**Criteria for Prior Authorization of Growth Hormone**

All growth hormone products, if approved, must be obtained from the Specialty Pharmacy Network. In addition, Norditropin is our preferred, tier 2 product; If the physician requests any other product (non-preferred) documented rationale for this non-preferred agent must accompany the prior authorization request for consideration. If after review, the request is approved the non-preferred product will be subject to the tier 3, higher copay.

**PRIOR AUTHORIZATION CRITERIA**

A. All of the following criteria must be met for approval of a growth hormone product:

1. **Children diagnosed with acquired growth hormone deficiency** must meet the following criteria: (a through d must be met):
   
a. The patient must be evaluated by a pediatric endocrinologist

b. **Height**: The patient’s baseline height must be < the third percentile (ie, > 2 standard deviations [SD] below the mean for gender and age, a measure of the degree of short stature)

c. **Growth velocity**: Children aged < 3 years must have a pretreatment growth rate of < 7 cm per year, and children aged 3 years and older must have a growth rate < 4 cm per year

d. **Provocative growth hormone testing**: The patient must have a documented growth hormone deficiency as defined by a diminished serum growth hormone response to stimulation testing of < 10 ng/mL. The results of at least two of the following stimulation tests support the diagnosis of growth hormone deficiency: levodopa, insulin-induced hypoglycemia, arginine, clonidine, and glucagon.

2. **Adults diagnosed with growth hormone deficiency** must meet the following criteria (a, b, and c):

   a. The patient must be evaluated by an endocrinologist

   b. The patient must have a documented diagnosis of somatotropin (growth hormone) deficiency syndrome that is one of the following:

   Adult onset: growth hormone deficiency alone or multiple hormone deficiencies (hypopituitarism) resulting from pituitary disease, hypothalamic disease, surgery, radiation therapy, or trauma; 
   OR
   Childhood onset
AND

c. The patient must have a negative response to one standard growth hormone stimulation test (maximum peak of £ 5 ng/mL) measured by radioimmunoassay (polyclonal antibody) or < 2.5 ng/mL measured by immunoradiometric assay (monoclonal antibody). Stimulation tests include insulin tolerance, arginine, growth hormone releasing hormone (GHRH), the combination of arginine and GHRH, combination of GHRH and growth hormone releasing peptide, and glucagon. The diagnostic test of choice is insulin tolerance; however, it is contraindicated in patients with ischemic heart disease or seizure disorders.

OR both of the following:

The patient has 2 or more of the following pituitary hormone deficiencies: thyroid stimulating hormone (TSH) deficiency, adrenocorticotropin hormone (ACTH) deficiency, gonadotropin deficiency (leutinizing hormone [LH] and/or follicle stimulating hormone [FSH] deficiency are counted as one deficiency), and arginine vasopressin (AVP) deficiency (central diabetes insipidus).

AND

Serum IGF-I < 84 μg/liter (11 nmol/liter) using the Esoterix Endocrinology competitive binding RIA.88 Other causes of low serum IGF-I must be excluded (eg, malnutrition, prolonged fasting, poorly controlled diabetes mellitus, hypothyroidism, hepatic insufficiency, oral estrogen therapy) before using IGF-I as a maker of growth hormone deficiency. Serum IGF-I alone is not specific enough for diagnosis.

3. Patients who have undergone brain radiation. Somatropin or somatrem is recommended for patients who have undergone brain radiation, if they meet the criteria for children 1c and 1d or the criteria for adults 2a and 2b. Children who have undergone brain radiation and have demonstrated growth hormone deficiency often begin treatment with somatropin or somatrem when the rate of growth slows significantly.

4. Turner’s syndrome. Somatropin is recommended for girls with short stature associated with Turner’s syndrome, demonstrated by chromosome analysis. Evaluation of growth hormone secretion is not necessary.

5. Children with chronic renal insufficiency. Somatropin is recommended for growth failure in children with chronic renal insufficiency up to the time of kidney transplantation. Patients must be evaluated by a pediatric endocrinologist or a nephrologist. Evaluation of growth hormone secretion is not necessary. Somatropin is also recommended in children who develop chronic renal insufficiency after a kidney transplant.

6. Congenital hypopituitarism. Either somatropin or somatrem is recommended for infants or children with congenital hypopituitarism. Patients must be evaluated by a pediatric endocrinologist and meet the criteria for children A.1.a through d above.

7. Prader-Willi syndrome. Somatropin is recommended for children with growth failure due to Prader-Willi syndrome. Evaluation of growth hormone secretion is not necessary. Some patients with Prader-Willi syndrome may meet the criteria for growth hormone deficiency (A.1 [a through d]), and most have a diminished serum growth hormone response to stimulation testing.

8. Short children born small for gestational age (SGA) or with intrauterine growth retardation (IUGR) including those with Silver-Russell syndrome. Somatropin is recommended and patients must meet the following criteria. (Evaluation of growth hormone secretion and bone age is not necessary, although some patients may have a diminished serum growth hormone response to stimulation testing and meet the criteria for children described in A.1 [a through c] above.)

   a. Patient must be evaluated by a pediatric endocrinologist.
   b. Patient must have been born SGA, which is defined as birth weight and/or birth length that is > 2 SD below the mean for gestational age and gender, and did not have sufficient catch-up growth before age 2. Most children born SGA will show catch-up growth by age 2.
   c. Age.
      ▪ Patient must be between 2 years of age and 8 years.
- If the child is aged > 8 years and prepubertal, coverage is recommended for one year on a trial basis. If growth increases by 3 cm/year (ie, in addition to their baseline growth) with therapy, then authorization for continued therapy is recommended.

- If the child is aged > 8 years and is clearly pubertal, then an exception is not recommended. Efficacy has not been established in pubertal adolescents born SGA.

d. Height: The patient's baseline height must be < third percentile (ie, > 2 SD below the mean for gender and age, a measure of the degree of short stature).

