Growth Hormone
Effective 02/20/19

Plan	☒ MassHealth ☐Commercial/Exchange	**Program Type**	☒ Prior Authorization ☐ Quantity Limit ☐ Step Therapy
Benefit	☒ Pharmacy Benefit ☐ Medical Benefit (NLX)		
Specialty Limitations	These medications have been designated specialty and must be filled at a contracted specialty pharmacy.		
Contact Information	**Specialty Medications**		
	All Plans	Phone: 866-814-5506	Fax: 866-249-6155
	Non-Specialty Medications		
	MassHealth	Phone: 877-433-7643	Fax: 866-255-7569
	Commercial	Phone: 800-294-5979	Fax: 888-836-0730
	Exchange	Phone: 855-582-2022	Fax: 855-245-2134
	Medical Specialty Medications (NLX)		
	All Plans	Phone: 844-345-2803	Fax: 844-851-0882
Exceptions	N/A		

Overview

Genotropin is the preferred Growth Hormone. Requests for all agents other than Genotropin, require clinical rationale for use of the requested agent instead of Genotropin.

Coverage Guidelines

Pediatric Indications

Pediatric growth hormone (GH) deficiency/ panhypopituitarism:

- Member has a diagnosis of GH deficiency or panhypopituitarism **AND**
- Member has a short stature or growth failure, documented by one of the following:
  - Pre-treatment height less than -2 standard deviations below mean or below 3rd percentile on standard pediatric growth chart
  - Height dropping below initial percentile curve on standard pediatric growth chart when monitored over 1 year

  AND

3. Prescriber has provided documentation of **ONE** of the following*:
   a. Results of two abnormal tests, which can be either:
      i. Two abnormal GH stimulation tests
      ii. One abnormal stimulation test and one abnormal IGF-1/IGFBP-3 level
   b. ONE abnormal test (GH stimulation, IGF-1, or IGFBP-3 test), with either:
      i. Abnormal pituitary imaging
      ii. Deficiency of at least three other pituitary hormones (TSH, ACTH, LH, FSH, or AVP/ADH)
      iii. Appropriate current medication claims suggesting deficiency of at least three

other pituitary hormones (levothyroxine, hydrocortisone or other glucocorticoid, testosterone [for males] or estrogen/progesterone [for females], or desmopressin)

4. Prescriber has provided documentation of **ONE** of the following:
    a. Member is under the care of an endocrinologist
    b. Other possible causes of short stature or growth failure have been ruled out (i.e. hypothyroidism, malnutrition, chronic illness, skeletal disorders, pituitary tumor)

**Cases where imaging shows NO PITUITARY may be approved without requiring laboratory tests, if the member meets all other criteria.*

Hypoglycemia due to growth hormone (GH) deficiency:

1. Member has a diagnosis of hypoglycemia due to growth hormone (GH) deficiency **AND**
2. Member has hypoglycemia-symptoms and a low glucose level* **AND**
3. Prescriber has provided laboratory results indicating GH deficiency (at least one abnormal GH stimulation test)

* *Lower end of normal range is 75 mg/dL (4.2 mM/L) although symptoms are rare unless glucose is lower than 50 mg/dL*

Noonan, Prader-Willi, or Turner syndrome:

1. Member has a diagnosis of Noonan, Prader-Willi, or Turner syndrome **AND**
2. Member has a short stature or growth failure, documented by one of the following:
    a. Pre-treatment height less than -2 standard deviations below mean or below 3rd percentile on standard pediatric growth chart
    b. Height dropping below initial percentile curve on standard pediatric growth chart when monitored over 1 year
    AND
3. Prescriber has provided documentation of **ONE** of the following*:
    a. Genetic testing confirming diagnosis
    b. Appropriate clinical rationale for why genetic testing cannot be provided (i.e. member is new to prescriber and current prescriber has no means of obtaining labs used for diagnosis, diagnosis made many years ago)

Chronic renal failure up to time of renal transplantation:

1. Member has a diagnosis of chronic renal failure up to time of renal transplantation **AND**
2. Member has a short stature or growth failure, documented by one of the following:
    a. Pre-treatment height less than -2 standard deviations below mean or below 3rd percentile on standard pediatric growth chart
    b. Height dropping below initial percentile curve on standard pediatric growth chart when monitored over 1 year
    AND
3. Prescriber has provided documentation of **ONE** of the following:
    a. Other CRF-associated etiologies have been excluded: acidosis, secondary hyperparathyroidism, malnutritrion or zinc deficiency
    b. Member is under the care of a renal specialist

Small for gestational age/Intrauterine growth restriction (SGA/IUGR) with failed catch-up growth by age 2 to 4:

1. Member has a diagnosis of small for gestational age/intrauterine growth restriction (SGA/IUGR) with failed catch-up growth by age 2 to 4 **AND**
2. Member is at least 2 years of age or older **AND**
3. Member has a short stature or growth failure, documented by **ONE** of the following:
    a. Pre-treatment height less than -2 standard deviations below mean or below 3rd percentile on standard pediatric growth chart
    b. Height dropping below initial percentile curve on standard pediatric growth chart when monitored over 1 year
    AND
4. Diagnosis of SGA/IUGR, **ONE** of the following:*
    a. Birth weight less than -2 standard deviations below mean or below 3rd percentile for gestational age
    b. Birth length less than -2 standard deviations below mean or below 3rd percentile for gestational age
    AND
5. Catch-up growth not achieved by age 2 to 4, documented as height continually less than -2 standard deviations below mean or below 3rd percentile from age 2 to current age. *

**For approval, members must meet both criteria 4 AND 5, independently.*

Adult Indications

Growth hormone (GH) deficiency or panhypopituitarism:

1. Member has a diagnosis of GH deficiency or panhypopituitarism **AND**
2. Prescriber has provided documentation of **ONE** of the following*:
    a. Results of two abnormal tests, which can be either:
        i. Two abnormal GH stimulation tests
        ii. One abnormal stimulation test and one abnormal IGF-1/IGFBP-3 level
    b. ONE abnormal test (GH stimulation, IGF-1, or IGFBP-3 test), with either:
        i. Abnormal pituitary imaging
        ii. Deficiency of at least three other pituitary hormones (TSH, ACTH, LH, FSH, or AVP/ADH)
        iii. Appropriate current medication claims suggesting deficiency of at least three other pituitary hormones (levothyroxine, hydrocortisone or other glucocorticoid, testosterone [for males] or estrogen/progesterone [for females], or desmopressin)
    AND
3. Member has at least one complication of GH deficiency**

**Cases where imaging shows NO PITUITARY may be approved without requiring laboratory tests, if the member meets all other criteria including appropriate diagnosis and at least one complication of GHD.*

Adults with a history of traumatic brain injury (TBI) or subarachnoid hemorrhage may present with GHD. This GHD may be transient, and may correct within one year's time. If the documented diagnosis is adult isolated GHD (without organic/acquired causes such as septo-optic dysplasia, pituitary ablation, pan- or multiple hypopituitarism, or surgical resection), provocative stimulation testing in

members with a TBI or subarachnoid hemorrhage should be performed at least 12 months after the event.

** A complication of GH deficiency is required:

1. Increased fat mass and reduced lean body mass (as documented, in part, by increased waist-hip ratio). Waist-hip ratio of = 1.0 for men and > 0.8 for woman is indicative of central obesity. Other methods of central obesity documentation include CT and/or MRI abdominal imaging results and waist measurement of > 40 inches in males or 35 inches in females.
2. Reduced extracellular volume (as documented by measurement of extracellular material)
3. Reduced bone mineral content and density (as documented by bone density study). As per the World Health Organization (WHO), bone density of -1 standard deviation (-1 S.D.) may indicate a 2.5 fold increased risk of fracture.
4. Elevated cholesterol (National Institutes of Health, National Heart, Lung, and Blood Institute: fasting total cholesterol = 240 mg/dL = high, LDL cholesterol 160 - 189 mg/dL = high, = 190 = very high).
5. Diminished renal function without other etiology (laboratory values and clinical rationale required)
6. Congestive heart failure (CHF)
7. Reduced exercise capacity (quantified, such as isometric/isokinetic strength, physical performance, maximal oxygen consumption and maximum work capacity increase)
8. Impaired quality of life-Quality of Life-Assessment of Growth Hormone Deficiency in Adults (QoLAGHDA) measure may be useful, although there are no studies to validate the predictive value of any specific cut off for a low score.

