Newborn reflexes

- Sucking – present at birth
- Rooting – infant’s head turns to stroking and mouth opens
- Palmar grasp
- Plantar grasp
- Babinski – Plantar extension of toes when stroking bottom of foot, is positive until one year of age. If remains positive sign of upper motor neuron damage
- Stepping reflex

Newborn Reflexes cont.

- Galant reflex – truncal incursion, hip turns with stroking of back, symmetrical
- Startle reflex (moro) presence critical to determine intact nervous system
- Tonic neck reflex – (fencing reflex) May not be present until one month of age.
Cephalohematoma-Does not cross

Caput-Does Cross (everything has gone caput)

**Normal Findings**
- AF: 2-5 cm at birth
- AF closes: 18-24 mo
- PF: 1-2 cm at birth
- PF closes: 6 weeks-2 mo
- Overriding sutures until 5-6 mo
- Skull shape
  - Skull deformities from birth will straighten by 3 months
- Always check parent’s heads
- Hair distribution and color

**Abnormal Findings**
- Micro-/ macrocephaly
- Craniosynostosis
  - premature closure sutures/ fontanelles
- Dolicocephalic
  - Long and narrow
- Plagiocephalic
  - Positional
- Hair
  - White forelock
  - Whorls
**Visual Development: Infancy**

<table>
<thead>
<tr>
<th>Age</th>
<th>Developmental Stage of Vision</th>
<th>Visual Acuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>Awareness of light and dark</td>
<td></td>
</tr>
<tr>
<td>2 weeks</td>
<td>Intermittent fixation</td>
<td></td>
</tr>
<tr>
<td>4 weeks</td>
<td>Follows moving object</td>
<td></td>
</tr>
<tr>
<td>6 weeks</td>
<td>Fixates and follows moving object</td>
<td></td>
</tr>
<tr>
<td>8 weeks</td>
<td>Convergence beginning to stabilize</td>
<td></td>
</tr>
<tr>
<td>4 months</td>
<td>Looks at hands and feet</td>
<td>20/300</td>
</tr>
<tr>
<td>6 months</td>
<td>Retrieves small objects; hand-eye coordination appears</td>
<td></td>
</tr>
<tr>
<td>9 months</td>
<td>Binocular vision established; depth perception</td>
<td></td>
</tr>
<tr>
<td>12 months</td>
<td>Interested in pictures; fusion is established</td>
<td>20/180</td>
</tr>
</tbody>
</table>

Lymph

Normal Findings
- Lymph system includes:
  - Lymph nodes
  - Tonsils
  - Adenoids
  - Thymus
  - Spleen
- Children have very reactive lymph tissue.
- Shotty, non tender, mobile lymph nodes are common

Abnormal Findings
- ALWAYS WORRY ABOUT SUPRACLAVICULAR AND SUPRASTERNAL LYMPH NODES
- Nodes >1-2 cm, firm, immobile, tender, with overlying redness are concerning for lymphadenitis
- Nodes that are hard, matted, and immobile concerning for malignancy

Retractions
Newborn Status Assessment

- **Large for Gestational Age**
  - Health risks: hypoglycemia, broken clavicles, brachial plexus injury, skull injury, facial palsy, polycythemia, meconium aspiration

- **Small for Gestational Age**
  - Health risks: respiratory distress, poor feeding, hypothermia, hypoglycemia

- **Blood Sugar: 40 - 80 mg/dL**
  - \( \leq 40 \text{ mg/dL} \): think infection, IDM, LGA infant
  - \( \geq 80 \text{ mg/dL} \): think neonatal stress

Assessment of the Newborn

**Integumentary**

- **Physiologic Jaundice** - Bilirubin deposited on skin, peaks at day 3-5 of life- usually resolves by day 10 of life
- **Estimating bili level by progression**
  - Cephalocaudal- beginning with sclera and mucous membranes
  - Estimated 5 if nipple line
  - Estimated 10 if hips
  - Estimated > 12 lower extremities
  - Verify with lab work
Physiologic Hyperbilirubinemia

• Treatment
  • Hydration and feeding
  • Phototherapy
    • at or above 15 mg per dL in infants 25 to 48 hours old
    • At or above 18 mg per dL (308 mol per L) in infants 49 to 72 hours old
    • At or above 20 mg per dL (342 mol per L) in infants older than 72 hours
  • Exchange Transfusion
Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation

