# HANDBOOK ON SUBSPECIALTY TRAINING IN PAEDIATRIC NEPHROLOGY IN MALAYSIA

SECOND EDITION

MALAYSIAN PAEDIATRIC NEPHROLOGY SUBSPECIALTY
SUBCOMMITTEE FOR EDUCATION

ENDORSED BY

MSPN
Malaysian Society of Paediatric Nephrology

Malaysian Society of Nephrology

# HANDBOOK ON SUBSPECIALTY TRAINING IN PAEDIATRIC NEPHROLOGY IN MALAYSIA

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*This document is proposed for a review every **ten years** by the Subspecialty Subcommittee for Education in Paediatric Nephrology (SbSC-Edu) and the stakeholders.*

# TABLE OF CONTENT

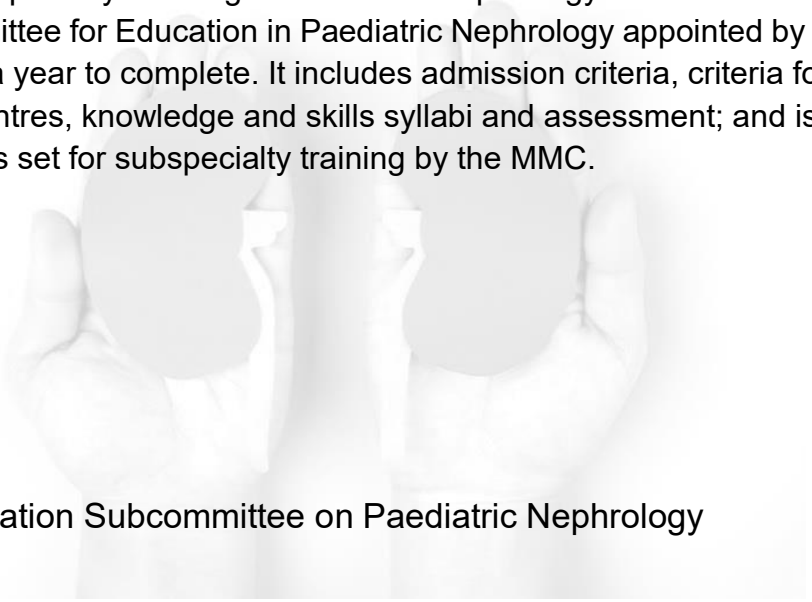
# FOREWORD

Paediatric nephrology as a subspecialty was first certified by a sub-board of the American Board of Paediatrics in 1974. In Malaysia, paediatric nephrology service was first offered in a small way by Professor Lam Khuan Leng at the University Hospital, Kuala Lumpur from the 70's and by Dr. Indon Lajin in Hospital Kuala Lumpur/ Universiti Kebangsaan Malaysia from the mid 1980's. It was formally recognized as a unit of the Department of Paediatrics, Hospital Kuala Lumpur from the early 1990's.

The first document on Training in Paediatric Nephrology was produced together with the document on Training in Nephrology (adult) under the auspices of the Malaysian Society of Nephrology (MSN) and formally accepted at the General Assembly of the MSN in 2006 and subsequently by the Ministry of Health and was last reviewed in 2021.

With the passing of the Medical (Amendment) Act 2012 in Malaysia, specialist recognition has been formalised and specialty training is in the process of being formalised. Paediatric Nephrology has been recognized as one of the subspecialties in Paediatrics by the Malaysian Medical Council (MMC).

This Handbook on Subspecialty Training in Paediatric Nephrology is the hard work of Subspecialty Subcommittee for Education in Paediatric Nephrology appointed by the MMC and took almost a year to complete. It includes admission criteria, criteria for trainers and training centres, knowledge and skills syllabi and assessment; and is guided by the standards set for subspecialty training by the MMC.



**Lim Yam Ngo**
On behalf of the Education Subcommittee on Paediatric Nephrology
May 2022

# 1.0 OVERVIEW

A paediatric nephrologist is a trained paediatrician with expertise in kidney diseases encountered among infants, children, and young people.

His/her place of work will normally be an established paediatric nephrology unit, which should offer a full range of facilities for the management of acute and chronic kidney disease including provision of dialysis and care of kidney transplant recipients. He/she promotes wellness via preventive strategies and is involved in the care of patients from birth all the way through to the successful transition into adult services.

This document outlines the curriculum for training, highlighting important Learning Outcomes to be met by the Paediatric Nephrology trainee to be able to work independently upon completion of training as a Paediatric Nephrologist in the Malaysian healthcare system. The structure of training also emphasises on the development of professional aptitude via promoting integration of humanistic values and precepts in day-to-day clinical practice.

In addition, the main principles of training are by the Paediatrics Postgraduate Training in Malaysia, Version 1, 2021, as well as the Handbook on Subspecialty Training in Nephrology, 2021. Uniformity with these documents ensures standardisation of training and adds to the compendium of nephrology services in this country.

The trainee also continues to adhere to the rules and regulations outlined in the Code of Professional Conduct 2019, as set forth by the Malaysian Medical Council. This document does not address the training of general paediatricians with an interest in nephrology. From time to time, this training document will be revised.

# 1.1 STRUCTURE OF PAEDIATRIC NEPHROLOGY TRAINING PROGRAMME

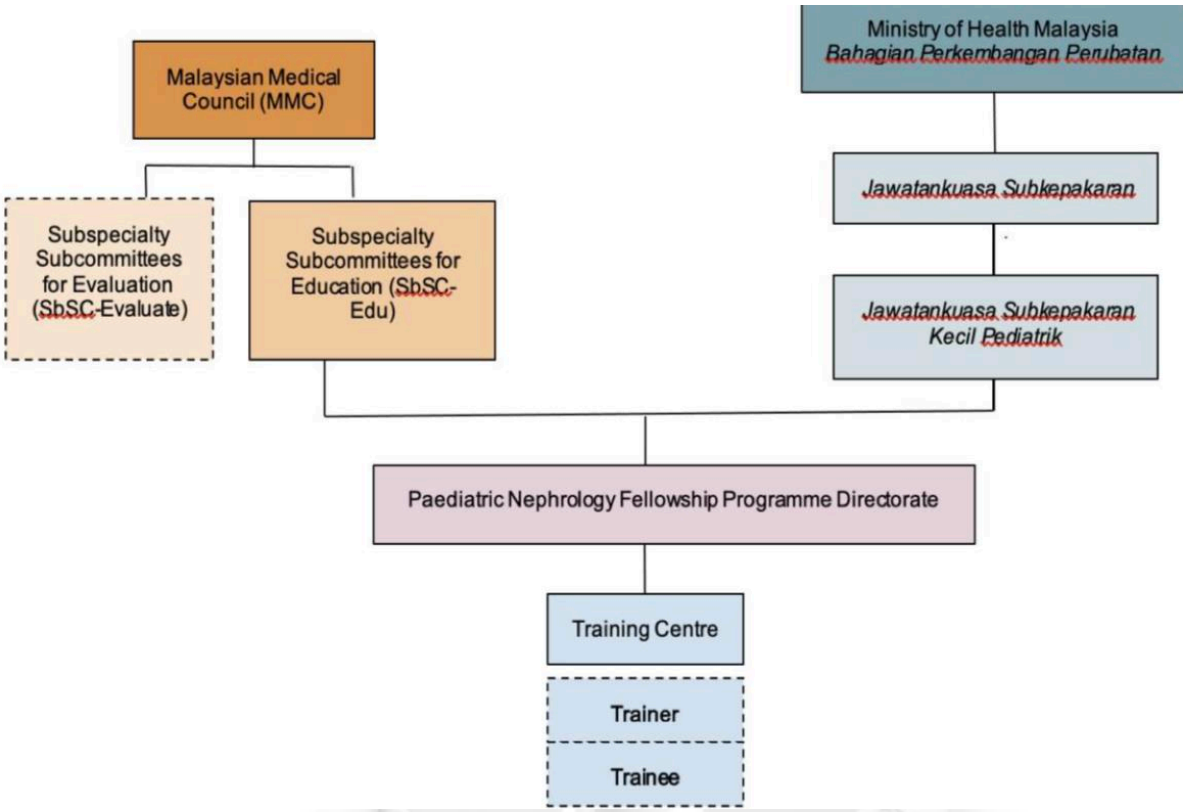



Figure 1: Structure of the training programme

## 1.1.1 ROLES AND RESPONSIBILITIES

Roles and responsibilities of the Lead of Paediatric Nephrology Fellowship Programme Directorate:

1. This position is held by the Head of Service for Paediatric Nephrology Subspecialty.
2. He/she coordinates and has oversight of the network of training sites.
3. He/she appoints the trainers based on recommendation by the Subspecialty Subcommittee for Education in Paediatric Nephrology (SbSC-Edu).
4. He/she circulates applications from potential trainees to the members of the SbSC-Edu for considerations and arranges for interview sessions if deemed necessary.

5. He/she maintains a list of trainees, their rotation, progression logs, reports from respective supervisors periodically throughout the training period as well as upon completion of training.
6. He/she supports trainees on both academic and non-academic matters.

