

Section 2 General Competences

Knowledge and Understanding

- understand the impact of physical illness on mental functioning, for both children, young people and their parents and the effect of each upon the behaviour and functioning of the other
- understand the impact of relations and mental health upon a child's or young person's current and past emotions and behaviour
- understand the impact of culture and ethnicity in presentations of physical and psychological conditions
- know, understand and be able to compare and contrast medical and social models of disability
- understand the relationship between local health, educational and social service provision
- know about the agencies, both statutory and voluntary, that can provide general and condition-specific support to children, adolescents and their families in coping with their health problems
- know the objectives of paediatric follow-up
- understand and take account in their practice of risk issues to themselves and others, including those related to personal interactions, and bio-hazards
- have a working knowledge of risk assessment and its application to personal, professional, clinical and organizational practice
- understand and take account in their practice of measures to reduce clinical risk
- know how relative and absolute risks are derived and the meaning of the terms predictive value, sensitivity and specificity in relation to diagnostic tests
- know the legal and ethical guidelines to support their work and where to find more information when required
- be aware of the multidisciplinary investigation of sudden unexpected death in infancy
- understand the management of bereavement and be aware of national guidance documents on this

- understand the purpose of post-mortem examinations and know about procedures
- understand the process of bereavement in children and families and recognise abnormal grieving patterns.

Competences specific to the specialty

By the end of Level 3 Training in SPIN (Special Paediatric Interest in Nephrology), trainees will:

- understand the embryology and development of the genito-urinary system
- know the anatomy and structural abnormalities of the genito-urinary system
- understand salt and water metabolism in the fetus and the transitional events of birth
- understand the normal regulation of plasma electrolytes, calcium phosphate and acid-base regulation in premature babies, neonates, infants and children
- understand disorders of calcium and bone metabolism especially those induced by kidney disease
- understand normal maturation of renal vascular, glomerular and tubular physiology and their roles in achieving homeostasis
- understand the structural adaptation of the kidney to reduced renal mass
- appreciate the role of surgical and radiological intervention in the management of nephro-urological conditions
- know and understand the role of nephro-urological imaging techniques, their interpretation and limitations
- understand the regulation of blood pressure
- understand the genetic and immunological basis of renal disease
- understand the indications for a renal biopsy, and know its complications.
- understand the pharmacology and range of side-effects of the major groups of agents used to manage nephrological disease, including diuretics, anti-hypertensives and immuno-suppressants.
- understand the normal adaptive response of the kidney to fluid and electrolyte disturbance.
- understand the disorders of the kidney that cause fluid and electrolyte disturbance and know the endocrine diseases associated with electrolyte

imbalance

- know that child abuse may present with a range of nephro-urological symptoms, including urinary tract infection and disturbances of bladder control.

(see Good Medical Practice (GMC, 2001) - Good Clinical Care: 2, 3; Delegation and Referral: 45, 46.)

Skills

- recognise the breadth of different presentations of common disorders
- recognise features of undifferentiated illness which suggest serious or unusual pathology and initiate the appropriate clinical response with appropriate urgency
- recognise the diseases and host characteristics which make certain presentations life-threatening and manage these situations with vigilance and appropriate urgency
- be able to recognise when both physical and psychological problems are present and when more than one condition or disorder may be present
- be able to assess and manage co-morbidities associated with the range of paediatric presentations
- take a history from a child, young person and parent of the presenting difficulties to acquire information in sufficient breadth and depth in a range of possible symptom areas to allow accurate formulation of the problem
- be able to undertake an assessment of the mental state of children and young people, taking into account their age and stage of development and know whether they have the skills to help them and when to seek more expert paediatric, mental health or psychiatric assessment
- have developed observation skills to support their interpretation of children's or young people's developmental levels and possible physical signs when they are unable to co-operate with formal assessments
- be able to supplement clinical assessment with standardised instruments or questionnaires
- know when to gather information from other professionals e.g. those working in education, social work or from others who see the child in a variety of

settings

- be able to seek the views of children and young people, whatever their illness, regarding individual care and service planning, using expert resources appropriately
- be able to make a decision on the ‘most likely’ diagnosis and discuss this effectively with children and young people and their parents or carers, and with other colleagues, in the context of a plan of investigation and management
- be able to formulate a management plan for complex cases
- be able to review and modify a management plan as appropriate and know when to request help from senior colleagues or other services
- be able to take responsibility for the longer-term management of common acute and chronic cases leading or working with the multi-disciplinary and multi-agency teams, sub-specialists or networks as appropriate
- have developed expertise in practical procedures specifically related to the clinical care of small babies and children, and young people
- be able to develop and work within care pathways
- be able to manage and know how to obtain support for the consequences of chronic illness for a child, young person and their family
- be able to work effectively in multi-disciplinary teams and with colleagues from a wide range of professional groups
- be able to interact effectively with professionals in other disciplines and agencies and from the voluntary sector
- be aware of their role in the team and of their impact in the team
- have developed skills in recording consultations accurately and sensitively whilst maintaining a good rapport with the young person and family
- have developed a wide range of effective age-appropriate communication skills specific to their work with babies, children, young people and their families
- have developed credibility in their relationships with children, young people and their families, and with colleagues through their knowledge and skills and experience in clinical practice and in their ability to work independently
- have developed strategies to manage a child’s or young person’s anxiety and

