



MILESTONES

Growth and Development Guide

Sixth Edition



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A product line of Children's Hospital and Health System

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Milestones

Growth and Development Guide

Sixth Edition

Birth to 4 weeks

Motor Control

- Newborn Reflexes:
 - Stepping reflex (lifts feet alternately when held upright with feet touching a surface).
 - Palmar grasp (closes hand to stimulation).
 - Plantar grasp (toes curl with stimulation).
 - Placing reflex (lifts foot and places it back down when dorsum of foot is stimulated).
 - Startle / moro reflex (generalized activity in response to stimulation).
 - Rooting reflex (head turns toward anything which touches cheek).
 - Strong suck and gag reflex.
- Makes crawling movements when prone on a flat surface. Pushes toes and holds hands in fists.
- May lift head when held against shoulder, otherwise head sags.
- Lifts head intermittently, unsteadily, when in prone position.
- Turns head to side when prone.

Communication/Socialization

- Notices faces and bright objects, but only if in line of vision (12-16" focus distance).

- Utters throaty noises; smacks lips.
- Smiles randomly; reduces activity in response to sounds.
- Responds to human face (12-16" focus distance).
- Cry is strong and lusty when hungry or uncomfortable.
- Enjoys being cuddled and talked to.

Play

- Music boxes, soft radio music, singing, rocking.

Safety

- Requires rear-facing car seat installed in the rear seat for safe travel in automobile. Never place a child in a rear-facing car seat in the front seat of a vehicle that has passenger air bags.
- Get car seat and/or booster seat checked at a local permanent fitting station.
- Place baby on back only for sleeping.
- Do not place baby on water beds.
- No pillows or stuffed animals in bed with baby.
- Do not leave unattended while bathing.
- No drawstrings on clothing.
- A hearing screening should be done before discharge from the hospital and whenever a potential for hearing loss is present.

Physical

- **Weight:** Gains 5-7 ounces (150-210gm) per week.
- **Height:** Grows approximately 1 inch (2.5cm).
- **Temperature:** Axillary 97.9-99.4°F (36.5-37.5°C)
- **Pulse:** 100-160 beats per minute.
- **Respirations:** 30-60 per minute.
- **Blood Pressure:** Oscillometric (Dinamap):
Ranges represent the 10th – 90th percentile:
Boys: 62-91 / 41-67
Girls: 64-93 / 41-67
- **Head Circumference:** 13-14¹/₂ inches (33-37cm).
- **Color:** Lips, hands and feet – pink.
- **Skin:** Generally clear without rash. Milia (small, yellow-white papules) frequently found on face. Mongolian Spots, especially on lower back area, common in African American, Asian and Middle Eastern babies.
- **Fontanels:** Soft and flat.
- **Eyes:** Free of drainage or irritation.
- **Mouth:** May have nipple blister on lip.
- **Abdomen:** Soft and flat. Umbilicus clean, drying and will fall off during first or second week.

- **Genitals:** Clean, non-irritated (circumcision healing).

Feeding Pattern

- Breast - approximately every 2-3 hours.
- Bottle - 3-4 ounces every 3-4 hours (120cc/kg/24 hours).

Elimination Pattern

- **Urine:** Voids at least 6 times per day (1-2 ml/kg/hr).
- **Stools:** 2-6 per day. Breast fed – yellow, soft, runny, seedy; Bottle fed – yellow, soft.

Sleep Pattern

- Sleeps between feedings. May sleep 3-6 hours at night.

Immunizations

- Refer to any of the following web sites for current immunization guidelines and recommendations:
www.aap.org; www.cdc.gov;
www.immunize.org/acip

4 to 8 weeks

Motor Control

- Moro, rooting, plantar and palmar reflexes persist.
- Stepping and placing reflexes fade.
- Energetic arm and leg movements.
- Vigorous head turning.
- Infant lifts head when prone.
- Head does not droop when held prone.
- Head lags when pulled to sitting position.
- Hands not clenched; often held open.
- Hand often goes to mouth.
- When lying on back, likely to turn head to one side.

Communication/Socialization

- Vocalizes throaty sounds such as “a” and “e”. Often repeats the same syllable. Gurgles in response to human voice.
- Regards face intently; decreases activity to look at face.
- Begins to social smile at 6 to 8 weeks (in response to environmental stimulation or human face).
- Cries as a means to obtain social stimulation; has a special cry for hunger, pain, etc.
- Movement of eyes, respiratory rate and activity level change with new sounds.

- Visual tracking; begins to follow objects.
- Responds to and enjoys:
 - Mobiles with large and bright colored objects.
 - Human faces.
 - Being held, rocked and cuddled.

Play

- Starts to hold small rattle; may try to place it in mouth.

