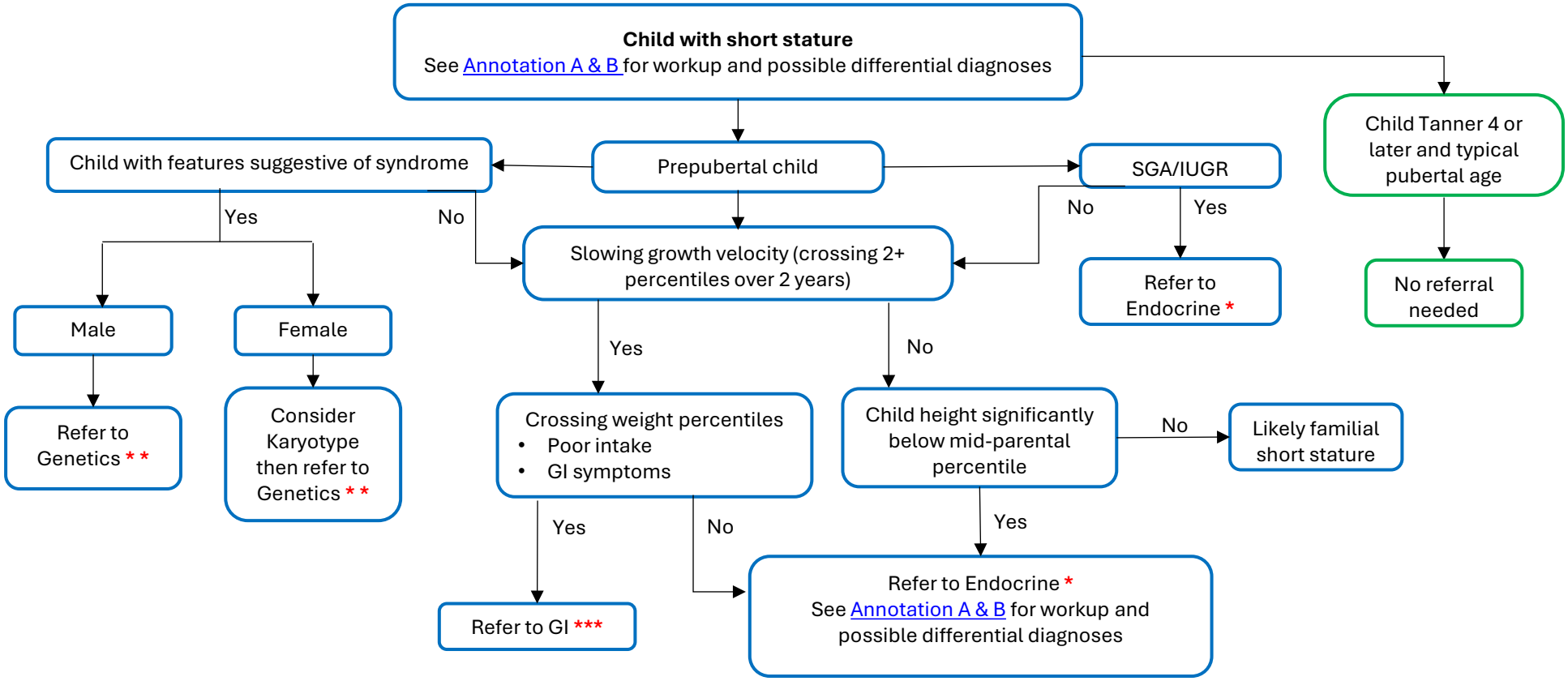
Short Stature

Clinical Guideline

System-wide



*** How to Refer to Endocrine**

1. **In Children's Epic**:
   - Place an ambulatory referral to Endocrinology.
2. **External providers:**
   - **In your instance of Epic -** Place an external referral order to CHW ENDOCRINE CLINICS **or**
   - **Fax (414-607-5288) or**
   - **Online ambulatory referral**

**** How to Refer to Genetics**

1. **In Children's Epic**:
   - Place an ambulatory referral to Genetics.
2. **External providers:**
   - **In your instance of Epic -** Place an external referral order to CHW GENETICS CLINICS **or**
   - **Fax (414-607-5288) or**
   - **Online ambulatory referral**