HIV/AIDS-associated wasting or cachexia (not covered for AIDS- or HAART-associated lipodystrophy)

1. Member has a diagnosis of HIV/AIDS-associated wasting or cachexia **AND**
2. Member is receiving concurrent antiretroviral therapy **AND**
3. Prescriber has provided evidence of wasting, as indicated by any of the following (with or without chronic fever, weakness, or diarrhea):
    a. An involuntary loss of at least 10% of body weight within one year
    b. An involuntary loss of at least 7.5% of body weight within six months
    c. A reduction in lean body mass (measured via bioelectrical impedance assay or BIA)
    d. A BMI of < 20 kg/m^2

    AND

    Member has had a trial of an FDA-approved appetite stimulant, such as dronabinol or megestrol acetate oral suspension, prior to initiation of GH therapy if the etiology of wasting or cachexia is decreased caloric intake **AND**
4. Prescriber has provided documentation of ONE of the following:
    a. Other causes of weight loss have been ruled out:
        i. gastrointestinal tract opportunistic infections, decrease in food intake due to oral, pharyngeal, esophageal lesions or candidiasis, gonadal dysfunction, adverse effects due to medications, or psychosocial factors. Correction of factors such as these may alleviate the need for GH therapy.
    b. Member is under the care of an Infectious Disease specialist.

Adults-Short Bowel Syndrome (SBS)

1. Member has a diagnosis of SBS **AND**

2. Member is receiving specialized nutritional support, including enteral or parenteral nutrition and/or fluid and micronutrient supplements

Continuation of Therapy

Reauthorization requires physician documentation of continued medical necessity and the following Diagnosis-Specific criteria:

1. **For Pediatric GHD, SGA/IUGR with failed catch-up growth, Noonan Syndrome, Turner Syndrome, and Pediatric Prader-Willi Syndrome (PWS),** documentation indicating a measured growth velocity is at least 2.5 cm per year is required.
2. **For Adult GHD and panhypopituitarism (PHP),** documentation of appropriate IGF-1 or IGFBP-3 levels (within lab-specific reference range) **AND** continued positive response regarding documented GH complication are required.
3. **For Adult GHD from organic/acquired causes (i.e. septo-optic dysplasia, pituitary ablation, pan- or multiple hypopituitarism, or surgical resection),** documentation of appropriate IGF-1 or IGFBP-3 levels (within lab-specific reference range) is required.

Limitations

1. Initial approvals will be varied based on the treatment:
    a. **For Short Bowel Syndrome,** approvals will be for up to 4 weeks.
    b. **For adult GHD,** approvals will be for up to 12 months.
    c. **For ALL other indications,** approvals will be for up to 6 months.
2. Reauthorizations will be varied based on the treatment:
    a. **For adult GHD,** approvals will be for up to 12 months.
    b. **For ALL other indications,** approvals will be for up to 6 months.

Appendix

Appendix A: Dosing

Medication	PEDIATRIC INDICATIONS	ADULT INDICATIONS
Genotropin® cartridge **Genotropin® MiniQuick® cartridge**	Idiopathic Short Stature: up to 0.47 mg/kg subcutaneously (SC) weekly Pediatric GHD: 0.16 to 0.24 mg/kg SC weekly Prader-Willi Syndrome: 0.24 mg/kg SC weekly Small for Gestational Age: 0.48 mg/kg SC weekly Turner Syndrome: 0.33 mg/kg SC weekly	Adult GHD: 0.04 mg/kg SC weekly to be increased as tolerated to not more than 0.08 mg/kg SC weekly at 4 to 8 week intervals, or a starting dose of approximately 0.2 mg SC daily (range, 0.15 to 0.30 mg SC daily) increased gradually by increments of 0.1 to 0.2 mg SC daily every 1 to 2 months

