

# **Promoting Child Growth &** Development

14

13

12

11

10

Walk alone eas

Walk using furniture for suppor

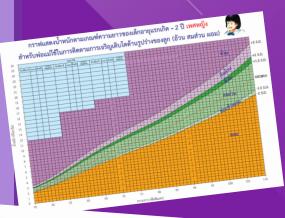
Age (months)

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## **Learning Topics**

- Identify pediatric age classifications and principles of development
- Compare the developmental theorists and summarize theories for each pediatric age group
- Recall major milestones in growth throughout the pediatric span
- Recall major milestones in development throughout the pediatric span
- Utilize a growth chart and DSPM as part of a pediatric assessment







## **Principles of Growth & Development**

#### **Growth**

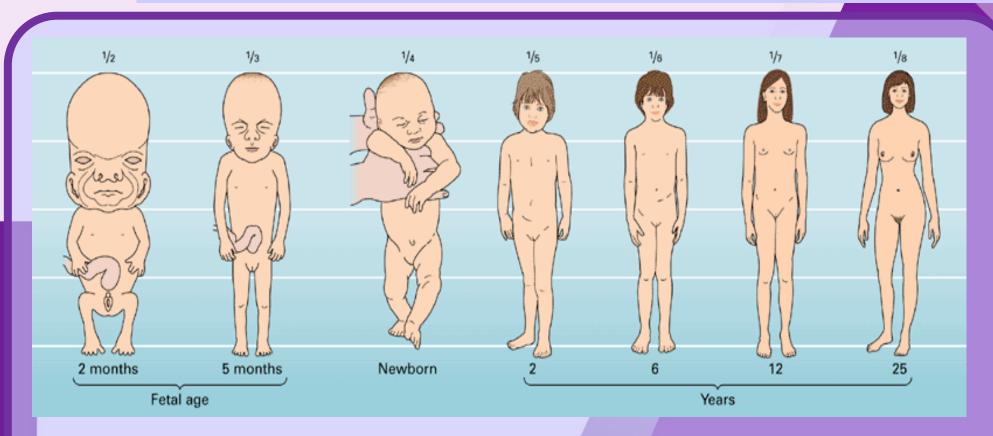
Physical increase in the body's size and appearance caused by increasing numbers of new cells

#### Development

A qualitative increase in capability or function which is progressive change in the child toward maturity. Unique to each individual Maturation Completed growth and development



#### Changes in Proportions of the Human Body During Growth



Credit: https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEhQRPJItuXf4jb\_9zHg0-Pic\_\_RzkxwHCPyG0sPZ6qF9lrxdlJV2LbRoQVCPmJlPCzFXbWYVdYpxGQk3levrlj\_cPRQkwl3g3lgufiCVa WyC03UMKolHkVAQivqFE8pnjdDztcv19U6g/



## **Patterns of Growth and Development**

#### **Cephalocaudal development**

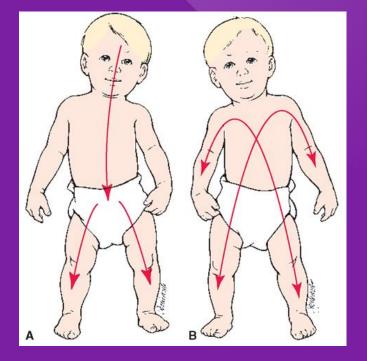
The child is able to control the head and neck before being able to control the arms and legs

#### **Proximodistal development**

- Growth starts in the center and progresses toward the periphery, or outside
- The child can control movement of the arms before being able to control movement of the hands

#### **Developmental tasks**

Basic achievements associated with each stage of development





## **Principles of Growth & Development**

Walk alone easily

Stand alone easily

Walk using furniture for support

Pull self to stand

Age (months)

Stand with support

Sit without support

Support some weight with legs

Prone, chest up, use arms for suppor

Roll over

Prone, lift head

#### Age Classifications

- Infant 0-12 month
- Toddler 1-3 years
- Preschooler 3-6 years
- School Age 6-12 years
- Adolescent 12-18 years



## **Developmental Theorists**

Stage	Erikson	Piaget	Freud
Infant	Trust vs. Mistrust	Sensorimotor Stage	Oral Stage
Toddler	Autonomy vs. Shame & Doubt	End: Sensorimotor Begin: Preoperational	Anal Stage
Preschool	Initiative vs. Guilt	Preoperational Stage	Phallic Stage
School Aged	Industry vs. Inferiority	Concrete Operational Stage	Latency Stage
Adolescent	Identity vs. Role Confusion	Formal Operational Stage	Genital Stage



## **Developmental Theorists**

 Kohlberg- Moral Development
 Stages of moral development with approximate ages- some may never reach final stage(s)

Stage	Age	
Preconventional	4-7 years	
Conventional	7-12 years	
Postconventional	>12 years	



### **Promoting Development through Play**

Know developmental level and expectations Position appropriate for development >Use appropriate, unbroken toys or games > Speak at developmental level – remember receptive speech outpaces expressive in early years Social interaction as developmentally appropriate





## **Developmental Theorists**

**Applying Developmental Theory to Nursing Care of Children What kinds of toys would be appropriate** for clients of different ages/developmental levels? How is medication administration different for clients of different ages/developmental levels? **Age is not always equivalent to** developmental level