Roles and responsibilities of the Subspecialty Subcommittee for Education in Paediatric Nephrology (SbSC-Edu)

1. Subcommittee members are responsible to evaluate and accredit paediatric nephrology units as training centres as well as maintaining and updating a list of overseas training facilities for trainees' consideration from time to time.
2. Subcommittee members are responsible to evaluate applications from paediatric nephrologists to be trainers and nominate them accordingly to the Head of Service.
3. Subcommittee members review applications from potential trainees and participate in interview sessions if deemed necessary.
4. Chair of the SbSC-Edu shall review the periodic trainee evaluation form besides the Trainer and the Head of Service.
5. Chair of the SbSC-Edu shall call for a meeting to discuss trainees with difficulties.
6. The Chair also supports trainees on both academic and non-academic matters, including listening to their grievances.
7. The Chair of Subspecialty Education Committee keeps a list of trainers, their credentials, and any feedback reports (if relevant).
8. Subcommittee members are responsible for continuous quality improvement of the training programme as well as reviewing and updating this Handbook from time to time.

Roles and responsibilities of the Subspecialty Subcommittee for Evaluation in Paediatric Nephrology (SbSC-Evaluate)

1. The members of the SbSC-Evaluate are responsible to evaluate applications from trainees who have successfully completed the training programme and recommend them for the registration as Paediatric Nephrologist with the National Specialist Registry (NSR). Their roles are governed by the NSR Registration Procedures and Guidelines and the Terms of Reference of the Subspecialty Subcommittees.

## 1.2 OBJECTIVES

1. The objective of training is to produce paediatricians who are
    - uniquely qualified in the management of kidney disease and its myriad consequences as well as preventive strategies in infants, children, and young people
    - motivated to continue lifelong education through self-directed learning and research, and
    - keen to participate in the training of others.

2. They should also take a keen interest in the broader issues like implication on education, socio-economic factors and family that may affect the care of infants, children, and young people.

## 1.3 DURATION OF PROGRAMME

This is a full-time fellowship training programme with a minimum duration of three (3) years, with an option to complete one year (preferably in the final year) in an overseas training facility.

Extension is allowed on a case-to-case basis as deemed appropriate.

## 1.4 ABSENCES FROM TRAINING

1. Trainees are allowed medical leave of not more than 2 weeks in one year.
2. Trainees can apply for leave as per entitlement in service.
3. Absences/leaves more than the maximum allowed days of leave as per entitlement per year during training period (whether for illness, parental leave, vacation and so forth), must be replaced.
4. If the trainee wishes to take leave continuously for more than 14 days, he/she must submit a written request to the Head of Service and Chair of the SbSC-Edu. Other request for deferment will be entertained on a case-to-case basis and the decision of the training committee will be final.
5. No continuous absence of more than 1 year is permitted. When there is an interruption of training for more than 12 months, the training committee shall review the validity of past training for competency.

# 2.0 ADMISSION CRITERIA

The candidate who wishes to pursue training in Paediatric Nephrology must have the following requirements:

- A recognized post-graduate qualification in paediatric medicine such as MRCPCH(UK) / MMed (Paediatrics) (from local / accredited overseas universities) or its equivalent AND

- Completed 2 years of service post gazettement AND

- Letter of Recommendation from Head of Department / Supervisor

Application shall be circulated to the members of the SbSC-Edu for considerations and interview sessions may be arranged if deemed necessary.

The intake of trainees shall be limited by the education capacity in the training framework i.e., 2 trainees at any one time to a trainer.

# 3.0 TRAINING CENTRES

The training centres involved in the training of Paediatric Nephrology must be accredited for training and the resident paediatric nephrologist credentialled to be a trainer by the Subspecialty Subcommittee for Education in Paediatric Nephrology (SbSC-Edu).

The training centres are accredited to be either Local Tier 1 and Tier 2 training centres based on scope and clinical burden of the centre with regards to paediatric nephrology services. (See Appendix A: Centre Evaluation Form)

The trainee shall rotate to Training Centres in the country and preferably to an Oversea Centre to maximise educational experiences. The rotations between institutions throughout the training programme shall be planned before the start of training. The rotation between institutions within the framework of the Ministry of Health shall be governed by the regulations in the Guidelines for transfer and posting of government officials in the Ministry of Health based on Surat Pekeliling Ketua Setiausaha Kementerian Kesihatan Malaysia Bilangan 1 Tahun 2012. Rotation to training facilities outside the Ministry of Health, Malaysia ie University hospitals, shall be governed by local regulations. Trainee's rotation shall also take into consideration the needs as well as preferences of the trainees and the training centre capacity.

Trainee's movement from Tier 1 to Tier 2 centres reflect the increasing professional responsibility and level of complexity in training. This is to ensure the trainee achieves a minimum level of competency by the end of the training programme.

<u>Definition of TIER 1 centre:</u>

Duration of training allowed: up to 1.5 year

- The centre offers a wide range of management for acute and chronic kidney disease, including kidney replacement therapies in chronic as well as critically ill settings.
- There is adequate patient load for the trainee to be able to spend most of his/her time engaging clinical work in paediatric nephrology.
- There is regular continuous medical education, case conference, grand round and journal read.
- The centre shall promote and support research activities by trainees in the field of paediatric nephrology, with integration of research and continuous quality improvement initiatives in day-to-day clinical work.

Definition TIER 2 centre:

Duration of training allowed: up to 2 years

In addition to criteria set for tier 1 centre.

- The centre has/ is affiliated to another facility with paediatric surgery/urology and paediatric kidney transplant services.
- Offers perioperative care of paediatric kidney transplant recipients.

# 4.0 TRAINERS

A consultant paediatric nephrologist can be credentialed for training if she/he **has at least 2 years** working experience post National Specialist Register (NSR) registration and is affiliated with a Tier 1/2 centre.

Trainers must show keen interest in teaching and have some experience in mentoring. Paediatric Nephrologists who applied for this portfolio are being considered and nominated by the Subspecialty Subcommittee for Education in Paediatric Nephrology (SbSC-Edu) for appointment by the Head of Service. (See Appendix B: Trainer Application Form)

At any one time, **a trainer may have up to 2 trainees to supervise**.

Roles and responsibilities of a trainer:

1. They play a key role in training and helping trainees achieve the minimum standard as outlined in the Learning Outcomes and Key Capabilities in this training handbook.
2. They are responsible for providing a training environment that allows trainees “hands-on” experience, discussion on patients’ care actively and research opportunities. This would include assisting with access to national registries especially the Malaysian Registry of Renal Biopsy (MRRB) for their individual eCUSUM monitoring.
3. They are responsible for the workplace-based assessments and to complete the periodic supervisory reports (Appendix C: Trainee Evaluation Form) which are accessible by the trainee, Head of Service, and the Chair of the SbSC-Edu.
4. They should identify trainees with difficulty (personal issue, health issue or stress/” burnt-out”) so that appropriate remedial actions may be taken in response. Problems not remediable at local level shall be reported to the Head of Service.
5. They are involved in contributing to the development of the programme from its inception, reviewing and updating the content of the programme.

# 5.0 ASSESSMENTS

## 5.1 Assessments principles

Clinical competencies are being assessed via workplace-based methods of assessment as proposed by Miller's framework of clinical assessment (Figure 2).

This workplace-based assessment format is valid, fair, and effective. Besides, it is common to other paediatric subspecialties.

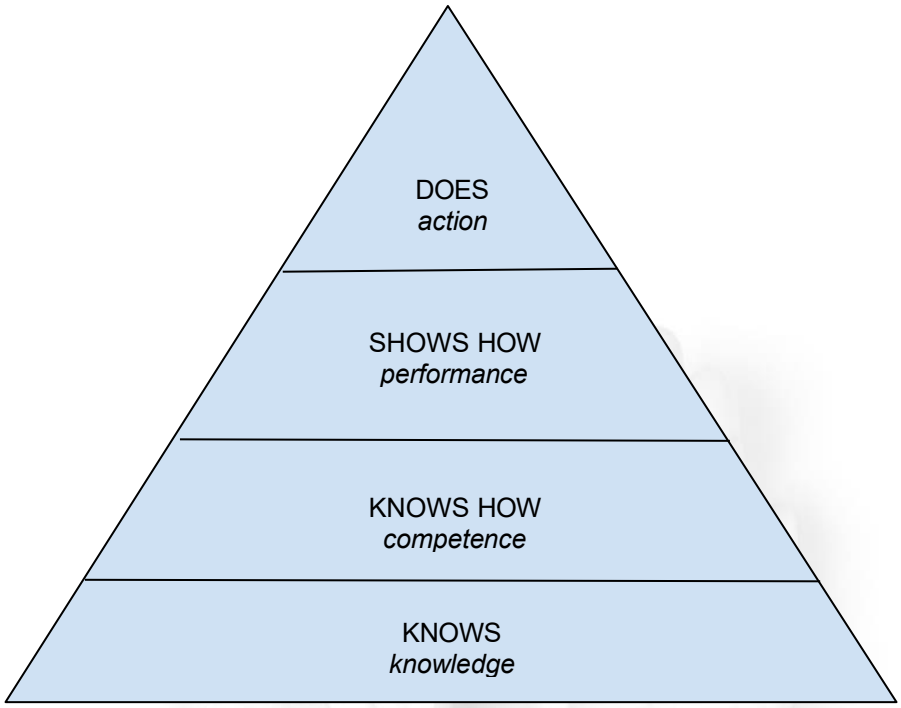



Figure2: Framework for clinical assessment (excerpt from the assessment of clinical skills/competence/performance. George Miller. Academic Medicine, Vol 65,

Tools applied include Mini-clinical evaluation exercise (Appendix D: mini-CEX) and Appendix E: Direct observation of procedural skills (DOPS). This encourages a “hands-on” experience and trainees shall actively discuss patients’ management with the trainers. For procedural-based training, assessment of procedures include outcome of each procedure and trainee's abilities on peri-procedure patient's management.

