

Pediatric Growth and Development and Screening Guidelines 2024: Latest Recommendations

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Disclosure

- Speaker Bureau
 - ∞ Sanofi-Pasteur, Merck, Pfizer, Seqirus, Moderna – Vaccines
 - ∞ AbbVie and Pfizer – Migraines
 - Idorsia – Insomnia
 - AstraZeneca: Asthma and COPD
- Consultant
 - ∞ Sanofi-Pasteur, Merck, Pfizer, Moderna, and Seqirus – Vaccines
 - ∞ Idorsia – Insomnia
 - ∞ Shield Therapeutics – Iron Deficiency Anemia
- All relevant financial relationships have been mitigated.

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Objectives

- Upon completion of this program, the participant will be able to:
 - Review normal growth/development and anticipatory guidance for infants and children
 - Identify latest screening guidelines for children and adolescents

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A Great Resource for Pediatrics

https://downloads.aap.org/AAP/PDF/periodicity_schedule.pdf accessed 03-01-2023
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Great Resource: Pediatric Growth and Development

<https://shop.aap.org/products/brightfutures/> accessed 03-01-2023
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Various Organizations Provide Screening Guidelines

- In the case of chlamydia screening guidelines for adolescents...
 - AAP and USPTF
- Various organizations often differ in opinions on screening recommendations providing further confusion
- Very difficult to be able to keep up with all revisions and recommendations
 - Particularly those in primary care

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Development & Anticipatory Guidance

- Growth, Development and Anticipatory Guidance
 - Every visit from birth – age 21
 - Specific guidance is based upon age

https://www.aap.org/en-us/Documents/periodicity_schedule.pdf accessed 08-15-2016

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AAP Recommendations

- Preventing Sudden Infant Death Syndrome
 - “Back to sleep, tummy to play”
 - Room sharing okay; Avoid bed sharing
 - Avoid overheating
 - Pacifier recommended for nap and sleep time
 - No loose objects in crib
 - No positioning wedges
 - Prenatal care
 - No alcohol or smoke exposure

<http://pediatrics.aappublications.org/content/early/2016/10/20/peds.2016-2938> accessed 10-01-2017

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Car Seat Safety

- Rear facing car seat until two years of age
- Back seat, middle position is safest placement
- 2 years of age: forward facing
- Remain in car seat with full harness until child outgrows seat based upon manufacturers recommendations
- Booster seat: until 4 foot 9 inches and minimum of 8 years of age
- Back seat until at least 13 years of age

<https://publications.aap.org/pediatrics/article/142/5/e20182460/38530/Child-Passenger-Safety?autologincheck=redirected> accessed 03-02-2023

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Temperature of the Hot Water Heater

- No higher than 120 degrees Fahrenheit
- Water should be checked before every bath

<https://publications.aap.org/pediatrics/article-abstract/94/4/573/59562/Scalding-Water-Temperatures?redirectedFrom=fulltext> accessed 03-02-2023

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Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents

By: American Academy of Pediatrics

Edited by: Joseph F. Hagan, Jr, MD, FAAP, Judith S. Shaw, EdD, MPH, RN, FAAP, Paula M. Duncan, MD, FAAP

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Published: 2017

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Calcium Recommendations

- 1 – 3 years of age: 500 mg/day
- 4 – 8 years of age: 800 mg/day
- 9 – 18 years of age: 1300 mg/day

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Vitamin D Recommendations

- 400 IU per day for all breast fed infants beginning in the neonatal period
- Even children who are formula fed or ingesting cow's milk must ingest 1000 mL per day to guarantee 400 IU of vitamin D daily
- Therefore, most children should be supplemented

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Feedings

- No juice introduced into diet until 12 months
- Limit intake:
 - Toddlers 1 – 3 years of age: 4 ounces daily
 - Ages 4 – 6 years of age: 4 – 6 ounces daily
 - Avoid unpasteurized juices
 - Should not be given in a bottle or at bedtime

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Exercise

- Children < 2 years of age: no television
- Children 2 years and older: limit television or sedentary activities to 1 – 2 hours per day
- Exercise: minimum of 60 minutes daily

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CDC: Exercise

- Children ages 3 – 5 years:
 - Be physically active throughout the day
 - Adults should encourage children to be physically active in daily activities
- Children ages 6 – 17 years:
 - Minimum of 60 minutes of moderate – vigorous intensity exercise daily
 - Muscle strengthening 3 days per week
 - Bone strengthening 3 days per week