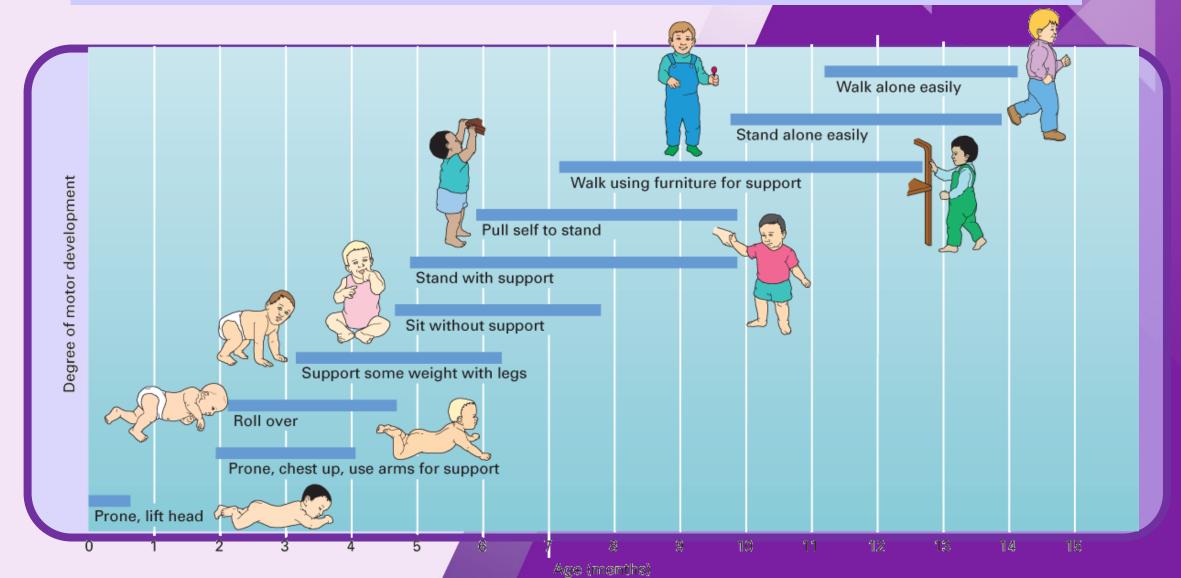
Play therapy

#### **Therapeutic Play**

#### **Recreation play**



### **Growth & Development**





## **Growth & Development-infant**









Age	Growth	Development
0-2 month	1.5 cm /month	Inborn reflexes- fists, rooting, startle looks at faces
2-4 month	Posterior Fontanelle closes	Roll over Hold rattle, hands to midline, Turn head to follow objects/sounds, Pushes up on forearms when prone



## **Growth & Development-infant**

	Age	Growth	Development
	4-6 months	Doubles birth weight at 5-6 months Teeth begin to erupt Grows 1.5cm/month	<ul> <li>Grasps objects at will Manipulates objects</li> <li>Head held steady when sitting</li> <li>Supports most of weight when standing</li> <li>Vocalizes, laughs</li> </ul>
	6-8 months	Growth rate slower than first 6 months Grows 1 cm/week	<ul> <li>Most newborn reflexes extinguished</li> <li>Sits alone</li> <li>Babbling Uses speech-like rhythm</li> <li>Responds to sounds and own name</li> </ul>



## **Growth & Development-infant**

Age	Growth	Development
8-10 months	Same weight and height increases	<ul> <li>Pincer grasp</li> <li>Creeps or crawls</li> <li>Pull to stand approx. 10 months</li> <li>Babbles1 word + "mama, dada" Understands "no"</li> </ul>
10-12 months	Head circumference equals chest circumference Triples birth weight by 1 year	<ul> <li>Stands alone, "walks" along furniture</li> <li>Sits from standing</li> <li>Places objects into holes</li> <li>Learns 1-2 words</li> <li>Receptive speech more developed</li> </ul>



## **Growth & Development- Toddler**

	Age	Growth	Development
1	-3 years	Quadrupled birth weight Half of adult height All teeth erupted	<ul> <li>Toilet training</li> <li>Undress self</li> <li>Throw ball</li> <li>Dresses self</li> <li>Scribble Runs Jumps Kick a ball</li> <li>Imitative play, likes to be around other children</li> <li>Several words to short sentences</li> <li>Receptive speech exceeds expressive</li> <li>Temper tantrums</li> </ul>



## **Growth & Development- Preschooler**

3-6 yearsGains 1.5-2.5≻ Associative (interactive) playkg/year> Dramatic playGrows 4-6> Preoperational thought	
cm/year> Vocabulary >2000 words> Complete sentences of several work> Dresses and feeds self> Uses utensils> Draws 6 parts person	ords



## **Growth & Development- School Aged**

Age	Growth	Development
6-12 years	<ul> <li>Grows and Gains same rate with Preschooler</li> <li>Body organs and immune systems mature- fewer illnesses</li> <li>Can better metabolize drug</li> <li>Urinary system can better regulate fluid balance</li> <li>Long bone growth</li> <li>Decreased fat and more muscle</li> <li>Growth spurts in girls</li> </ul>	<ul> <li>Girls may begin growth spurt 9-10 years</li> <li>Cooperative play</li> <li>Can read</li> <li>Concentrates for longer periods of time</li> <li>Mature use of language</li> <li>Sense of industry</li> <li>Ride a 2 wheels bike</li> </ul>

