

## Medical Policy



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### Title: Pediatric Growth Hormone

#### **Professional**

Original Effective Date: February 5, 1986  
Revision Date(s): September 20, 2005;  
October 31, 2006; November 2, 2006;  
February 2, 2007; March 29, 2007;  
January 1, 2008  
Current Effective Date: August 18, 2008

#### **Institutional**

Original Effective Date: August 18, 2008  
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#### **DESCRIPTION**

Human growth hormone (GH), also known as somatotropin, is synthesized in the anterior pituitary throughout life. Growth hormone binds to the surface of cells and stimulates the production of insulin growth factor-I (IGF-I). Insulin growth factor is responsible for many of the growth promoting effects attributed to growth hormone. Growth hormone stimulates all aspects of cartilage growth, and one of its major effects is to stimulate the growth of the epiphyseal cartilage plates of long bones. Other body tissues respond to the metabolic effect of growth hormone with increases in bone width and the growth of visceral and endocrine organs, skeletal and cardiac muscle, skin, and connective tissue. It also plays a role in the distribution and metabolism of fat in the body.

Most cases of idiopathic isolated growth hormone deficiency (GHD) seem to result from deficient hypothalamic secretion of growth hormone releasing growth hormone-releasing hormone (GHRH). Less frequently, GHD may result from pathologic pituitary conditions, such as pituitary tumors. Some causes are genetic; examples include abnormalities in the GH gene or in the Pit-1 gene or POU1F1 gene that regulates development of pituitary cells. Other causes are acquired, such as pituitary tumors, craniopharyngiomas, and Langerhans cell histiocytosis.

#### **POLICY**

Growth hormone is contractually excluded except for the following specific situations.

##### 1. Deficiency

Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:

- a. Failure to respond (less than 10 ng/ml of HGH) to two hormones secretagogues (arginine, clonidine, glucagon, insulin, or levodopa)
- b. Growth failure as defined by the following age groups:
  - 3 years or less: <7 cm/year

- Over three years to puberty (see below definition of puberty): <5 cm/year
- Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): <6 cm/year

Note: Growth rates should be tracked over at least one year using stadiometer measurements.

## 2. Insufficiency or Partial Deficiencies

Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:

- a. Failure to respond (less than 15 ng/ml of HGH) to two hormones secretagogues (arginine, clonidine, glucagon, insulin, or levodopa)
- b. Height less than the 2.5 percentile
- c. Growth failure as defined by the following age groups:
  - 3 years or less: <7 cm/year
  - Over three years to puberty (see below definition of puberty): < 5cm/year
  - Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): <6 cm/year

Note: Growth rates should be tracked over at least one year using stadiometer measurements.

Note: Continuation of treatment with growth hormone therapy requires a growth rate above 2.5 cm/year.

## 3. Panhypopituitarism

Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:

- a. Deficiencies of 2 or more other pituitary hormones (**TSH**, ACTH, FSH/LH, antidiuretic hormone)
- b. Low values for IGF-1

Note: Growth hormone stimulation testing is not required in these cases.

## 4. Turner, Prader-Willi, and Noonan Syndromes With Growth Failure

Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:

- a. Height less than the 2.5 percentile for age and sex
- b. Growth failure as defined by the following age groups:
  - 3 years or less: <7 cm/year
  - Over three years to puberty (see below definition of puberty): <5 cm/year
  - Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): <6 cm/year

Note: Growth rates should be tracked over at least one year using stadiometer measurements.

Note: Growth hormone stimulation testing is not required in these cases.

#### 5. Managing Ongoing Renal Dialysis Patients With Growth Failure

Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:

- a. End stage renal disease with GFR less than 75 ml/min/1.73m<sup>2</sup> prior to successful transplant
- b. Under age 18
- c. With open epiphyses
- d. Height less than the 2.5 percentile for age and sex
- e. Growth failure as defined by the following age groups:
  - 3 years or less: <7 cm/year
  - Over three years to puberty (see below definition of puberty): <5 cm/year
  - Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): <6 cm/year

Note: Growth rates should be tracked over at least one year using stadiometer measurements.

- f. Complicating factors have been treated including malnutrition and acidosis

Note: Growth Hormone stimulation testing is not required.

