

A Framework of Competences for Level 3 Training in Paediatric Oncology

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FOREWORD

I am very pleased to present this final stage, Level 3, of our Framework of Competences in Paediatrics. This level 3 document builds on the two preceding frameworks we have published, for Basic Specialist Training and for Core Higher Specialist Training, now re-named as Levels 1 and 2. The emphasis is firmly on the achievement of competences and not on a time-based training programme. From August 2007 all trainees will enter specialty training within the framework outlined in the Modernising Medical Careers initiative. Achievement of these competences will determine a trainee's progress through the specialty training programme.

The development of this Level 3 framework, with our fifteen sub-specialty curricula, has represented a huge amount of work. I would like to thank all those chairs and members of our College Specialist Advisory Committees (CSACs) who have shown such commitment and support to this project. In particular, we would like to thank Dr Edward Wozniak and Dr Gabrielle Laing, Chairs of General Paediatrics and Community Child Health CSACs respectively, who have been involved in the development of the competences at all three levels.

The College Officers responsible for training have guided and supported this work unstintingly for the last eighteen months and I would like to thank Dr Mary McGraw, Dr Claire Smith and Dr Ian Doughty for their commitment and involvement in the project. In addition, we would like to thank Kim Brown for the development and co-ordination of this work.

These documents have been prepared for submission to PMETB in July 2006 and we hope to publish them, subject to their approval, by Christmas 2006.

Patricia Hamilton
President, Royal College of Paediatrics and Child Health
1 July 2006

Section 1 Introduction

Who is this book for?

It is for doctors at Level 3 in their training in Paediatric Oncology, their tutors and educational supervisors.

Why do I need it?

The book gives you and your tutors guidance about the areas you need to cover during your training. It gives a clear picture of what you have to have achieved by the end of this stage of training, before you become a consultant. You need this book as it forms the basis of your assessment at the end of Level 3 Training.

How do I use the book?

You can sit down with the book on your own and use it to help you identify areas of practice that you need to work on and those areas in which you feel fairly confident. You can talk to your tutor about the balance of your experiences and look for ways to ensure that you cover all the areas you need to.

Progression

This is the final stage in your training as a paediatrician. The competences you gained during Level 1 (Basic Specialist Training) and Level 2, Core Higher Specialist Training have formed the basis for your progression into Level 3 training and on to a Consultant post. Table 1 (page 8) illustrates this progression through your training.

A note about the format of this document

This framework sets out the competences that you need to achieve by the end of Level 3 Training. These build on and develop statements of competence set out for Levels 2 and 3. You are expected to work from all three documents throughout this final stage of your training to ensure that you maintain and continue to develop areas of competence already acquired as well as developing new ones.

Sections 2 and 3 present new statements of competence for Level 3 only, in order to keep the focus clear. Trainees will need to refer back to previous documents for Level 1 and 2 competences in General and General Clinical competences

A note about assessment

The statements in this book have been expressed as *learning objectives*. These are the focus of your training.

When it comes to your assessment, at the end of this phase of your training, we will want to know how *well* you have achieved these objectives and to be confident that you are fit to practise as a Paediatric Consultant. This is what we mean when we talk about your *competence*. So while here you may have, for example, a number of detailed objectives relating to consultation skills or communicating with children, in your assessment we will want to see how you bring all these together and how competent you are overall in your communication skills. This document is not intended as an assessment document but to support training. The assessment of your competence will be by work-based assessments already in use and currently being developed.