Tooth loss and permanent teeth erupt

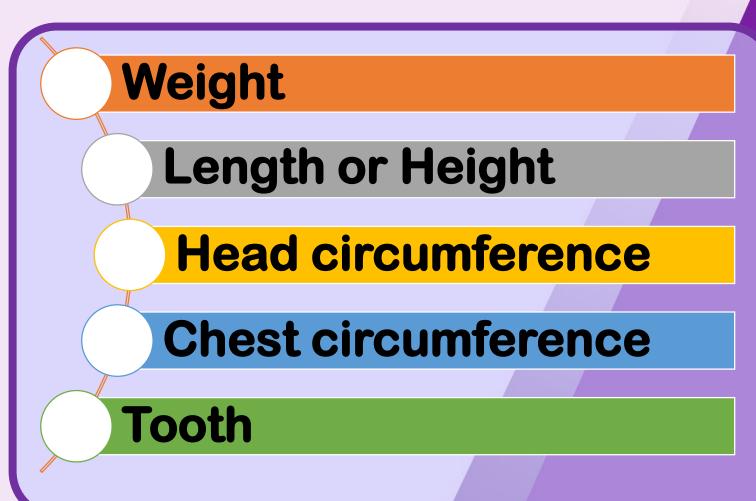


## **Growth & Development- Adolescence**

Age	Growth	Development
12-15 years	<ul> <li>Puberty (sexual maturity) begins in later school ages and completes in adolescence</li> <li>Puberty versus growing</li> <li>Tanner Scale</li> <li>Growth spurt in girls approx. 10 years</li> <li>Growth spurts in boys approx. 13 years</li> </ul>	<ul> <li>Formal operational thought</li> <li>Abstract reasoning</li> <li>Experiment with risky behaviors</li> <li>Establish identity and values</li> <li>Focus on Peer group</li> <li>Sexual maturity</li> </ul>



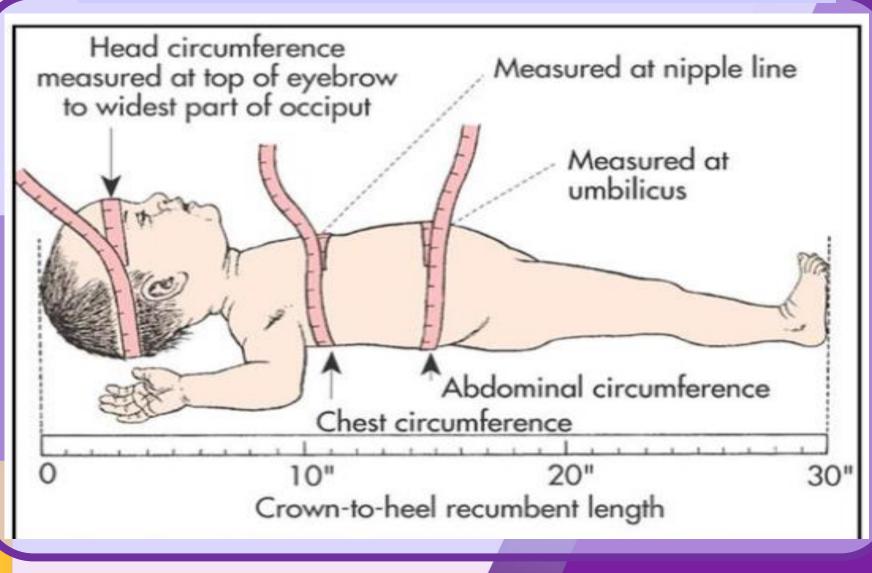
## **Growth Assessment**





Growth

### Infant Measurement





## Age-related Weight Gain

Age	BW gain (g./day)	BW (Kg)	Number of times BW
Newborn	-	3	-
0-3 month	30	-	-
3-6 month	20	6	✓ 2 (4-5 months)
6-12 month	15	9	✓ 3 (1 y)
1-2 years	2.5 (kg/year)	12	✓ 4 (2 y)
2-10 ปี	2 (kg/year)	18	✓ 6 (5 y)
		24	✓ 8 (8 y)
		30	✓ 10 (10 y)

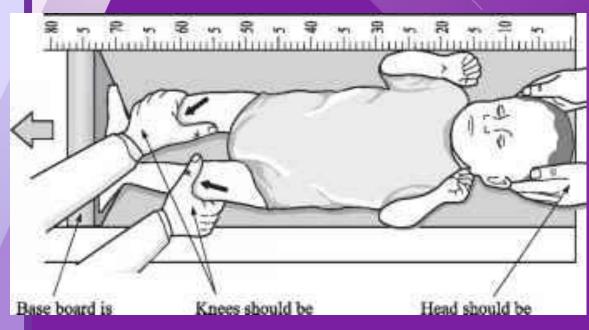


## **Age-related Height**

- Height is the result of bone growth alone.
- There will be little change in length. When there is a nutritional deficiency

#### **Measurement of length**

- in children less than 2 years old will be measured in the lying position.
- children over 2 years of age, the measurement is taken in an upright position.