personal anxieties

- have developed basic behavioural management skills with parents, children and young people and with other professional colleagues
- be able to recognise, acknowledge and manage different levels of parental anxiety
- be able to assess patterns of relationships and functioning within a family and how these might impact on a child's or young person's illness, seeking professional advice where appropriate
- have developed effective skills in the management of emotionally complex family situations
- be able to recognise indicators of stress or mental health problems in family members and communicate appropriately with relevant professionals
- be able to remain calm in stressful or high-pressure situations and take a timely, rational approach to the problem
- be able to approach new situations which require good clinical judgement with an analytic and informed approach
- show confidence and independence in decision-making in the care of patients
- be able to apply effectively to their practice the knowledge and understanding acquired during training
- have developed a reflective approach to their practice, with an awareness of their level of expertise and limitations and their development needs
- show an ability to learn from their previous good practice, and from clinical errors
- be able to practise evidence-based medicine and understand and analyse critically its limits
- be able to understand the limitations of guidelines, how to use guidelines effectively and when it is appropriate to work outside guidelines
- have developed skills to deal with issues of confidentiality and stigma associated with the presenting difficulties and family background issues
- be able to discuss an assessment of the psychosocial health of a child or young person with the multi-disciplinary team while respecting patient confidentiality.

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- develop the skills, knowledge and understanding appropriate to the competencies detailed in section 4 of this document.
- be able to supervise nurses and carers in the technique of collecting urine samples from children suitable for bacteriological investigation
- to be able to insert a urinary catheter
- be able to perform urinalysis and teach this to children, young people and parents
- be able to liaise with other professionals, as required, in the investigation and management of nephro-urological conditions
- be able to refer families to appropriate resources for the management of complex nephrology and nephro-urological conditions
- be able to develop care pathways for the investigation and management of urinary tract infection
- to be able to take a blood pressure, and supervise others in learning the skills involved, including how to use reference tables for normal values in children
- be able to provide dietetic advice for patients with renal disease, in conjunction with a multi-disciplinary team, as appropriate.
- be able to recognize immune-mediated renal diseases and understand specific therapies in their management
- be able to treat and manage fluid and electrolyte imbalances in renal and non-renal diseases
- be able to advise other clinicians on the diagnosis and management of fluid and electrolyte disturbance
- be able to investigate and manage metabolic bone disease, particularly that associated with renal disease, in liaison with tertiary specialists as clinically indicated

(See Good Medical Practice (GMC, 2001) - Good Clinical Care: 2,3; Maintaining Trust: 19; Working with Colleagues 34,36; Probity: 50.)

Values and Attitudes

- be committed to a policy of advocacy for a healthy lifestyle in children and

young people and for the protection of their rights

- understand national and contribute to local initiatives aimed at reducing inequalities in child health and well-being
- practise with compassion and respect for children, young people and their families and act as a role model for others
- adopt an open-minded approach to equality and diversity in their practice
- be aware of the effects of social, cultural and religious context and conflict upon families
- understand the importance of cultural diversity and the difficulties where religious and cultural beliefs that parents might hold about the treatment of their children are in conflict with good medical practice and know when legal and ethical guidelines will support your management or view of the situation
- have developed strategies to manage relationships where health-care beliefs might cause conflict
- be able to advise patients appropriately on debates and controversies in health care
- be sensitive to the effects of stigma on children and families in relation to medical conditions
- be able to work effectively with children, young people and parents or carers, to agree and help them follow management plans
- be able to work effectively with young people who may have or may develop health care beliefs which are in conflict with those of parents or professionals, and know when legal and ethical guidelines will support your management or challenge of the situation
- be able to accept complex and difficult challenges
- show an understanding of the importance of ensuring a healthy balance between professional and domestic priorities
- have the willingness to acknowledge and reflect on the way in which they may, influenced by their earlier life experiences, have an impact on perceptions of and interactions with young people, their families and professionals

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- be able to work seamlessly with colleagues in tertiary care and other members of the multidisciplinary team so that there is clear communication with children and their parents/carers
- be aware of the emotional impact of interventions such as intermittent catheterisation and supplemental feeding on children/teenagers and parents/carers, and be able to work with them, and other professionals, in ameliorating this impact
- appreciate the ethical issues surrounding organ donation and be aware of issues relating to compliance and concordance.

