BRITISH JOURNAL OF
HOSPITAL
MEDICINE

Tips for the shop floor for trainees working in paediatric hospital medicine

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Abstract

Paediatrics is one of the most useful rotations for junior doctors to undertake, allowing them to learn and develop the skills necessary to provide child-centred care. As with any speciality, it can be daunting to cover on-calls with no previous experience, so guidance for those starting paediatric placements can be valuable. This article provides up-to-date information and preparation strategies for all junior doctors, whether they are considering undertaking a paediatric rotation as a trainee or in a trust post, or are already in training, such as on general practitioner vocational schemes.

Key words: Child health; Curriculum; Hospitals; Paediatrics; Prescriptions

Submitted: 26 September 2021; accepted following double-blind peer review: 8 July 2022

Introduction

Paediatrics rotations in medical school can be relatively short (Royal College of Paediatrics and Child Health, 2022a). Understanding a specialty before starting work is helpful for all doctors, but some doctors feel unprepared to start working in the NHS (Limb, 2017; Monrouxe et al, 2017). Health Education England (2014, 2020) support a national shadowing scheme for foundation year doctors to help with transition from medical school to clinical work, but shadowing for subsequent rotations is not routine unless locally arranged. This article provides tips for junior doctors pursuing a paediatrics rotation.

Paediatrics as a specialty

Paediatrics is a broad specialty, reflected in the phrase ‘children and young people’. It is so different to adult medicine that there are specific services in place to assist with the transition for patients from paediatric to adult services. These local programmes, for example ‘Ready, Steady, Go’ at Southampton Children’s Hospital, encourage collaboration between paediatric and adult services at earlier stages of the discharge process, so that there is a discharge destination in mind to take over care while the patient is still under the care of paediatric services (Royal College of Paediatrics and Child Health, 2021a,b). The British National Formulary (2022) recognises that children have different physiology and pharmacokinetics to adults. In paediatrics, prescriptions are often calculated using body surface area or body weight-adjusted dosing. Additionally, many drugs are prescribed by brand, such as Sytron, Abidec and Clenil Modulite, compared to the usual generic prescribing that doctors are more familiar with, often having learnt the specific medication name in pharmacology teaching in medical school. General paediatric services provide consultant-led paediatric rapid access services, where patients are seen within 24 hours of referral (Royal College of Paediatrics and Child Health et al, 2015). Being led by seniors, junior doctors are encouraged to have a low threshold to escalate their concerns. Table 1 lists useful resources available to those starting a paediatric placement.

How to cite this article:
Chithiramohan A, Taylor A. Tips for the shop floor for trainees working in paediatric hospital medicine. Br J Hosp Med. 2022. https://doi.org/10.12968/hmed.2021.0477

The paediatric acute medical take

Both paediatric and adult history taking includes the presenting complaint, history of the presenting complaint and past medical history. However, paediatric clerking places particular emphasis on birth and family history, and there is a different focus when enquiring about social and drug histories.

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Table 1. Useful resources available pre-placement in paediatrics	
The Resuscitation Council UK (2021) have guidance on basic life support, which is useful to prepare for hospital induction practical assessments	
The Royal College of General Practitioners (2021) curriculum guides cover commonly encountered presentations, with super-condensed versions available	
Speciality-specific apps including	STRS app (South Thames Retrieval Service for Children)
	BiliApp (to interpret newborn jaundice based on National Institute of Health and Care Excellence (2010) guidance)
	British National Formulary for Children
Interactive educational tools	Spotting the Sick Child (https://spottingthesickchild.com/) commissioned by the Department of Health
	The website Paediatric FOAM (https://www.paediatricfoam.com/about/), which covers a wide range of clinical topics, endorsed by the London School of Paediatrics
	Online modules, including safeguarding children and young people as part of the e-Learning for Healthcare website (Health Education England and the Royal College of Paediatrics and Child Health, 2020). This is vital to understand common presentations of non-accidental injury. The General Medical Council (2018) states 'you must have the knowledge and skills to recognise signs and symptoms of abuse and neglect' when working in paediatrics