It is the responsibility of the trainees to keep their own portfolio, which may include a logbook of clinical encounters and procedures, workplace-based assessments, supervisory reports, and self-reflective logs. This training log (Appendix F) shall be reviewed by their on-site trainer periodically, and the trainer shall discuss personal developmental goals with the trainee (specific to the training experience).

## 5.2 Schedule of assessment

### 5.2.1 At the end of the first 3- 6 months of training

A summative evaluation is made at the end of the **first three to six months** of
training to allow trainees adequate time to consider their options if they have many difficulties with training.

Trainees with difficulties who may find themselves otherwise suitable for the programme must be informed ahead of time and they are allowed to appeal against the decision to the Chair of the Subspecialty Education Committee who shall then call for a meeting to discuss the subject matter.

### 5.2.2 Periodic assessment till the end of the programme

The summative evaluation continues to take place twice in each training year except during the final year where the last session shall be the Exit assessment (as described in 5.2.3). During each session, trainers shall review the progress of the workplace-based assessments that trainees undertake during that period of training and help the trainee to reflect on SWOT (Strength, Weakness, Opportunities and Threat) analysis. The trainer shall complete the Trainee Evaluation Form and this supervisory report is accessible by the trainee as well as the Head of Service and the Chair of the SbSC-Edu. (Appendix C)

### 5.2.3 Exit assessment

An exit assessment takes place in the last 6 months of the three years of training. This is like the 6 monthly summative evaluation in 5.2.2 except that this session shall be chaired by the local trainer and a member from the

SbSC-Edu. This shall be a summative review of all training activities and discussion on future career plans with the outgoing trainees. For trainees who are serving their overseas posting during the last year of training, this exit assessment shall be postponed until the trainee returns to the country. Successful trainees shall be informed of the decision and advised for registration with the National Specialist Registry. (See Appendix F: Exit Assessment Report)

Those whom the panellist opines as unfit for exit and warrant an extension (section 1.3) shall be decided upon and the decision discussed with the trainee. Any grievances and appeal from the trainee shall be directed to the Chair of the SbSC-Edu for consideration.

# 6.0 KNOWLEDGE SYLLABUS - MAJOR MODULES

## CORE CURRICULUM

This curriculum is a compilation of Learning Outcomes and Key Capabilities (Area of Competencies ~ with their descriptions) to guide the trainees during their training years.

It provides a comprehensive but not exhaustive list of topics that need to be covered by the trainee. The trainee is expected to have some knowledge on basic principles in management and procedural skills in the early stage of training. As he/she progresses in training, he/she is expected to be able to apply the competencies acquired in patient's care.

An overview of the curriculum is illustrated below.

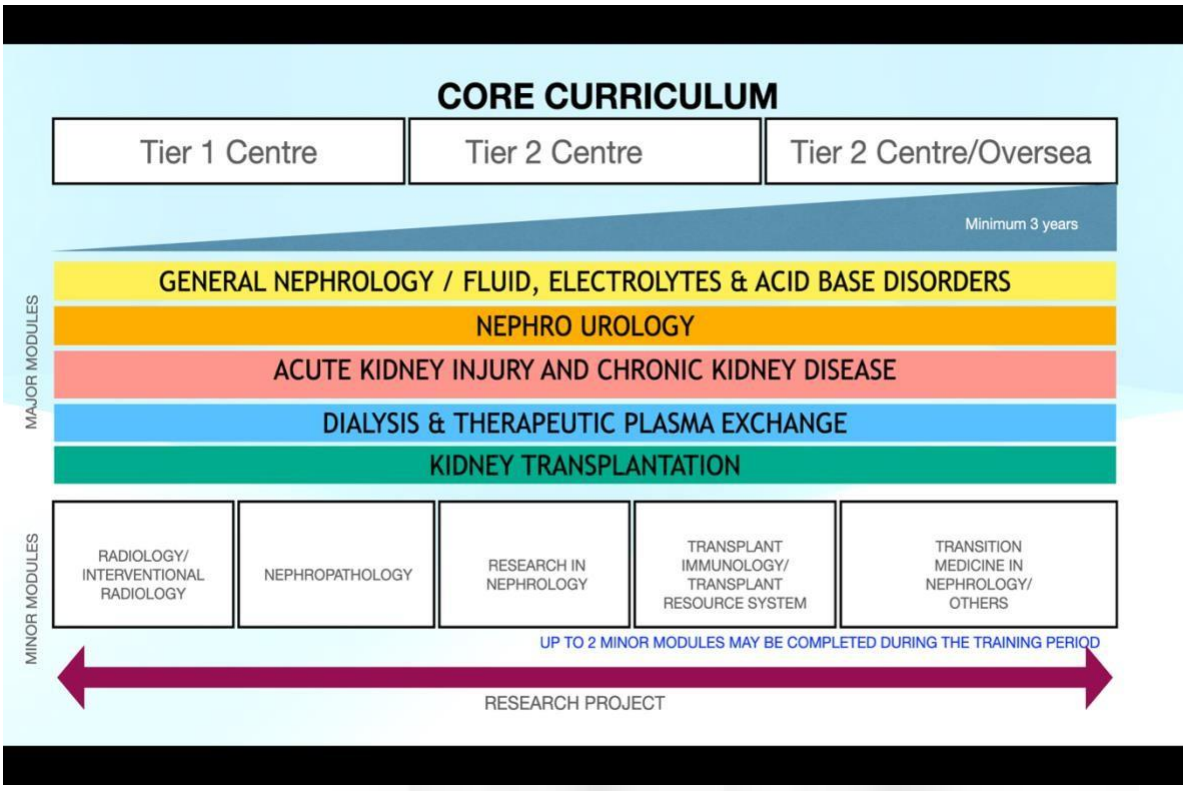



Figure 3: Overview of the curriculum

| Area of Competencies | Year 1 | Year 2 | Year 3 |
|---|---|---|---|
| **6.1 MAJOR MODULE NO.1: GENERAL NEPHROLOGY / FLUID, ELECTROLYTES & ACID BASE DISORDERS** | | | |
| Learning outcomes:<br>● To be able to sensibly approach to the vast problems in general nephrology<br>● Demonstrate knowledge in renal physiology, including fluid and water balance, electrolytes, and acid base disturbances. | | | |
| 6.1.1 Embryology, anatomy, and physiology of the kidneys. | | | |
| Understand the embryological development of the Genito-urinary system. | ☑ | ☑ | ☑ |
| Know gross anatomy of the kidney and microscopic anatomy of the glomerulus, tubule, interstitial and collecting system. | ☑ | ☑ | ☑ |
| Understand the physiology of micturition and neurological control of the bladder. | ☑ | ☑ | ☑ |
| Understand physiological differences in renal function between neonatal and infant/ child. | ☑ | ☑ | ☑ |
| Understand the definition of glomerular filtration and ways to measure and calculate creatinine clearance. | ☑ | ☑ | ☑ |
| Understand the role of renal handling of sodium, potassium, calcium, phosphate, and free water clearance. | ☑ | ☑ | ☑ |
| Understand the concept of acidosis and alkalosis, anion gap, and approach to such problems in day-to-day clinical practice. | ☑ | ☑ | ☑ |
| 6.1.2 Key Capabilities: Relevant renal investigations (laboratory & radiological) | | | |
| Understand the principles and relevance of the tests in relation to the underlying pathology. | ☑ | ☑ | ☑ |
| Able to interpret the laboratory parameters and correlate them clinically to achieve a diagnosis. | ☑ | ☑ | ☑ |
| Able to interpret urine microscopy and urine phase contrast microscopy. | ☑ | ☑ | ☑ |
| Able to perform basic renal ultrasound and use this to guide procedures in day-to-day work | | ☑ | ☑ |
| Able to interpret the findings of the various renal imaging techniques including: MCUG (Micturating Cystourethrography), DMSA (dimercaptosuccinic acid scan), DTPA (diethylenetriamine-pentaacetic acid) and MAG3 (Mercapto-acetyltriglycine). | | ☑ | ☑ |
| 6.1.3 Key Capabilities: Glomerular Disorders: Haematuria, Proteinuria And Nephrotic Syndrome,<br>Glomerulonephritis And Vasculitis | | | |