(See Good Medical Practice (GMC, 2001) - Good Medical Practice: 1; Good Clinical Care: 5; Maintaining Trust: 19; Working with Colleagues: 36.)

Teaching and Research

- have developed a range of effective teaching and learning skills in a range of clinical contexts
- be able to identify learning needs in a wide range of professionals and build on this in their teaching
- be able to elicit and act upon feedback on content and presentation of teaching
- be able to participate in teaching and research on topics within their specialty and in related areas
- conduct research with honesty and integrity, seeking ethical approval where appropriate and safeguarding the interests of patients
- demonstrate an understanding of ‘good clinical practice’ for all aspects of the conduct of clinical trials
- demonstrate an understanding of the role of ethics committees for clinical studies and the process of ethics applications
- understand the techniques used in epidemiological studies
- demonstrate an understanding of how to perform and interpret systematic reviews, how they differ from narrative reviews and understand the principles of meta-analysis
- understand the difference between population-based assessments and unit-

- based studies and be able to evaluate outcomes for epidemiological work
- be able to develop clinical guidelines, understand how they are produced nationally and how these should be used to guide their own practice
- be able to evaluate research effectively in paediatrics and child health
- take responsibility for the training, supervision and assessment of undergraduates and trainees and other professionals such as nurses, teachers and social workers in and outside the specialty
- have developed skills in the presentation of information relevant to their clinical practice for a range of audiences, including spoken presentations at meetings, written information for children and families and training materials for different groups of colleagues
- be able to lead departmental teaching programmes, including journal clubs
- be willing to accept mentoring as a positive contribution to their own professional development
- be willing to learn from others, to discuss cases openly and to seek advice as appropriate and as necessary

(See Good Medical Practice (GMC, 2001) - Teaching and Training, appraising and assessing: 13, 14, 15, 16; Probity: 51.)

Leadership and Management

- be able to provide specialist support to hospital- and community-based paediatric services including primary care
- be able to take on a leadership role in a multi-disciplinary team when appropriate, for example by representing the health needs of a child, young person and their family at a discharge meeting, and know when it may be inappropriate to do so
- be able to work effectively in multi-agency teams, for example, with social workers and teachers, and have developed an awareness of their own role within the team and of the skills and expertise of others
- be confident to make decisions within a team and be aware of their impact on other team members
- be able to advise the team providing advanced life support and to liaise

- effectively with anaesthetic and PICU staff
- demonstrate effective leadership skills in clinical situations, for example through their ability to organise, prioritise and delegate, and be able to help others to develop these skills
- have skills and strategies to manage conflict effectively
- have understanding and skills to be able to participate effectively in clinical and management meetings
- have developed effective administrative skills including ways to make best use of secretarial resources
- be able to handle enquiries from the press and other media effectively
- recognise their own working preferences and accept different approaches of colleagues
- know how to respond appropriately to health service targets and be able to participate in the development of services
- be able to work with stake-holders so that a client- or patient-centred service is created and sustained
- have gained an understanding of national and local regulatory bodies, particularly those involved in standards of professional behaviour, clinical practice and education, training and assessment
- understand the value and limitations of evidence-based medicine

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- be able to lead local multidisciplinary teams as appropriate in the care of infants and children with different types of renal disease, including patients with antenatally detectable renal problems.
- as a paediatrician with “special interest”, have a particular appreciation of the importance of liaison with both local generic paediatric services and specialist medical support elsewhere, and to be able to manage and support such “networks”.

(See Good Medical Practice (GMC, 2001) - Working with Colleagues: 34, 35, 36, 39, 42.)

Personal Commitment to Professional Standards

- understand the duty of all professionals working with children to report concerns about child protection issues to Social Services
- be able to contribute to the implementation of national and local health policy initiatives
- know and follow key legal and ethical guidelines relating to confidentiality, consent to treatment, the right to refuse treatment, continuing changes in the law and its interpretation and be aware of variability in Scotland, Wales and Northern Ireland
- be able to generate local and evaluate national clinical guidelines and protocols in paediatric practice and public health and recognise the individual patient's needs when using them
- participate and take responsibility for clinical governance activities, and encourage and support colleagues in their participation
- be able to carry out audit in a range of settings in partnership with all stakeholders in order to identify best practice
- know about and participate in clinical and research special interest groups relevant to their specialty
- know when in the interest of the child it may be necessary to break confidentiality
- know how to find, review and maintain relevant knowledge in their specialty in order to maintain their fitness to practise
- ensure that they are up-to-date in their practice and promote evidence-based medicine where possible
- be able to evaluate their own performance critically
- be open about sharing and reviewing their practice with others
- be aware of local processes for dealing with and learning from clinical errors and to be able to work within them

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- know specific national audit standards and guidelines relating to renal disease, and be able to compare local guidelines with national recommendations.
- understand the care of the dying child, with particular regard to reasons for not

choosing dialysis or transplantation and the ethical issues surrounding the withdrawal of care

- know the role of the Renal Registry, UK Transplant, the Renal Association, British Association for Paediatric Nephrology and other related professional organisations

(See Good Medical Practice (GMC, 2001) - 1; Maintaining Good Medical Practice: 10, 12; Relationships with Patients: 17; Working with Colleagues: 35; Dealing with Problems in Professional Practice: 26, 27, 29, 30. Probity: 58.)