<https://www.cdc.gov/physicalactivity/basics/children/index.htm>
accessed 03-24-2023

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Growth and Development

- Normal milestones
 - 6 – 8 weeks: lift head briefly and turn; ah and oh
 - 2 months: smiles when smiled at, pushes up on two arms
 - 4 – 6 months: reaches for object, recognize familiar faces, smiles spontaneously, sits with support, rolls tummy to back
 - 6 – 8 months: sits without support, rolls back – tummy and tummy to back

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Growth and Development

- Normal milestones
 - 10 – 12 months: cruising
 - 12 – 14 months: walks solo
 - 18 months: No is favorite word, single word objects
 - 18 - 24 months: begin combining two words together

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Growth and Development

- Normal milestones
 - 24 months: two words together, walking up stairs with assistance,
 - 3 years of age: pedals three wheels, alternating feet, draws a circle, three block tower, three words together
 - 4 year old: 4 body parts, draws a cross, 4 word sentences

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Language

- Single most common development delay encountered in children
- Normal language:
 - 16 – 18 months: 25%
 - 19 – 21 months: 50%
 - 2 – 2 ½ years: 75%
 - 3 – 4 years: nearly 100%
- If no two words by 24 months, initiate hearing assessment and speech evaluation

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Growth and Development By Age: A Closer Look

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Two months

- Attempts to look at parent
- Smiles
- Brings hands to mouth
- Coos
- Holds up head and push up to prone position
- Symmetrical movements

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Four Months

- Smiles spontaneously
- Babbles spontaneously
- Responds to affection
- Indicates pleasure and displeasure
- Good head control
- Begins to roll and reach for objects

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Six Months

- Socially interactive
- Recognizes familiar faces and strangers
- Ah, oh
- Rolling over and sitting
- Rocks back and forth

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Nine Months

- Fear of strangers
- Seeks parent for comfort
- Variety of vowel sounds and repetitive consonants
- Points at objects
- Object permanence
- Peek-a-boo
- Crawls

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12 Months

- Imitates activities
- Hands you a book and wants you to read
- Waves bye-bye
- Speaks 1 – 2 words
- Follows simple directions
- Stands alone
- Bangs cubes together

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15 Months

- Listens to stories
- Imitates activities
- Pulling and pointing
- Says 2 – 3 words (mama, dada) with meaning
- Scribbles
- Walks well, stoops and recovers
- Put block in cup
- Drinks from cup

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18 Months

- Laughs with others
- Is spontaneous with affection
- Speaks 6 words
- Points to 1 body part
- Walks up steps and runs
- Stacks two or three blocks
- Uses spoon and cup

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2 Years

- Parallel play
- Can refer to self – I and me
- Vocabulary: 50 words
- Uses two word phrases
- Follows two step commands
- Names a picture – i.e. cat
- Stacks 5 – 6 blocks
- Throws ball overhand

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3 Years

- Enjoys interactive play
- 2-3 sentences spoken together
- Words understandable: 75% of time
- Names a friend
- Builds 6 – 8 block tower
- Rides a tricycle
- Alternates feet going up stairs
- Circle: 2 body parts

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4 Years

- Engages in fantasy play
- Says first and last name
- Sings a song from memory
- Knows what to do when cold or tired
- Names 4 colors
- Draws a person with 3 body parts
- Hops on one foot
- Draws a cross

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5 and 6 Years

- Balances on one foot
- Tie knot
- Draws a person with 6 or more body parts
- Copies squares and triangles
- Can count to 10 and name four colors
- Can undress and dress with minimal help

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Normal Reflexes

- Persistence of any reflex beyond recommendations warrants evaluation
 - Moro: gone by 4 months
 - Palmar: gone by 2 – 3 months
 - Babinski: gone by 6 months
 - Tonic Neck: gone by 9 months
 - Stepping reflex: present 3 -4 months; reappears at 12 – 24 months
 - Rooting: disappears by 6 – 12 months

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Weight, Length, and Head Circumference

- Begin all at birth
 - continued throughout infancy
- Head circumference okay to stop at the age of 24 months (2 years)
- BMI: begins at the age of 2 years and is performed at every well visit into and including adulthood