9. **Short bowel syndrome.** Somatropin is recommended for adults with short bowel syndrome who are receiving specialized nutritional support (defined as a high carbohydrate, low-fat diet that is adjusted for individual patient requirements and preferences). Patient must be aged 18 years and therapy is limited to one 4-week course per year. In some patients somatropin may need to be discontinued for up to 5 days for severe toxicities and resumed. Patients will be evaluated by a pharmacist and/or a physician on a case-by-case basis to determine a coverage recommendation for the client for patients requesting more than 4 weeks of therapy or more than one 4-week course per year.

B. Coverage of Nutropin Depot is recommended only for children who meet the criteria for growth hormone deficiency (A.1 [a through d] above).

C. Coverage of somatropin (Serostim) is recommended in those who meet the following criteria:

1. **Adults with HIV infection with wasting or cachexia** must meet ALL of the following criteria

   a. The patient must be HIV-positive and have wasting or cachexia;

   b. The patient must have one of the following: documented, unintentional weight loss of 10% from baseline; weight < 90% of the lower limit of ideal body weight; or body mass index (BMI) 20 kg/m2. The following formula can be used to calculate BMI: BMI equals body weight in kilograms divided by height meters squared (m2), ie, BMI = kg/m2.

   c. The patient must be able to consume or be fed through parenteral or enteral feedings 75% of maintenance energy requirements based on current body weight;

   d. The patient must have been on antiretroviral therapy for 30 days prior to beginning somatropin therapy and will continue antiretroviral therapy throughout the course of somatropin treatment; and

   e. Therapy with somatropin should be limited to 24 weeks in these patients.

**Repeat courses.** Repeat 12 or 24-week courses of somatropin may be authorized in patients who have received a previous 12 or 24-week course of somatropin for HIV infection with wasting or cachexia provided that they have been off somatropin for at least 1 month and meet criteria C.1.a, b, c, and d. There are no safety and efficacy data from controlled trials in patients treated with somatropin continuously for greater than 48 weeks or for patients who start, stop, and then restart treatment.

2. **HIV-associated failure to thrive.** Children aged < 17 years with HIV-associated failure to thrive must meet the following criteria:

   a. The patient must be able to consume or be fed through parenteral or enteral feedings 75% of maintenance energy requirements based on current body weight;

   b. The patient must have been on antiretroviral therapy for 30 days prior to beginning somatropin therapy and will continue antiretroviral therapy throughout the course of somatropin treatment; and

   c. The patient should be reevaluated after 12 weeks to assess the risks versus benefits of somatropin therapy. Children with HIV-associated failure to thrive may require several months of growth hormone therapy. Information is very limited.

**EXCLUSIONS**
A. Coverage growth hormone is not recommended in the following circumstances, unless the criteria in A, B, or C above have been met:

a. Constitutional delayed growth and development.
b. Familial short stature (normal short stature). These children usually have a normal growth velocity, and a bone-age x-ray indicates their predicted height is appropriate for their mid-parenteral heights.
c. Idiopathic short stature. Although use of Growth Hormone for the treatment of idiopathic short stature is an FDA approved indication, it is considered not medically necessary and is therefore not covered.
d. Down's or Noonan's syndromes. Short-term acceleration of growth with growth hormone therapy has occurred in children with these syndromes; however, no prospective studies have assessed linear growth until achievement of final adult height. Use of growth hormone in Noonan's syndrome is considered experimental and should be considered on a case-by-case basis.
e. Corticosteroid-induced short stature, including a variety of chronic glucocorticoid-dependent conditions, such as asthma, inflammatory bowel disease, juvenile rheumatoid arthritis, as well as after renal, heart, liver, or bone marrow transplantation.
f. Kidney transplant patients with a functional renal allograft. If chronic renal insufficiency develops after transplantation, the patient will meet the criteria for chronic renal insufficiency.
g. Congenital adrenal hyperplasia. Limited information is available.
h. Liver transplantation.
i. Bone marrow transplantation without total body irradiation (cranial radiation).
j. Bony dysplasias (achondroplasia, hypochondroplasia). Short-term treatment with growth hormone increases growth velocity in some patients, but there are no prospective studies assessing linear growth until achievement of final adult height. Use of growth hormone in bony dysplasias should be considered on a case-by-case basis.
k. Growth hormone neurosecretory dysfunction.
l. Hypophosphatemic rickets.
m. Myelomeningocele.
n. Dilated cardiomyopathy and heart failure
o. Adult short stature.
p. Athletic ability (enhancement).
q. Aging; to improve functional status in elderly patients; and somatopause.
r. Infertility.
s. Metabolic conditions, as an adjunct to nutritional therapy in critically ill catabolic patients receiving specialized nutritional support to promote protein anabolism.
t. Adult obesity.
u. Osteoporosis, postmenopausal or idiopathic in men.
v. Elderly patients with end-stage renal disease undergoing hemodialysis. More and larger studies are required to assess the effects of growth hormone on quality of life, morbidity, and mortality.
w. HIV-infected patients with alterations in body fat distribution (eg, increased abdominal girth, buffalo hump). Controlled studies are needed.
x. Crohn's disease. Limited information is available.
y. Chronic fatigue syndrome. Evidence from clinical trials is insufficient to conclude whether growth hormone therapy is effective.
z. Fibromyalgia. Long-term, controlled studies are not available.
aa. Cystic fibrosis. Long-term outcome has not been studied and more studies are required.

When approved, Norditropin and Nutropin must be obtained through a specialty pharmacy. Authorization will be given for a period of one year. Renewal of the authorization requires a new request with medical records documenting that current medical necessity criteria are met and that the medication is effective.