See also for all of these sections: Good Medical Practice in Paediatrics and Child Health,² London: Royal College of Paediatrics and Child Health (2002).

Communication Skills in Paediatrics

- understand the importance of directing communications to the baby, child or young person as well as to parents and carers
- have developed skills to establish a child's or young person's and family's understanding of a situation and to build on this effectively in discussion about the condition and its management
- understand the importance of seeking the views of all children and young people to inform decisions about their individual care and to encourage their participation in their care
- encourage children and young people to participate in their individual care and in the development of services, using expert resources appropriately
- have effective active listening skills in consultations with children and young people and understand the need to respect their views in accordance with their age and maturity and to respond appropriately where, for example, a child or young person is felt to be vulnerable
- have developed effective skills in working with children, young people and families to achieve concordance in planning management and treatment, enabling children and young people to maximise control over their illness and its management

²*Good Medical Practice in Paediatrics and Child Health*, London: Royal College of Paediatrics and Child Health (2002). Online at www.rcpch.ac.uk/publications/recent_publications.html

- be able to respond appropriately, and know where to find assistance, in cases where a child, young person or family may not all speak English or where there is a sensory impairment that may affect understanding
- be able to respond to babies, disabled children or young people who may not be able to express themselves verbally, including those who might be in pain or distress
- be able to recognise, interpret correctly and respond to verbal and non-verbal cues from children, young people and parents
- have developed observation skills to support their interpretation of children's or young people's developmental levels and possible physical signs when they are unable to co-operate with formal assessments
- demonstrate appropriate responses and empathy for children, young people and their families experiencing difficulty and distress
- have developed a range of language strategies, such as the use of metaphor or images which relate to everyday life, to explain clearly to a child or young people and their family, their symptoms, condition or treatment, their feelings or behaviour
- be able to counsel parents about serious conditions and abnormalities within their area of expertise
- have effective strategies for careful and appropriate use of language in difficult and challenging circumstances, for example, at the birth of a baby with disabilities or where there is a conflict with colleagues
- be able to discuss the indications, benefits and adverse events of a procedure to patients, relatives and carers in a manner that will allow informed consent
- have developed a range of approaches to communicating the breadth of diagnostic possibilities and other clinical information to children, young people and their families so that consent is always informed and the plan and progress of treatment understood
- be able to advise children, young people and their families about the importance of concordance and about medication interactions and side-effects
- be able to convey and share effectively difficult or bad news, including end-of-life issues, with children, young people, parents or carers and help them to understand any choices they have or decisions to be made about ongoing

management

- be able to prepare and discuss with parents, carers and other professionals “Do not attempt resuscitation” policies as appropriate, taking due account of the Human Rights Act (1998), ensuring that the best interests of the child are held as paramount at all times
- be able to seek consent for post-mortem examinations and communicate effectively with the Coroner
- be able to confirm with children, young people and their families their understanding of a situation from what has been said and written and clarify this as appropriate
- be able to explain the role of other professionals and agencies to children, young people and their families
- have the confidence to be firm and diplomatic in difficult situations, for example, when dealing with angry parents
- understand the limits of their competence, particularly in stressful situations and be willing to seek help in managing sensitive and complex situations
- be able to demonstrate to trainees how to communicate a diagnosis and prognosis effectively to children, young people and their families
- be able to demonstrate and explain to trainees strategies used to conduct effective consultations with babies, young children, adolescents and their families
- have effective skills in written communications for a range of audiences, for patients and their families, colleagues and other professional organizations
- ensure that spoken and written communications with patients and families are presented in clear, straightforward English, avoiding jargon whenever possible
- ensure that written information in the form of booklets, leaflets, information sheets and websites support verbal communications wherever possible
- ensure that written communications summarise accurately discussions with children, young people and parents or carers, and, to avoid confusion and anxiety, do not include information that was not part of the original discussion
- be able to liaise with parent support and self-help groups when necessary
- be able to prepare a court report as a professional witness and develop the skills to present such material in court

- know how to write reports about alleged abuse of children and young people for social services or the courts
- be able to write reports that explain the condition of a child or young person to non-health personnel working in the courts, social services or education
- be able to use electronic communication media, taking into consideration the principles of confidentiality outlined in the Data Protection Act
- have developed effective professional networks to support clinical practice and other activities, including research, education and management

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- communicate clearly and empathetically to patients / parents / carers, the nature of a renal condition be it acute, chronic or relapsing, or detected through antenatal or postnatal screening, this to include, as appropriate, the illness prognosis and the need for monitoring, and, for any therapeutic interventions, their benefit and side-effects.
- appreciate the particular communication and relationship skills required for the ongoing management of patients within a clinical network
- understand and appreciate the counselling of families about renal replacement therapy, including the benefits and risks of haemodialysis.

