Paediatrics

Self-directed Learning package

To be read in conjunction with:
HMO/intern position description
Paediatric unit orientation information

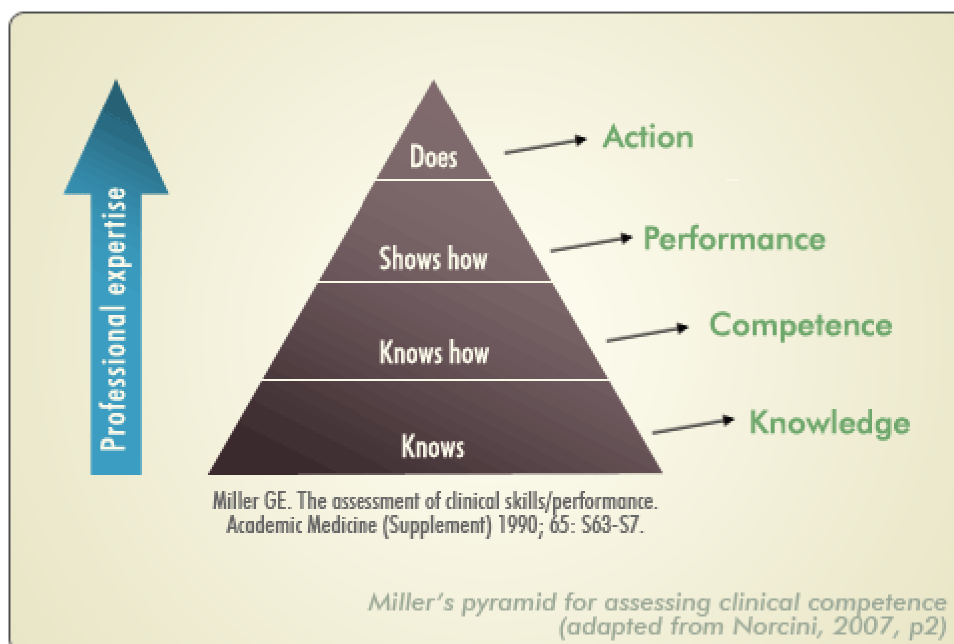
Name: ____

Self-directed workbook - paediatrics

This self-directed workbook as a guide for you to assess your knowledge and identify your learning needs by completing the workbook.

It is not mandatory, but we would like to continue to use it as it assists with performance appraisals (which is essentially performance coaching), and to provide some more structure and real learning outcomes.

The following diagram highlights the key objectives, with our aim to see more of "does" and "shows how"



Miller's pyramid for assessing clinical competence
(adapted from Norcini, 2007, p2)

BHS Paediatric Expected Learning outcomes

1. Education - paediatrics

The education series covers the following topics:

1. Neonates
    a. Resuscitation
    b. Hypoglycaemia
    c. Jaundice
    d. Fluid management
    e. Neonatal sepsis and meningitis
        i. Recognition/risk factors/organism/mx
    f. Neonatal seizures – recognition, causes and treatment
2. Paediatric
    a. Normal development
    b. Bronchiolitis
    c. Asthma - Awareness of statewide/RCH guideline
        i. Diagnosis mild moderate severe and treat accordingly
    d. Croup
    e. Dehydration e.g gastroenteritis
    f. IV fluids
    g. Sepsis /meningitis
    h. Rashes
    i. Seizures
    j. Analgesia and pain management
    k. Child with a limp
    l. Child protection and Reducing Family Violence
    m. Diabetes
    n. Headache
    o. Allergy/anaphylaxis
    p. Adolescent health – eg eating disorders, deliberate self-harm
    q. Discharge planning

The learning resources in this self-directed workbook cover these topics. The learner should complete the self-directed workbook to enhance their own understanding of their learning needs. Every section does not need to be completed. Use it to reinforce areas where your knowledge is strong, or to identify areas that need some work. In many cases this will mean on the job learning, rather than finding information in books.

