NEWBORN EXAMINATION
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NEWBORN EXAMINATION

• I have nothing to disclose.
• Newborn exams have remained unchanged for years just the diagnosis have improved to protect the innocent.
OBJECTIVE

• Make you comfortable in handling a newborn.
• Perform a good newborn exam.
• Anticipate problems.
1. In examining an infant, a red reflex should be elicited from both eyes until age:

A. 6 mo  
B. 9 mo  
C. 12 mo  
D. 18 mo  
E. 24 mo
2. Of the following which is untrue about Congenital Development Dysplasia of the Hip (Congenital Hip Dysplasia)?

A. An Ultrasound must be done at 3-4 weeks of age to confirm or rule out the condition.
B. It is more common in females.
C. Treatment in the nursery consists of triple diapering to keep the femur in the acetabulum.
D. A clunk sign on an Ortolani maneuver is an indication that a Hip dysplasia may be present.
E. It is more prevalent in breech deliveries.
3. A caput succedaneum:

A. Crosses the suture line.
B. May overlie a fracture.
C. May cause an elevation in bilirubin.
D. Is caused by the use of forceps.
E. Resolves in 2-3 days.
4. Testing for Critical Congenital Heart disease involves:

A. Pulse Oximetry Testing of the Left hand and the right foot
B. Pulse Oximetry Testing of the Right hand and the right foot.
C. A difference between the two measured saturation tests of 3 being normal.
D. Repeating the test in 24 hours if the Test is abnormal.
E. Testing at 4 hours of age.
5. Which of the following is not a primitive reflex:

A. Moro
B. Root
C. Suck
D. Gallezzi
E. Galant
NEWBORN EXAM

• Most important part of the exam is to establish a routine so you do not miss anything.
WHAT IS IMPORTANT

• Maternal History
  • Prenatal Care
  • Maternal and Paternal History
  • Maternal Labs: ABO, Hep, RPR, GBBS, HIV,
  • Labor History, C section, Instrumentation
WHAT IS IMPORTANT

• Newborn
  • Resuscitated?
  • NB nursery or NICU
  • Home with mom
  • Jaundice
  • Hep B Vaccine
  • Metabolic Screen
  • Hearing Screen
  • Breast or formula
  • Birth weight/Discharge weight
WHAT IS IMPORTANT

• Volume of feeds
• Elimination
NEWBORN EXAM

• OBSERVATION
• Examine while lying quiet in warm room undressed
• Watch movements (symmetrical?)
• Look for anomalies
• Able to do much of the exam during this phase (count fingers, jaundice, rashes)
CARDIOVASCULAR RESPIRATORY EXAM

• Look at the chest
  • Color, symmetry, work of breathing, and respiratory rate
  • Observe for retractions, nasal flaring, malformations, abnormal pulsations, and parasternal heave.

• Heart examination
  • Rate, rhythm, murmurs, gallops, clicks, loudest on right side or left side, location and strength of PMI (point of maximal impulse)
  • Check femoral pulses and compare with brachial pulses

• Listen to the lungs
  • Bilateral breath sounds, crackles, wheezes, or rhonchi


CARDIOVASCULAR RESPIRATORY

• Heart rate - Range 120 to 160 beats per minute
• Respiration - Range 30 to 60 breaths per minute
• CCHD test in Nursery
• Look for symmetry
• Retractions
• Flaring
• Murmers
• Pulses
Child in well-baby nursery ≥ 24 hours of age or shortly before discharge if < 24 hours of age

Screen

- < 90% in right hand or foot
- 90% - <95% in right hand and foot or >3% difference between right hand and foot
- ≥ 95% in right hand or foot and ≤3% difference between right hand and foot

Repeat screen in 1 hour

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Positive Screen

Negative Screen
HEENT

- **Head**
  - Head circumference (average 34-35 cm)
  - Look and feel scalp
    - Caput succedaneum, cephalohematoma, abrasions, sutures, fontanelles (anterior and posterior) cutis aplasia
- **Ears**
  - Formed, pits, tags, rotation, position, size
- **Nose**
  - Nares patent bilaterally
HEAD AND NECK