Safety

- Requires rear-facing car seat installed in the rear seat for safe travel in automobile. Never place a child in a rear-facing car seat in the front seat of a vehicle that has passenger air bags.
- Get car seat and/or booster seat checked at a local permanent fitting station.
- Place baby on back only for sleeping.
- Do not place baby on water beds.
- No pillows or stuffed animals in bed with baby.
- Do not leave unattended while bathing.
- No drawstrings on clothing.

Physical

- **Weight:** Gains 5-7 ounces (150-210gm) per week during the second month.
- **Height:** Grows approximately 1 inch (2.5cm) during the second month.
- **Temperature:** Axillary 97.9-99.4°F (36.5–37.5°C)
- **Pulse:** 100-160 beats per minute.
- **Respirations:** 30-60 per minute.
- **Blood Pressure:** Oscillometirc (Dinamap):
Ranges represent the 10th – 90th percentile:
Boys: 76-106 / 37-63
Girls: 72-101 / 38-64
- **Head Circumference:** 13¹/₂-15¹/₂ inches (34.2-39.4cm).
- **Color:** Lips, hands and feet – pink.
- **Skin:** Generally clear without rash. Milia clearing.
- **Fontanels:** Soft and flat.
- **Abdomen:** Soft and flat.

Feeding Pattern

- **Breast** - Every 2-3 hours.
- **Bottle** - 3-4 ounces every 3-4 hours (120cc/kg/24 hours).

Elimination Pattern

- **Urine:** Voids at least 6 times per day (1-2 ml/kg/hr).
- **Stools:** 2-6 per day. Breast fed – yellow, soft, runny, seedy; Bottle fed – yellow, soft.

Sleep Pattern

- Increased periods of wakefulness. May sleep 4-10 hours at night, with naps during the day.

Immunizations

- Refer to any of the following web sites for current immunization guidelines and recommendations:
www.aap.org; www.cdc.gov;
www.immunize.org/acip

2 to 4 months

Motor Control

- Shows tonic neck reflex (head turned to one side; arm on same side extended and opposite arm reflexed to shoulder).
- Moro reflexes fade.
- Rhythmic sucking apparent; strong gag reflex.
- Turns from side to back. May roll over from tummy to back.
- Holds head erect and steady.
- Raises chest, usually supported on forearms.
- Holds object for brief period.
- Follows a moving light or object with eyes.
- Holds hands in front of face for regard; plays with fingers; by 4 months, brings hands together at midline.

Communication/Socialization

- Smiles in response to another's smile (especially parent).
- Responds differently to familiar versus unfamiliar voices; angry versus friendly tones.

- Babbles; playful repetition of some sounds; consonant sounds emerging.
- Responds to selected sounds by stopping activity and listening.
- Looks around in search of voice; watches face or mouth of person speaking to them.
- Uses sucking to soothe self.
- Shows awareness of own sounds; takes turns when vocalizing between infant and caregiver.
- Shows pleasure in making sounds.

Play

- Responds to and enjoys more contact with family members.
- Rattles and easily grasped objects. Often puts objects to mouth.

Safety

- Requires rear-facing car seat installed in the rear seat for safe travel in automobile. Never place a child in a rear-facing car seat in the front seat of a vehicle that has passenger air bags.
- Get car seat and/or booster seat checked at a local permanent fitting station.

Safety *(Continued)*

- Place baby on back only for sleeping.
- May roll from bed or other furniture.
- Do not place baby on water beds.
- No pillows or stuffed animals in bed with baby.
- Do not leave unattended while bathing.
- No drawstrings on clothing.

Physical

- **Weight:** Gains 5-7 ounces (150-210gm) per week during the second month.
- **Height:** Grows approximately 1 inch (2.5cm) during the second month.
- **Temperature:** Axillary 97.9-99.4°F (36.5-37.5°C)
- **Pulse:** 100-160 beats per minute.
- **Respirations:** 30-60 per minute.
- **Blood Pressure:** Oscillometric (Dinamap):
Ranges represent the 10th – 90th percentile:
Boys: 76-106 / 37-63
Girls: 74-104 / 38-64
- **Head Circumference:** 13½ -15½ inches (34.2-39.4 cm).
- **Color:** Lips, hands and feet – pink.
- **Skin:** Clear without rash.
- **Fontanels:** Soft and flat. Posterior fontanel closed to palpation by 4 months.

- **Abdomen:** Soft and flat.

Feeding Pattern

- Breast - Every 2-3 hours.
- Bottle - 3-4 ounces every 3-4 hours (120cc/kg/24 hours).
- May give up night feeding.

Elimination Pattern

- **Urine:** Voids at least 6 times per day (1-2 ml/kg/hr).
- **Stools:** 2-6 per day. Breast fed – yellow, soft, runny, seedy; Bottle fed – yellow, soft.

Sleep Pattern

- Is awake longer periods of time.
- Naps morning and afternoon. May give up night feeding.

Immunizations

- Refer to any of the following web sites for current immunization guidelines and recommendations:
www.aap.org; www.cdc.gov;
www.immunize.org/acip