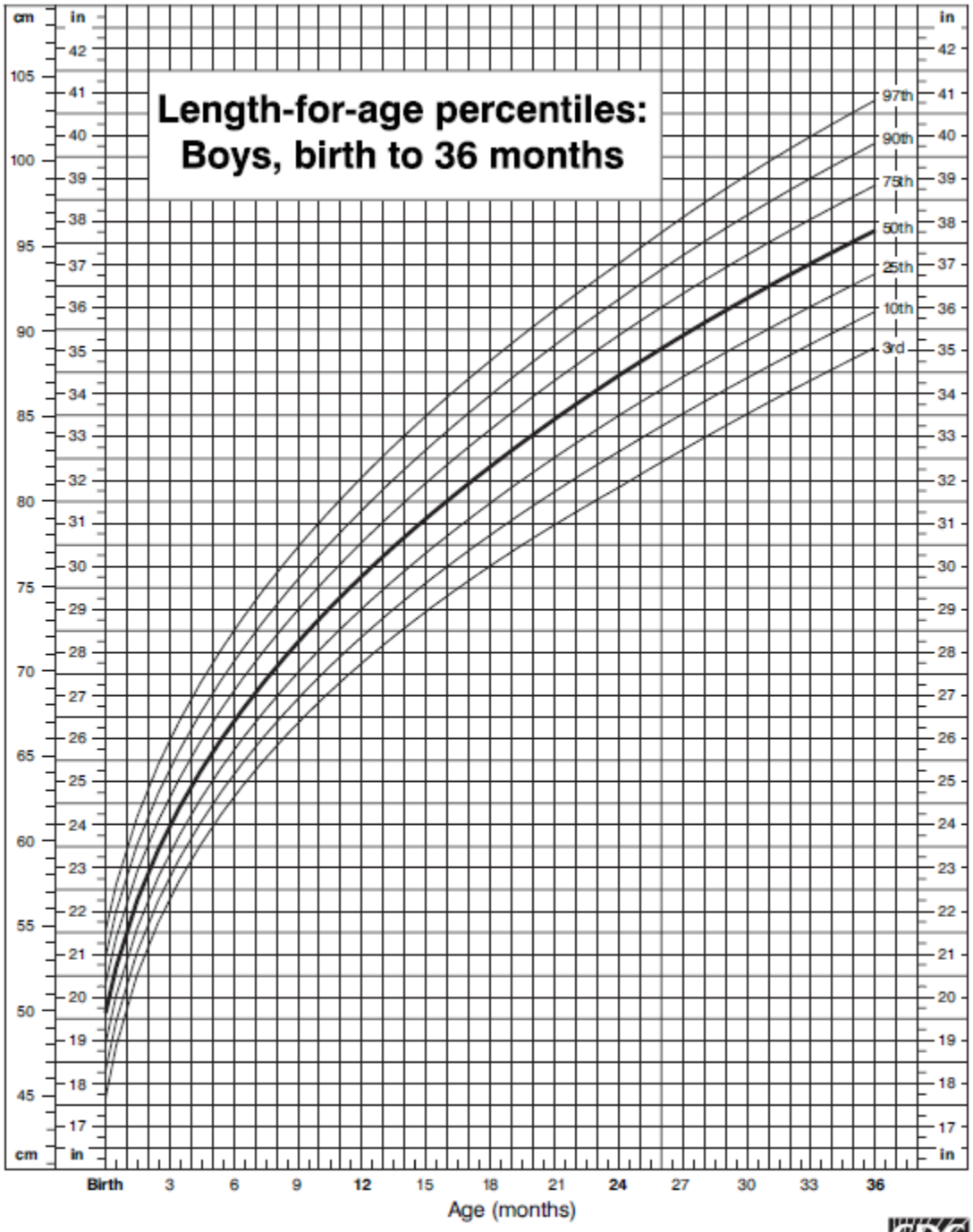
Humatrope® Cartridge **Humatrope® vial**	Idiopathic short stature: up to 0.37 mg/kg SC weekly Pediatric GHD: 0.18 to 0.3 mg/kg SC weekly Turner Syndrome: up to 0.375 mg/kg SC weekly SHOX deficiency: 0.35 mg/kg SC weekly Small for gestational age: up to 0.47 mg/kg SC weekly	Adult GHD: Initial: not more than 0.006 mg/kg SC daily and may be increased up to a max of 0.0125 mg/kg SC daily. Alternative schedule: 0.15 to 0.30 mg SC daily may be used without consideration of body weight and may be increased gradually by increments of approximately 0.1 to 0.2 mg SC daily every 1 to 2 months
Norditropin® FlexPro® Cartridge **Norditropin® NordiFlex® cartridge**	Noonan Syndrome: Up to 0.066 mg/kg SC daily Pediatric GHD: 0.024 to 0.034 mg/kg SC daily, 6 to 7 times a week Small for gestational age: up to 0.067 mg/kg SC daily Turner Syndrome: Up to 0.067 mg/kg SC daily	Adult GHD: 0.004 mg/kg SC daily to be increased as tolerated to not more than 0.016 mg/kg SC daily after approximately 6 weeks, or a starting dose of approximately 0.2 mg SC daily (range, 0.15 to 0.30 mg SC daily) increased gradually by increments of approximately 0.1to 0.2 mg SC daily every 1 to 2 months
Nutropin AQ® vial, pen cartridge **Nutropin AQ®** **NuSpin® pen cartridge**	Chronic renal insufficiency: up to 0.35 mg/kg SC weekly Idiopathic short stature: up to 0.3 mg/kg SC weekly Pediatric GHD: up to 0.3 mg/kg SC weekly (up to 0.7 mg/kg SC weekly in pubertal patients) Turner Syndrome: up to 0.375 mg/kg SC weekly.	Adult GHD: Initial: not more than 0.006 mg/kg SC daily. Dose may be increased to a maximum of 0.025 mg/kg SC daily in patients under 35 years old and to a maximum of 0.0125 mg/kg SC daily in patients over 35 years old. Alternative schedule: starting dose of approximately 0.02 mg SC daily (range, 0.15 to 0.30 mg SC daily) may be used without consideration of body weight and may be increased gradually by increments of approximately 0.1 to 0.2 mg SC daily every 1 to 2 months.