#### Credit:

https://raisingtwinsblog.files.wordpress.com/2015/11/4449\_ 11\_7-supine-length-measurement-child.jpg?w=486&h=263



## Age-related Height

Age	Gain Height (cm/month)	Height (cm)	Number of times height at birth
newborn	-	50	-
6 months	2.5	65	-
1 year	1.5	75	✓ 1.5 (1 y)
1-2 years	1	87	✓ 1.75 (2 y)
2-6 years	7 (cm./y)	115 (6 у)	✓ 2 (4 y)
6-12 years	5	145 (12 у)	✓ 3 (13 y)
12-15 years	6.5 (cm./y)	165 (15 y)	

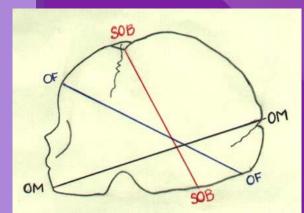


#### Head circumference

- > To see if the brain and skull are growing normally.
- It's important to measure your head circumference every 2-3 months in the first 12 months.
- Measured every half year until approximately 6 years of age

#### Measurement

- $\checkmark$  Measure the widest part of your head.
- Measure across the forehead (Frontal) or upper edge. Supra orbital ridge to The most convex part of the occipital (Occipital)
- This head circumference is called (Frontooccipitl)



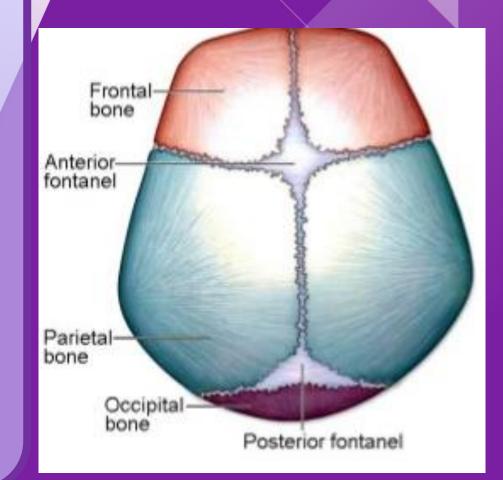




## Fontanelle

#### Anterior fontanelle:

In the first 6 months, the fontanel will widen as the brain matures. After that it will gradually become smaller and closed completely when around 18 months of age **Posterior fontanelle: Will close** completely when they are about 2-3 months old.





## Teeth

There are 2 sets of teeth: baby teeth and permanent teeth.

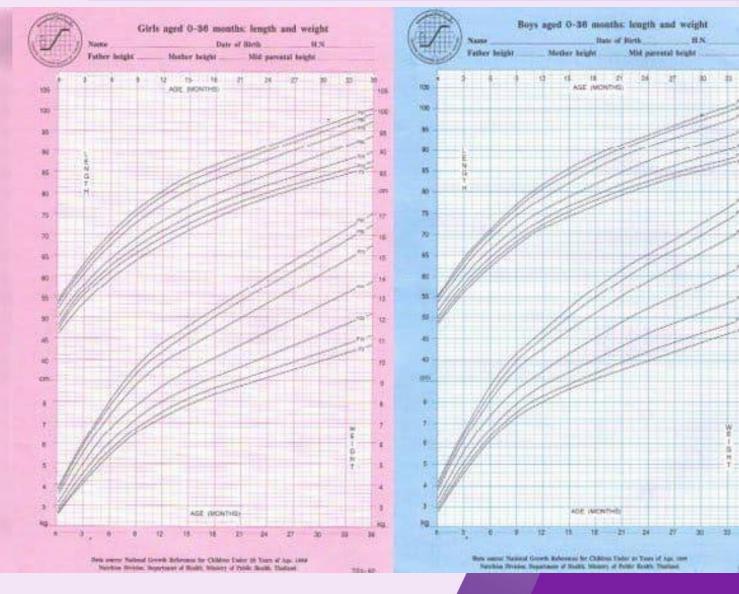
- There are 20 primary teeth. The first teeth begin to emerge from the gums at 6 months of age. After that, there will be an average of 1 tooth per month.
- The number of teeth can be calculated based on the child's age. Or know a child's age by looking at the number of teeth. in children under 2 years of age using a calculation formula

Age in months = 6 + number of teeth There are 32 permanent teeth. The first tooth that begins to grow is first molar. It begins at about 6 years of age. Next, it will grow on average 4 teeth per year and all 32 teeth will grow in when reaching late adolescence.