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Eye Examinations and Vision

- AAP recommendations
 - Begin vision screening as a newborn
 - Formal screening at:
 - Age 3 years
 - Age 4 years
 - Age 5 years
 - Age 6 years
 - Age 8, 10, and 12 years
 - Age 15 and 18 years

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AAP Updates

- Hearing Screening
 - Most common congenital developmental abnormality affecting children in the United States
 - Screen before 1 month
 - Repeat by 3 months if abnormal
 - If abnormal, referred to early intervention before age 6 months for formal evaluation

https://pediatriccare.solutions.aap.org/Document_Library/Periodicity%20Schedule_FINAL.pdf
accessed 06-10-2015

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AAP Recommendations

- Universal newborn hearing screening
- Screenings for hearing impairment should be performed periodically on all infants and children in accordance with the following schedule
 - Newborn
 - Age 4, 5, 6, 8, and 10 years
 - Once between 11 – 14 years
 - Once between 15 – 17 years
 - Once between 18 – 21 years

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Hearing and Older Children

- Screen with audiometry including 6,000 and 8,000 Hz high frequencies:
 - Once between 11 – 14 years of age
 - Once between 15 – 17 years of age
 - Once between 18 – 21 years of age

[http://www.jahonline.org/article/S1054-139X\(16\)00048-3/fulltext](http://www.jahonline.org/article/S1054-139X(16)00048-3/fulltext) accessed 10-01-2017

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USPSTF Hearing Screening Recommendations

- The USPSTF recommends screening for hearing loss in all newborn infants
- All infants should have hearing screening before 1 month of age
- Those infants who do not pass the newborn screening should undergo audiologic and medical evaluation before 3 months of age for confirmatory testing
 - These children should undergo periodic monitoring for 3 years

<http://www.guidelines.gov/content.aspx?id=12640&search=hearing> accessed 05-01-2014

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Dental Examination

- AAP recommendations
 - Begin at age 12 months
 - 18 months
 - 24 months
 - 30 months
 - 3 years of age
 - 6 years of age
- Should have a dental home by 5 years of age

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Developmental Screening

- Developmental Screening
 - 9 months
 - 18 months
 - 30 months
- Identify those infants and children with developmental disorders

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Autism Screening

- Universal screening
 - Formal ASD screening on all children at 18 and 24 months regardless of whether there are any concerns
 - Guidelines stress that providers need to ask/discuss any concerns that parents may have at every well-child visit

<http://www.aap.org/advocacy/releases/oct07autism.htm> accessed 03-31-2011

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M-CHAT Screening Tool

- **Conducted at 18 and 24 months**
- <https://mchatscreen.com/>

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Look for the Presence of Red Flags

- No babbling or pointing or other gesture by 12 months
- No single words by 16 months
- No two-word spontaneous phrases by 24 months
- Loss of language or social skills at any age.

<https://mchatscreen.com/>

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Lead Screening

- AAP recommendations
 - 12 months and...
 - 24 months (Medicaid or high prevalence region)
- Continued risk factor assessment throughout childhood

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Anemia Screening and Prevention

- AAP recommendations
 - Age 12 months and 24 months
 - Hemoglobin or hematocrit
- Continued risk assessment throughout childhood
- Children who are exclusively breastfed should receive 1mg/kg/day of supplemental iron at 4 months of age until iron rich foods are introduced

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Children and Diabetes Screening

- Begin at 10 years of age in children at risk or at the onset of puberty, if earlier than 10 years
 - Repeat every 3 years, if normal

www.diabetes.org
www.aace.com

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What Constitutes a Risk Factor in Children?

- Overweight (BMI > 85th %tile for age and sex, weight for height > 85th %tile, or weight > 120% of ideal for height)
- In addition – presence of two or more of the following:
 - Family history of type 2 diabetes in first- or second-degree relative
 - Race/ethnicity (Native American, African American, Latino, Asian American, Pacific Islander)
 - Signs of, or conditions associated with, insulin resistance including acanthosis nigricans, hypertension, dyslipidemia, polycystic ovary syndrome, small for gestational age at birth history in the child
 - Maternal history of DM or gestational DM

http://care.diabetesjournals.org/content/36/Supplement_1/S11.full accessed 05-20-2014