We suggest that completing this workbook in preparation for paediatric terms is strongly advised. For rotations such as emergency (30% paeds) or surgery it is also strongly encouraged.

Formal educational activities occur throughout the week (paediatric terms)

- A regular face to face teaching program is conducted
- Journal club, and M&M sessions; MDT meetings; X-ray meeting; Child protection meeting and monthly Paediatric Clinical meeting
- You will be expected to have completed Resus4kids prior to or in the early part of your rotation and had an assessment of Neonatal resuscitation
-

It is not possible for doctors to attend all sessions due to shift work, duration of rotations and leave etc. therefore we will publish for each topic the PowerPoint presentations and associated resources for people to read.

Learning resources available at:

Paediatric portal - http://paedsportal.com/

http://educationresource.bhs.org.au/paediatric
http://educationresource.bhs.org.au/hmo
Further information on topics can be found at your leisure, with the following suggestions designed as a short list

- Internet – RCH guidelines, note these can be downloaded to a smartphone as an App exists for both the RCH guidelines and parents information
- BHS education resource site.
- RCH orthopaedic fracture guidelines

Self-Directed learning package

Learning Outcomes – treat patient with …	Topic/presentation	Workbook case
SICK NEONATES Awareness of risk of kernicterus and why we treat jaundice; causes and initial investigations (early & late) & use of phototherapy incl awareness of guidelines	Jaundice	A bit yellow
Awareness of risk factors for hypoglycaemia, why early screening & recognition is important; initial management	Hypoglycaemia	Drowsy, poor feed
Neonatal sepsis and meningitis	Infectious diseases	Irritable neonate
Neonatal resuscitation	Attend childbirth	
Seizures		Post ictal
PAEDIATRICS Normal	Development Post birth checks	Failure to thrive? Baby check
Respiratory	Bronchiolitis & Asthma Croup	Infant with wheeze Cough and fever
Gastroenteritis Assessment of dehydration	Dehydration PO/NG/IV fluid therapy	A child with nausea and vomiting
Procedures	Analgesia needed Sedation	A post op patient Bloods and IV needed
Rashes	Not to miss	Fever + non blanching rash
Seizures	Neurological exam	A child presents after first seizure
Limping child	Age related causes	Child won't weight bear
Safe discharge	Discharge planning Child protection Family violence	

Other topics relevant to paediatrics may be covered in the ED workbook

E.g. Anaphylaxis, common fractures, and accidental poisonings. Snake bite.

Feedback

Complete the self-directed workbook and if it raises questions, ask your supervisor.
Add interesting cases to your consults list in BOSSNET, to facilitate discussion. This ensures you do not need to keep lists with patient information, which if taken off site can result in privacy and confidentiality breaches

1. Case: Neonate not right in post-natal ward.

You are called to the special care nursery. A newborn infant was delivered to a 29 yo G3 P2 mother B+ mother at 36 weeks by LUSCS. At delivery, the neo puff was required for transient poor colour and respiratory effort. Apgars were 6 and 9 at one and five minutes. Examination normal, except a little jittery.

About ten hours post-delivery, the baby is not feeding well, more jittery.

What are the risk factors for neonatal hypoglycaemia in a clinically well baby?

What are the causes of hypoglycaemia in unwell/symptomatic babies?

What is the most likely diagnosis, what other symptoms might you look for, and is there any particular differential diagnosis that needs consideration?

The nurse takes a BSL and it reads 1.6mmol/L.

What action will you take, and what medication will you prescribe? Please document it below.

Reference

http://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Neonatal_Hypoglycaemia/

There is a BHS guideline – search under Govdoc using hypo or paediatric

2. Neonatal jaundice

You are referred a patient from the ED. He is jaundiced with poor feeding. He is day 4, 3.3kg, born at term to a 35 yo G2P2 woman with gestational diabetes. The pregnancy was otherwise normal, with a normal vaginal delivery. Apgars were 9 and 10 at 1 and 5 minutes. He was discharged at day 2 with mild jaundice as he was feeding well. He did not feed well on day 3, was more yellow, so parents thought today they had better get him reviewed as some lethargy and poor breast feeding.