Section 3 General Clinical Competences

Development

- know the range of patterns of normal development from birth to adulthood
- know and understand the range of children's or young people's psychological and social development, including the normal range and what is outside it
- be able to identify when patterns of development are abnormal and where there may be a risk of abnormality which may only become apparent with time
- know the causes of disability, how disability might affect clinical examination and assessment and be able to contribute to a multi-disciplinary approach to management understand the severity of the presentation, taking into account normal development in appropriate domains
- know how to institute further assessment and investigation
- know about different modes of screening and health promotion strategies
- understand the ways in which children's or young person's mental health difficulties may present in infancy, childhood and adolescence
- understand the impact of biological factors, including genetic and cognitive factors, on the mental health of children and young people
- understand the impact of other environmental factors (including violence, trauma, neglect, abuse and disruption, wherever this has occurred) on a child's development, mental health and functioning
- be able to assess the effects of recurrent or chronic illness and its treatment on growth, psycho-social, emotional, physical and sexual development and have strategies to minimize adverse effects

Competences specific to the Specialty

By the end of Level 3 Training in SPIN (Special Paediatric Interest in Nephrology) trainees will:

- understand the possible impact of renal disease on the emotional and physical well-being of the child and family, and on their later life, including the potential for reduced independence, educational and employment issues

Emotional development

- understand and recognise somatisation disorders and know how to provide initial management and how to access appropriate support
- recognise pointers to fabricated and induced illnesses and know how to provide initial management and how to access available support
- understand the emotional impact of illness and hospitalisation on children, young people and their families and take action to minimize this impact
- understand how a family's, child's or young person's attitude to the problem and services may have a significant impact on the presentation and its management
- recognise the need for specialised input in cases of serious emotional distress or mental illness and ensure their needs are met within local health provision
- understand the emotional dimensions of eating disorders and recognise and initiate treatment
- be able to assess parenting skills and recognise and respond to indications of unsatisfactory or unsafe parenting
- know how to access help in cases where children or young people of different ages might be deprived of opportunities to play and to learn
- know how to manage common behavioural problems

Social development

- be able to recognise and understand the impact of autistic spectrum disorders and other organic disorders on social development

Educational development

- demonstrate, in all aspects of their practice, an understanding, of the vulnerability of a child or young person with learning difficulties

Competences specific to the Specialty

By the end of Level 3 Training in SPIN, trainees will:

- understand the impact of renal disease and its treatment on educational development and be aware of strategies to minimise this

Growth and Nutrition

- know the reasons for faltering growth, including emotional factors and how to investigate appropriately
- understand and assess normal and abnormal pubertal development and its relationship to growth
- understand the environmental factors contributing to obesity and how these might be altered
- be able to recognise feeding problems and work with parents directly to offer simple advice and to treat co-morbid conditions
- know about the principles and methods and indications for nutritional support and common problems that may arise from invasive methods or refeeding
- be able to identify nutritional deficiencies and growth failure which may occur in children and young people who undergo unsupervised dietary modification

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will:

- understand, and be able to identify and manage, the multiple factors affecting growth and development in chronic renal disorders
- understand the dietary restrictions appropriate to different renal disorders
- understand the principles of nutritional support including supplementation and different modes of enteral feeding
- be able to monitor growth and liaise with the wider nutritional team, to optimize growth in patients with renal disease
- be familiar with the role of growth hormone in growth failure in chronic renal disease, and be able to work with appropriate specialist colleagues in its administration and monitoring
- understand the importance of final height to the child, or young person, with renal disease, and appreciate the need to identify this as a high priority treatment goal.