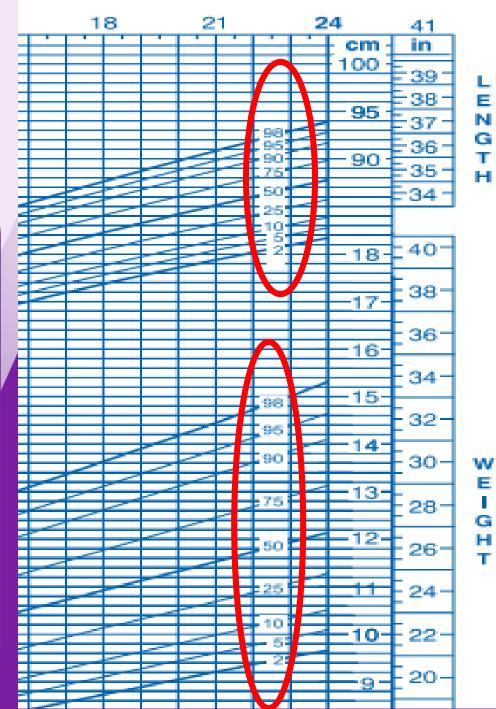
#### **Using a Standard Growth Chart**





### Using a Standard Growth Chart

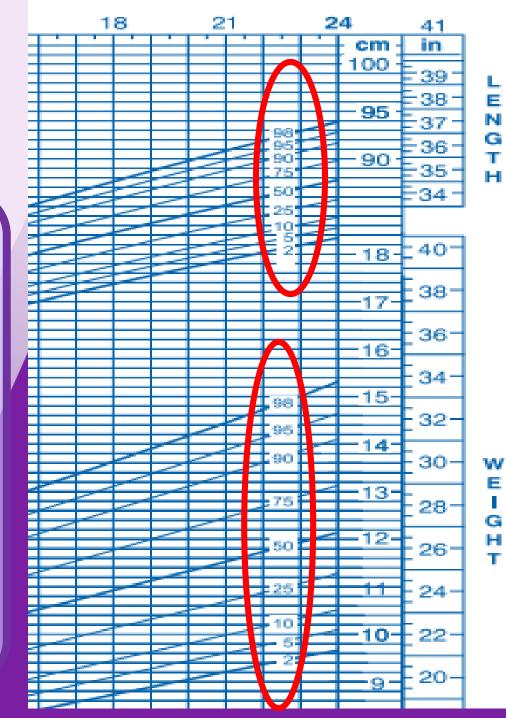
- There are percentile curves (Percentiles) at 3, 10, 25, 50, 75, 90 and 97 for both weight and height of the same gender and age as a comparison to determine
- if the child's growth and development is in line with the standard, or above or below the standard.





## Using a Standard Growth Chart

- If your child is in the 70th percentile (out of 100) for length-for-age, this means two things:
- Seventy percent of babies the same age and sex are shorter than your baby.
- The remaining percentage (30 percent) of babies the same age and gender are longer than your baby.





## Using a Standard Growth Chart

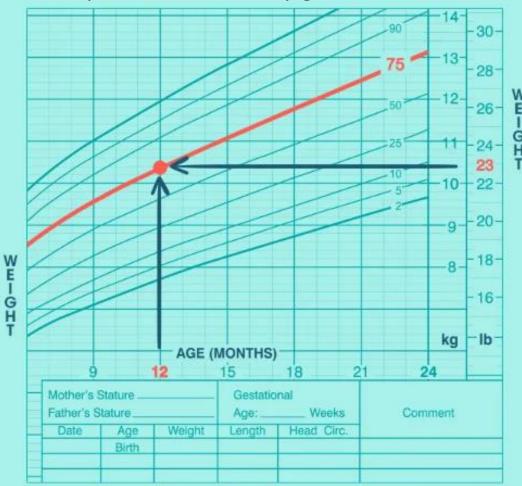
#### Weight-for-Age Percentile

Although these charts look like something only Einstein could figure out, they're actually fairly simple to read once you get the hang of it.

- 1. Find child's weight (kilograms) on the right side of the grid.
- 2. Find child's age in months at the top of the chart.
- 3. Follow these horizontal and vertical lines until they intersect on the curved line.
- 4. Follow that curved line until the end, where the percentiles are written on a white, shaded background.

#### Baby Growth Chart for Boys: Weight-for-Age

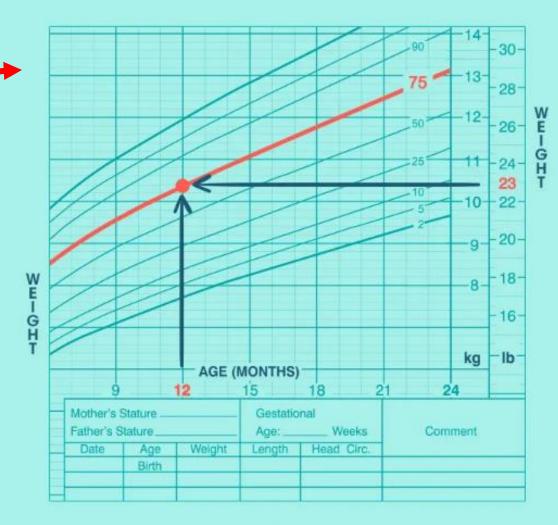
Credit: https://www.pampers.com/enus/baby/health/article/baby-growth-chart





#### Using a Standard Growth Chart

#### Baby Growth Chart for Boys: Weight-for-Age



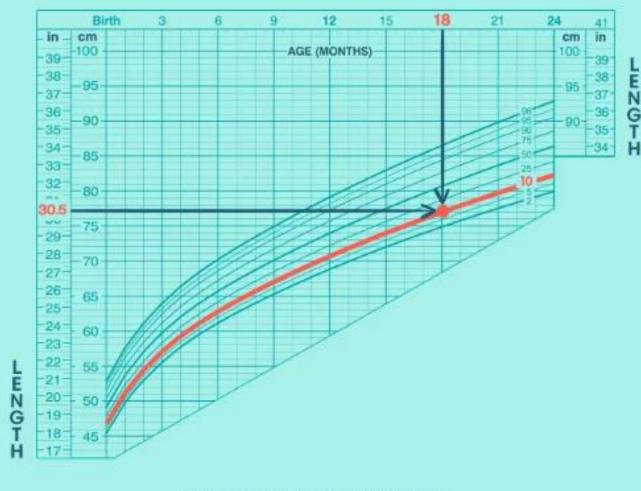
#### Weight-for-Age Percentile

In the example above, the child is a boy who is 12 months old and weighs 23 pounds. According to the growth chart, this baby is in the 75th weight percentile, meaning 75 percent of 1-year-old baby boys weigh less, and 25 percent weigh more.



