Table 2-2: Charts/Tables Used to Monitor Growth of Children with Special Health Care Needs†

Growth Chart	Study sample information	Ages	Parameters	Limitations	Use with CDC
NCHS (1977)[17]	20,000 children, 1934-64; NHES and NHANES I; 5th-95th%iles	0-3 years	• weight/age • length/age • OFC/age • weight/length	Data is longitudinal for infants and cross-sectional for children	
NCHS (1977) [17]	20,000 children 1934-64; NHES and NHANES I; 5th-95th%iles	2-18 years	• weight/age • height/age • weight/height	Data is cross-sectional for children	
CDC (2000)[1]	Previous data plus NHANES III data; 3rd-97th%iles	0-3 years	• weight/age • length/age • OFC/age • weight/length		
CDC (2000)[1]	Previous data plus NHANES III data; 3rd-97th%iles	2-20 years	• weight/age • height/age • weight/height (2-6 years) • BMI/age		
Crown-rump[18]	~75 females, 75 males			Longitudinal data	Use with CDC weight/ age
Sitting height[19]	NCHS 1977 population	1-18 years	• sitting height/age	Caucasian and African American children only	Use with CDC weight/ age
Knee height[20]	13,821 ambulatory children NHES I,II,III, 1960-70	6-12 years	• knee height/age	Use equation for race (85% Caucasian children); Difficult to do	Use with CDC weight/ age
Incremental growth[9]	Children who grew "close" to NCHS 1977	6-36 mos 2-18 years	• weight/age • stature/age	Caucasian children only	Use with CDC for weight/age, length or height/age, weight/length or height

† All charts have sex-specific versions for male and female children (except for Turner syndrome charts).

Growth Chart	Study sample information	Ages	Parameters	Limitations	Use with CDC
Triceps skinfold thickness, upper arm circumference[10]	NCHS 1977 population	2-18 years	• triceps skinfold/age • upper arm circumference/ age • upper arm fat area/age	Use after age 2 years, Caucasian children only	Use with CDC weight/age, length or height/age, weight/length or height, or BMI/age
Mid-arm circumference; triceps skinfold, subscapular skinfold thicknesses[13,14,15]	NCHS 1977 population	2-18 years		Use after age 2 years	Use with CDC weight/age, length or height/age, weight/length or height, or BMI/age
Parent-specific adjustment for length/stature[11]	586 parent-child pairs (Fels data) and 16,000 serial length and height measurements	0-36 mos 3-18 years		Note parent height on chart	Use with CDC weight/age, length or height/age, weight/length or height, or BMI/age
Achondroplasia[22]	189 males, 214 females	0-18 years	• height/age • height velocity/age • upper, lower segment lengths/age • OFC/age	Small sample size, especially children over 10 years	Compare to CDC weight/ age, length or height/ age; use with CDC for weight/ length or height or BMI/ age
Cerebral palsy[23]	360 children (males and females), 0-120 months with quadriplegia	0-10 years	• length/age • weight/age • weight/length	Both longitudinal and cross-sectional data, small sample size, for spastic quadriplegia only‡	Use with CDC weight/age, length or height/age, weight/length or height or BMI/age
Down syndrome[24]	Longitudinal data; 400 males, 300 females; 1960-1986	1-36 mo 2-18 years	• weight/age • length or height/age	Included children with congenital heart disease, reflects tendency to be overweight	Use with CDC weight/ age, length or height/ age, weight/length or height, BMI/age

‡ These growth charts should be used only with children who have cerebral palsy with spastic quadriplegia and may underestimate the growth for a child with mild cerebral palsy or without spastic quadriplegia. More information about growth and children with cerebral palsy can be found at the North American Growth in Cerebral Palsy Project website: http://www.people.virginia.edu/~mon-grow/healthcare/home.html

Growth Chart	Study sample information	Ages	Parameters	Limitations	Use with CDC
Noonan syndrome[25]	64 males, 48 females	0-20 years	• height/age	Small sample size	Compare to CDC; use CDC for weight/ age, length or height/age, weight/length or height or BMI/age
Prader Willi syndrome[26]	56 males, 36 females	3-24 years	• height/age	Longitudinal and cross-sectional data, small sample size	Compare to CDC; use CDC for weight/ age, weight/ height, BMI/age
Turner syndrome[27]	366 females; pooled data; no hormone treatment	2-19 years	• height/age	Small sample size, unequal age distribution	Use with CDC for weight/age, height/ age, weight/height, BMI/age
Williams syndrome[28]	61 females, 47 males	0 to 18 years	• weight/age • height/age • OFC/age	Retrospective and cross-sectional data, small sample size	Use with CDC for weight/length or height, BMI/age

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