Well baby clinic

Learning objectives

- Describe the purpose of prenatal history.
- Recognize the significance of common abnormalities found shortly after birth as well as the careful examination of the newborn.
- Explain when and what are the appropriate outpatient follow-up for the healthy Infant.

The Newborn at birth

- The whole key to the management of the newborn infant lies in a proper assessment of the baby at birth.
- This necessitates obtaining certain basic information in relation to two different individuals, the mother and the baby, and obtained in two completely different ways, by the history and by the physical examination.

History

- The mother: This includes;
  1. Pregnancy-related health issues
  2. Important are the parent’s blood groups and Rh antigen, duration of labour, whether or not there was an operative delivery, drugs and anaesthetics.
  3. Antenatal Ultrasound Findings (heart, brain and kidneys)

This information will have determined whether the baby is at risk in terms of the mother having a 'high risk' pregnancy or labour.

- The baby:
  1. Condition at birth and Apgar scores at 1 and 5 minutes after birth and details of any resuscitative measures used (this information should be present with the baby’s card after delivery).
  2. Vitamin K administration

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Examination

- Importance
  1. Earliest possible detection of deviations from normal.
     A. Major deviations: Serious correctable congenital malformations;
        I. Early diagnosis enables treatment that makes the difference between life and death, e.g. oesophageal atresia, imperforate anus, and diaphragmatic hernia.
        II. Early diagnosis enables treatment that reduce the incidence of permanent and severe disability, e.g. congenital dislocation of the hips and club feet
     B. Minor deviations: Enables the doctor to give parents a clear explanation about minor deviations from usual (if present, eg birth marks, acrocyanosis) which if not explained are likely to cause concern.
  2. Establishes a baseline for subsequent examinations.

- When
  1. Immediately after birth
  2. Before discharge from maternity unit
  3. As a scheduled visits for 2 years
  4. Whenever there is any concern about the infant’s progress

- General
  It is important that a few exact measurements be made and recorded:
  - Weight
  - Crown-heel length
  - Head circumference.
  These should be plotted on the appropriate centile chart as all parameters of growth need to be related to gestational age for sensible interpretation.
  - Record respiratory rate and heart rate with infant quiet. Your routine examination should be flexible.

If the infant is quiet and relaxed when first approached, auscultation of heart and palpation of abdomen should precede more disturbing examinations such as those of the mouth and hips.
If the infant is struggling and crying during auscultation of the heart, then temporary shunt reversal may prevent hearing of a murmur present when the baby is at rest.

- Overall Inspection
  - In general does he look ill or well?
  - Is he normally active?
  - Is the cry normal?
  - Are there any obvious malformations? (e.g. with Down Syndrome?)
  - What is his colour? Pallor? Cyanosis? Plethora? Jaundice?
  - What is his respiration? Chest movements? Is there a grunt?
  - The apex beat is frequently visible on inspection.
  - What is the shape of the head?
What a normal new baby can do?

Newborn babies are able to do many things besides cry.

- There are times when they sleep and times when they are awake.
- They can move their arms, legs and head.
- They can stretch, hiccup, sneeze and make many other movements.
- They are also able to receive a certain amount of information from the world around them through the five senses-
  - Sight
  - Hearing
  - Touch
  - Smell
  - Taste

Well-Baby examination

- Well-baby examinations are scheduled regularly during the first two years of life due to the rapid growth and change that occurs during infancy.
- During each visit the pediatrician monitors, advises, and answers questions on a baby's growth and development.
- The Pediatrician should see the infant for a check-up
  - At birth,
  - Two weeks,
  - Two months,
  - Four months,
  - Six months,
  - Nine months,
  - 12 months,
  - 15 months,
  - 18 months,
  - 24 months, and
  - Annually thereafter.

- A well-baby exam consists of :
  1. Answer parent’s questions about the baby's general health and development
  2. Physical exam: measurements of length/ height, weight and head circumference, vital signs, and a general physical examination.
     - Weight is a pediatric vital sign, because of dosing considerations and the importance of growth as an indicator of chronic disease in children.
  3. Special attention is paid to whether the baby has met normal developmental milestones.

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I. At birth

- Starting with the obstetric dates, the examination of the baby can aid in assigning a correct gestational age to detect those at risk babies.
- Head to-toe exam. With special attention to:
  - Head circumference
  - Genitalia
  - Presence of neonatal reflexes
- Metabolic screen to assess thyroid activity, and for phenylketonuria (PKU), a genetic disorder than can be easily corrected by diet.
- Blood glucose screening should be performed on infants at risk for hypoglycemia, e.g. infants of diabetic mothers
- Vitamin K administration after delivery reduces the risk of hemorrhagic disease in the newborn.
- Recommend human milk for all infants (except if there is a contraindication)

Discharge

- Most infants are ready for discharge at 48 hours after a vaginal delivery and 72 to 96 hours after a cesarean section delivery.
- The infant is medically ready for discharge when:
  - He or she has stable vital signs for at least 12 hours
  - Appears healthy and has normal physical examination
  - Passed stool and voided
  - Is feeding well
  - Has completed all screening tests, and
  - Has appropriate follow-up care planned.