Adolescence

By the end of Level 3 Training in SPIN, trainees will:

- understand what the specific needs of young people are, in terms of their emotional, mental and physical health, and how these are different from those of children
- know the epidemiology of the main causes of morbidity and mortality in young people
- ensure that young people have access to ‘in-patient’, ‘outpatient’ and other medical services that best meet their needs
- understand why young people harm themselves and respond appropriately to actual or threatened episodes of self-harm in adolescents
- understand the consequences of self-harm and be able to work as part of a clinical network in the management of the young person who self-harms
- be able to discuss sexual health issues including basic contraceptive advice and know how to help the young person access appropriate sexual health or genetic advice
- know about national policies concerning the health care of young people, including those which help to reduce teenage pregnancy
- understand the processes of adolescence including experimental behaviours, learning by experience, achieving independence from the family, and the consequences of these on health and illness in young people
- be able to discuss comfortably with young people important health behaviours such as the use of tobacco, alcohol or recreational drugs, and intimacy and sexual activities together with the promotion of appropriate strategies for these in relation to specific conditions such as asthma, diabetes, cystic fibrosis, physical disability
- understand the particular needs of adolescents with regard to their independence and autonomy, education and work, body image and sexual identity, concordance with medication and risk-taking and understand how these factors may be affected in young people with chronic conditions
- be able to support young people in self-management of both acute and chronic disease where they want to, and have an understanding as to how to best help when the young person cannot or does not want to manage this
- be able to discuss the implications of chronic illness or disability for career

options

- where appropriate and at a negotiated time, be able to raise and agree management of end-of-life issues with young people and their families and record conclusions in medical notes
- understand issues around transition from paediatric to adult care in adolescents with chronic conditions and disabilities, and be able contribute effectively to transitional care services
- understand and value the roles of members of the multidisciplinary team in the delivery of a transitional care programme

Competences specific to the specialty

By the end of Level 3 Training in SPIN, trainees will

- understand that experimental adolescent behaviour can lead to clinical problems in renal disease, including an increase in transplant rejection and loss, and to appreciate management strategies to help minimise these issues, including the importance of developing effective transition to adult renal services.

Section 4 Specialty-specific Competences in Special Paediatric Interest in Nephrology (SPIN)

By the end of Level 3 Training in SPIN, trainees will:

(Urinary tract)

Urinary tract structure

- know the normal development of the upper and lower renal tract, and understand the pathology of major renal tract anomalies.
- understand the significance of genital abnormalities, ambiguous genitalia and intersex, and their associations with renal and other diseases.

Urinary tract infection

- have a thorough understanding of the pathology of urinary tract infection (UTI), including microbiology, epidemiology and host-defence factors.
- have a good appreciation of current theories and controversies on all major aspects of UTI. (*i.e. two separate points instead of one*)
- understand the possible long term consequences of UTI, including the secondary progression of renal damage.
- have a detailed current knowledge of the presentation, diagnosis and management of UTI throughout childhood, including diagnostic criteria, the significance of different age-groups, , acute and ongoing management, and prevention.
- understand the significance of vesico-ureteric reflux (VUR), renal dysplasia, voiding and bladder abnormalities, and obstructive lesions.
- be able to counsel families on the inheritable nature of VUR
- be able to coordinate a local UTI management service, appreciating the importance of current local, regional and national UTI guidelines.

Antenatally detected conditions

- know the range of urinary tract conditions that can be detected antenatally.

- know the pre- and post-natal presentation and management of antenatally-detectable renal problems
- know the organization of antenatal and post-natal care, and be able to lead a local multi-disciplinary team in the care, of infants with antenatally detected renal problems.

Disorders of micturition

- know the physiology of normal micturition, and understand the normal acquisition of bladder control.
- know the pathophysiology of the different types of bladder dysfunction.
- understand the role of investigation of disturbed micturition, including imaging and urodynamics.
- understand the appropriate medical and surgical management of different types of bladder dysfunction.
- understand management strategies for the various forms of intermittent urinary incontinence, including behavioural and pharmacological therapies.
- appreciate the role of the multi-disciplinary community continence team, and understand the functions of the paediatrician in such a team.

Haematuria and Proteinuria

- know the causes of, and appropriate investigations for, haematuria and proteinuria.
- understand glomerular and tubular handling of protein.
- be able to differentiate between pathological and physiological proteinuria, and develop a diagnostic care pathway.
- know the indications for renal biopsy in this group of patients (i.e. separate point for biopsy)
- be able to lead and co-ordinate investigation and management of a child with haematuria and/or proteinuria, appreciating the role of the paediatric nephrologist, particularly in patients being considered for renal biopsy.

Nephrotic syndrome

- know and understand the pathophysiology of the nephrotic syndrome.
- appreciate the different forms of childhood nephrotic syndrome.
- know the initial investigations, and current management of nephrotic syndrome, and the know the indications for renal biopsy.
- be able to detect and manage the associated complications of the nephrotic state.
- be able to lead the long term management of steroid-sensitive nephrotic syndrome, appreciating the role of the paediatric nephrologist in the “shared care” of complicated cases.