- Promote and support successful breastfeeding.
- Establish nursery protocols for the identification and evaluation of hyperbilirubinemia.
- Measure the total serum bilirubin (TSB) or transcutaneous bilirubin (TcB) level on infants jaundiced in the first 24 hours.
- Recognize that visual estimation of the degree of jaundice can lead to errors, particularly in darkly pigmented infants.
- Interpret all bilirubin levels according to the infant’s age in hours.
- Recognize that infants at less than 38 weeks’ gestation, particularly those who are breastfed, are at higher risk of developing hyperbilirubinemia and require closer surveillance and monitoring.
- Perform a systematic assessment on all infants before discharge for the risk of severe hyperbilirubinemia.
- Provide parents with written and verbal information about newborn jaundice.
- Provide appropriate follow-up based on the time of discharge and the risk assessment.
- Treat newborns, when indicated, with phototherapy or exchange transfusion.

Atypical Newborns

- Drug exposure/Signs of Withdrawal
  - General:
    - high-pitched cry, poor feeding and sleeping, ↑ muscle tone, tremors, sweating, excoriation of heels, elbows
  - Cocaine (Crack):
    - SGA and IUGR, ADHD & LD, delayed growth, feeding difficulties, irritability, tremors
  - Alcohol:
    - SGA, MR, delayed growth, heart & CNS problems, dysmorphic facial features
Fever

• The child’s age makes a difference—fever in a child less than 90 days of age is more worrisome and requires a workup
  • <30 days: LP, blood cultures, UA, UC, CXR
  • 30-60 days: UA, UC, maybe blood cultures
  • 60-90 days: UA, UC

• Look at the “whole picture”—how sick does the child look and act? This is much more important than how high the fever is.

• Try to determine the source of the fever or at least convince yourself that it is nothing bad.
Anticipatory Guidance: 2 months

* Breastfeeding still best
  - avoid fish containing mercury
* Back to sleep
  - no more swaddling unless held
* Breastfeeding
* Non-nutritive sucking
  - pacifiers decrease incidence of SIDS
  - need to get hands to mouth
* Babies may be crying more; learn to self soothe.

* Assess babe/ parent relationship
* Assess for maternal depression
* "Don't shake the baby" discussion
* Tummy time
* Talk, sing, & read to baby
* Childcare
* Car seat safety
* Firearm safety
* Burns/ hot liquids
* Immunizations

Anticipatory Guidance: 4 months

* Increased drooling: teething?
* Think about starting solids
* Discourage bottle propping
* Needs non-nutritive sucking
* Sleeping through the night
* Able to self soothe
* Tummy time
* Back and forth talking
* Reading is important
* Use name of objects
* No walkers
* Child-proofing
* Immunizations
Anticipatory Guidance: 6 months

- Feeding
  - Breast is best
  - No more night feedings
  - No bottle in bed
- Introducing solids
  - Structured mealtimes with family
  - Give spoon and cup to infant
  - Normal messiness
  - Iron, zinc, vitamin D
- Teeth
  - Brush and floss
  - Fluoride
- Sleeping
  - Work on sleeping thru night
- Cognitive
  - Name activities as you do them
  - Cause and effect toys
  - Interactive games
  - Reciprocal play
- Safety
  - Car seats
  - Burns/hot surfaces
  - Child-proofing
  - Child care
  - Immunizations

Anticipatory Guidance: 9 months

- Feeding:
  - Predictable, healthy meals & snacks
  - Transition to cup/self feeding
  - Weaning (start thinking about it)
- Sleep:
  - Sleeping through the night
  - Easily disrupted (busy day, vacation, etc.)
- Cognitive
  - Predictability is important; consistent
  - Praise good behavior
- Oral Care
  - Brush and floss teeth; fluoride
  - Dental home visit
- Language
  - Social referencing (look to parents as reference)
  - Uses gestures
- Motor
  - Playing is important (cause and effect)
  - Rapid development 9-12 months
- Safety
  - Water (bath, pool, etc.)
  - Ingestion/poison safety
  - Firearm safety
  - Stair safety/home safety
- Use “No” carefully
- Immunizations