WHAT TO EXPECT

· Chill rotation
· Similar conditions as third year: HOPC and Rx slightly different
· Good to have experience in dealing with children
STUDYING FOR PAEDS

· Paeds matrix
  · Green and starred conditions: know well
  · Blue and red conditions: know basic clinical presentation, diagnosis and management

· Online
  · Royal Children’s Hospital Clinical Practice Guidelines
  · UpToDate
  · Australian Asthma Handbook

· Textbooks
  · Illustrated Textbook of Paediatrics
  · Practical paediatrics
PAEDS ROTATION STRUCTURE

- 1 week introductory lectures
- 4 weeks MMC and 4 weeks at another site/MMC

- 4 week MMC structure
  - 1 week paeds ED
    - 5 shifts of 4 hours
    - Orientation on the Monday of ED week at 9am
  - 1 week clinics
    - 5 clinics a week
  - 2 weeks wards
· History
  · Easily completed on ED

· Examination
  · Can be completed on ED or clinics depending on doctor

· Admissions
  · Completed on wards

· Discharge summaries
  · Completed on wards

· OCE’s
  · Formative examinations
  · 1 neonate, 1 infant/child
  · Can be completed on CBT tutes or whenever a doctor supervises an examination
ASSIGNMENTS

- WORTH VERY LITTLE
- Written case report
  - 1000 words
  - Due at end of 4 week MMC rotation
- Oral case presentation
  - 10 minutes
  - Marked by Dr Rupert Hinds
- Contemporary issues presentation
  - Assigned a topic 2 weeks before it’s due
  - Presented in small group tutorials
  - 5 minutes
  - 500 word limit hand out
PAEDIATRIC HISTORY TAKING

• HOPC
• System Review
• Feeding
• Growth
• Past Hx
  • Developmental history
  • Immunisations
• Medications
• Family history and social history
PAEDIATRIC HISTORY TAKING

- **System Review**
  - Infectious
    - Fever?
    - Colour of child: pale? Grey?
    - Rashes?
    - Sick contacts?
  - Cardiovascular
    - Cyanosis?
    - Exercise tolerance (feeding as an infant)
  - Respiratory
    - Cough?
    - Auscultated sounds: Wheeze? Stridor?
    - Intercostal recession?
    - Use of accessory muscles?
  - Gastrointestinal
    - Diarrhoea? Constipation?
    - Vomiting? – bile?
    - Abdominal pain?
    - Dirty nappies?
  - ENT
    - Ear discharge?
    - Noisy breathing?
    - Genitourinary
      - Wet nappies?
      - Toilet trained?
      - Dysuria?
  - Neuromuscular
    - Seizure activity?
    - Gait changes?
    - Weakness?
    - Changes in senses?
    - Headaches?
• **Feeding**
  - Breast milk/formula or solids
    - Breastfeed until 1 year
    - Solids introduced generally at 6 months
  - Recent changes?

• **Growth**
  - Initial height, weight, head circumference
  - Chart progression
  - Green book
  - Relative to parent’s height
PAEDIATRIC HISTORY TAKING

• Past Hx
  • Chronic conditions
  • Birth history: more important in neonates, younger children
    • Antenatal, labour, postnatal complications
    • Full term? Prematurity?
    • Newborn screening?
    • Method of delivery: vaginal or caesarean?
  • Developmental history
    • Ask for any concerns?
    • Milestones
    • Academically if in school
  • Immunisations - up to date?

Summary

<table>
<thead>
<tr>
<th>Developmental milestones by median age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Newborn</td>
</tr>
<tr>
<td>7 months</td>
</tr>
<tr>
<td>1 year</td>
</tr>
<tr>
<td>15-18 months</td>
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<tr>
<td>2½ years</td>
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</tr>
</tbody>
</table>
PAEDIATRIC HISTORY TAKING

• Medications
• Family history and social history
• As per usual
PAEDIATRIC HISTORY TAKING

* HEADSS SCREEN – Adolescent screen for psychosocial risk

- **Home**
  - Who do you live with
  - Where do you live
  - Recent moves? How many?
  - Relationships
  - Safety
  - Violence

- **Education/employment**
  - Studying
  - Where
  - Attendance
  - Year
  - Performance

- **Friendships/relationships**
  - Supports
  - Recent transfers/moves
  - Bullying
  - Disciplinary actions
  - Future plans
  - Work details
  - Enjoyment

- **Eating**
  - Weight (heaviest, lightest, recent changes)
  - Dieting
  - Exercise
  - Menstrual history
PAEDIATRIC HISTORY TAKING