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Lipids and Children

- AAP recommends screening with a fasting lipid profile beginning at the age of 2 and no later than the age of 10 in children at risk for lipid abnormalities based upon family history
- All children: At least one screening between ages 9 – 11 years of age and again between 17-21 years
 - Lipid profile is recommended
 - 10 - 12 hour fast ideal; AHA: non-fasting is acceptable

<https://publications.aap.org/pediatrics/article/146/1/MeetingAbstract/636/4732/Pediatric-dyslipidemia-screening-by-pediatricians> accessed 03-02-2023

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General Health Counseling

- Drugs
- Alcohol
- Smoking

Remember –

School / sport physicals may be the only contact that the child has with a health care professional in a year

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Tobacco, Drugs, and Alcohol

- Initiate screening at the age of 11
- Conduct annually from 11 – 21 years
- Preferred screening tool is the CRAFFT questionnaire

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CRAFFT Questionnaire

- C: Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?
- R: Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?
- A: Do you ever use alcohol/drugs while you are by yourself, ALONE?

<http://www.ceasar-boston.org/CRAFFT/> accessed 10-01-2017
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CRAFFT Questionnaire

- F: Do you ever FORGET things you did while using alcohol or drugs?
- F: Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?
- T: Have you gotten into TROUBLE while you were using alcohol or drugs?

<http://www.ceasar-boston.org/CRAFFT/> accessed 10-01-2017

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USPSTF

- Recommends screening:
 - 12 - 18 years of age annually for MDD
 - 8 – 18 years of age annually for GAD

<https://consumer.healthday.com/uspstf-recommends-anxiety-depression-screening-for-children-teens-2657105443.html> accessed 04-23-2022

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Tools Available for the Primary Care Provider

- **PHQ-2, PHQ-4, or PHQ-9**
http://www.cqaimh.org/pdf/tool_phq2.pdf
- **Beck Depression Inventory, Primary Care (BDI-PC)**
<http://harcourtassessment.com/haiweb/cultures/en-us/productdetail.htm?pid=015-8018-370>
- **Zung Depression Scale***
<http://www.neurotransmitter.net/depressionscales.html>
- **Hamilton Rating Scale for Depression* (HAM-D)**
<http://www.neurotransmitter.net/depressionscales.html>

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Scoring of Tools

- **PHQ 9:**
 - 0-4: Normal or no appreciable depression
 - 5-9: Mild depression
 - 10-14: Moderate depression
 - 15-19: Moderate – severe depression
 - 20 and higher: Severe depression
 - Max score: 27
- **GAD 7:**
 - Score 0-4: Minimal Anxiety
 - Score 5-9: Mild Anxiety
 - Score 10-14: Moderate Anxiety
 - Score greater than 15: Severe Anxiety
 - Max score: 21

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Don't Forget Mom

- **Screen for maternal depression**
 - 1, 2, 4, 6 Month Visits

Siu AL; US Preventive Services Task Force. Screening for depression in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2016;315(4):380-387

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Chlamydia and Gonorrhea Screening

- The USPSTF recommends screening for chlamydia and gonorrhea in sexually active women age 24 years and younger and in older women who are at increased risk for infection.

<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/chlamydia-and-gonorrhea-screening> accessed 10-01-2017

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USPSTF

- Adolescents should be screened for HIV at least once between the ages of 15 and 18 years of age

<http://www.uspreventiveservicestaskforce.org/uspstf/uspshivi.htm>) accessed 10-01-2017

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Hepatitis C

- All 18 years – 79 years should be screened for hepatitis C

<https://www.hhs.gov/hepatitis/blog/2020/03/04/uspstf-issues-updated-hepatitis-c-screening-recommendation.html>
accessed 10-1-2020

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Cervical Cancer Screening

- USPSTF: Begin at the age of 21 years, regardless of date of sexual debut (coitarche)
- ACS: Begin at the age of 25 years

Moyer VA; US Preventive Services Task Force. Screening for cervical cancer: US Preventive Services Task Force recommendation statement. Ann Intern Med. 2012;156(12):880-89

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General Health Counseling

- Seatbelts
- Helmets
- Sunscreen
- Smoke Detectors
- Pool Safety
- Carbon Monoxide Detectors
- Guns safety
- Domestic violence and peer violence
- Safe sexual practices and contraception

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Thank you for your time
and attention!
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