Birth history includes questions relating to antenatal concerns, time of birth in weeks and days (eg 39+5 weeks), mode of delivery and need for neonatal resuscitation. Social history includes enquiring about parental smoking habits, who lives at home, age of siblings, role of parental responsibility and exploring if there is any social service involvement. Family history includes the health of biological parents and siblings, and whether there is any consanguinity. Drug histories include allergies to drugs and food, enquiring about whether the child is up-to-date with immunisations and clarifying a child's feeding regimen (such as whether they are breast or bottle fed, including ounces and timings).

An impression of whether the child looks 'well' or 'sick' should be backed up with objective evidence, such as observations and the presence of red flags, for example if fluid intake is 50–75% of the child's normal amount (National Institute for Health and Care Excellence, 2021). Using physiological parameters is important, as paediatric patients may be compensating well but may actually be more unwell than they seem (Coote, 2010).

The paediatric examination

A full clinical examination of an unwell child is always required, regardless of the presenting complaint, as many symptoms may not be reported by the patient (Coote, 2010). It is also important to take parental concerns seriously, such as saying that a child is 'just not right' (Coote, 2010); parents may notice subtle changes in behaviour that are not apparent to the doctor. Asking parents to give their child instructions can be helpful, as it is normal for stranger anxiety to develop at around 6 months of age (Royal College of Psychiatrists, 2022). From a safeguarding perspective, it is important to be vigilant if a child handles unusually well with strangers for their age and escalate to seniors without delay.

Day-to-day tips

Abbreviations and acronyms are widely used in paediatrics; in an audit of paediatric note keeping, Sheppard et al (2008) found that a total of 2286 abbreviations were used in 25 handover sheets. It is vital to clarify what any abbreviation means if you have not heard it before. For example, BRUE does not refer to a bruit but is a 'briefly resolved unexplained event', and VIW means 'viral-induced wheeze'.

There are many phrases used in paediatrics that might be unfamiliar to new starters. For example, 'feed and wrap' is a technique used to encourage sleep without sedation for infants having scans, as an alternative to anaesthesia.

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There are also calculations one can revise before starting the placement. Percentage weight loss is important to calculate, as it can influence management plans including feeding regimens. To calculate this, subtract the child's present weight from their original weight and then divide the loss by the child's original weight. Corrected age is another important calculation for premature babies (those born before 36 weeks+ 6 days), particularly when assessing developmental milestones. This is calculated by actual age in weeks minus number of weeks preterm. Infants born at 32–36 weeks+6 days need correction for prematurity until their first birthday, and those born at under 32 weeks need correction until their second birthday (Royal College of Paediatrics and Child Health, 2009). It is also useful to revise fluid prescriptions; with the exception of newborn infants, the Holliday–Segar calculation is used to calculate maintenance fluid in children: 100 ml/kg/day for the first 10 kg of body weight, then 50 ml/kg/day for the next 10 kg body weight and then 20 ml/kg/day for any body weight over this (Vega and Avva, 2020). It is important to do the calculations oneself to avoid cognitive biases, as calculations done by fellow colleagues (doctors, nurses or healthcare assistants) may look correct at a first glance but may not be accurate and a repeat calculation can promote patient safety by ensuring an accurate prescription. Moreover, the UK-World Health Organization (UK-WHO) growth charts are vital to allow detection of growth abnormalities (Royal College of Paediatrics and Child Health, 2022b).

The child's red book (personal child health record) can illustrate trends, but plotting the most up-to-date height, weight and head circumferences on the appropriate chart for age and sex also gives an important insight into a child's health (Royal College of Paediatrics and Child Health, 2022b).

Investigations and procedures

Invasive investigations can be upsetting for children, so it is important to consider the level of distress a child may experience before ordering blood tests or imaging. Collecting urine samples in children depends on their age and ability to use the toilet. When requesting urinalysis, it is important to specify if this needs to be clean catch urine or can be done using collection pads.