O/E jaundiced, sunken fontanelle, irritable but generally normal tone and remainder of exam. You review the infant and blood tests were arranged.

How will you decide if something serious is going on?
History & Examination*- features particularly relevant*

Investigations

Refer to the following BHS/RCH guidelines and Neonatal handbook

- http://www.rch.org.au/clinicalguide/guideline_index/Jaundice_Flowchart/ http://www.health.vic.gov.au/neonatalhandbook/conditions/jaundice-in-neonates.htm
- BHS guideline

When is phototherapy indicated?

Reference

http://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Phototherapy_for_neonatal_jaundice/

https://www.nice.org.uk/guidance/cg98/chapter/recommendations#threshold-table

3. Neonatal sepsis

You are asked to see a neonate

Male, 3450g, born at term normal vaginal delivery to a 19 year old G2P1, all clinical and blood test features of a low risk pregnancy. (GBS negative, no maternal fever) Rupture of membranes occurred 9 hours pre delivery, clear fluid, apgar scores 8 and 10 at 1 and 5 minutes. HR 170 T 37 RR 60 O2 98% on room air. Temp 35.8 Infant appears a little pale and mottled, capillary refill 4 secs. Weak cry and reduced tone.

What other signs and symptoms are worth looking for?

How might you determine the difference between normal neonate and neonatal sepsis?

What is your course of action?

What management is indicated?

Reference

http://www.health.vic.gov.au/neonatalhandbook/infections/sepsis.htm

4. Newborn seizures

You attend a paediatric MET response. The paediatric registrar is at a Caesar, and the consultant is ten minutes away.

A neonate is having a generalized seizure

The neonate was born at term to a 36 year old mother who is B+, normal serology and group B strep negative, usually fit and well and unremarkable pregnancy. Delivery was by LUSCS due to poor progression of labour, Apgar scores were 8 and 10 at 1 and 5 minutes. All went well first 24 hours

On second day neonate has a 90 second generalised seizure. Resolved spontaneously. Oxygen was given and blood glucose was 5

What features on examination are most important?

What is your first line treatment?

What treatment would you initiate after a second seizure?

What investigations?

What are the options for drug administration, and IV access?

What must you not miss?

5. Paediatric respiratory

4 year old female presents with wheeze

She has had a few episodes of wheeze over the last three years, but no firm diagnosis. Family history of asthma, eczema and hay fever. Unremarkable pregnancy and meeting all developmental milestones. Immunisations up to date, no medications or past medical history

Has had coryza and cough over last two days, appears breathless on exertion.

RR 48 HR 160 cap refill 3 secs looks a little tired, O2 99% on room air. Examination reveals generalised wheeze.

How severe is this presentation of acute asthma?

What treatment will you initiate?

YEAR 20 ______________ DATE & MONTH →

ENTER ADMINISTRATION TIMES

Date ___/___/___

Date | Medication (Print Generic Name) | Tick if Slow Release

Route | DOSE | Frequency

Pharmacy/additional information

Indication | Dose Calculation (e.g. mg/kg per DOSE)

Prescriber Signature | Print Name | Contact/Pager

Date ___/___/___

Date | Medication (Print Generic Name) | Tick if Slow Release

Route | DOSE | Frequency

Pharmacy/additional information

Indication | Dose Calculation (e.g. mg/kg per DOSE)

Prescriber Signature | Print Name | Contact/Pager

What guideline will you use and where will you find it?

TASK: Patient fact sheets and asthma action plans.

Please find an example and review it.

6. Paed bronchiolitis vs croup

A 2 year old boy presents with cough The coughing has been worse last night in particular and associated with noisy breathing on inspiration.

Past history is unremarkable, no allergies or medications, has had homeopathic immunisations only.