Working group:

Kim Brown	Training and Assessment Adviser
Ian Doughty	Officer for Level 3 Specialist Training
Gabrielle Laing	Chair, Community Child Health Specialist Advisory Committee
Mary McGraw	Vice-President for Training and Assessment
Claire Smith	Donald Court Fellow
Edward Wozniak	former Chair, General Paediatrics Specialist Advisory Committee

Progression in the Professional Development of a Paediatrician

During BST	During HST	Continuing development as a consultant
<i>Acquires fundamental knowledge base</i>	<i>Applies knowledge base to provide appropriate clinical care</i>	<i>Evaluates knowledge and modifies clinical care pathways to enhance patient care.</i>
<i>Acquires clinical examination and assessment skills and applies these in clinical practice</i>	<i>Analyses clinical findings to derive appropriate differential diagnosis and management plans.</i>	<i>Evaluates assessment findings; refines and modifies management plans.</i>
<i>Acquires all basic technical skills and basic life support</i>	<i>Proficient at all basic technical procedures, some complex procedures and provides advanced life support.</i>	<i>May relinquish some skills in these areas dependent on area of clinical practice. May acquire specialty specific skills.</i>
<i>Performs allocated tasks and begins to plan tasks</i>	<i>Plans and prioritises tasks appropriately.</i>	<i>Increasing expertise with evaluation of priorities and appropriate delegation across a wide range of professionals.</i>
<i>Performs allotted teaching tasks</i>	<i>Plans and delivers teaching to trainees and other professionals. Develops peer mentoring skills.</i>	<i>Plans and modifies curricula. Performs assessment and appraisal. Able to provide mentorship.</i>
<i>Aware of management issues</i>	<i>Develops management skills and able to take responsibility for a defined project. Contributes to Committees.</i>	<i>Can negotiate and deal with conflict. Can contribute to and lead committees. Evaluates and modifies management structures.</i>
<i>Performs allocated audit projects and understands the audit cycle</i>	<i>Designs audit project and understands risk management. Able to write appropriate clinical guidelines. Understands the Clinical Governance implications</i>	<i>Facilitates audit, and evaluates results. Evaluates guidelines and ensures implementation of appropriate changes</i>
<i>Understands the principles of critical appraisal and research methodology</i>	<i>Able to appraise the literature critically and apply to clinical practice</i>	<i>Able to evaluate critical appraisal performed by others. Able to lead research projects and support others in research.</i>
<i>Works in multi-professional teams</i>	<i>Able to take the lead and accept leadership from other members of the multi-disciplinary team</i>	<i>Evaluates and modifies multi-professional team-working</i>

DRAFT

What is a Paediatrician?

Paediatricians have a detailed knowledge and understanding of diseases in children. They are skilled in looking at health and ill-health in babies, children and adolescents, and at specific health issues, diseases and disorders related to these stages of growth and development. They develop expertise in practical procedures specifically related to the good clinical care of small babies and children. Paediatricians work in multi-disciplinary teams and with colleagues from a wide range of professional groups in hospitals, general practice and in the community, in social services and schools and with the voluntary sector. They have strong communication and interpersonal skills and take on a variety of roles within their different communities of practice. They share expertise effectively and assume the responsibilities of teaching, leadership and management roles where appropriate. They work with colleagues to ensure consistency and continuity in the treatment and care of children and young people in all aspects of their well-being. They are committed to a policy of advocacy for a healthy lifestyle in children and young people and for the protection of their rights.

Paediatricians are doctors who have a particular compassion and respect for children, young people and their families and enjoy working with them. They have an expert understanding of the ways in which illness affects the child, the parents and the rest of the family and are skilled in the management of emotionally complex family situations. They show patience and sensitivity in their communications with children and their families and a particular ability to explore each individual's perspectives of a problem. They are aware of religious and cultural beliefs that parents might hold about the treatment of their children. They know how to respond in these cases, when to seek support and where to find legal and ethical guidelines to support their practice.

Paediatricians ensure that they are up-to-date in their practice and endeavour to promote evidence-based medicine where possible. They are keen to develop innovative approaches to teaching in paediatrics and to research. They are committed to the highest standards of care and of ethical and professional behaviour within their specialty and within the medical profession as a whole. Central to their work is the principle that all decisions should be made in the best interests of the child or young person in their care.