| | | | |
|---|---|---|---|
| Understand the pathophysiology and causes of microscopic and macroscopic haematuria. | ☑ | ☑ | ☑ |
| Understand the pathophysiology and causes of proteinuria and know the aetiology of nephrotic syndrome, including congenital nephrotic syndrome | ☑ | ☑ | ☑ |
| Understand the pathophysiology of thrombotic microangiopathies (TMA), including haemolytic uraemic syndrome. | | ☑ | ☑ |
| Understand the approach to viral-mediated kidney diseases including HIV-associated nephropathy. | | ☑ | ☑ |
| Able to investigate nephrotic syndrome (including renal biopsy), know the treatment options available and potential side effects of treatment. | ☑ | ☑ | ☑ |
| Able to offer treatment for glomerulonephritis and vasculitis which includes immunosuppression, biologics, and plasmapheresis. | | ☑ | ☑ |
| 6.1.4 Key Capabilities: Cystic kidney disease | | | |
| Know the different forms of inherited and sporadic cystic kidney disease including autosomal dominant polycystic kidney disease, autosomal recessive kidney disease, Hepatocyte Nuclear Factor-1beta (HNF-1beta)- associated renal disease and diabetes. | | ☑ | ☑ |
| Know the extrarenal manifestations of cystic kidney disease, management, and long-term outlook. | | ☑ | ☑ |
| Know how to screen for detection of cystic kidney disease in parents, siblings, and relatives of affected children. | | | ☑ |
| 6.1.5 Key Capabilities: Tubulo-Interstitial Disease | | | |
| Understand the pathophysiology of interstitial nephritis and tubulo-interstitial disease, their causes, and links with systemic disease. | ☑ | ☑ | ☑ |
| Understand the extrarenal manifestations associated with tubulo-interstitial nephritis. | | ☑ | ☑ |
| Understand the natural history of tubulo-interstitial nephritis and formulate a management plan for tubulo-interstitial nephritis. | | ☑ | ☑ |
| 6.1.6 Key Capabilities: Urinary Tract Infection (UTI) | | | |
| Understand the epidemiology and microbiology of UTIs and the role of host defence mechanisms. | ☑ | ☑ | ☑ |
| Understand the implication of the infection and be able to plan subsequent imaging for long term sequelae of UTI, including progression to CKD. | ☑ | ☑ | ☑ |
| Know the indications for surgical intervention in the management of UTI / recurrent UTI. | | ☑ | ☑ |

| 6.1.7 Key Capabilities: Hypertension and Renovascular Disease | | | |
|---|---|---|---|
| Understand the pathophysiology of primary and secondary hypertension. | ☑ | ☑ | ☑ |
| Able to investigate and understand the potential risks of investigations for renovascular hypertension. | ☑ | ☑ | ☑ |
| Able to manage hypertensive emergencies safely. | ☑ | ☑ | ☑ |
| Know the mechanism of action and potential side effects of antihypertensive agents. | ☑ | ☑ | ☑ |
| Understand the approach to treat hypertension (dialysis / non-dialysis population) and refractory hypertension. | | ☑ | ☑ |
| Understand the long-term consequences of hypertension in relation to the kidney and other end-organs. | | ☑ | ☑ |
| **6.2 MAJOR MODULE NO.2: NEPHRO UROLOGY** | | | |
| Learning outcomes:<br>● Demonstrate knowledge in paediatric nephro-urology and be able to formulate a comprehensive management plan including preservation of renal function. | | | |
| 6.2.1 Key Capabilities: Nephro-urology | | | |
| Understanding how the encountered problem manifested during antenatal and postnatal period | ☑ | ☑ | ☑ |
| Able to formulate a sensible approach to suspected Congenital Anomalies of the Kidney and Urinary Tract (CAKUT). | ☑ | ☑ | ☑ |
| Able to explain and discuss management planning for suspected CAKUT with parents /caregivers | | ☑ | ☑ |
| Know how to assess and manage dysfunctional elimination syndrome, neurogenic bladder, and voiding disorder. | ☑ | ☑ | ☑ |
| Know when to refer to urology services for timely intervention and are aware of the short- and long-term complications of these conditions and their possible surgical outcomes. | | ☑ | ☑ |
| Able to work well in an interdepartmental framework with other disciplines i.e. urology and radiology, in order to provide comprehensive care to a child with nephro-urological condition. | ☑ | ☑ | ☑ |
| **6.3 MAJOR MODULE NO.3: ACUTE KIDNEY INJURY AND CHRONIC KIDNEY DISEASE** | | | |
| Learning outcomes:<br>● To be able to diagnose and manage acute kidney injury (AKI) and chronic kidney disease (CKD)<br>● recognizes the importance of preventive measures to avoid establishment of AKI or progression of CKD | | | |
| 6.3.1 Key Capabilities: Acute kidney injury | | | |

| | | | |
|---|---|---|---|
| Know the definition, epidemiology and causes of AKI in children and be able to recognise patients at risk. | ☑ | ☑ | ☑ |
| Know the various metabolic consequences of AKI: nutritional, electrolytes, acid base, volume, and hormonal as well as utilities of biomarkers in AKI and be able to evaluate and manage paediatric AKI independently. | ☑ | ☑ | ☑ |
| Know how to monitor hemodynamic and assess volume status objectively in the critically ill child. | | ☑ | ☑ |
| Know the principles of non- dialytic and dialytic management of AKI, able to utilise the various dialysis methods (HD, PD or CRRT) and familiar with the placement of acute dialysis access. | ☑ | ☑ | ☑ |
| Understand the importance of meeting nutritional goals in AKI and incorporate dietetic intervention in the management of AKI. | | ☑ | ☑ |
| Counsel the caregiver regarding the long-term outcome following an episode of AKI and able to provide care and surveillance post AKI. | | ☑ | ☑ |
| 6.3.2 Key Capabilities: Chronic Kidney Disease | | | |
| Know the definition of the various stages of CKD and understand the utility of estimated glomerular filtration rate (eGFR) in CKD. | ☑ | ☑ | ☑ |
| Able to manage fluid balance, electrolytes and acid base abnormalities, anaemia, growth, and nutritional issues in CKD. | ☑ | ☑ | ☑ |
| Know when to initiate preparation for kidney replacement therapy and choose the best fitted modality for the patients. | | ☑ | ☑ |
| Know about vaccination among the paediatric population with CKD. | ☑ | ☑ | ☑ |
| Able to assess the suitability of children with CKD for renal transplantation. | | ☑ | ☑ |
| Acknowledge the relevance and know how to integrate kidney palliative care in the spectrum of CKD management. | | ☑ | ☑ |
| **6.4 Major Module No.4: Dialysis and Therapeutic Plasma Exchange** | | | |
| Learning outcomes:<br>● To be proficient in the management of children and infants requiring acute and long-term dialysis and prescribe such modality of treatment safely. | | | |
| 6.4.1 Key Capabilities: Haemodialysis (HD) and Haemodiafiltration (HDF) | | | |
| Understand the principles and mechanics of HD/HDF and specific considerations in paediatric population and know the indications, contraindications and relative efficiencies of the different dialysis modalities as blood purifying strategy. | ☑ | ☑ | ☑ |

| | | | |
|---|---|---|---|
| Know the various haemodialysis access modalities: Central venous line (CVL), Arteriovenous (AV) fistula and AV graft and able to offer surveillance care for patients with existing arteriovenous fistula /grafts | ☑ | ☑ | ☑ |
| Able to plan, prescribe and adjust HD/HDF customised to patient's needs and know treatment targets for adequacy. | ☑ | ☑ | ☑ |
| Recognises and manages specific complications of haemodialysis such as intradialytic hypotension/ hypertension and understand pharmacokinetic considerations of antihypertensive drugs on dialysis. | | ☑ | ☑ |
| Know about the use of anticoagulation in maintaining access patency as well as during HD/HDF. | ☑ | ☑ | ☑ |
| Able to lead and communicate effectively with dialysis nurses in the provision of safe dialysis care for children. | ☑ | ☑ | ☑ |
| 6.4.2 Key Capabilities: Peritoneal dialysis (PD) | | | |
| Know the principles of fluid and solute removal in peritoneal dialysis. | ☑ | ☑ | ☑ |
| Know the surgical considerations during placement of catheter for peritoneal dialysis access. | ☑ | ☑ | ☑ |
| Able to plan, prescribe and adjust PD prescription to meet patient's needs and monitor for adequacy. This includes knowledge on a variety of PD modalities (CAPD and APD). | ☑ | ☑ | ☑ |
| Know the potential complications encountered in PD (Infectious and non-infectious complications) and their specific management strategies | | ☑ | ☑ |
| Know how to assess PD adequacy and understand the principles of Peritoneal Equilibration Test (PET), pattern of transport and how to utilise this in adjusting PD prescription. | | ☑ | ☑ |
| Understand the concept of optimal weight / "dry weight" and know the various modalities that can be used to assess the hydrational status of a child on PD and be able to address fluid management and blood pressure control in a patient on PD | | ☑ | ☑ |
| 6.4.3 Key Capabilities: Continuous Renal Replacement Therapy (CRRT) | | | |
| Know the technology and basic concepts of CRRT and know the different techniques of CRRT in the intensive area:<br>• SCUF, CVVH, CVVHD and CVVHDF | ☑ | ☑ | ☑ |
| Able to prescribe and adjust CRRT prescription as well as recognising and managing complications during CRRT. | | ☑ | ☑ |