• HEADSS SCREEN - Adolescents
  • **Activities**
    • Inside school (sport, clubs)
    • Outside school (clubs, parties)
    • Enjoyment
    • TV/Computer/social media
  • **Drugs and alcohol**
    • Friends, family, patient
    • Smoking
    • Alcohol
    • Illicit drug use
    • Pattern of use, amount, opinions, finances? Negative consequences?
  • **Sexuality**
    • Close relationships
    • Sexual experiences
    • Number of partners (total and the last 3 months)
    • Gender of sexual partners
    • Uncomfortable situations/sexual abuse
    • Risk of pregnancy
    • Previous pregnancies
    • Contraception
    • Condoms and STIs
PAEDIATRIC HISTORY TAKING

• HEADSS SCREEN - Adolescents
  • Suicide, depression, self-harm
    • Presence and frequency
    • Feeling down or sad
    • Current feelings (scale of 1 to 10)
    • Actions when feeling down
    • Supports when feeling down
    • Self-harm (thoughts and actions)
  • Suicide risk
    • Thoughts
    • Attempts
    • Plans
    • Means

• Safety from injury/violence
  • Safety gear for spots
  • Seatbelts
  • Riding with intoxicated driver/friends
  • Violence at school or in neighbourhood
  • Weapons or other criminal behaviours
NEONATAL EXAMINATION

- Head to toe examination
- Opportunistic
  - Cardiac examination
  - Respiratory examination
  - Abdominal examination
  - Feel femoral pulses
  - Pupillary reflex and red reflex
NEONATAL EXAMINATION

• General appearance
  • Colour: inspect for pallor, cyanosis or jaundice
  • Skin: inspect for texture, turgor, rashes, tags etc, note variations e.g. naevi, bruising, birthmarks

• Activity/tone
  • Observe alertness, posture, muscle tone
  • Check head lag by lifting them up by the arms

<table>
<thead>
<tr>
<th>HEAD LAG</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull infant toward sitting posture by traction on both wrists and support head slightly. Also note arm flexion.</td>
<td>Head drops back</td>
</tr>
<tr>
<td></td>
<td>Tries to lift head but it drops back</td>
</tr>
<tr>
<td></td>
<td>Able to lift head slightly</td>
</tr>
<tr>
<td></td>
<td>Lifts head in line with body</td>
</tr>
<tr>
<td></td>
<td>Head in front of body</td>
</tr>
</tbody>
</table>
NEONATAL EXAMINATION

- Head
  - Circumference: occiput to supraorbital ridges – average measurement taken after 3 measurements
  - Suture lines
  - Fontanelles: anterior and posterior
- Ears
  - Low set ears
    - Could indicate congenital abnormalities
- Eyes
NEONATAL EXAMINATION

· Nose
  · Check for nasal patency

· Mouth and palate
  · Cleft lip and/or palate
  · High arched palate
  · Rooting reflex and sucking reflex

· Neck
  · Inspect for clavicles for fractures
  · Palpate neck to identify lumps, swelling or webbing
NEONATAL EXAMINATION

• Chest
  • Assess symmetry, shape, rib retraction
  • Inspect nipples

• Abdomen
  • Umbilical cord stump for 3 vessels
  • Hernias

• Arms and hands
  • Count fingers
  • Grasp reflex
  • Palmar creases
NEONATAL EXAMINATION

· Genitalia: determine sex of baby
  · Male
    · Scrotum: checking for hydrocele or inguinal hernias
    · Urethral meatus location
    · Descension of testes
  · Female
    · External genitalia
    · Female mucoid discharge
· Bladder
  · Confirm output after 24 hours
NEONATAL EXAMINATION

- Feet
  - Count toes

- Spine
  - Spina bifida: midline tufts of hair, midline moles

- Anus
  - Normal/patent
  - Meconium passed, confirm output over 24 hours
NEONATAL EXAMINATION

- Hips
  - Compare leg length and symmetry of creases over the front and back of thighs
  - Barlow’s manoeuvre
  - Ortolani’s manoeuvre
NEONATAL EXAMINATION