Contexts for Learning

In drawing up this framework of competences, we have envisaged a wide range of opportunities in which trainees will learn. They will be expected to work on their own, using databases and electronic libraries to research particular conditions or areas of professional practice. This work might be in preparation for a clinic, or a presentation to a group of trainees and supervisors. Trainees may engage with a distance-learning programme in order to develop greater expertise in an area that interests them or that they need to strengthen. Supervisors will need to ensure opportunities for trainees who have undertaken independent study of this kind to share their learning with others. It is through teaching about something you have read or learned or understood differently that learning is consolidated and questioned.

Feedback is essential at all stages of the teaching and learning process. Even in the course of a lecture or on a ward round trainees can communicate important messages about their learning needs through facial expressions and body language as well as in their answers to questions. Tutors need to be ready to pick up on these, to seek out actively trainees' responses to their teaching so that they can make adjustments accordingly and ensure that effective learning takes place.

As well as independent study, trainees will find themselves in a number of different communities of practice. In many cases, their learning will result from shared discussion around the diagnosis of a condition, for example, or the identification of an injury. Experienced colleagues from a range of disciplines may join a specialist team, each sharing their expertise, in order to come to a safe diagnosis or decision about how to proceed, for example in the case of suspected abuse. Trainees need to be encouraged to join these discussions so that they develop confidence in their communication skills with colleagues and in their ability to contribute to clinical decision-making.

Supervisors need to be aware of the importance of asking questions in these situations and of the most effective way to do this, so that trainees are fully engaged and learning as they listen. Closed and open questions have their place, and explicit educational strategies such as 'scaffolding' are essential. The teacher takes the

learners, step by step, from their initial level of understanding of a condition or a process, for example, to a deeper or more extensive understanding, through a formal cycle of informing, questioning, informing, testing out and consolidating new information. Ward rounds and clinics offer good opportunities for this kind of interaction, with individual trainees and groups. The exchange may be brief or sustained and it is the close focus on understanding which gives this teaching technique its power. Trainees are also encouraged to write a reflective log and it is important to make clear that this needs to go beyond a narrative of events to an analysis of the process of learning they are experiencing. This, in turn, will equip them well to become teachers themselves of less experienced colleagues.

The college is committed to an explicit educational approach. Identifying contexts for learning is the first step. But it is important to go beyond this to a consideration of the way in which different contexts influence the teaching and learning that take place or that are required. It is helpful to be able to identify apprenticeship models, or experiential learning but these alone do not tell us much about the teaching and learning process. The curriculum sets out *what* is to be learned and we know *where* these things will be learned. But it is also essential to understand *how* teachers and trainees will learn.

With the completion of the curriculum, the college is now working on resources to support the teaching and learning of its contents and on guidance for trainees and supervisors on the pedagogical process of training in Paediatrics.

For an overview of teaching and learning in postgraduate medicine, see Liberating Learning (COPMED, 2002).

Section 2 General Competences

Knowledge and Understanding

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- know about the incidence and mortality rates for childhood cancer including ethnic and geographical variability
- know about the aetiology of childhood cancer, the facts and theories
- know about national regional and local cancer registration policies
- know about the role of clinical trials in paediatric oncology
- have a historical perspective on the evolution of current clinical trials and treatment outcomes
- know about normal and abnormal mechanisms of cellular growth control
- know about the genetic basis of some malignant disease eg NF-1, Li fraumeni
- know about the role of biological factors as diagnostic and prognostic aids
- understand the features and clinical presentations of childhood malignancy
- understand the principles and strategies of treatment for all stages of solid tumours according to the current UKCCSG (UK Children's Cancer Study Group) /European/International clinical trial
- know about the principles of cancer treatment with chemotherapy and understand the rationale of combination chemotherapy regimens
- know about the principles and application of high dose therapy and bone marrow transplantation
- know about the techniques for bone marrow support including growth factors
- understand basic radiobiology and planning techniques used in the delivery of radiotherapy to children
- know about the principles of less commonly used radiotherapy techniques, including brachytherapy and targeted therapy
- understand the acute toxicity of cancer treatment (individual drugs and radiotherapy)