Norms in the first few days after birth

- The 4- to 5-day-old infant who is consuming an adequate amount of human milk should have 6 to 8 voids and yellow, seedy stools daily; have lost no more than 7% to 8% of birth weight; and be satisfied after 20 to 30 minutes of nursing.
- Achieving the same birth weight at 10-14 days of life

II. At two weeks: The first well-baby visit occurs.

- The first outpatient visit must occur several days after hospital discharge or after 2 weeks from birth to evaluate general well-being.
- complete head to-toe exam will be performed
Developmental milestones that represent a normal progression of physical and mental maturity should be assessed

If BCG, Oral Polio Vaccine, Hepatitis B vaccine were not given in the hospital, the first shot may be given at this visit.

**The two-month**: visit will be a repeat of the two week visit with a physical exam, developmental and behavioral assessment, guidance for upcoming developmental changes, and immunizations (Pentavalent vaccine (DTP-1, Hib1, and HBV-2), OPV1 and Rotavirus1).

### III. The four & six-month exam:

- Physical exam, developmental and behavioral.
- Discuss adding **solid foods** to the baby's diet, usually in the form of cereal then pureed food.
- Immunization

### IV. The 9-mo & 1-yr exam: quite a change in baby from birth.

- Answer questions regarding the baby's sleep habits, feeding patterns, teething, standing up, walking and talking.
- The physical exam is performed, plotted on the standard growth curve, and any deviations are noted.
- A blood test for anemia may be performed

**Growing up**

Involves three major dynamic processes:

- **Growth**
- **Development**
- **Sexual Maturation**

**Physical Growth**

- Increase in the size of the body as a whole or the increase in its separate parts.
- Growth milestones are the most predictable
- It is essential to plot the child's growth on gender and age appropriate charts
The growth of a child occurs in four phases:

❖ **Fetal Growth**

- Prenatally, the growth of the head predominates, reaching the peak in the third trimester.
- The size of an infant at birth, which correlates poorly with ultimate adult height, is affected:
  - primarily by maternal size
  - Secondarily by other intrauterine factors such as maternal nutrition and use of tobacco and alcohol, placental adequacy, intrauterine infection and gestational age at birth.

❖ **Infantile Growth**

- During the first 12–24 months after birth, the time of greatest postnatal growth velocity, the infant “seeks his or her own curve.” That is, by age 2–3 years, the child's stature reflects his or her own genetic endowment rather than his or her mother's size and health.
- Growth of the brain occurs almost exclusively during the early years of life. At birth, it is 25% of adult size and at 1yr, 75%. Full development is not achieved until adolescence.

❖ **Juvenile and adolescent Growth**

- Growth during the remainder of childhood occurs at a rate of 5–6 cm per year, along the percentile band achieved by 2–3 years.
- Adolescence is characterized by an abrupt, short-lived increase in growth velocity (the “growth spurt”), mediated by gonadal & growth hormones.
## Normal growth and rule of thumb:

<table>
<thead>
<tr>
<th>Age</th>
<th>OCCIPITOFRONTAL CIRCUMFERENCE</th>
<th>HEIGHT</th>
<th>WEIGHT</th>
<th>DENTITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>35 cm</td>
<td>50.8 cm</td>
<td>3 to 3.5 kg</td>
<td>Central incisors—6mo</td>
</tr>
<tr>
<td></td>
<td>+2 cm/mo (0 to 3 mo)</td>
<td>+ 25.4 cm</td>
<td>Regains birthweight by 2 wk</td>
<td>Lateral incisors—8mo</td>
</tr>
<tr>
<td></td>
<td>+1 cm/mo (3 to 6 mo)</td>
<td></td>
<td>Doubles birthweight by 5 mo</td>
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<tr>
<td></td>
<td>+0.5 cm/mo (6 to 12 mo)</td>
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</tr>
<tr>
<td></td>
<td>Mean = 1 cm/mo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>47 cm</td>
<td>76.2 cm</td>
<td>10 kg</td>
<td>First molars—14 mo</td>
</tr>
<tr>
<td></td>
<td>+ 2 cm</td>
<td>+ 12.7 cm</td>
<td>Triples birthweight</td>
<td>Canine –19 mo</td>
</tr>
<tr>
<td>2 year</td>
<td>49 cm</td>
<td>88.9 cm</td>
<td>12 to 12.5 kg</td>
<td>Second molars—24mo</td>
</tr>
</tbody>
</table>

### Growth assessment

- For infants, the measure of linear growth is length, taken by two examiners (one to position the child) with the child supine on a measuring board.
- For older children, the measure is stature, taken with a child standing on a stadiometer.
- The data are presented in five standard charts:
  1. Weight for age;
  2. Height (length and stature) for age;
  3. Head circumference for age;
  4. Weight for height (length and stature); and
  5. Body Mass Index (BMI) = weight (kg)/height (m)²