Omnitrope® vial, cartridge	Idiopathic short stature: up to 0.47 mg/kg SC weekly Pediatric GHD: 0.16 to 0.24 mg/kg SC weekly Prader-Willi syndrome: 0.24 mg/mg SC weekly Small for gestational age: up to 0.48 mg/kg SC weekly Turner syndrome: 0.33 mg/kg SC weekly	Adult GHD: not more than 0.04 mg/kg SC weekly to be increased as tolerated to not more than 0.08 mg/kg SC weekly); to be increased gradually every 1 to 2 months
Saizen® vial **Saizen® click easy® cartridge**	Pediatric GHD: 0.18 mg/kg SC weekly	Adult GHD: Initial: not more than 0.005 mg/kg SC daily. Dose may be increased to a maximum of 0.01 mg/kg SC daily after 4 weeks. Alternative schedule: starting dose of approximately 0.02 mg SC daily (range, 0.15 to 0.30 mg SC daily) may be used without consideration of body weight and may be increased gradually by increments of approximately 0.1to 0.2 mg SC daily every 1 to 2 months.
Serostim® vial		AIDS wasting syndrome: Initial: 0.1 mg/kg daily (up to 6 mg). Recommended dosing: >55kg (>121 lb) 6 mg SC daily 45-55 kg (99-121 lb) 5 mg SC daily 35-45 kg (75-99 lb) 4 mg SC daily <35 kg (<75 lb) 0.1 mg/kg SC daily A starting dose of 0.1 mg/kg every other day should be considered in patients at increased risk for adverse effects related to growth hormone therapy
Zomacton® vial	Pediatric GHD: up to 0.1 mg/kg SC administered 3 times per week	

Zorbtive® vial		Short Bowel Syndrome: dose of approximately 0.1 mg/kg SC to a maximum of 8 mg SC daily. Administration for more than 4 weeks has not been adequately studied.
Please note: The appearance of a medication in this chart does not indicate formulary coverage		

Appendix B: Pediatric Growth Charts – also available at http://www.cdc.gov/growthcharts/cdc_charts.htm