- Newborn cranium
  - Fontanelles, sutures, scalp integrity, shape and non-pathologic lesions
    - Cephalhematoma
    - Caput Succedaneum

- Neck
  - Thyroid, musculature, torticollis, clavicles, posterior aspect neck
  - Range of motion, goiter, cysts, clefts,
  - OMM /PT
HEAD FINDINGS

Caput succedaneum
www.fammed.washington.edu

Cephalohematoma
www.emedicine.com
TORTICOLLIS

Shortened neck muscle
NEONATAL CRANIUM

• Clue for intracranial pathologies
  • Measure 2 cm larger than chest ofc 32-36cm
  • Plot on Growth curve

• Macrocephaly
• Microcephaly
HEENT

• **Mouth**
  - Check for clefts (lip and palate), arched palate, neonatal teeth, Epstein pearls

• **Eyes**
  - Scleral hemorrhages, icterus, discharge, pupil size, extra-ocular movements, red reflex, clear cornea
HEENT FINDINGS

- Cleft lip and palate
  - www.thefetus.net

- Absent red reflex
  - www.stjude.org

- Epstein’s pearls
  - www.dentistry.bham.ac.uk
ABDOMINAL EXAM

• Inspect first
• Listen for bowel sounds
  • Present or absent
• Feel the tummy!
  • Palpate for liver, spleen, kidneys, and presence of masses
GENITO URINARY EXAM: MALE

• Penis: Phimosis is normal!!!
  • Do not attempt to retract the foreskin over the glans
  • Look for epi- or hypospadias
• Testes: Feel both testes, look for hydroceles, hemias, or other abnormalities
• Ambiguous genitalia
• Anus: Check for patency and placement
GENITOURINARY ABNORMALITIES: MALE

Normal neonatal phimosis

Hypospadias

www.vghtpe.gov.tw

www.meddean.luc.edu
GENITOURINARY ABNORMALITIES: MALE

Left hydrocele
www1.medizin.uni-halle.de

Left inguinal hernia
www.pediatriconcall.com
GENITOURINARY EXAM: FEMALE

- **Labia:**
  - Large labia major is common due to maternal hormones
  - Examine for fusion and clitoral hypertrophy

- **Vagina:**
  - Vaginal discharge is common; white & mucoid to pseudomenses
  - May have hymenal tags

- **Ambiguous genitalia**

- **Anus:** check for patency and placement
GENITOURINARY ABNORMALITIES

Imperforate anus
www.bms.brown.edu

Ambiguous genitalia
www.thefetus.net
GENITO URINARY ABNORMALITIES

Hymenal Tag
http://newborns.stanford.edu/PhotoGallery/HymenalTag2.html
EXTREMITIES

• Digits: number and abnormalities
  • Examples: polydactyly, syndactyly, clinodactyly, simian creases

• Arms/Legs:
  • Examine range of motion, tone, asymmetry

• Clavicles
  • Feel for fractures!!!

• Hips:
  • Barlow and Ortoloni exam
  • Clicks are common and benign due to estrogenic effect
  • Clunks are indicative of hip dislocation/relocation and can represent developmental dysplasia of the hip
SPINE

• Flip infant onto your forearm and look at entire spine
• Feel the vertebral column for bony defects
• Examine sacral area closely
  • Clefts, hairy tufts, change in pigmentation
• Look for gross defects
  • Meningomyelocele, teratomas, sinus tracts
VERTEBRAL ABNORMALITIES

Sacral Sinus and Dimple

Hair tuft

www.adhb.govt.nz

www.fammed.washington.edu
SKIN

• Look at the skin during the entire exam
  • Jaundice
  • Mongolian spots (Important to document!!!)
  • Rashes
    - HSV lesions
    - Transient pustular melanosis
    - Cradle cap
    - Neonatal Acne
    - Erythema toxicum neonatorum
    - Milia
  - Stork bites
SKIN FINDINGS

