catheter techniques in surfactant delivery

Neonatal transport - inter-hospital transportation

Chest physiotherapy for collapsed lungs

Ascitic tap

Haemodynamic monitoring devices ~~-ICON, USCOM, NIRS~~

Multidisciplinary discharge planning for NICU graduates with chronic medical conditions

Quality improvement in neonatology

***Neonatology is not a mandatory part of Higher Training. The topics listed in the Higher Training section are intended as a guide to Higher Trainees rotating through neonatology during their Higher Training.**

CHECK WITH

Paediatric emergencies: CPR, intravenous access

PICU: emergency procedures

Neurology: neonatal neurology

Cardiology: neonatal cardiac physiology

Paediatric respiratory medicine: neonatal pulmonary physiology