CDC Growth Charts: United States



Published May 30, 2000.
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

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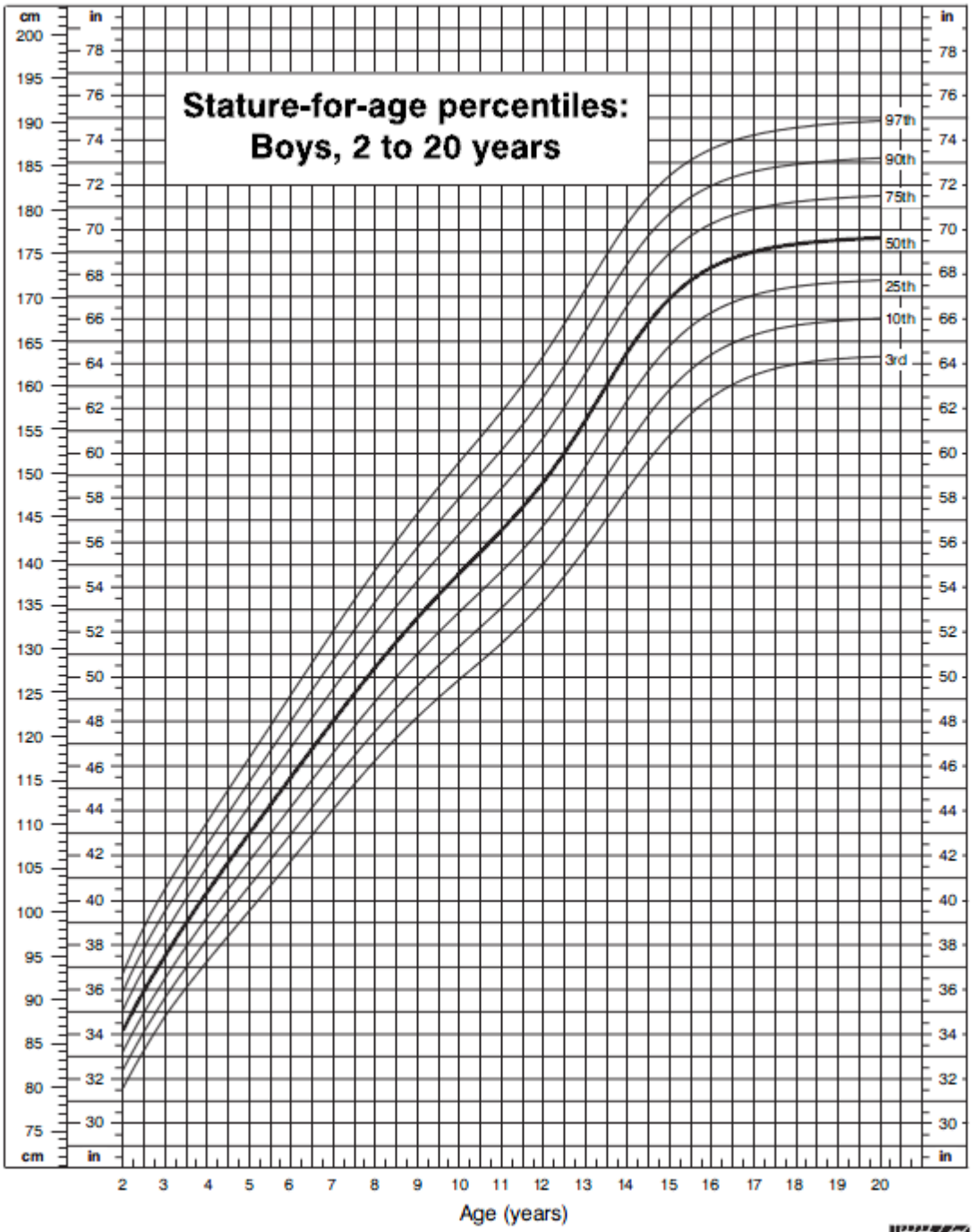
CDC Growth Charts: United States