O/E HR 120 RR 32 O2100% sternal and intercostal recession, tracheal tug

Assessment:

What is the likely diagnosis, and what differential diagnoses should you consider?

What physical examination findings might help you make the diagnosis?

What features should you assess for risk of respiratory failure in a child?

Outline your explanation to a parent when you are prescribing prednisolone and discharging a child with croup

7. 2 yo boy with Nausea and vomiting and diarrhea

2 year old boy comes into the emergency department with his mother. She complains that her son hasn't been eating or drinking for the past 2 days after having 6 bouts of diarrhoea and vomiting.

What is the likely diagnosis and differentials for this boy?

What questions would you ask the mum?

What are the key areas to assess in examination?

What do you do if mild to moderate dehydration?

What do you do for severe dehydration?

What advice do you give to the mother about management at home?

What situations do you reduce fluid to 50-60%

What is the management if the child is a neonate?

Please document an IV fluid order that will last until the 9am review tomorrow morning.

NB should be reviewed when U&E available

WEIGHT RECORDED AS 10kg

Medical Order					
Date	Flask No / Flask Vol mL	Type of Fluid Including Strength	Additive(s) Including Dose	Rate: Hr per flask or mL per hour	Medical Officer's Signature
	/				
	/				

If the patient ***weight is 20kg***: (different case example) how would you alter your order?

Medical Order					
Date	Flask No / Flask Vol mL	Type of Fluid Including Strength	Additive(s) Including Dose	Rate: Hr per flask or mL per hour	Medical Officer's Signature
	/				
	/				

8. Preparation for a procedure

A child is about to have an IV cannula, to facilitate some sedation for a CT scan of the head.

How will you establish rapport with mum and child?

What are your options or strategies for;

Distraction methods?

Analgesia?

Topical anaesthesia?

Positioning of the patient?

Sedation?

More advanced options could be discussed for bigger procedures

Who can help you?

9. Rash

A four year old boy presents to the ED after becoming suddenly unwell at his kindergarten. He was well in the morning, his siblings have recently had viral upper respiratory tract infections, and shortly after lunch he developed a fever, sore throat and vomiting. This all happened about six hours ago, and now he looks miserable, and complains of sore legs, and cold hands and feet.

He has no rash, no stiff neck or headache.

List the diagnosis/differential diagnoses and key features

What features should you look for on history and examination?

Outline the investigations that should be performed (list them in order of importance, i.e. what is done first etc.)

What action should you take?

You establish IV access, and send off bloods and consider a full septic work up, LP, urine, CXR.

He develops a few pin prick red spots on the abdomen

Further examination reveals a couple of larger red spots, these are non-blanching. Mum thinks it might be chicken pox.

What action will you take now?

References

- http://www.meningitis.org/health-professionals/doctors-in-training
- http://www.ncbi.nlm.nih.gov/pubmed/16458763?access_num=16458763&link_type=MED&dopt=Abstract
- http://www.nice.org.uk/guidance/cg102/resources/guidance-bacterial-meningitis-and-meningococcal-septicaemia-pdf
- http://www.meningitis.org/assets/x/50631

10. Non accidental injury

A 3 year child presents with a limp and is quite reluctant to walk. The mother denies a history of trauma. In the ED the HMO orders an XR and it demonstrates a healing tibial fracture. They request admission and further assessment.

What features do you consider "red flags" for Non accidental injury (this case and in others)?

What is the procedure for reporting suspected Non accidental injury or children at risk?

Where might you find further assistance or information to help you deal with this issue while you are working here?

11. Seizure

4 year old is brought in by ambulance after experiencing a seizure while at home.

Temp 38.9 Pharyngitis and mild otitis media, otherwise full exam normal.

What are the main questions you would like to ask the mother?

You find out that the child has currently been unwell with a fever. What is your likely diagnosis?

What is your management?

The mother asks if her child will have more seizures, what advice would you offer?