### Using a Standard Growth Chart

#### Baby Growth Chart for Girls: Length-for-Age





#### **Using a Standard Growth Chart**

Anthropometric Index	Percentile Cut-off Values	Nutritonal Status Indicato		
WHO Growth Charts 2nd and 98th percentiles				
Length-for-age	< 2nd	Short stature		
Weight-for-length	< 2nd	Low weight-for-length		
Weight-for-length	> 98th	High weight-for-length		
CDC Growth Charts 5th and 95th percentile				
BMI-for-age	≥ 95th	Obesity		
BMI-for-age	≥ 85th and < 95th	Overweight		
BMI-for-age	< 5th	Underweight		
Stature-for-age	< 5th	Short Stature		

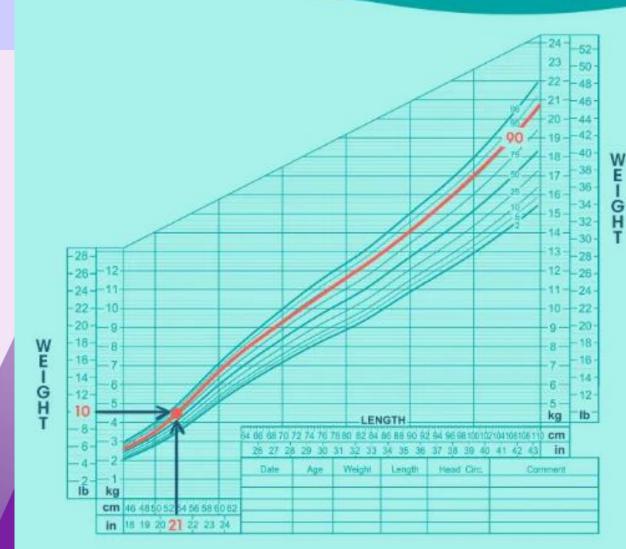
Credit: Use and Interpretation of the WHO and CDC Growth Charts for Children from Birth to 20 Years in the United States.



#### Using a Standard Growth Chart



Baby Growth Chart for Boys: Weight-for-Length



สริมพัฒนาการเด็กกลุ่มเสียง

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## **Development Assessment**

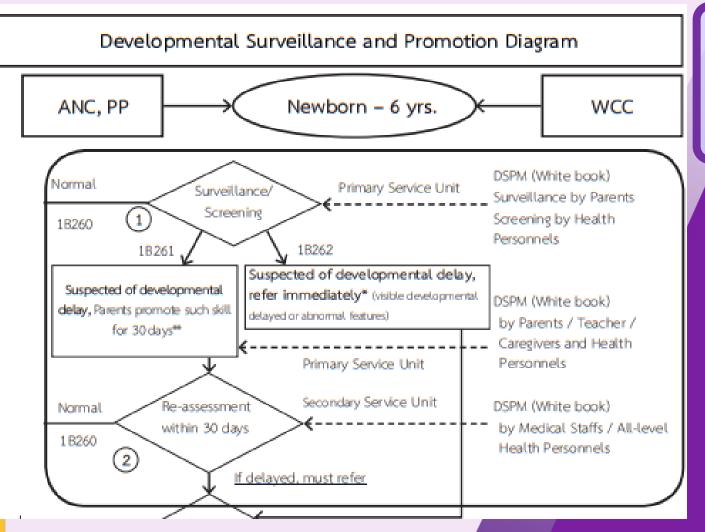


DAIM





#### Early Child Development Surveillance and Development Manual; DSPM



(White Book) is used to assess child development aged of less than 2 years old at the Well Child Clinic (WCC) and the Child Development Center





## Definition



Gross motor (GM)  $\rightarrow$  development of movement. Fine Motor (FM) $\rightarrow$ development of fine motor and intelligence. Receptive Language (RL)  $\rightarrow$ development of language comprehension. Expressive Language (EL)  $\rightarrow$  development of using language. Personal and Social (PS)  $\rightarrow$  development of self-help and social skills



### How to use DSPM

Preparation Stage	Establishing a relationship Stage	Evaluation Stage	Summary Stage
1.1 Assessor preparation 1.2 Equipment	<mark>0-9 m</mark> .: Smiling & Familiarize <mark>10 m-2y</mark> : Begin with	<ul> <li>Clearly explain the assessment items.</li> <li>Begin assessing</li> </ul>	➢ Proper development →Promote to the next step
preparation 1.3 Assessment place preparation 1.4 Child preparation	talk to parent & the child adjust him/herself 3-6 y: speak with the child directly	<ul> <li>that corresponds to the child's actual age.</li> <li>&gt; Begin with the previous</li> </ul>	<ul> <li>Suspected of developmental delay</li> <li>→Promote + reassess after 1 month</li> </ul>
	Assessor introduces her/himself	assessment that the child did not pass.	Reassess not pass →provide information for further examination at hospital