It is also important to choose carefully between a heel prick sample and a venous sample; usually a venous sample is chosen if a larger volume of blood is required for specific tests and blood cultures and to avoid spurious results caused by haemolysis. These procedures require preparation and appropriate training. It is helpful to read about the procedure first, including optimal puncture sites. Figure 1 demonstrates optimal sites for a heel prick including avoidance of the midline area of the heel (Public Health England, 2016).

Community services

Knowledge of community services is useful to ensure safe transition from the acute setting. In the UK, doctors can signpost patients and their families to NHS-approved self-help or interim services while they await their appointments in secondary care. For example, an app called Headspace is recognised by NHS England as an evidence-based tool for stress reduction (NHS England, 2021).

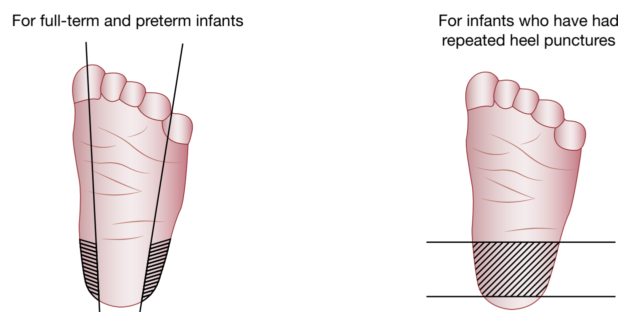

Figure 1. Recommended sites for venepuncture in neonates and infants up to 1 year. Adapted from Public Health England (2016).

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Top tips

- Practice guessing the age of the children you see to improve your understanding of developmental milestones. Detecting developmental milestones is helpful for all doctors working with children, to correctly identify and diagnose children presenting with a delay in reaching milestones.
- Discuss their experiences with non-accidental injury cases with paediatric registrars: hearing real-life accounts can help you to be alert to potential presentations.
- Ask to shadow the registrar attending resuscitation calls, to improve understanding of the management of critically unwell children. Look for objective evidence through observations, examination findings and data interpretation such as fluid balance and percentage food intake difference.
- Attending outpatient clinics offers insight into the type of referrals received. Question the appropriateness of referrals that have been received in clinic, to promote educational awareness of what should be seen in clinic compared to in primary care and to learn how to avoid inappropriate referrals in the future.

It is also important to consider realistic expectations when discharging back to primary care. When writing to the GP it is important to avoid generic statements such as 'GP to repeat bloods in 2 days'. Instead, explore if there is a hospital phlebotomy service and, if taking bloods in the community is essential for patient safety and is therefore unavoidable, discuss with senior colleagues what exactly is reasonable to request from primary care. This includes whether it is appropriate to ask a GP to perform the investigation, and whether the timeframe requested is reasonable to achieve in primary care.

Conclusions

Self-directed preparation before starting a paediatrics placement can be useful. The specialty is broad and there are many common illnesses, which can be overwhelming to the new starter. However, there are focused, clinically relevant and readily available resources, which can help when starting a paediatric placement. Greater knowledge of the specialty and adequate preparation can help junior doctors make the most of their placements.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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Curriculum checklist

This article addresses the following requirements from the general internal medicine curriculum

- Is focused on patient safety and delivers effective quality improvement in patient care
- Managing an acute specialty-related take
- Providing continuity of care to medical inpatients, including management of comorbidities and cognitive impairment.

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Key points

- Treat paediatrics as a speciality and not an extension of adult medicine; prepare ahead of the placement.
- Learn the key components of paediatric medical clerking.
- Where appropriate, ask parents to help you to ensure safe examination of the child.
- Always ask for clarification if you come across an unfamiliar term.
- Revise paediatric calculations useful for the daily ward round, including corrected age, how to prescribe maintenance fluids and percentage weight loss.
- Treat paediatric investigations as different from adult medicine, as the threshold for doing tests in children is higher; always ask 'will this change my management?'.
- Explore local community services to provide holistic care for the patient and the family.

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