#### **Termination of Growth Hormone Therapy**

Growth hormone therapy is no longer covered when any one of the following criteria is met:

1. Epiphyseal fusion has occurred
2. Mid-parental height is achieved. Mid-parental height = (father's height + mother's height) divided by 2, plus 2.5 inches (male) or minus 2.5 inches (female)
3. Failure to respond to growth hormone therapy with a growth rate of less than 2.5 cm/year

NOTE: When a consultant recommends that growth hormone treatment be given for the rest of the life of the patient, it will no longer be necessary to re-review for medical necessity. It will be necessary, however, to review for benefits. Such instances may be:

1. Growth hormone deficiency
2. Panhypopituitarism, or
3. When adult growth hormone therapy requirements are met (see Adult Growth Hormone policy)

#### **DOCUMENTATION**

Documentation needed for predetermination are:

- Growth charts with at least 3 stadiometer measurements over at least one year
- Growth hormone stimulation testing results

**CODING****CPT/HCPCS**

90772	Therapeutic, prophylactic or diagnostic injection (specify substance or drug); subcutaneous or intramuscular
J2170	Injection, mescasermin, 1 mg (Use this code for Iplex, Increlex)
J2940	Injection, somatrem, 1 mg (Use this code for Protropin)
J2941	Injection, somatropin, 1 mg (Use this code for Humatrope, Genotropin Nutropin, Biotropin, Genotropin, Genotropin Miniquick, Norditropin, Nutropin, Nutropin AQ, Saizen, Saizen Somatropin RDNA Origin, Serostim, Serostim RDNA Origin, Zorbtive)
Q0515	Injection, sermorelin acetate, 1 mcg
S9558	Home injectable therapy; growth hormone, including administrative services, professional pharmacy services, coordination of care, and all necessary supplies and equipment (drugs and nursing visits coded separately), per diem

**DIAGNOSIS****These diagnoses are otherwise subject to medical policy as stated above**

253.0	Acromegaly and gigantism
253.1	Other and unspecified anterior pituitary hyperfunction
253.2	Panhypopituitarism
253.3	Pituitary dwarfism
253.4	Other anterior pituitary disorders
253.6	Other disorders of neurohypophysis
253.7	Iatrogenic pituitary disorders
585.3	Chronic kidney disease, stage III (Moderate)
585.4	Chronic kidney disease, stage IV (severe)
585.5	Chronic kidney disease, stage V
585.6	End stage renal disease
585.9	Chronic kidney disease, unspecified
758.6	Gonadal dysgenesis (Turner's syndrome)
759.81	Prader-Willi syndrome
759.89	Other specified anomalies (Noonan's)

**REVISIONS**

02-02-2007 Effective	In "Policy" section deleted 1.a., b., c., and Note - 'Growth Hormone (GH) Deficiency'
03-01-2007	In "Policy" section added 'Deficiency' – 1. a., b., and Note and 'Insufficiency or Partial Deficiencies' 2 a., b., c., d., and Note.
03-29-2007 Effective	In "Policy" title added 'Growth hormone is contractually excluded except for the following specific situations:' per Medical director.
05-01-2007	In "Policy" section added new #3 - Panhypopituitarism- Defined as deficiencies of two or more other pituitary hormones (BH, ACTH, FSH/LH, antidiuretic hormone plus low values for IGF–1 and IGFBP-3. Growth hormone stimulation testing is not required in these cases.

	In "Reference" Government Agency; Medical Society; and Other Authoritative Publications section added BCBSKS Medical Consultant, Practicing Board Certified Pediatric Endocrinologist (340), March 27, 2007.
Effective 01-01-2008	In Policy section added Noonan Syndrome due to member contract change for 2008. Added ICD-9 Code 759.89.
Effective 08-18-2008	In Description section: <ul style="list-style-type: none"> <li>Added the second paragraph.</li> </ul> In Policy section: <ul style="list-style-type: none"> <li>In 1a removed "(stimulation agents) with growth rate less than 5cm/yr if over three (3) years of age." and added, "(arginine, clonidine, glucagon, insulin and levodopa)".</li> <li>Replaced 1b stating "Growth rate must be determined by stadiometer measurement over six (6) months or non-stadiometer growth data over 18 months that is consistent with a stadiometer measurement" with "Growth failure as defined by the following age groups: -3 years or less: &lt;7 cm/year, -Over three years to puberty (see below definition of puberty): &lt;5 cm/year, -Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): &lt;6 cm/year. Note: Growth rates should be tracked over at least one year using stadiometer measurements."</li> <li>Removed NOTE after #1 stating "Note: Continuation of treatment with growth hormone therapy requires positive response to growth hormone therapy with increases of growth rate at least 2cm/year above baseline and maintained until achievement of target height percentile."</li> <li>Replaced #2 stating "(these are children who have borderline stimulation test results and borderline growth hormone failure. They are thought to be mild forms of true growth hormone deficiency). Should have:" with "Growth hormone has been approved for reimbursement subject to meeting all of the following criteria:"</li> <li>Replaced 2a, 2b, 2c, 2d stating "a. Two (2) stimulated growth hormone values less than 15 ng/ml. b. Height less than the 5th percentile. c. Growth rate less than the 25th percentile for age (calculated and plotted on the back of the growth chart). d. Growth rate must be determined by stadiometer measurement over six (6) months or non-stadiometer growth data over 18 months that is consistent with a stadiometer measurement." with "a. Failure to respond (less than 15 ng/ml of HGH) to two hormones secretagogues (arginine, clonidine, glucagon, insulin, or levodopa). b. Height less than the 2.5 percentile. c. Growth failure as defined by the following age groups: -3 years or less: &lt;7 cm/year, -Over three years to puberty (see below definition of puberty): &lt; 5cm/year, -Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): &lt;6 cm/year. Note: Growth rates should be tracked over at least one year using stadiometer measurements."</li> <li>Replaced Note after #2 stating "Note: Continuation of treatment with growth hormone therapy requires positive response to growth hormone therapy with increases of growth rate at least 2cm/year above baseline and maintained until achievement of target height percentile." with "Note: Continuation of treatment with growth hormone therapy requires a growth rate above 2.5 cm/year."</li> <li>Replaced #3 stating "is defined as deficiencies of two or more other pituitary hormones (BH, ACTH, FSH/LH, antidiuretic hormone plus low values for IGF-1 and</li> </ul>