Hypertension

- understand the techniques of blood pressure measurement, their advantages and limitations.
- know the renal and non-renal diagnoses implicated in hypertension in different age groups, and the mechanisms causing primary (essential) and secondary hypertension.
- be able to diagnose acute and chronic hypertension, taking into account normal blood pressure data in children.
- understand the principles of the investigation and management of acute and chronic hypertension, including hypertensive crises, encephalopathy and cardiac failure, and appreciate the involvement of a paediatric nephrologist in more complex cases.

Nephrolithiasis and Nephrocalcinosis

- understand the aetiology of renal stone formation and nephrocalcinosis, including underlying metabolic and genetic disorders.
- understand the acute and chronic, medical and surgical management of renal stones.
- be able to investigate and manage the child with renal stones and nephrocalcinosis, in conjunction with urologists and paediatric nephrologists when appropriate.

Tubular disorders

- know and understand the different causes and clinical presentations of primary and secondary tubular disorders.
- know the principles of the investigation and management of tubular disorders.
- Understand the special issues of tubular function and dysfunction of the premature and sick newborn.

Other renal disorders

- appreciate the pathology, including where relevant the genetics, and know the presentation, initial investigation and management, of a wide range of (other) renal disorders including those given below, and understand the role of the paediatric nephrologist in more complex cases:

Glomerulopathies

Vasculitis

Haemolytic-uraemic syndrome

Interstitial nephritis

Renal cystic disease

(Renal Failure)

Acute renal failure

- know the causes and presenting features of acute renal failure (ARF).
- know the complications of ARF, and be able to initiate emergency management of such complications, including hyperkalaemia and fluid overload.
- be able to manage uncomplicated cases of ARF, and understand the role of the paediatric nephrologist in the management of more severe cases.
- know the indications for dialysis.
- appreciate the nephrological support required in the management of patients with multi-organ failure or systemic disease, and have a keen understanding of the indications for transfer of patients for specialist renal care.
- be able to liaise with a local specialist paediatric or neonatal intensive care

service about patients with renal problems, and appreciate the role of a paediatric nephrologist in severe or complex cases.

Chronic renal failure

- know and understand the presentation, clinical course and prognosis of diseases causing chronic renal failure.
- be able to initiate the investigation of chronic renal failure
- know the principles of the assessment of the degree of renal failure, and the monitoring of its progression.
- be able to manage mild chronic renal failure, appreciating the role of timely coordination with a paediatric nephrology service.
- understand the pathophysiology of systemic complications, including bone disease and anaemia.
- know the principles of the management of the effects of chronic renal failure including biochemical disturbance, renal bone disease and anaemia, and understand the management and promotion of growth and nutrition.
- appreciate the importance of cardiovascular risk factors including hyperlipidaemia and hypertension.

Dialysis and Plasmapheresis

- understand the principles of peritoneal dialysis, haemodialysis, and plasmapheresis.
- appreciate the range of people involved in delivering such services.
- appreciate the range and diversity of invasive renal services available across the UK.
- appreciate the importance of prompt initiation of dialysis in emergency situations and know how this can be achieved in practice.

Transplantation

- understand the principles of the pre-transplantation “work-up” of patients.
- appreciate the principles involved in the transplantation procedure (cadaveric and live-related donor), and of management in the post-operative period.

- understand the principles involved in the long term ongoing management of post-transplant patients, including the effects and risks of immunosuppression.

Section 5 Practical Procedures and Investigations

By the end of Level 3 Training, trainees will:

- know the appropriate indications for practical procedures and investigations
- know the contraindications and complications of procedures
- know the local and national guidelines for obtaining informed consent
- know the local and national guidelines for undertaking investigations or procedures
- know the local guidelines for providing sedation and pain relief for practical procedures
- know the relevant anatomical markers for invasive procedures
- know and practise scrupulous aseptic techniques
- be aware of safety issues for patients and staff in relation to investigations of body fluids and radiation
- understand the importance of post-mortem investigations
- know the national and local guidance for obtaining consent for post-mortem
- be able to interpret results of investigations requested and respond appropriately
- be able to record results and document procedures legibly and accurately
- be able to give appropriate medical information when requesting investigations
- know that results should be requested clearly and retrieved promptly
- understand common age-appropriate normal ranges or appearances
- be able to use all equipment required to undertake common procedures and investigations
- be able to explain the investigation results to parents and/or the child
- be aware of the factors that are likely to influence the anxiety of the child, parent and doctor and know how to enlist effectively the help of play-leaders, nursing staff and more senior paediatric staff when necessary
- be receptive to feedback from patients and parents/carers on the effects of medication/treatment

- know about the role of complex investigations e.g. CT and MRI scans and their diagnostic potential and complications
- recognise when the results of commonly-used radiological investigations are abnormal
- have developed confidence in independent performance of practical procedures
- be able to supervise and teach others
- recognise complications of procedures and be able to respond appropriately
- understand and follow the local guidelines for the prevention and management of needle-stick injury
- be able to recognise the importance of universal precautions as well as the disposal of sharps within the department
- have experience of speaking to parents when complications have occurred
- know about processes for critical incident reporting
- obtain informed consent appropriately
- supervise handover of results that still need to be obtained at the end of shifts