## Calculate age of the child

3 8	5 10	
8	10	



## Calculate age of the child

	Year	Month	Day			
Assessment	2567 <b>6</b>	3/2 12+	5 30+			
Birth date	2562	8	10			
Child age	4	6	25			



# Equipment for screening and promoting early childhood development





#### Developmental Surveillance and Promotion Record by Parents / Teachers / Caregivers and Health Personnels

Age	Gross Motor (GM)	Fine Motor (FM)	Receptive Language (RL)	Expressive Language (EL)	Personal and Social (PS)
Newborn	1. Can lift the head and turn	2. Look along to the center of	3. Startle or move the body	4. Vocalizes	5. Staring about 1 - 2 seconds
-	to one side in the prone position	the body.	when hearing a normal		
1 Month	Pass Not pass	Pass Not pass	speaking voice. Pass Not pass	Pass Not pass	Pass Not pass
	6. Lift the head up to $45^\circ$	7. Look through the center of		9. Make throat sound clearly	10. Smile or make a sound in
	for 3 seconds in the prone	the body	5 seconds.	("oo" or "ah" or "uh")	response when the parent or
1 - 2 mos.	position	charandharin charandh uth			assessor smiles and talks to
	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass
	11. Lift head and chest off the	12. Look followed moving	13. Turn to sound	14. Make intonation to	15. Smile for greeting to familiar one
3 - 4 mos.	ground when in prone position	objects in 180°		express feelings	
	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass
	16. Lift up from a prone position	17.Reach out and hold the	18. Turn to calling sound	19. Imitate sound	20. Interested in listening and can look
5 - 6 mos.	with straightened arms	object in supine position			at the toy that the assessor plays with
	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass
7 - 8 mos.	Sit stable and bend over for	23. Staring at a book with	24. Turn to name calling	25. Imitate talk	26. Play pee-ka-boo and look for
	playing with hands freely	adult for 2-3 seconds			the assessor's face in the right
	Pass Not pass				direction (PS)
	22. Stand holding on furniture				
	at chest level				
	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass	Pass Not pass



Age Month)	Item	Skills	Surveillance Assessment Method For parents, guardians, staffs, teachers and carergivers	Skills Practicing Method For parents, guardians, staffs, teachers and caregivers
ewborn - Month	1 Pass Not pass	Can lift the head and turn to one side in the prone position (GM).	Place the child in the prone position on the mattress with both arms in front of the shoulders. Observe the child raising his head <b>Pass:</b> The child can raise head and turn to either side.	Place the child in the prone position, shake the toy that has a sound in front of the child, approximately 30 cm away, when the child looks at the toy, slowly moves the toy to the left or right so that the child turns his head to follow. If the child can not do this, support the child's head to follow, repeat the process again by moving toy in the opposite side.
	2 Pass Not pass	Look along to the center of the body (FM).	Place the child in the supine position. Hold the red cloth ball about 20cm from the child's face. Move the red cloth ball to stimulate the child's attention and move the red cloth ball slowly to one side of the body. Then move the red cloth ball back to the center of the child's body <b>Pass:</b> The child can follow the red cloth ball from the side to the center of the body.	<ol> <li>Place the child in the supine position. Keep your head close to the child 20 cm away from the child's face.</li> <li>Call the child's name. When the child is interested, move or tilt the head to the side of the child's body slowly for the child to follow.</li> <li>If the child cannot follow, support the child's face.</li> <li>Additional practice using colorful toys encourages The child to focus and follow.</li> <li>Alternative toys: colorful toys approx. 10 cm in diameter like cloth / cloth ball, tassel, yarn</li> </ol>
	3 Pass Not pass	Startle or move the body when hearing a normal speaking voice (RL).	<ol> <li>Place the child in the supine position.</li> <li>Stay about 60 cm away from the child, call the child names from each one side at a time, both left and right in a normal voice.</li> <li>Pass: The child expresses awareness by blinking, startled, or moving.</li> </ol>	<ol> <li>Place the child in the supine position. Call the name or talk to the child from side to side, both left and right, speaking at a higher volume than usual.</li> <li>If the child startles or moves, smile and touch him. Reduce the voice of talking gradually until normal.</li> </ol>



Age (Month)	Item Skills	Surveillance Assessment Method For parents, guardians, staffs, teachers and carergivers	
9	27 Pass Not pass Control (GM). Equipment: Anytic that motivates a ching is up, such as a bare a rattle toy Control (GM). Equipment: Anytic that motivates a ching is up, such as a bare a rattle toy Control (GM). Equipment: Anytic that motivates a ching is up, such as a bare a rattle toy	d to such as using a stimulating ball or	<ol> <li>Place the child in the prone position, hold both knees bent and hold both hands on the floor</li> <li>Image: Second Se</li></ol>