| | | | |
|---|---|---|---|
| Know about drug dosing and removal of drugs by CRRT and nutritional support during CRRT. | | ☑ | ☑ |
| Know the factors to consider in deciding the timing of initiation of CRRT. | | ☑ | ☑ |
| Able to partake in the development of a CRRT program and work closely with key stakeholders. | | | ☑ |
| 6.4.4 Key Capabilities: Therapeutic Plasma Exchange (TPE) | | | |
| Know the role and indications of TPE as guided by the American Society for Apheresis. | ☑ | ☑ | ☑ |
| Know the general guidelines for prescribing TPE. | ☑ | ☑ | ☑ |
| Know the two distinct types of filtrations: centrifugal (cTPE) and membrane filtration TPE (mTPE). | | ☑ | ☑ |
| Know the complications related to TPE:<br>• Citrate induced hypocalcaemia<br>• Coagulation abnormalities<br>• Infection<br>• Reactions to protein containing replacement fluids<br>• Electrolytes abnormalities<br>• Hypotension during TPE<br>Small risk of mortality from cardiorespiratory and anaphylaxis | | ☑ | ☑ |
| Gain exposure to other selective plasmapheresis techniques such as cascade filtration ("double filtration plasmapheresis") and immunosorbent techniques. These will be covered in Major Module No.5 on Kidney Transplantation. | | | ☑ |
| **6.5 Major Module No.5: Kidney Transplantation** | | | |
| Learning outcomes:<br>• To be able to advocate for paediatric kidney transplant especially living-related transplantation<br>• To be competent in the process of preparing for paediatric kidney transplant and care for the perioperative as well as post-transplant period. | | | |
| 6.5.1 Key Capabilities: Access to transplantation and ethical considerations | | | |
| Understand the risks and benefits associated with different sources of organ e.g. living donor and deceased donor kidney transplantation. | ☑ | ☑ | ☑ |
| Understand the concept of deceased donor paediatric kidney transplant waiting list and understand principles that govern organ sharing and distribution. | ☑ | ☑ | ☑ |
| Appreciate the ethical and legal framework governing kidney transplantation and able to recognize the ethical dilemmas involved in altruistic kidney donation. | | ☑ | ☑ |

| | | | |
|---|---|---|---|
| Recognize the ethical issues involved in living organ donor and deceased donor kidney donation. | | ☑ | ☑ |
| 6.5.2 Key Capabilities: Donor Selection | | | |
| Understand the knowledge about donor exchange programmes and the concept of expanded donor criteria. | ☑ | ☑ | ☑ |
| Know the medical/surgical conditions that mitigate against using the organs of a potential donor. | | ☑ | ☑ |
| Know the issues involved in management of the deceased donor prior to organ retrieval procurement. | | ☑ | ☑ |
| Know the advantages/ disadvantages of living related versus deceased donor and expanded donor criteria. | ☑ | ☑ | ☑ |
| 6.5.3 Key Capabilities: Recipient selection and work-up | | | |
| Know the absolute and relative conditions in a child that are contraindications to renal transplantation and be able to plan a pre-transplant evaluation programme including vaccinations and viral risk factors needed to be addressed pre-transplant. | ☑ | ☑ | ☑ |
| Know how to evaluate and manage urologic abnormalities prior to kidney transplantation. | | ☑ | ☑ |
| Know relative indications for nephrectomy of recipient's native kidneys prior to transplantation. | | ☑ | ☑ |
| 6.5.4 Key Capabilities: Transplant immunology and Desensitisation Protocol | | | |
| Understanding Human Leukocyte Antigen and Major Histocompatibility Complex HLA testing, Cross match, and detection of anti-HLA antibody. | ☑ | ☑ | ☑ |
| Understand the potential benefits and risks of pre- transplant immunologic conditioning programme. | ☑ | ☑ | ☑ |
| Demonstrate the ability to interpret the results of tissue typing as well as antibody screening and understand cross match procedures. | | ☑ | ☑ |
| Understand the causes and pre-sensitization measurements in transplant recipients and the mechanism of transplant rejection and types of rejection. | ☑ | ☑ | ☑ |
| Understand the therapeutic desensitisation approach to transplant in patients with pre-formed anti HLA antibody / sensitised patient for ABO incompatible. | | ☑ | ☑ |
| Understand antibody depletion strategies – Plasmapheresis, Double Filtration Plasmapheresis, Immunoadsorption etc as well as modulation of recipient's immune system | | ☑ | ☑ |

| | | | |
|---|---|---|---|
| with Intravenous Immunoglobulins and B-cell depletion with Rituximab. | | | |
| 6.5.5 Key Capabilities: Perioperative management | | | |
| Understand the concepts of cold and warm ischaemia time and how they could influence graft survival rates. | ☑ | ☑ | ☑ |
| Understand the intraoperative fluid and inotropic drug support for the paediatric renal transplant recipient. | | ☑ | ☑ |
| Understand the process of transplant surgery and potential surgical complications. | | ☑ | ☑ |
| Know how to monitor the effectiveness of transplant medication and its complications. | | ☑ | ☑ |
| Recognize the causes and be able to manage the child with rapidly decreasing urine output following renal transplantation. | | ☑ | ☑ |
| Know how to diagnose, evaluate, and manage early and any delayed graft function. | | ☑ | ☑ |
| Know about the prevention of post op infection and other complications. | | ☑ | ☑ |
| 6.5.6 Key Capabilities: Immunosuppressive medications | | | |
| Appreciate the basic pharmacologic principles of immunosuppression and understand their pharmacokinetics /pharmacodynamics. | ☑ | ☑ | ☑ |
| Understand Induction agents: Polyclonal antibodies, Monoclonal antibodies, and Maintenance Immunosuppression: corticosteroid, calcineurin inhibitors, anti-metabolites, mTOR inhibitors. | | ☑ | ☑ |
| Know about Therapeutic Drug Monitoring in transplantation and know about potential common drug-drug interaction. | | ☑ | ☑ |
| Understand the concept of immunosuppressive dose reduction post-transplant. | | ☑ | ☑ |
| Recognize the issues associated with the use of generic immune suppressive agents. | | | ☑ |
| Know how to monitor patients for long-term risks and be aware of long-term toxicities associated with immunosuppressive agents. | | ☑ | ☑ |
| 6.5.7 Key Capabilities: Management of acute and chronic allograft dysfunction | | | |
| Know the differential diagnosis of acute and chronic allograft dysfunction. | ☑ | ☑ | ☑ |
| Know the indications for radiological investigation (ultrasound scan, radio- isotope scanning) and kidney graft biopsy. | ☑ | ☑ | ☑ |

| | | | |
|---|---|---|---|
| Understand the basics in transplant pathology and know the features of various pathological conditions – rejection, viral inclusion, acute tubular necrosis. | ☑ | ☑ | ☑ |
| Know how to diagnose and treat acute rejection and chronic rejection and be aware of when anti-rejection treatment should be withheld in the face of allograft dysfunction. | | ☑ | ☑ |
| Know the natural history of chronic progressive transplant injury | | ☑ | ☑ |
| Understand the strategies to maximise long term graft function and survival. | | | ☑ |
| Understand the concept of immunologic tolerance. | | | ☑ |
| 6.5.8 Key Capabilities: Identify and manage infective and non-infective complications in renal transplantation | | | |
| Understand the need of balancing in between immunosuppression and risk of infection post-transplant and know about the principles of general prophylaxis post- transplant. | ☑ | ☑ | ☑ |
| Know about the transplant infection timeline and be able to recognize and treat bacterial and fungal infections following renal transplantation. | ☑ | ☑ | ☑ |
| Know about serology and molecular testing for infection. | | ☑ | ☑ |
| Able to recognise and manage non-infective complications:<br>• Hypertension and cardiovascular comorbidities<br>• Dyslipidaemia<br>• Post-transplant diabetes mellitus (PTDM) | | ☑ | ☑ |
| Know the clinical presentation and natural history of primary diseases that may recur after renal transplantation. | ☑ | ☑ | ☑ |
| Know about transplant associated malignancy: viral driven malignancy, post-transplant lymphoproliferative disease and non-virally driven malignancy. | | ☑ | ☑ |
| Know about transplant renal artery stenosis | | ☑ | ☑ |

