Short Stature

Cincinnati Children's
changing the outcome together

FAST FACTS

Short stature is usually associated with familial short stature or being a "late bloomer."

~70%
of referrals for short stature are for males

WHEN TO REFER

Consider a referral to the Division of Endocrinology for children:

- Who are in the third or lower percentile for height
- Who have severe short stature (roughly more than 3 standard deviations below the mean) or short stature that is out of proportion to family context
- Have a worrisome downward trend on the growth chart

For more information or to discuss a case, contact the Center for Growth Disorders at 513-636-4744.

For urgent issues or to speak with the specialist on call 24/7, call the Physician Priority Link at 1-888-987-7997.

Short stature is a condition with many possible etiologies, including hormonal deficiencies or excesses, non-endocrine systemic diseases, and genetic conditions such as Russell-Silver syndrome and Turner syndrome. It is defined as stature more than 2 standard deviations below the mean (or roughly below the 3rd percentile).

Short stature and growth failure are closely related but not identical. Not all incidences of short stature involve growth failure, and vice versa.

ASSESSMENT

Perform a physical exam, situational history and family history. A careful assessment of the patient's clinical stature is crucial to drive the subsequent indicated workup.

Look for trends on the child's growth chart, focusing on height. Compare the child's height to that of the general population. Consider:

- Could the child's short stature be due to short stature in their parents?
- Could the short stature be related to the absence of puberty onset?
- Was the child's growth trend previously consistent and has dropped off?

Look for signs of non-endocrine systemic disease, which may drive weight-related growth issues. Examples:

- Use of ADHD medication leading to appetite loss
- Chronic steroid use for the treatment of asthma

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Short stature out of proportion to family context
- Growth failure (downtrend in growth percentile)
- Short stature from poor weight gain
- Signs or symptoms suggestive of non-endocrine systemic illness

MANAGEMENT/TREATMENT

If there is a low suspicion of underlying pathology, consider monitoring growth and pubertal progression as indicated, perhaps seeing the patient every six months.

If concerns are primarily height-related, refer to the Division of Endocrinology or order lab tests for further investigations. The following tests can be helpful.

- Bone age x-ray
- CBC
- ESR
- IGF-1
- IGF-BP3
- T4 or free T4
- TSH
- Urinalysis

If concerns are primarily weight-related, consider ordering a nutritional assessment or making a GI referral.

Often, short stature requires no specific intervention and may self-correct. For those patients with a specific hormone deficiency, hormone replacement may be necessary. For patients with significant short stature, growth hormone may be implemented. Most of these interventions can occur through the Division of Endocrinology.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Tool developed by Cincinnati Children's physician-hospital organization (known as Tri-State Children's Health Services, Inc.) and staff in the James M. Anderson Center for Health Systems Excellence. Developed using expert consensus and informed by Best Evidence Statements, Care Practice Guidelines, and other evidence-based documents as available. For Evidence-Based Care Guidelines and references, see www.cincinnatichildrens.org/evidence.

Short Stature

Patient Presents

Standard Workup

- Physical exam
- Situational history
- Family history

Carefully assess clinical stature and growth chart. Focus on height, comparing it to that of the general population.
Consider:
- Could the child's short stature be due to parental short stature?
- Could the short stature be related to the absence of puberty onset?
- Was the child's growth trend previously consistent and has dropped off?

Look for signs of non-endocrine systemic disease, which may drive weight-related growth issues. Examples:
- Ulcers in the mouth that could indicate Crohn's disease
- Use of ADHD medication leading to appetite loss
- Chronic steroid use for the treatment of asthma

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Short stature out of proportion to family context
- Growth failure (downtrend in growth percentile)
- Short stature from poor weight gain
- Signs or symptoms suggestive of non-endocrine systemic illness

Any Red Flags?

Yes

Height-related?

Refer to the Division of Endocrinology
OR
Order lab tests for further investigations, such as:
- Bone age x-ray
- CBC
- ESR
- IGF-1
- IGF-BP3
- T4 or free T4
- TSH
- Urinalysis

Primarily weight-related?

Order a nutritional assessment
OR
Make a GI referral

No

Monitor growth and pubertal progression as indicated

When to refer to the Division of Endocrinology

Consider a referral for children who:
- Are in the third or lower percentile for height
- Have severe short stature (roughly more than 3 standard deviations below the mean) or short stature that is out of proportion to family context
- Have a worrisome downward trend on the growth chart

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