Competences specific to the specialty

By the end of Level 3 Training, SPIN (Special Paediatric Interest in Nephrology) trainees will:

- know the practicalities, limitations and special precautions of tests of renal function
- be able to take a BP in neonates, infants and older children
- be able to catheterise the urinary bladder, and appreciate the special issues associated with artificial bladder conduits
- understand the procedures involved in imaging techniques in nephro-urology,
- have appropriate current knowledge of potential hazards of radiological investigations and have an understanding of the general governance and licensing of these investigations
- be able to interpret glomerular filtration rate (GFR) from formal clearance techniques and by estimation from height
- be able to conduct and interpret tests of tubular function
- know and understand the role of uroflowmetry and urodynamics in disorders

of micturition

- understand the procedures involved in a renal biopsy.
- understand the principles of peritoneal dialysis, haemodialysis, and plasmapheresis

Diagnostic Procedures

By the end of Level 3 Training, trainees will be able to perform the following diagnostic procedures independently:

- collection of blood from central lines
- umbilical artery and venous cannulation and sampling
- peripheral arterial cannulation
- venesection
- capillary blood sampling
- suprapubic aspiration of urine
- urethral catheterisation
- routine testing of urine
- perform basic lung function tests
- electrocardiogram
- lumbar puncture
- non-invasive blood pressure measurement

Competences specific to the specialty

(none)

Therapeutic Procedures

By the end of Level 3 Training, trainees will be able to perform the following therapeutic procedures independently:

- administer intradermal, subcutaneous, intramuscular, intravenous injections
- percutaneous long-line insertion
- bag, valve and mask ventilation
- needle thoracocentesis for pleural effusion or pneumothorax
- tracheal intubation

- intubation of newborn infants of most gestations
- administration of surfactant
- external chest compression
- insertion of intraosseous needle

Competences specific to the specialty

(none)

Pharmacology and Therapeutics

By the end of Level 3 Training, trainees will:

- know and understand the pharmacological basis for treatments
- know the approved indications and justification for prescribing drugs in common paediatric problems
- know the pharmacokinetics and pharmacodynamics of commonly prescribed drugs
- be able to calculate drugs accurately according to specific dose for weight, or age/weight range or on a specific dose/surface area basis
- know the risks of prescribing in the child-bearing years, in pregnancy and in breast-feeding mothers
- know about the roles of the regulatory agencies involved in drug use, monitoring and licensing (for example the National Institute of Clinical Excellence, the Committee on Safety of Medicines, the Medicines and Healthcare products Regulatory Agency and Hospital Formulary Committees)
- be able to find out information necessary for safe prescribing through use of paediatric formularies and pharmacy liaison
- know about drug interactions of commonly used drugs
- know about procedures for obtaining consent in children and young people for the administration of drugs
- be able to use the local and national guidelines for the relief of pain in children
- know and follow local policies for intrathecal cytotoxic therapy
- respond appropriately to errors of prescription or administration and be able to

talk to parents about this

- be able to prescribe safely and supervise prescription for the newborn, and for children of all ages
- know about the licensing of medicines for paediatric patients and unlicensed and off-label use and the implications of extemporaneous products
- know how to explain relevant potential adverse side-effects
- be able to advise and supervise safe prescription of intravenous fluids to medical and surgical patients
- be able to prescribe in a manner that enhances adherence and provide information and explanation that enhances concordance

Competences specific to specialty

By the end of Level 3 Training in SPIN, trainees will:

- understand the renal handling of drugs
- understand how renal disorders affect drug pharmacokinetics
- understand how different drugs affect the kidney
- be able to adjust drug prescription in accordance with renal function
- appreciate how dialysis or plasmapheresis affects drug pharmacokinetics
- be able to work with pharmacists and nursing staff to promote safe prescribing, including informing other health professionals of the implications of prescribing in renal disease

References

1. *Good Medical Practice*, London: General Medical Council (2001)
2. *Good Medical Practice in Paediatrics*, London: Royal College of Paediatrics and Child Health (2002)
3. *The Victoria Climbié Inquiry, Report of an inquiry by Lord Laming*, London: HMSO (2003)
4. UN Convention on the Rights of the Child 1990. Online at, for example, www.unicef.org/crc/crc.htm
5. Millennium goals agreed at Millennium Summit 2000. Online at, for example, www.europeintheworld.info

6. **Liberating Learning: a practical guide for learners and teachers to postgraduate medical education and the European Working Time Directive, London: COPMED (2002)**