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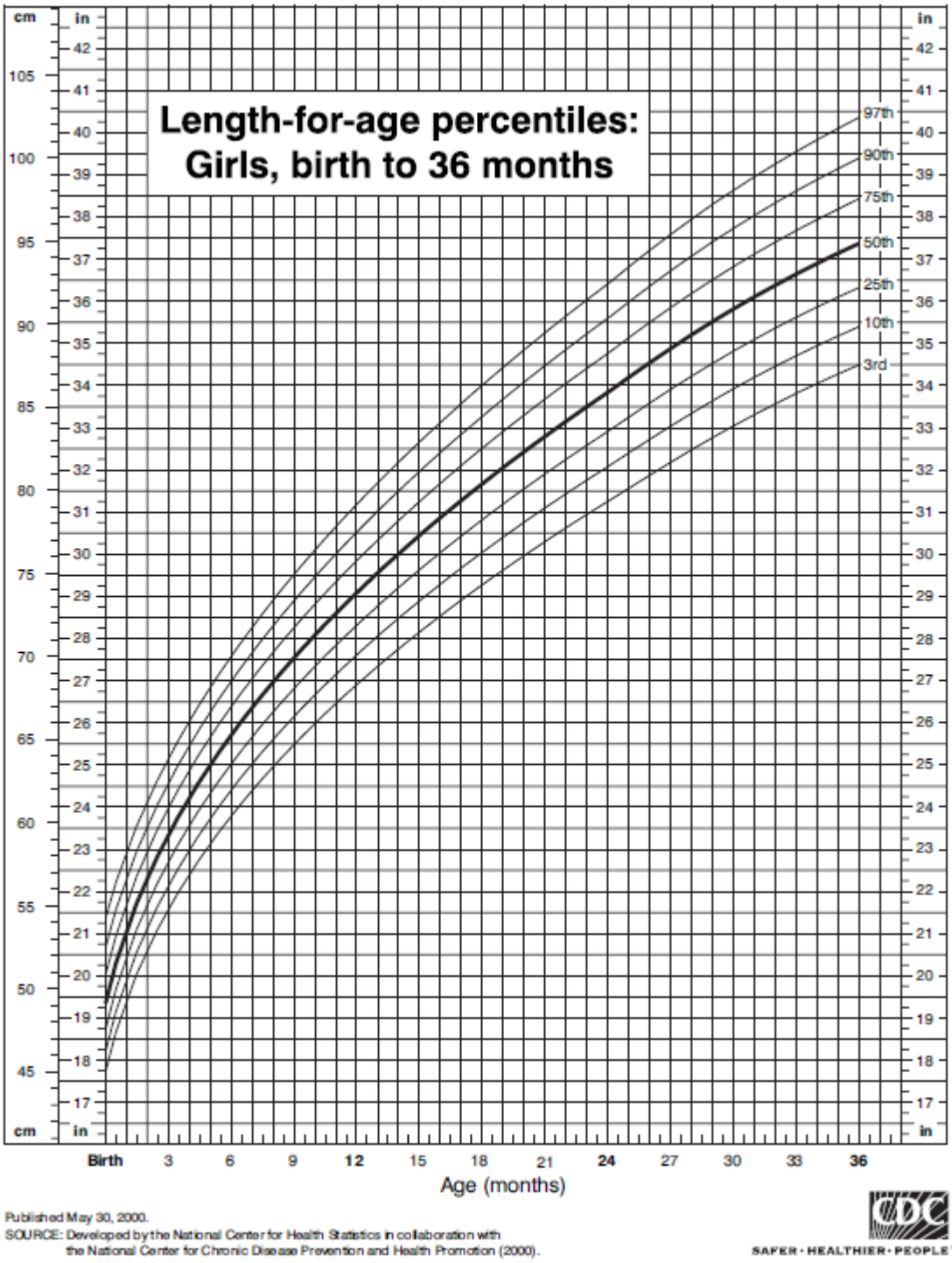
CDC Growth Charts: United States



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SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