- understand the principles of biopsy and definitive surgery and optimal handling of tissue for diagnosis and biological studies
- understand the importance of tumour and DNA banking for future research
- have a knowledge and understanding of the late effects of therapy, including endocrine consequences, major organ toxicities and their causative agents

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

Skills

Substantial re-wording or new statements of competence for Level 3 Training

- 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 eg 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 Paediatric Oncology, trainees will:

- be able to recognise and formulate a management plan for the treatment of oncological emergencies such as septic shock, tumour lysis, SVC obstruction, spinal cord compression, raised ICP
- have developed the technical skills to carry out a bone marrow aspiration and trephine biopsy
- be able to prescribe and administer safely intrathecal drugs according to local and national policies
- be able to prescribe handle and administer chemotherapy safely, using an electronic prescribing package where available
- be able to recognise and manage acute drug reactions to chemotherapy and manage the extravasation of chemotherapy agents appropriately
- be able to manage febrile neutropenia appropriately, including management after the failure of first line antibiotic therapy
- be able to investigate and manage fungal and viral infections in the immunocompromised child
- be able to organise a long-term follow up programme and develop strategies for surveillance of survivors using national guidelines
- be able to formulate a symptom control plan for pain management recognising the different patterns of pain and their different therapeutic interventions including non pharmaceutical approaches
- be able to address other symptom control such as breathlessness, bowel obstruction and access appropriate advice

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

Values and Attitudes

Substantial re-wording or new statements of competence for Level 3 Training

- 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

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

Teaching and Research

Substantial re-wording or new statements of competence for Level 3 Training

- 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

Competences specific to the specialty

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

- demonstrate an understanding of ‘good clinical practice’ in line with the European Directive for all aspects of the conduct of clinical trials
- understand the concept of a phase I, II and III trial and be able to explain this to patients and parents
- understand the difficulties in discussing consent issues eg consent for a randomized clinical treatment trial with a family who have recently been given a potentially life-threatening diagnosis.
- demonstrate an understanding of biological and novel therapies for management of paediatric malignancy
- be able to discuss the importance of tumour and DNA banking for future research and to gain informed consent

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

Leadership and Management

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- understand the working, structure, aims and functions of the United Kingdom Children's Cancer Study Group (UKCCSG)
- have practical experience of participation in UKCCSG working groups within the structure
- understand and know the issues around collaborative working both nationally and internationally in the development of clinical trials for childhood malignancy

- understand the issues around developing and sustaining effective and safe shared care of paediatric oncology patients within a regional service

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

Personal Commitment to Professional Standards

Substantial re-wording or new statements of competence for Level 3 Training

- 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

(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

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- be able to communicate effectively the balance of risks and benefits in the context of interventions such as surgery, high dose therapy or entry into a phase 1/11 trial

Section 3 General Clinical Competences

Development

Substantial re-wording or new statements of competence for Level 3 Training

- 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

Emotional development

Substantial re-wording or new statements of competence for Level 3 Training

- 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

Substantial re-wording or new statements of competence for Level 3 Training

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

Educational development

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- understand the impact of diagnosis and treatment, particularly radiotherapy, on a child's ability to learn
- be aware of the need for specialised assessments (such as neuropsychology) that may influence the process of formal statutory assessment
- be able to write a report concerning the impact of treatment to inform the statementing process for children with cancer

- demonstrate effective advocacy strategies for children with educational difficulties as a result of diagnosis of cancer and treatment received

Growth and Nutrition

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- understand the contribution of nutrition to the tolerance of chemotherapy and be familiar with the evidence base for this
- demonstrate a proactive multi-disciplinary approach to nutritional assessment in children receiving treatment for cancer

Adolescence

Substantial re-wording or new statements of competence for Level 3 Training

- 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 Paediatric Oncology, trainees will:

- be familiar with the evidence for fertility preservation techniques for adolescents who will receive treatment that may impair fertility in the long term
- be confident in discussing these issues with adolescents and their families and in making appropriate referrals

Section 4 Specialty-specific Competences in Paediatric Oncology

Leukaemias

- understand what is known of the epidemiology of infant and childhood leukaemias and myelodysplastic syndrome (MDS) - including aetiology and genetic associations
- know the constitutional and genetic conditions that predispose to the development of leukaemia
- know the incidence of Acute lymphoblastic leukemia (ALL) and Acute myeloid lymphoma (AML) and the peak age at which they occur
- be aware of the various clinical presentations of children with leukaemia and Myelo dysplastic syndrome (MDS)
- know about the appropriate diagnostic investigations in children with leukaemia and Myelo dysplastic syndrome (MDS)
- understand the prognostic factors in childhood leukaemia and their implications on risk stratification.
- know about the cytogenetic and molecular abnormalities associated with infant leukaemias
- know about the current treatment trial protocols for childhood and infant leukaemias, Acute lymphoblastic leukemia (ALL) and Acute myeloid lymphoma (AML), as well as for refractory and relapsed leukaemia
- have an historical perspective on the evolution of current trials for the treatment of leukaemias
- know about monitoring the response to treatment including minimal residual disease (MRD) with a recognition of its limitations
- understand the role of and indications for bone marrow transplant in infant and childhood leukaemias
- know the current role of radiotherapy in leukaemia treatment and the complications associated with it
- be aware of the role of immunotherapy for leukaemia
- know about the management of rarer forms of childhood leukaemia

- know the management of testicular, CNS and bone marrow relapse of leukaemia
- understand the prognostic factors associated with relapsed leukaemia
- know the clinical, laboratory and prognostic features of chronic myeloid leukaemia and juvenile myelomonocytic leukaemia
- know the clinical presentation, laboratory features and prognosis of myelodysplasias
- understand the role of bone marrow transplant in the treatment of myelodysplasia and chronic myeloid leukaemia in childhood
- be able to manage the complications of leukaemia treatment including tumour lysis, coagulopathy, thrombosis and infections
- be able to develop follow-up strategies for leukaemia survivors, identify late effects of therapy and counsel accordingly

Lymphomas

Hodgkin's Lymphoma

- know the epidemiologic, clinical, and laboratory features of Hodgkin's Lymphoma in children
- know the histological subtypes of Hodgkin's Lymphoma, their incidence in children and the effect of this on their prognosis
- know the clinical presentation and pattern of spread of Hodgkin Lymphoma
- know the Ann-Arbor staging system for Hodgkin's lymphoma
- recognise nodular Lymphocyte predominant Hodgkin's Lymphoma as a separate more indolent variant of Hodgkin's Lymphoma
- recognise impaired cellular immunity in a patient with Hodgkin Lymphoma
- know the laboratory parameters that may be seen in children with Hodgkin Lymphoma at the time of diagnosis
- know how to image a patient with Hodgkin's appropriately to determine the extent of primary disease and metastatic spread of Hodgkin's Lymphoma
- know the advantages and limitations of CT, MRI and radionuclide scans in staging a patient with Hodgkin Lymphoma
- know the current treatment strategies for Hodgkin's Lymphoma including the

role of radiotherapy

- recognise how functional imaging with FDG-PET (FluoroDeoxyGlucose Positron Emission Tomography) may be important in the assessment of response and determination of the role of radiotherapy
- know the complications and late effects of chemotherapy and radiotherapy in the treatment of Hodgkin Lymphoma including cardiac and lung function, increased risk of breast cancer in those receiving mediastinal radiation at a young age and risks of subfertility

Non-Hodgkin's Lymphoma (NHL)