# 7.0 KNOWLEDGE SYLLABUS – MINOR MODULES

## 7.1 MINOR MODULE NO.1: INTERVENTIONAL RADIOLOGY/ RADIOLOGY IN NEPHROLOGY

Key Capabilities and Descriptions:

| |
|---|
| Know relevant radiological investigations in diagnosing child with renal disorders: Ultrasound, Micturating Cystourethrography (MCUG), Computed Tomography Urography (CTU), Magnetic Resonance Imaging (MRI), Magnetic Resonance Angiography (MRA) and radioisotope nuclear imaging. |
| Able to correlate patient conditions and observed/ reported radiological findings to achieve diagnosis |
| Able to perform basic point-of -care ultrasound of the kidney, ureter, and bladder. |
| Able to perform an ultrasound guided intervention independently ie for vascular access or renal biopsy. |

## 7.2 MINOR MODULE NO.2: CLINICAL NEPHROPATHOLOGY

Key Capabilities and Descriptions:

| |
|---|
| Understand the preparation of tissue specimens for examination, staining characteristics of selected normal / abnormal kidney structures and the basic abnormalities that characterise the kidney structures. |
| Recognise the characteristic histopathologic changes commonly encountered in:<br>(i) Glomerular diseases with nephrotic syndrome presentation (Minimal Change Disease, Focal Segmental Glomerulosclerosis, Membranous Glomerulopathy, Membranoproliferative Glomerulonephritis)<br>(ii) Glomerular diseases with nephritic syndrome presentation (Postinfectious Glomerulonephritis, Immunoglobulin A nephropathy /Henoch Scholein Purpura, Thin basement membrane / Alport's Syndrome)<br>(iii) Systemic diseases affecting the kidney (Lupus Nephritis, Crescentic Glomerulonephritis)<br>(iv) Vascular diseases<br>(v) Tubulo-interstitial Disease<br>(vi) Renal transplant pathology |

| |
|---|
| Able to apply the knowledge of different kidney injury observed in histopathologic specimens in classifying syndromes of nephron injury and incorporate this knowledge into the management of clinical presentations of kidney diseases. |

## 7.3 MINOR MODULE NO.3: RESEARCH IN NEPHROLOGY

Key Capabilities and Descriptions:

| |
|---|
| Understand the principles in the basic methodology of clinical research and study design, including clinical research methods in epidemiology and biostatistics. |
| Able to design a simple research protocol and perform simple database establishment procedures, descriptive statistics, graphical display of data, simple hypothesis testing, categorical data analysis, sample-size estimation, and introductory regression analysis. |
| Able to critically appraise the literature when reading cohort, case-control, randomised controlled, or cross-over trials. Instruction in advanced computer-based literature search, preparation of a research proposal budget, legal and ethical issues in clinical research, and scientific writing instruction. |
| Able to perform an organised literature review and cite as he/she writes. |

## 7.4 MINOR MODULE NO.4: TRANSPLANT IMMUNOLOGY/ TRANSPLANT RESOURCE SYSTEM

Key Capabilities and Descriptions:

| |
|---|
| Has basic understanding of how immune system works :<br>• T cell and B cell pathway<br>• Complement pathway<br>• Phagocytic cell pathway |
| Understand the principles of immunology including tolerance, inflammation, innate, adaptive, and molecular mechanisms of alloimmunity. |

| |
|---|
| Appreciate more specific areas of interest which include immunosuppression, ischemia-reperfusion injury, humoral and cellular mechanisms of acute rejection and chronic allograft dysfunction, cellular and molecular mechanisms of tolerance, and the impact of resident microbial populations on transplant immunity. |
| Appreciate the role of the National Transplant Procurement Management Unit in managing organs donated by the deceased donor. This should include arrangements for organ procurement and organ preservation strategies. |

## 7.5 MINOR MODULE NO.5: TRANSITION MEDICINE IN NEPHROLOGY / OTHERS

Key Capabilities and Descriptions:

| |
|---|
| Recognises the complexity of transitioning patients with CKD to adult care and the risks associated with non-compliance, for example, the transplant graft failing. |
| Appreciate the long-term outcome of “Grown-up” CAKUT (Congenital Abnormalities in Kidney and Urinary Tract), rare inherited renal disease (Including those with an underlying congenital /metabolic disorder). |
| Collaborate well with colleagues in the adult nephrology services and demonstrates ability in the planning of a seamless transition process of patients to adult care. |

Note: Other relevant modules not otherwise mentioned may be allowed as well if deemed appropriate

# 8.0 SKILLS SYLLABUS

Trainees shall maintain a log throughout the training period on the procedures observed, assisted, and performed independently with or without supervision. For each skill listed in this skills syllabus, Direct Observation of Procedural Skills (DOPS) is used for assessing competencies in the practical procedures that fellows undertake. Evaluation should be performed by different assessors (over the span of the training period). Assessor shall agree that the trainee has acquired adequate skill to perform the procedure independently and safely.

Minimum number of successful procedures for each skill must be achieved at the end of training.

| Skill | Minimum number | Minimum DOPS | Key Capabilities | Descriptions |
|---|---|---|---|---|
| (A) Non cuffed catheter placement for temporary haemodialysis (HD) access. | 15 | 3 | Know the anatomical sites of potential vascular access for temporary HD and complications | Able to perform a basic vascular ultrasound to demonstrate patency of the vein intended as the site of insertion.<br><br>Able to perform body surface anatomy guided venous cannulation of the femoral vein. |

| | | | | |
|---|---|---|---|---|
| | | | Able to prepare the patient for the procedure including procedural analgesia and sedation. | Able to puncture the desired vessel percutaneously and insert the catheter via Seldinger technique. |
| | | | Able to choose the appropriate size of catheter for the patient. | Able to plan post procedure care and confirm placement with either radiographs and/or ultrasound before use. |
| | | | Know the potential complications related either to the procedure or the procedural sedation. | Able to manage unforeseen complications related to the procedure in a safe manner. |
| | | | <u>ADDITIONAL:</u> Trainees should also observe / assist in tunnelled central venous catheter for long term HD access and be ready to perform post training if necessary. | Able to discuss with parents regarding the indication, preparation, process, potential adverse events, and measures to reduce these complications and take a written informed consent. |

| | | | | |
|---|---|---|---|---|
| 2. Catheter placement for temporary peritoneal dialysis access | 3 | 2 | Know the anatomical landmarks and safe site for insertion of catheter (both rigid and soft).<br><br>Know the potential complications of the procedure. | Able to perform insertion of a soft single cuff catheter via Seldinger technique for temporary peritoneal dialysis.<br><br>Able to troubleshoot in the event of catheter malfunction. |
| | | | | Able to discuss with parents regarding the indication, preparation, process, potential adverse events, and measures to reduce these complications AND take a written informed consent. |
| 3. Renal Biopsy | 12 | 3 | Know the indications and contraindications for renal biopsy. | Able to perform preliminary assessment and prepare the patient for the procedure including measures to minimise risk of bleeding. |

| | | | | |
|---|---|---|---|---|
| | | | Know the different biopsy needles available: spring loaded Trucut renal biopsy needle and the automated biopty gun. | Able to perform a basic ultrasound of the kidney (native and graft kidney) and locate the site for biopsy and to perform a successful ultrasound guided percutaneous renal biopsy (native and graft kidney).<br><br>Able to plan appropriate monitoring post procedure. |

# 9.0 RESEARCH IN PAEDIATRIC NEPHROLOGY

The trainee must formulate a research question and discuss possible clinical research project with the trainer **by the end of first 6 months in training. (**Appendix G: Research Project Synopsis**)**

The trainee is expected to be involved in the project from writing the proposal to presenting/publishing the work. It is encouraged that trainees aim for publication.

Throughout the training period, trainees shall organise meetings regularly for advice and take the opportunities to attend courses on research methodology and basic biostatistics. Trainees may opt to undertake an Elective module on Research at appropriate centres.

It is a requirement that the trainee shall be the **first author in an abstract** accepted for scientific conferences/proceedings **before they could be signed up with the National Specialist Register as a Paediatric Nephrologist.**

# 10.0 Multisource Feedback (MSF)

Multisource feedback (MSF) in paediatric nephrology training is a systematic 360° assessment method where a trainee is evaluated by multiple assessors who interact regularly with them. These assessors include seniors, peers, and sometimes juniors, providing feedback across a broad range of competencies such as communication skills, professionalism, medical expertise, interpersonal skills, and collegiality.