· Reflexes
· Babinski
· Stepping/walking
· Moro
# Neonatal Jaundice

<table>
<thead>
<tr>
<th>&lt;24 hours</th>
<th>Sepsis</th>
<th>Always pathological</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unconjugated</strong></td>
<td><strong>Conjugated (&gt;15umol/L)</strong></td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>CF</td>
<td></td>
</tr>
<tr>
<td>Haemolysis</td>
<td>Infection (TORCH: Toxoplasmosis, Other (Syphilis, varicella-zoster, parvovirus B19), Rubella, Cytomegalovirus, Herpes)</td>
<td></td>
</tr>
<tr>
<td>• Extrinsic</td>
<td>Neonatal hepatitis</td>
<td></td>
</tr>
<tr>
<td>• ABO, Rh incompatibility</td>
<td>• Idiopathic</td>
<td></td>
</tr>
<tr>
<td>• Intrinsic</td>
<td>• Alpha-1 AT</td>
<td></td>
</tr>
<tr>
<td>• Membrane: spherocytosis</td>
<td>• Vertical hepatitis</td>
<td></td>
</tr>
<tr>
<td>• Enzyme: G6PD deficiency</td>
<td>Metabolic</td>
<td></td>
</tr>
<tr>
<td>Haemolysis</td>
<td>Galactosaemia</td>
<td></td>
</tr>
<tr>
<td>• Bruising</td>
<td>• Fructose intolerance etc</td>
<td></td>
</tr>
<tr>
<td>• Haemoglobinopathies</td>
<td>Bile duct obstruction</td>
<td></td>
</tr>
<tr>
<td>• Polycythaemia</td>
<td>• Biliary atresia (Alagille’s syndrome)</td>
<td></td>
</tr>
<tr>
<td>Breast milk jaundice</td>
<td>• Choledochal cysts (extrabiliary, obstruct duct)</td>
<td></td>
</tr>
<tr>
<td>Breast feeding jaundice</td>
<td>TPN complication</td>
<td></td>
</tr>
<tr>
<td>24hr – 2 weeks</td>
<td>Physiological jaundice (1/3 term)</td>
<td></td>
</tr>
<tr>
<td>2 weeks</td>
<td>Prolonged</td>
<td></td>
</tr>
<tr>
<td>&gt;2 weeks</td>
<td>Physiological jaundice</td>
<td></td>
</tr>
<tr>
<td>Prolonged</td>
<td>Breast milk jaundice (10% breast fed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haemolysis (particularly enzyme problems, esp G6PD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypothyroidism</td>
<td></td>
</tr>
</tbody>
</table>
NEONATAL JAUNDICE

- Physiological jaundice
  - Appears at 24 hours, peaks on ~day 3 and resolves ~day 7

- Mechanisms
  - Low activity of the enzyme which converts unconjugated bilirubin to conjugated to be excreted
  - Shorter life span of fetal RBC ~80-90 days
  - Low conversion of bilirubin to urobilinogen by intestinal flora, therefore high absorption of bilirubin back into circulation

- Diagnosis of exclusion
  - No further Ix or Tx required if a well baby who is jaundiced follows the predicted course, but Ix is important in those that are sick or pattern is abnormal.
NEONATAL JAUNDICE

- Conjugated causes
  - Biliary atresia
    - Obliteration of extrahepatic biliary system resulting in obstruction to bile flow
    - Alagille syndrome – autosomal dominant (biliary atresia, butterfly vertebrae and TOF)
  - Diagnosis
    - Fasting abdominal USS (contracted/absent gallbladder)
    - Radioactive isotope scan showing liver uptake but no excretion
    - Liver biopsy
  - Treatment
NEONATAL JAUNDICE

- **Conjugated causes**
  - Choledochal cyst
    - Cystic dilatations of the extrahepatic biliary system
    - About 25% present in infancy with cholestasis
    - In older age groups, may present with abdominal pain, palpable mass and jaundice or cholangitis
  - Diagnosis: USS or hepatobiliary scintigraphy scan
  - Treatment: surgical excision of cyst with Roux-en-Y anastomosis

- Neonatal hepatitis: congenital infection/TORCH, alpha-1 antitrypsin deficiency

- Metabolic causes: Galactosemia, fructose intolerance, CF
NEONATAL JAUNDICE

- Investigations
- Bloods
  - FBE
  - LFTs
  - CRP
  - Serum bilirubin (SBR)
    - Differentiate between unconjugated and conjugated (conjugated fraction >20%)
  - Septic screen
  - Blood group
  - Direct Coomb’s test
  - G6PD
  - (TFTs)
  - (Hepatitis serology)
NEONATAL JAUNDICE

· Treatment

· Treat the cause

· Mild – moderate: Phototherapy
  · Breaks down the bilirubin into a water soluble state to be excreted in the urine and faeces (<340 micromol bilirubin)
  · UVB light

· Severe (bilirubin >340μmol/L): Exchange transfusion
  · Replace baby’s blood with “new” blood
NEONATAL JAUNDICE

· Complications

· Kernicterus:
  · Unconjugated bilirubin (lipid soluble) crosses blood brain barrier – yellow staining of brain and associated neuronal death on histology
  · Cerebellum, basal ganglia and cranial nerve nuclei tend to be most affected

· Bilirubin encephalopathy
  · Lethargy -> poor feeding -> temp instability -> hypotonia – opisthotonus -> seizures
  · Cerebral palsy and deafness
THANK YOU