Mongolian Spot (Congenital dermal melanocytosis)

www.koori-childrens-clinic.com
dermis.multimedica.de
SKIN FINDINGS

Erythema toxicum neonatorum

Transient pustular melanosis

www.dermis.net
www.nursing.duq.edu

www.ahsl.co.nz
ethnomed.org
SKIN FINDINGS

Sebaceous Gland Hyperplasia
www.ahsl.co.nz

Neonatal Acne
www.derm101.com
SKIN FINDINGS

Cradle Cap (Seborrheic dermatitis)
en.wikipedia.org

Stork bite (Nevus simplex)
www.ritari.org
NEUROLOGIC EXAM

- Look carefully and evaluate neurologic status during exam of other systems
  - Symmetry of motion, tone, bulk, response to stimulation, pitch of cry, repetitive motions, palsies
  - Primitive Reflexes: Moro, suck, galant, rooting, palmar/plantar grasp, stepping
NEWBORN REFLEXES

Palmar and plantar grasp
Rooting reflex

www.winfssi.com
NEWBORN REFLEXES

Moro reflex  
www.nlm.nih.gov

Stepping reflex  
www.imi.org.uk
NEWBORN EXAM POINTERS

• Listen first, a crying baby doesn’t promote a good listening environment
• Take your time, develop a system, and use it every single time
• Look at every square inch of the baby!
• Follow-up any abnormalities
• Don’t forget gestational age assessment
SO WHAT'S THE BIG DEAL WITH GESTATIONAL AGE?

• Gestational age can predict problems, morbidity, mortality, and can help you keep alert for certain problems
  • Pre-term infants are at a higher risk for:
    • Respiratory distress syndrome
    • Necrotizing enterocolitis
    • Patent ductus arteriosis
    • Apnea
  • Post-term infants are at a higher risk for:
    • Asphyxia
    • Meconium aspiration
    • Trisomies and other syndromes
GESTATIONAL AGE & BIRTH WEIGHTS

• Gestational Age:
  • Pre-term: < 37 weeks
  • Term: 37-41 6/7 weeks
  • Post-term: 42 or more weeks

• Term Infant (weight classification)
  • LGA: ≥4000 g
  • AGA: 2500-3999 g
  • SGA: <2500 g
GESTATIONAL AGE CLASSIFICATION

- Pre-term, term, and post-term infants must all be plotted to determine if they are SGA, AGA, and LGA with regards to weight, length, and head circumference.
ANTICIPATORY GUIDANCE

- Newborn Transition
  - Back to sleep
  - Calming Techniques
  - Routines
ANTICIPATORY GUIDANCE

• Newborn Care
  • Emergency Plans
  • Hand washing / No crowds
  • 6-8 wet diapers/day
ANTICIPATORY GUIDANCE

• Nutrition
  • Vit D supplementation if breast feeding
  • Fe-fortified Formulas if not BF
  • No solid food
  • No HONEY
ANTICIPATORY GUIDANCE

- Parents
  - Is there respite help?
  - Does parent sleep when baby sleeps?
  - Is mom feeling blue or sad?
  - Is anyone interfering?
ANTICIPATORY GUIDANCE

• Safety
• Do you have working some alarms/CO alarms
• Anyone smoke?
• Have you turned the water heater temperature down to 120 degrees
• Have you safety proofed the crib No soft sides. Soft toy animals crib rails, etc. no co-sleeping
• Have you a car seat?
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• Thureen, P.J. et al. Assessment and Care of the Well Newborn. Philadelphia. Saunders 1999

• American Academy of Pediatrics. Bright Futures. Guidelines for Health Supervision of Infants, Children, and Adolescents. 3rd Edition

• Stone, K. What Pediatricians Should Know About Postpartum Depression: www.postpartumprogress.com/postpartum-depression-pediatrician.