The same mother comes in a month later with her 8 year old child after she has had a seizure. The child has been previously ill but the mother reports the seizure seemed to be very different from the one her 4 year old had
While you are talking to the mother the child has another seizure with classic tonic clonic movements.

What is your initial management?

The seizure is still lasting after 5 minutes. What do you do?

APPENDIX - BHS Skills and Procedures Checklist – HMO 2+

Introduction

The skills and procedure check list have been developed to help you keep a record of your learning and will be used in your end of term appraisal. Where possible ask a senior doctor to observe you undertaking any of the following procedures or document yourself what you have achieved.

Element	Procedure/skill	Date	Signed
Airway	Airway care with simple adjuncts such as pharyngeal airway		
	Insertion of LMA		
	Simple airway manoeuvres		
	Understand difference- position neonate/child		
Breathing	Bag mask ventilation*		
	Apply oxygen mask		
	Administer medication via a spacer		
	Teach use of spacer		
Circulation	IV access –		
	Heel prick		
	Venepuncture		
	Intraosseous access		
	IV infusion including the prescription of fluids		
	IV infusion of blood & blood products		
Procedures	Perform BLS - neonate and paediatric		
	NG & feeding tube insertion		
	Lumbar Puncture -		
Pain Relief	Preparation and administration of IV medication,		
	Understand performance of distraction & Nitrous oxide		
Paediatrics - Febrile child	Examine ear, nose, throat		
	Obtain a clean catch urine		
Paediatrics – breathing difficulty	Asthma education		
	Interpret chest x-ray		
Paediatrics - vomiting	Assess hydration		
	NG & feeding tube insertion		
	IV access		
	IV infusion including the calculation of fluids requirements		

BHS Mini-CEX Assessment OPTIONAL

Introduction

A mini-CEX exercise assessment (mini-CEX) is a 15-20 minute snapshot of doctor-patient interaction observed and assessed by a senior doctor.

Instruction

While you are on your paediatric rotation, try to complete 2 mini-CEX assessments from the skills and procedure check list. It is likely that presenting a case to your registrar or consultant will be a practical way to perform this task.

Date:		
Clinical Problem:		
Assessment Criteria	Descriptors	Results
1. History taking	• Elicits a history that is relevant, concise and accurate to patient's context and preferences • Effectively uses appropriate questions • Responds appropriately to verbal and non-verbal cues	□ Competent □ Not yet competent
2. Physical examination skills	• Performs a focused physical examination that is relevant and accurate • Explains to patient • Sensitive to patient's comfort and modesty	□ Competent □ Not yet competent
3. Communication skills	• Develops rapport, trust and understanding with patient/family • Accurately conveys relevant information and explanations to patients/family and other health professionals • Develops a shared plan of care with patients/families and other health professionals • Effectively manages challenges such as obtaining informed consent, delivering bad news, addressing anger and misunderstanding	□ Competent □ Not yet competent
4. Clinical judgment	• Demonstrates effective clinical problem solving and judgement to address patient problems • Interprets available data and integrates information to generate differential diagnoses and management plans	□ Competent □ Not yet competent
5. Professionalism/ Consideration for patient	• Exhibits honesty, integrity, compassion and respect • Participates effectively and appropriately in an interprofessional healthcare team • Appropriately manages conflicts of interest • Aware of own limitations	□ Competent □ Not yet competent
6. Organisation/ efficiency	• Sets priorities and manages time efficiently • Manages competing demands and stress • Appropriately manages supervision, resources and staff, ED access and flow	□ Competent □ Not yet competent
Overall performance	□ Competent □ Not yet competent	
Assessor comments on candidate's strengths and areas for improvement.		

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Clinical Problem:		
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Appendix - What does the Australian Curriculum Framework mean for junior doctors?

The learning objectives above will reflect things that your supervisor expects you to have learnt during your term.
The learning objectives above are linked to the Australian Curriculum Framework for junior medical doctors. This is provided below (http://curriculum.cpmec.org.au/), and it is evident that there is a lot of information so we have provided a shorter version here.