Age (Month)	Item	Skills	Surveillance Assessment Method For parents, guardians, staffs, teachers and carergivers	Skills Practicing Method For parents, guardians, staffs, teachers and caregivers
9	28 Pass Not pass	Stand holding on furniture that with height chest level (GM). Equipment: Anything that motivates a child to stand holding on, such as a ball or a rattle toy	Arrange the child to stand holding on furniture and put the balls or the toys on the furniture for playing. <b>Pass:</b> The child can stand holding on the furniture with their hands, without chest or arm leaning on.	<ol> <li>Arrange the child to stand holding on the furniture.</li> <li>Hold the child's hip first then change to grip on the knee, then hold the child's hand on to the furniture.</li> <li>Image: the child be child's hand on to the furniture.</li> <li>Image: the child be child's hand on to the furniture.</li> <li>Image: the child be child's hand on to the furniture.</li> <li>When the child begins to do it, set him to stand holding on the furniture by himself without chest or arms leaning on.</li> <li>May turn on the music to encourage the child to stand for an extended time or dance to the rhythm, but must be beside the child for safety.</li> <li>Alternative toys: Any coulorful and sounding toys e.g. squeeze rubber ball, or tight sealed plastic bottle containing bean or sand.</li> </ol>
	29 Pass Not pass	Pick up wooden cubes from the floor and hold it in both hands (FM). Equipment: 2 wooden cubes	Put the wooden cubes on the floor and tell the child to pick up. <i>Note: If the child does not pick it up,</i> <i>stimulate attention by knocking the cub</i> <b>Pass:</b> The child can pick up both wooden cubes at the same time, or one at a time, and hold one cube in each hand at both sides.	<ol> <li>Take a colorful object about 1 inch in size, such as 2 wooden cubes (use 2 identical objects).</li> <li>Knock toys against the table one by one to encourage the child to pick up.</li> <li>If the child does not pick, support the child's hand to reach.</li> <li>Alternative objects: Small boxes or safe materials about 1 inch in diameter, such as a small lemon or ping-pong ball.</li> </ol>



Age (Month)	Item	Skills	Surveillance Assessment Method For parents, guardians, staffs, teachers and carergivers	Skills Practicing Method For parents, guardians, staffs, teachers and caregivers
9	29 Pass	Use thumb and other fingers to grasp object off the floor (FM). Equipment: Small objects 2 cm in size.	<ol> <li>Put one small object on the floor with distance that child can reach</li> <li>Tell the child to pick up the object or demonstrate to the child first</li> <li>Pass: The child can pick up objects from the floor with their thumbs and other fingers (not with the palm).</li> </ol>	<ol> <li>Put a colorful object such as a wooden cube, robe, or small food such as a cucumber, bread in front of the child.</li> <li>Pick up the object to demonstrate the child and encourage the child to pick up</li> <li>If the child can't do it, help the child by holding hand to pick up the small objects or food, reduce the aid so that the child can do on his/her own.</li> <li>Be careful not to let the child play or pick up dangerous objects such as buttons, coins, pills, nuts, seeds, etc.</li> <li>Alternative objects: Small, soft, non-sticky food such as scrambled beans, steamed pumpkin, steamed potatoes</li> </ol>
	30 Pass Not pass	Follow simple instructions with gesture (RL).	Look at the child's eyes and tell them to wave or clap their hands using gestures. <b>Pass:</b> The child can follow simple instruction with gesture such as waving, bye-bye, clapping his/her hands even if incomplete.	<ol> <li>Play with the child using simple commands such as waving, clapping, and doing gestures. Practice often.</li> <li>If the child can't do it, help the child and reduce the aid so that the child can do on his/her own. e.g. grasp the wrist and then touch the elbow. When the child can begin to clap on his own, then reduce the aid and tell the child to do it alone.</li> <li>Make gestures and practice finger movements according to the music.</li> </ol>



#### Developmental Surveillance and Promotion Manual

Age (Month)	Item	Skills	Surveillance Assessment Method For parents, guardians, staffs, teachers and carergivers	Skills Practicing Method For parents, guardians, staffs, teachers and caregivers
9	32 Pass Not pass	Child rejects with gestures (EL).	Notice or ask if the child is able to refuse food or assistance from a parent, guardian, or caregiver. <b>Pass:</b> The child can use gestures to reject, such as shaking his/her faces, pushing out, turning face away.	<ol> <li>When a stranger gives something or asks to carry child. The parent or caregiver shakes his/her head and says "No" for traning the child to imitate, so that the child can reject with gesture by him/herself.</li> <li>When the child be full after, ask the child "Do you want to eat more?" .Then shake the head and say "No" for the child to imitate. Do this with other situations. Objective: To be able to distinguish and communicate needs.</li> </ol>
	33 Pass Not pass	Imitate at least one familiar word (EL).	Ask the caregiver or observe during the assessment if the child can imitate speaking voice. <b>Pass:</b> The child can imitate at least one familiar voice, such as "Mom", "Go", "Yum" but the child may not have a clear pronunciation.	Make a sound that the child familiar with, such as "Pa", "Jaa", wait for the child to imitate it, then make a different sound such as "Mom", "Go", "Yum", etc.
	34 Pass Not pass	Use finger to feed self (PS).	Ask the parent or caregiver if the child is able to use his/her fingers to feed self. Pass: The child can use his/her fingers to feed self.	<ol> <li>Put the food in a bite size that the child likes and is easy to pick up, such as biscuits in front of the child.</li> <li>Hold the child's hand to take the food into the mouth, let the child do it without help, practice until the child can feed self.</li> </ol>

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Understanding factors and influences and normal or expected patterns related to growth and development

The Nurse's Role Related to Growth and Development

Talking to the child at his or her level of development

Teaching and working with family caregivers