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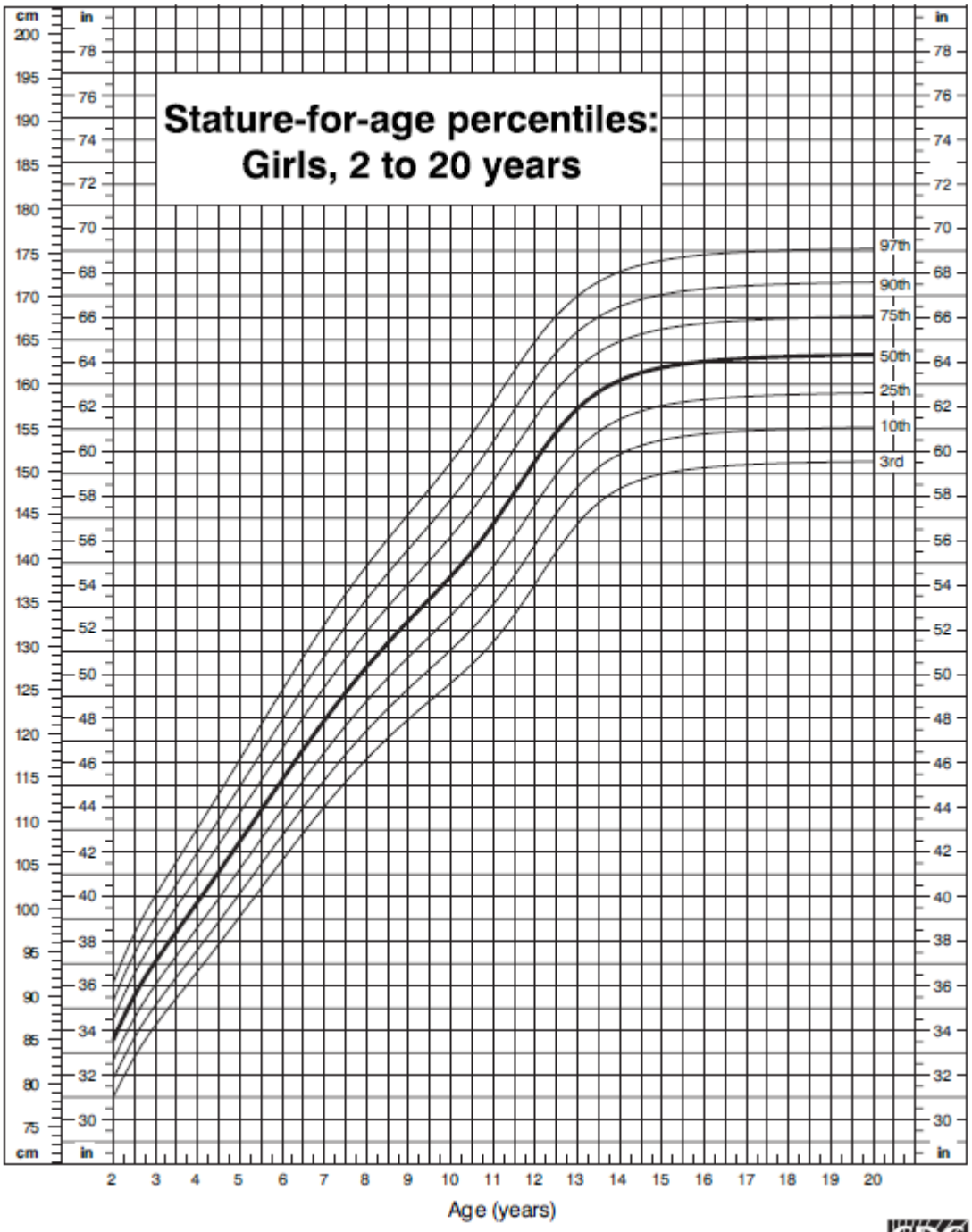
CDC Growth Charts: United States



References

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Review History

06/16/08 – Reviewed
06/15/09 – Reviewed (I.S.S.)
06/21/10 – Reviewed
06/27/11 – Reviewed
06/25/12 – Reviewed
06/24/13 – Reviewed
06/23/14 – Reviewed
06/22/15 – Reviewed
06/2016 – Reviewed
02/2017 – Reviewed (adopted SGM) in P&T Meeting
11/20/17 – Reviewed (adopted MH RS)
02/20/19 – Reviewed in P&T Meeting

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