	<p>IGFBP-3. Growth hormone stimulation testing is not required in these cases." <u>with</u> "Growth hormone has been approved for reimbursement subject to meeting all of the following criteria: a. Deficiencies of 2 or more other pituitary hormones (TSH, ACTH, FSH/LH, antidiuretic hormone), b. Low values for IGF-1. Note: Growth hormone stimulation testing is not required in these cases.</p> <ul style="list-style-type: none"> <li>• In #4 Turner, Prader-Willi, and Noonan Syndromes title added "With Growth Failure".</li> <li>• Replaced 4a1), 4a2), 4a3), 4a4), 4a5), 4b stating "1) Confirmed (positive chromosome study) diagnosis. 2) The patient who is five (5) years of age or older must be under the fifth percentile on a standard growth curve used in North America. 3) Any patient UNDER five (5) years of age must be below two standard deviations without respect to the parents' height. 4) Reimbursement for treatment will not be allowed past 18 months unless the growth rate, while on therapy, is greater than 3.8 cm/year. 5) All patients 14 years or older must show evidence that the epiphyses are still open. b. Growth hormone stimulation testing is not required." <u>with</u> "a. Height less than the 2.5 percentile for age and sex, b. Growth failure as defined by the following age groups: -3 years or less: &lt;7 cm/year, -Over three years to puberty (see below definition of puberty): &lt;5 cm/year, -Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): &lt;6 cm/year. Note: Growth rates should be tracked over at least one year using stadiometer measurements. Note: Growth hormone stimulation testing is not required in these cases."</li> <li>• In #5 Managing Ongoing Renal Dialysis Patients title added "With Growth Failure".</li> <li>• Replaced #5 stating "Growth hormone therapy has been approved for chronic renal insufficiency and end stage renal disease prior to successful transplant for patients under age 18 and with open epiphyses." <u>with</u> "Growth hormone has been approved for reimbursement subject to meeting all of the following criteria: a. End stage renal disease with GFR less than 75 ml/min/1.73m<sup>2</sup> prior to successful transplant, b. Under age 18, c. With open epiphyses, d. Height less than the 2.5 percentile for age and sex, e. Growth failure as defined by the following age groups: -3 years or less: &lt;7 cm/year, Over three years to puberty (see below definition of puberty): &lt;5 cm/year, -Puberty (defined as bone age of 10 1/2-12 years for girls and bone age of 12 1/2 -14 1/2 years for boys): &lt;6 cm/year. Note: Growth rates should be tracked over at least one year using stadiometer measurements. f. Complicating factors have been treated including malnutrition and acidosis. Note: Growth Hormone stimulation testing is not required."</li> <li>• Added new section stating "<u>Termination of Growth Hormone Therapy</u> Growth hormone therapy is no longer covered when any one of the following criteria is met: 1. Epiphyseal fusion has occurred, 2. Mid-parental height is achieved. Mid-parental height = (father's height + mother's height) divided by 2, plus 2.5 inches (male) or minus 2.5 inches (female), 3. Failure to respond to growth hormone therapy with a growth rate of less than 2.5 cm/year."</li> <li>• Replaced Note after Termination of Growth Hormone Therapy section stating "NOTE: If consultant decides that growth hormone treatment will be given for the rest of the life of the patient, it will no longer be necessary for Medical Review to re-review for medical necessity. It will be necessary, however, to review for benefits." <u>with</u> "NOTE: When a consultant recommends that growth hormone</li> </ul>
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	<p>treatment be given for the rest of the life of the patient, it will no longer be necessary to re-review for medical necessity. It will be necessary, however, to review for benefits. Such instances may be: 1. Growth hormone deficiency, 2. Panhypopituitarism, or 3. When adult growth hormone therapy requirements are met (see Adult Growth Hormone policy)"</p> <ul style="list-style-type: none"> <li>• Added new section stating "<u>DOCUMENTATION</u> Documentation needed for predetermination are: -Growth charts with at least 3 stadiometer measurements over at least one year, -Growth hormone stimulation testing results."</li> </ul>
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### **Web site**

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