We have also highlighted certain elements of the ACF which are particularly important or relevant to a paediatric term.

Clinical Management	Learning Resources
Patient assessment • <u>Investigations</u>: identifies and provides relevant and succinct information when ordering investigation. • <u>Referrals & consultations</u>: Identifies and provides relevant and succinct information	BHS policies, lectures, work book
Safe patient Care • <u>Public health</u>: knows pathways for reporting notifiable diseases and the conditions. Acts in accordance with the management plan for disease outbreak. • <u>Infection control</u>: Rationally prescribes antimicrobial/antiviral therapy for common presentations. • <u>Medicine safety</u>: Prescribes, calculates and administers all medications safely mindful of their risk profile	BHS policies, lectures, work book, BHS HMO handbook

Acute and Emergency Care
• <u>Assessment:</u>
  ○ Recognises the abnormal physiology and clinical manifestations of critical illness
  ○ Recognises and effectively assesses acutely ill, deteriorating or dying patients
• <u>Prioritisation:</u>
  ○ Applies the principles of triage and medical prioritization.
  ○ Identifies patients requiring immediate resuscitation and when to call for help
• <u>Basic Life Support</u>:
  ○ Implements basic airway management, ventilator and circulatory support.
  ○ Effectively uses semi-automatic and automatic defibrillators
• <u>Advance Life Support</u>:
  ○ Identifies the indications for advanced airway management.
  ○ Recognizes malignant arrhythmias, uses resuscitations/drug protocols and manual defibrillation.
  ○ Participates in decision-making about and debriefing after cessations of resuscitation.
	Lectures, work book, on the floor teaching, BHS or externally conducted courses
	
	BLS assessment
	
	ALS assessment

• Acute Patient Transfer:
  ○ Identifies when patient transfer is required
  ○ Identifies and manages risks prior to and during patient transfers.	

Professionalism	**Learning Resources**
Doctor and Society • Access to healthcare: demonstrates and advocates a non-discriminatory patient-centered approach to healthcare • Culture, society healthcare: Behaves in ways which acknowledge the social, economic political factors in patient illness. • Professional standards: Complies with the legal requirements of being a doctor, adheres to professional standards and respects patient privacy and confidentiality. • Medicine and the Law: Complies with the legal requirements in patient care e.g. Mental Health Act, death certification. Completes appropriate medico-legal documentation. • Healthcare resources: Works in ways that acknowledge the complexities and competing demands of the healthcare system.	BHS policies, BHS HMO handbook
Professional Behavior • Professional responsibility: Behaves in ways which acknowledge the professional responsibilities relevant to his/her healthcare role. • Time management: Prioritises workload to maximize patient outcomes and health service function. Demonstrates punctuality.	BHS policies, on the floor teaching
Teaching, Learning and Supervision • Self-directed learning: Identifies and addresses personal learning objectives. Seeks and responds to feedback on learning.	Lectures, work book, on the floor teaching, BHS or externally conducted courses, BHS education resource website, external websites, during/end of rotation appraisals
Communication	**Learning Resources**
Patient Interaction • Context: Uses effective strategies to deal with difficult or vulnerable patients. • Respect: Maintains privacy and confidentially	BHS policies, BHS HMO handbook
Managing Information • Written: Complies with organizational policies regarding timely and accurate documentation. Demonstrates high quality written skills e.g. writes legible, concise and informative discharge summaries. Uses appropriate clarity, structure and content for specific correspondence. Accurately documents drug prescription, calculations and administration. • Handover: Demonstrates features of clinical handover that ensure patient safety and continuity of care. Performs effective handover in a structured format.	BHS policies, BHS HMO handbook , on the floor teaching, lectures
Working in Teams • Team structure: Identifies and works effectively as part of the healthcare team to ensure best patient care. • Team dynamics: Identifies and adopts a variety of roles within different teams. • Case presentation: Presents cases effectively, to senior medical staff and other health professionals.	BHS policies, on the floor teaching, lectures