- know the association of Epstein-Barr virus and human immunodeficiency virus with Non-Hodgkin's Lymphoma (NHL)
- know the cytogenetic and molecular genetic abnormalities associated with NHL
- recognise the histological subtypes of NHL in children and adolescents
- recognise the clinical presentation of non-Hodgkin lymphoma
- understand that diagnosis of non-Hodgkin lymphoma can be made on pleural effusion or ascitic fluid alone
- know how to use the degree of bone marrow involvement to distinguish stage IV non-Hodgkin lymphoma and acute leukaemia
- know the prognostic features and prognosis of non-Hodgkin lymphoma according to stage and histology and immunophenotype
- know the current treatment strategies according to immunophenotype and pathological subtype
- be aware of the role of immunotherapy in lymphomas
- be able to manage the acute presentations of NHL including SVC obstruction, airway compression, spinal cord compression, and tumour lysis

Haemopoietic Stem Cell Transplantation (HSCT)

- understand the role of high dose therapy with autologous stem cell rescue in the management of malignant disorders in children and young adults

- know the indications for allogeneic haemopoietic stem cell transplantation (HCST) in children, including the indications for HCST from other than a matched sibling donor
- understand the advantages of allogeneic HSCT and donor lymphocyte infusion in some malignant disorders
- know the role of allogeneic HSCT in the treatment of leukaemia in children and young adults
- understand the principles of HLA (human leucocyte antigen) typing and donor selection, including the different potential sources of HCST, and HCST collection and cryopreservation
- be familiar with the complications of HCST and their management, including graft-vs-host disease, veno-occlusive disease and graft failure
- know the commonly used chemotherapy conditioning regimens used in HCST in malignant disorders in children and young adults, and their short and long term side effects
- know the role of total body irradiation (TBI) in HCST, including its administration and short and long term side effects
- understand the principles of immunosuppression, and the types of immunosuppressive agents used in HSCT
- understand the consequences of myelosuppression and immunosuppression post-HCST, including the need for infection prophylaxis
- know the late effects of HCST in children, including growth, fertility and second malignancy

Non-malignant Haematology

- be able to interpret appropriate blood indices; reticulocytes, ferritin, B12 and folate
- be able to interpret a coagulation screen, know which further tests may be appropriate, particularly in relation to disseminated intravascular coagulation (DIC)
- understand the management principles for a child with haemophilia or other bleeding disorders such as Von Willebrand's disease in accordance with local protocols

- know the importance of prompt treatment of bleeding in a haemophiliac patient and the need for close monitoring of head injuries in accordance with local protocols
- know about the main risk factors for thrombosis in a child
- know about the investigation and management of thrombosis in association with intra venous catheters
- know about therapeutic options for management of thrombosis and risks associated with anticoagulants
- know the clinical indications for blood product support including the choice of appropriate blood products and the indications for irradiated blood products
- know about the hazards of blood transfusion including transfusion-transmitted infection and transfusion reactions
- recognise the clinical presentation of haemolysis and initiate the laboratory evaluation
- know the differential diagnosis and the initial management of cytopenias including idiopathic thrombocytopenic purpura (ITP)
- know about the clinical presentation of sickle cell disease, the acute management of sickle bone crisis, and the recognition of splenic sequestration and sickle chest syndrome with the need for prompt intervention
- know about the CNS complications of sickle cell disease
- know about the clinical presentation and laboratory features of the thalassaemias
- know about the use of transfusion programmes and the principles of iron chelation therapy

Renal tumours

- recognise the clinical presentation of a renal tumour and know the differential diagnosis of a renal mass
- be able to manage hypertension secondary to a renal mass
- know the incidence of Wilm's tumour
- know the congenital anomalies associated with Wilm's tumour and the current strategies for screening