This shall be performed using the Multisource Feedback Assessment form (Appendix I) **twice (2) annually, for training years in the country.**

**Trainees are also encouraged to provide feedback on the training centres, once during their posting to the facility. (Appendix J).**

# REFERENCES

1. Handbook on Specialist Training in Nephrology. Bak Leong Goh, Abdul Gafor Abdul Halim et al. Malaysian Society of Nephrology, 2021.
2. Subspecialty Specific Standards: Malaysian Standards for Medical Specialist Training, Malaysian Medical Council 2022.
3. The National Specialist Register Registration Procedures and Guidelines.
4. Paediatric Postgraduate Training in Malaysia Version 1.0. National Postgraduate Medical Curriculum. 2021
5. Paediatric Nephrology Subspecialty Syllabus version 2.0. Royal College of Paediatrics and Child Health. 2022
6. European Training Requirements for Training in Paediatric Nephrology. European Society of paediatric Nephrology. 2019
7. Pediatric Nephrology Content Outline. In-Training, Certification, and Maintenance of Certification Exams. The American Board of Pediatrics. 2018

# GLOSSARY

| Term | Description |
|---|---|
| **APD** | Automated Peritoneal Dialysis |
| **AKI** | Acute Kidney Injury |
| **AV** | Arterio-venous |
| **CAKUT** | Congenital Abnormality of Kidney and Urinary Tract |
| **CAPD** | Chronic Ambulatory Peritoneal Dialysis |
| **CKD** | Chronic Kidney Disease |
| **CRRT** | Continuous Renal Replacement Therapy |
| **cTPE** | Centrifugal Therapeutic Plasma Exchange |
| **CTU** | Computed Tomography Urology |
| **CVL** | Central Venous Line |
| **CVVH** | Continuous Veno-Venous Haemofiltration |
| **CVVHD** | Continuous Veno-Venous Haemodialysis |
| **CVVHDF** | Continuous Veno-Venous Haemodiafiltration |
| **DMSA** | Dimercapto succinic acid |
| **DTPA** | Diethylenetriamine pentaacetate |
| **eGFR** | Estimated Glomerular Filtration Rate |
| **HD** | Haemodialysis |
| **HDF** | Haemodiafiltration |
| **HIV** | Human Immunodeficiency Virus |
| **HLA** | Human Leukocyte Antigen |
| **HNF-1BETA** | Hepatocyte Nuclear Factor 1 beta |
| **MAG3** | Mercaptoacetyltriglycine 3 |
| **MCUG** | Micturating Cystourethrography |
| **MMC** | Malaysian Medical Council |

| | |
|---|---|
| **MMED** | Master of Medicine |
| **MRCPCH(UK)** | Membership of the Royal College of Paediatrics and Child Health (United Kingdom) |
| **MRA** | Magnetic Resonance Angiography |
| **MRI** | Magnetic Resonance Imaging |
| **mTOR** | Mechanistic Target of Rapamycin |
| **mTPE** | Membrane Therapeutic Plasma Exchange |
| **PD** | Peritoneal Dialysis |

# APPENDIX A: Centre Evaluation Form

| **Paediatric Nephrology Workload** | **Year: _____** |
|---|---|
| Hospital Name: | |
| State: | |
| In-house Paediatric Nephrologist(s): | 1. _____<br>2. _____<br>3. _____ |
| Peritoneal dialysis unit:<br>Haemodialysis unit:<br>Transplant unit: | Affiliated ☐ Owned ☐<br>Affiliated ☐ Owned ☐<br>Affiliated ☐ Owned ☐ |
| **Outpatient services:** ***Please tick the relevant boxes*** | |
| General Nephrology Clinic ☐<br>Low Clearance / Pre-Dialysis Clinic ☐<br>Dialysis Clinic (HD / PD) ☐ | Post-transplant Clinic ☐<br>Other Clinics not specified: (please state below)<br>_____<br>_____ |
| **Procedures performed:** ***Please indicate "number / per year"*** | |
| 1. Acute Haemodialysis session ……<br>2. Acute Peritoneal Dialysis ……..<br>3. Continuous Kidney Replacement Therapy ……...<br>4. Therapeutic apheresis ……..<br>5. Chronic Haemodialysis session…… | 7. Insertion of non-cuffed haemodialysis catheter for temporary dialysis access ……<br>8. Insertion of catheter for Peritoneal Dialysis Access ……..……<br>9. Kidney Biopsy: Native ……..<br>10. Kidney Biopsy: Graft……...<br>Others (please state below): |

| | |
|---|---|
| 6. Patients on Chronic Peritoneal Dialysis…….. | _____<br>_____ |
| **Supporting services available:** ***Please tick the relevant boxes*** | |
| Paediatric surgery ☐<br>General surgery ☐<br>Urology ☐<br>**Renal histopathology ☐<br>**Kidney Dietetic and Nutrition ☐<br>** *services offered in-house by trained personnel with special interest in the field / sub specialised personnel* | Diagnostic imaging and Radiology ☐<br>Interventional Radiology ☐<br>Transplant surgery ☐<br>Vascular / plastic surgery ☐<br>Others (please state below):<br>_____<br>_____ |
| **Educational Activities:**<br>***Please tick the relevant boxes*** | **Others:**<br>***Please tick the relevant boxes*** |
| Continuous medical education (CME) ☐<br>Journal appraisal ☐<br>Teaching junior doctors ☐<br>Clinical Audit / Continuous Quality Improvement (CQI) ☐ | Notification of kidney biopsies to Malaysian Registry of Renal Biopsy (MRRB) ☐<br>Monitoring of biopsy procedure performance via eCUSUM (electronic Cumulative Sum Control Chart) ☐ |
| Completed by:<br>_____ Date: _____ | |

# APPENDIX B: Trainer Application Form

NAME:

CENTRE:

| (A) PROFESSIONAL QUALIFICATIONS | |
|---|---|
| Date of NSR registration for General Paediatrics: | |
| Date of NSR registration for Paediatric Nephrology: | |

| (B) TEACHING / MENTORING EXPERIENCE: |
|---|
| |
| |
| |
| |
| |
| |

Curriculum vitae/Annual Practising Certificate attached:

SIGNATURE: DATE:

# APPENDIX C: Trainee Evaluation Form

NAME: _____

YEAR OF TRAINING: ☐ YEAR 1 ☐ YEAR 2 ☐ YEAR 3

CENTRE: _____

DATE OF EVALUATION: _____

| | Observation-based assessment *(Please tick: 1= need improvement, 2=meet requirements, 3-excellent)* | | | Remark |
|---|---|---|---|---|
| | 1 | 2 | 3 | |
| **(i) APTITUDE** | | | | |
| Punctuality / Accessibility | | | | |
| Professionalism with patients | | | | |
| Team working with colleagues | | | | |
| Verbal communication skills | | | | |
| Accountability at work | | | | |
| **(ii) CLINICAL** | | | | |
| Management of cases | | | | |
| Procedural skills | | | | |

| | | | | |
|---|---|---|---|---|
| **(i) ACADEMIC** | | | | |
| CME / Journal presentation | | | | |
| Ability to supervise and teach junior colleague | | | | |

| | |
|---|---|
|  **S**trength: | **W**eakness:  |
| **O**pportunities: |  **T**hreats: |

*Trainer should discuss the elements in SWOT analysis with the trainee and work on an agreed plan.*

SUPERVISOR'S SIGNATURE: _____ DATE: _____

# APPENDIX D: Mini-Clinical Evaluation Exercise (Mini-CEX)

*Minimum 2 per year

NAME: _____

YEAR OF TRAINING: ☐ YEAR 1 ☐ YEAR 2 ☐ YEAR 3

CENTRE: _____

DATE OF EVALUATION: _____

CASE DESCRIPTION: _____

| FOCUS (Please tick) | AREAS OF ASSESSMENT | BELOW AVERAGE | SATISFACTORY | HIGHLY SATISFACTORY | NOT APPLICABLE |
|---|---|---|---|---|---|
| | History Taking | | | | |
| | Physical Examination | | | | |
| | Counselling | | | | |
| Compulsory assessment | Clinical Reasoning | | | | |
| | Professionalism | | | | |
| | Overall Impression | | | | |

| *"What went well?"* |
|---|
| |

| *"What could be improved?"* |
| --- |
| |

| *Agreed learning plans:* |
| --- |
| |

SUPERVISOR'S SIGNATURE:

DATE:

TRAINEE'S SIGNATURE:

DATE:

# APPENDIX E: Direct Observation of Procedural Skills (DOPS)

NAME: _____

YEAR OF TRAINING: ☐ YEAR 1 ☐ YEAR 2 ☐ YEAR 3

CENTRE: _____

DATE OF EVALUATION: _____

PROCEDURE: _____

| DOMAINS | Satisfactory | Need Improvement | Comments |
|---|---|---|---|
| Knowledge (indication, anatomy, and technique) | | | |
| Obtained informed consent | | | |
| Demonstrate appropriate preparation pre-procedure | | | |
| Appropriate analgesia /sedation | | | |
| Technical ability | | | |
| Aseptic technique | | | |
| Post procedure management | | | |
| Communication skills | | | |
| Professionalism and consideration for patient | | | |

| **Overall ability to perform procedure:** | **Competent to perform unsupervised [ ]** | **May need supervision if complication arise [ ]** | **Needs more practice [ ]** |
|---|---|---|---|
| Comments: | | | |

SUPERVISOR'S SIGNATURE: DATE:

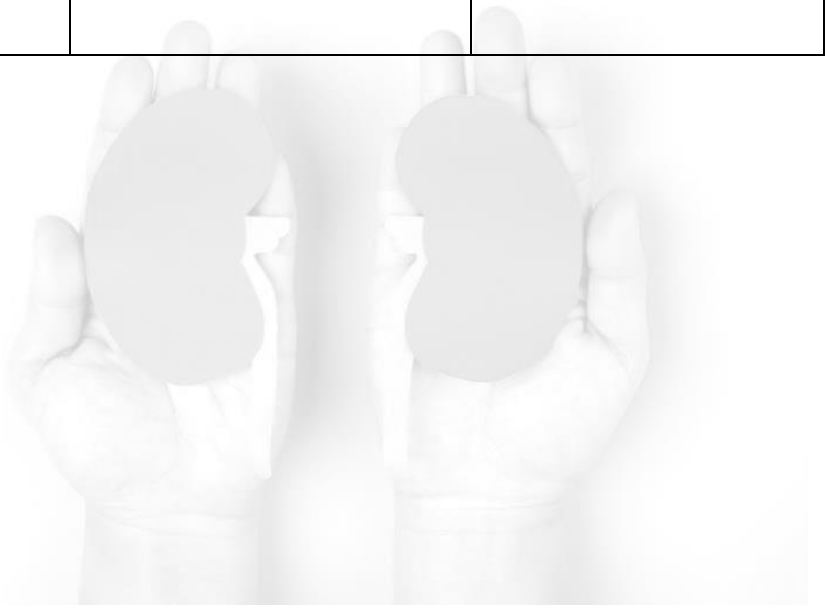
# APPENDIX F: TRAINING LOGBOOK

Trainee's Name: _____

NRIC number: _____

Date of starting training: ……/……/ 20……

| Date start – Date end | Centre of training | On-site Supervisor |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |



# Logbook Contents

## 1.0 Patient Care Experience

### 1.1 General Nephrology, Fluid and Electrolyte and Acid Base Disorders

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

### 1.2 Nephro-Urology

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**The tables are not limited to the number of rows illustrated.*

### 1.3 Acute Kidney Injury

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

### 1.4 Chronic Kidney Disease

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**The tables are not limited to the number of rows illustrated.*

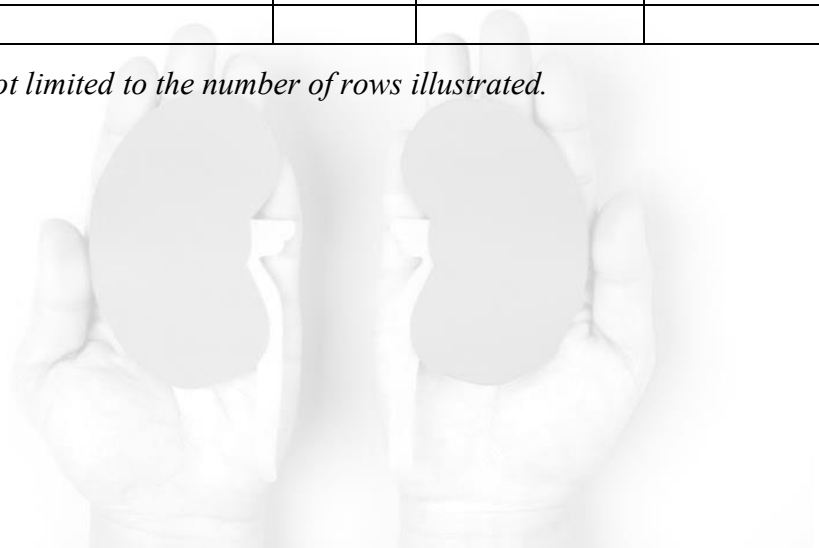
### 1.5 Dialysis and Therapeutic Plasma Exchange

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

### 1.6 Kidney Transplantation

| No | Date | Patient Name | RN | Age/Gender | Brief History | Final Diagnosis | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**The tables are not limited to the number of rows illustrated.*



## 2.0 Procedures

### 2.1 Non cuffed catheter placement for temporary haemodialysis (HD) access.

| No | Date | Patient Name | RN | Age/Gender | Observed (O) / Assist (A) /Perform (P) | Supervisor |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| | | | | | | |
| | | | | | | |

### 2.2 Catheter placement for temporary peritoneal dialysis access

| No | Date | Patient Name | RN | Age/Gender | Observed (O) / Assist (A) /Perform (P) | Supervisor |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| | | | | | | |
| | | | | | | |

**The tables are not limited to the number of rows illustrated.*

### 2.3 Renal Biopsy

| No | Date | Patient Name | RN | Age/Gender | Native Kidney Biopsy (N) / Graft Kidney Biopsy (G) | Observed (O) / Assist (A) /Perform (P) | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

### 2.4 Others (E.g.: Urine Phase Contrast Microscopy, Ultrasonography of Kidney Urinary Tract, Interpretation of Ambulatory Blood Pressure Monitoring, Bioimpedance Body Composition Monitoring etc)

| No | Date | Patient Name | RN | Age/Gender | Details of Procedure | Observed (O) / Assist (A) /Perform (P) | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**The tables are not limited to the number of rows illustrated.*

### 3.0 Educational Courses/Seminars/Workshops/Conferences attended (physical or virtual)

| No | Date | Course/Meeting/Seminar, etc | Venue | Supervisor |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |

### 4.0 Membership of Societies including NGOs relevant to Nephrology

| No | Year | Society/NGO | Position held | Supervisor |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

### 5.0 Research: Presentation at scientific conferences or publication

| No | Date | Title of abstract | In progress / Presentation / Publication | Conferences | Supervisor |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |

*Please attach the accepted abstract or manuscript after this page.*

# APPENDIX G: Research Project Synopsis

NAME: _____

YEAR OF TRAINING: ☐ YEAR 1 ☐ YEAR 2 ☐ YEAR 3

CENTRE: _____

| | |
|---|---|
| Study title | |
| Study Population | |
| Study Design | |
| General Objective | |
| Specific Objectives | |
| Study endpoints / outcomes | |
| Sample Size | |
| Estimated Study Duration | |

# APPENDIX H: Exit Assessment Report

DATE OF EVALUATION: _____

| | |
|---|---|
| Name: | |
| MMC Reg No: | |
| Year joined training: | |

**Training history:**

| Date start – Date end | Centre of training | On-site Supervisor |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Training activities:**

| | |
|---|---|
| Number of trainee evaluation form submitted | Year 1 [ ]<br>Year 2 [ ]<br>Year 3 [ ] |
| Number of MiniCEX submitted | |
| Number of DOPS submitted | |
| Logbook: | *Please check the logbook and ensure that trainee fulfils the criteria set in this handbook under Skills Syllabus.*<br>Completed successfully [ ]<br>Incomplete submission [ ] |

| | |
|---|---|
| Professional development plan: | *Please elaborate what was discussed with the trainee.* |

Recommendation:

Proceed with NSR registration: ☐ Defer registration: ☐

Comments: _____

_____

_____

Exit Assessment Panellists:

1. _____ _____

2. _____ _____

*(print name)* *(signature)*

Date: _____

# APPENDIX I: Multisource Feedback Form

| | | | | |
|---|---|---|---|---|
| Trainee full name | | | | |
| Supervisor: | | | | |
| Date of assessment: | | | | |
| Hospital: | | | | |
| Assessment: | *Superior* | Peer | Subordinate | |
| *Please grade the areas listed below:* | | | | |
| Kiindly tick in the appropriate box or write NA (if not observed) | Major Concern | Some Concern | No Concern | Comments |
| Maintaining trust/professional relationship with patient and staff<br>-Listens, polite and caring<br>-Shows respect for patients' opinions, privacy ,dignity and confidentiality and is unprejudiced | | | | |
| Verbal communication skills<br>-Gives understandable information<br>-Speaks clearly at an appropriate level for the staff and patients<br>-non-offensive | | | | |
| Team-working / work with colleagues<br>-works constructively in the team<br>-respects other roles<br>-hands over effectively<br>-is unprejudiced, supportive and fair | | | | |
| Availability<br>-takes proper responsibility<br>-delegates duties appropriately<br>-does not shirk duty<br>-responds when called<br>-arranges cover during absence | | | | |

| | |
|---|---|
| Suggestions for development (feedback to trainee): | |
| Signature and Designation: | |

# APPENDIX J: Trainee feedback on training centre

| | |
|---|---|
| Trainee full name | |
| Supervisor: | |
| Training centre: | |

| | Least satisfied | Not satisfied | Neutral | Agree | Most Agrreeable |
|---|---|---|---|---|---|
| 1. **The training is suitable and appropriate** | | | | | |
| 2. **The training improved your knowledge** | | | | | |
| 3. **Ther is adequate emphasis on theory and practical** | | | | | |
| 4. **The training is structured and organized** | | | | | |
| 5. **The training improved your skills** | | | | | |
| 6. **The teaching methods are satisfactory** | | | | | |
| 7. **The variety of cases are adequate** | | | | | |
| 8. **The facilities** | | | | | |
| 9. **The hospitality** | | | | | |
| 10. **The supervision and support during difficulties** | | | | | |

| **Additional Comments:** |
|---|
| |

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