***** How to Refer to GI**

1. **In Children's Epic**:
   - Place an ambulatory referral to Gastroenterology.
2. **External providers:**
   - **In your instance of Epic -** Place an external referral order to CHW GASTROENTEROLOGY CLINICS **or**
   - **Fax (414-607-5288) or**
   - **Online ambulatory referral**

Annotations

A. Initial laboratory and/or radiologic work-up can include:

Blood tests:

- Total or free T4 and TSH
- Comprehensive metabolic panel
- Complete blood count
- ESR or CRP
- IGF-1
- IGFBP-3
- Tissue transglutaminase IgA
- Total serum IgA
- Can consider chromosome analysis if female child has features of Turner's syndrome-prior auth may be needed
- If female >8 yrs or male >11 yrs consider adding gonadotropins LH, FSH to evaluate for delayed puberty

Radiologic studies:

- Bone age x-ray of left hand and wrist

B. Differential diagnosis of short stature:

Common causes:

- Familial or intrinsic short stature
- Constitutional delay of growth and puberty
  - Children typically cross percentiles downward in the first 3 years, and then grow at a normal growth velocity on the lower percentiles or just below the 3rd percentile
  - Bone age is delayed
- Idiopathic short stature
  - Height < 2.25 SD below the mean for age and sex (shortest 1.2% of children) – FDA definition
  - Multiple etiologies are likely
  - Unlikely to attain adult height in the normal range (less than 63 inches for boys and 59 inches for girls)
  - Diagnostic evaluation excludes other causes of short stature
- Small for gestational age without catch up growth by 2 years

Other causes:

Endocrine abnormalities:

- Growth hormone deficiency
- Hypothyroidism
- Cushing's syndrome
- Growth hormone insensitivity

Metabolic disease:

- Rickets
- Diabetes mellitus

Syndromic:

- Turner's syndrome
- Noonan's syndrome
- Trisomy 21
- Russell-Silver Syndrome
- Prader-Willi Syndrome
- DiGeorge Syndrome

Chronic Illness:

- Gastrointestinal diseases
  - Celiac disease
  - Inflammatory bowel disease
- Pulmonary diseases
  - Asthma
  - Cystic fibrosis
- Cardiac disease
- Renal disease
- Diabetes mellitus

Glucocorticoid treatment

Musculoskeletal issues:

- Skeletal dysplasia
- Spinal disorders

Psychosocial issues:

- Psychosocial dwarfism
- Fetal alcohol syndrome

References

1. Mameli, C., Agostiniani, R., Banderali, G. et al. Clinical and biochemical evaluation of children with short stature in the primary care setting: a systematic review. Ital J Pediatr 52, 47 (2026).
2. Polidori N, Castorani V, Mohn A, Chiarelli F. Deciphering short stature in children. Ann Pediatr Endocrinol Metab. 2020 Jun;25(2):69-79. doi: 10.6065/apem.2040064.032. Epub 2020 Jun 30
3. Rogol AD, Hayden GF. Etiologies and early diagnosis of short stature and growth failure in children and adolescents. J Pediatr 2014;164:S1-S14 (*considered seminal work*)

Please contact clinicalguidelines@childrenswi.org for questions or comments.

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Revision authors/stakeholders:

Department	Name, credentials
Endocrinology, Owner	Paola Palma Sisto, MD

Medical Disclaimer

This Clinical Guideline (CG) is designed to provide a framework for evaluation and treatment. It is not intended to establish a protocol for all patients with this condition, nor is it intended to replace a clinician's judgement. Adherence to this CG is voluntary. Decisions to adopt recommendations from this CG must be made by the clinician in light of available resources and the individual circumstances of the patient. Medicine is a dynamic science; as research and clinical experience enhance and inform the practice of medicine, changes in treatment protocols and drug therapies are required. The authors have checked with sources believed to be reliable in their effort to provide information that is complete and generally in accord with standards accepted at the time of publication. However, because of the possibility of human error and changes in medical science, neither the authors nor Children's Hospital and Health System, Inc., nor any other party involved in the preparation of this work warrant that the information contained in this work is in every respect accurate or complete, and they are not responsible for any errors in, omissions from, or results obtained from the use of this information.