- know about the pathological subtypes of renal tumours including Wilm's tumour
- understand the relationship between the histology of Wilm's tumour and the prognosis, and the prognostic significance of histology after chemotherapy
- understand the cytogenetic and molecular aspects of Wilm's tumour
- be able to plan the management of a patient with recurrent Wilm's tumour
- know about the presentation and management of mesoblastic nephroma
- be able to manage a patient with mesoblastic nephroma
- understand the significance of nephroblastomatosis in Wilm's tumour
- know how to stage Wilm's tumour pre- and post-surgery
- understand the principles of treatment for all stages of tumour according to the current (UKCCSG/SIOP) clinical trial (UK Children's Cancer Study Group / Société internationale d'oncologie pédiatrique (International Society of Paediatric Oncology
- understand the principles of treating bilateral Wilm's tumour
- know the prognosis for Wilm's tumour
- understand the complications of Wilm's tumour and its treatment and late effects of treatment

Neuroblastoma (NBL)

- recognise clinical presentation of neuroblastoma by age and by anatomic site, with and without metastases including stage iv S
- be able to manage the clinical problems associated with neuroblastoma, including hypertension, spinal cord compression, Horner's Syndrome, abdominal mass
- know the association of Opsoclonus Myoclonus with neuroblastoma (NBL)
- be able to use appropriate radiological investigations to diagnosis and stage neuroblastoma
- understand the International staging system (INSS)
- know the prognostic factors and prognosis according to age and stage
- recognise laboratory findings in neuroblastoma (NBL) including urinary catecholamines, neurone specific enolase, ferritin and lactate dehydrogenase

(LDH) and have an understanding of any prognostic significance they might have

- be able to identify neuroblastoma (NBL) cells in bone marrow (BM)
- know the genetic variables which have a significance for the prognosis, such as MYCN amplification
- know the current European neuroblastoma group treatment strategies
- know about the side-effects of treatment and the risks associated with high dose therapy (HDT), for example veno-occlusive disease VOD
- understand the principles of managing relapsed NBL

Hepatic tumours

- know which congenital conditions are associated with an increased risk of hepatoblastoma and the association of hepatocellular carcinoma with inborn errors of metabolism causing cirrhosis
- know the differential diagnosis of right upper quadrant masses
- know about tumour markers in primary liver tumours
- understand the pre-treatment staging system
- know the general principles of treatment
- understand the role of liver transplantation in the management of hepatic tumours
- understand the role of supra-regional centres and multi-centre communication in the care of children with hepatic tumours
- know about possible late effects of treatment
- know the prognosis of hepatoblastoma and hepatocellular carcinoma and factors that determine it

Retinoblastoma

- understand the inheritance pattern of bilateral retinoblastoma
- know the epidemiologic, genetic, and clinical features of unilateral and bilateral retinoblastoma
- recognize the clinical presentation of retinoblastoma and the clinical manifestations of trilateral retinoblastoma

- be able to utilize imaging modalities appropriately to determine the extent and metastatic spread of retinoblastoma
- know that the central nervous system and bone marrow are the most common metastatic sites of retinoblastoma
- understand the staging of retinoblastoma according to the intraocular extent of the tumour
- know the role of surgery, irradiation, chemotherapy and photocoagulation in the treatment of retinoblastoma
- know about screening and follow-up for children who are siblings of a patient with retinoblastoma
- know the prognostic features and prognosis of retinoblastoma according to stage and histology
- know the complications and late effects of retinoblastoma including the risk of the development of secondary malignancy in unilateral or bilateral retinoblastoma

Rare tumours

- know how to access the UKCCSG rare tumours guidelines
- understand the importance of wide consultation including with colleagues in adult specialties when managing 'rare' tumours in childhood
- understand the principles of treatment in adrenocortical tumours, malignant melanoma, nasopharyngeal carcinoma and thyroid carcinoma

Bone tumours

- know about the epidemiology, predisposing factors and genetic predispositions associated with osteosarcoma and Ewings tumours
- be aware of the different pathologic subtypes of osteosarcoma and their effect on prognosis
- be aware of the different molecular subtypes of the Ewings family of tumours and their effect on prognosis
- know about the clinical presentations of osteosarcoma and Ewings tumours and potential metastatic sites

- know the differential diagnoses for plain x-ray appearances of a suspected bone tumour
- be able to apply appropriate imaging modalities to elicit potential metastatic sites, including imaging the whole region above a primary limb site to look for skip metastases
- be able to participate as a member of the bone (and soft tissue sarcoma) tumour multi-disciplinary team in the clarification of diagnoses and staging and treatment planning
- know about the role of neoadjuvant chemotherapy and consolidation post-operatively, in the management of bone tumours
- understand the historical development of bone tumour management via serial clinical trials
- know about the role and limitations of surgery including the use of prostheses and the requirement to ensure management by site-specialised sarcoma orthopaedic oncologic surgeons
- understand the relevance of histological margins at resection and possible indications for further surgery or adjuvant radiotherapy
- understand the relevant prognostic indicators in different bone tumours, such as site, tumour volume and histopathological response to treatment
- know about the rehabilitation requirements for limb sparing, joint sparing surgery and massive resections including amputation.
- know about growth requirements and management post-operatively for prosthetic insertions
- know about the late effects of bone tumour multi-modality management, including second malignancy predisposition

Soft tissue sarcomas

- know the cytogenetic and molecular genetic abnormalities associated with soft tissue sarcomas
- know about the histological subtypes of soft tissue sarcomas relative to prognosis and patterns of presentation and spread

- recognise the clinical presentation of rhabdomyosarcoma affecting the head and neck (parameningeal versus non-parameningeal), nasopharyngeal, orbital, pelvic and extremities
- be able to stage soft tissue sarcomas appropriately
- know the role of surgery, chemotherapy and radiotherapy in the treatment of soft tissue sarcomas and current European treatment strategies
- know the prognosis of rhabdomyosarcoma according to a stage and histology and anatomic site of the primary tumor and the prognostic features of soft tissue sarcomas other than rhabdomyosarcomas

Central Nervous System tumours

- know the epidemiology of central nervous system (CNS) tumours
- know the cytogenetic and molecular genetic abnormalities associated with CNS tumours and recognize the association between brain tumours and heritable syndromes
- know about the neuro-pathological subtypes and grading of brain tumours and their relation to tumour site, pattern of spread and prognosis
- know about the different clinical presentations of CNS tumours according to age of child, anatomical positional and presence of raised intracranial pressure
- be able to demonstrate a basic ability in interpreting neuro-images
- be aware of the different neuro-imaging modalities (including positron emission tomography (PET) and be able to utilize appropriate modalities to determine the extent and metastatic spread of CNS tumours
- be able to work within the framework of a neuro-oncology multi-disciplinary team in planning an appropriate and safe initial diagnostic workup of a child with a CNS tumour
- be able to communicate effectively within a neuro-oncology multi-disciplinary team in planning the therapy for a child with a CNS tumour
- understand the importance of staging in treatment and prognosis of CNS tumours (including the use of CSF cytology and serum and CSF tumour markers)
- know the role of surgery, irradiation and chemotherapy in the treatment of CNS tumours

- know about chemotherapy agents and delivery techniques in relation to the blood brain barrier
- understand the basics of radiobiology in relation to the effect of differing particles (photons versus protons), fractionation and dose on normal brain and spinal and tumour tissue
- know about radiotherapy planning techniques including, planning volumes & delivery techniques
- be able to monitor the response to treatment of CNS tumours using clinical, imaging, biochemical and histological markers
- know the complications and late effects of brain tumours arising from; tumour, surgery, radiotherapy and chemotherapy related to patient's age and stage of development
- know about the potential neurological, endocrinological, cognitive, behavioural and social sequelae of CNS tumours and their treatment
- be aware of secondary malignancies associated with treatment of CNS tumours (also management of a brain tumour as a second malignancy)
- be able to develop an multi-disciplinary team approach to rehabilitation including; physical therapy, speech & language, special senses (vision and hearing impairment), education (knowledge of special educational need provision), dietetics (management of obesity and failure to thrive), endocrine (assessment and replacement) and psycho-social care

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 eg 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

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

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

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

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