**SYMPTOMS AND LABS**

- Child of any height with growth failure or abnormal slowing of growth velocity (< 4.5 cm/year) that is not explained by downchanneling** OR constitutional growth delay
- Any child with concerns for a genetic disorder (e.g., Turner, Prader-Willi, Noonan, Russell-Silver)
- IUGR with lack of catch-up linear growth by age 2 years

**SUGGESTED PREVISIT WORKUP**

- Bone age
- Discuss labs with endocrinology, consider: TSH, free T4, IGF-1, IGFPB3, GH, CMP, CBC with diff, TTG-IgA, total IgA, ESR
- Severe hypothyroidism can cause total growth arrest even if GH production is normal

**SUGGESTED CONSULTATION OR CO-MANAGEMENT**

- Bone age recommended
- Delayed bone age in otherwise healthy children suggests constitutional delay and conservative management may be appropriate for primary care providers comfortable with this condition
- Consider, height, weight checks every 4-6 months, consider screening labs (red box)
- Constitutional delay is a diagnosis of exclusion, consider endocrine referral

**CLINICAL PEARLS**

- **High Risk**
  - Mark mid-parental height (MPH) on the growth chart. For boys: MPH in cm = (mom+dad+13)/2, for girls = (mom+dad-13)/2
  - Compare MPH to child’s height percentile. Eg. Concerning if MPH is 90th percentile and child is growing at 10th percentile.
  - GV (Growth velocity) in cm/yr = (current ht-past ht)/weeks between measurement x 52, best if measurements 4-6 months apart.
  - Use height velocity chart to assess if GV is normal, eg. Normal Infants grow 10 cm/year then decrease to 4.5 cm/year just prior to the pubertal surge when growth velocity can exceed 10 cm/year.
- **Moderate Risk**
  - *The best way to estimate adult height is with a bone age (using Bayley-Pinneau tables) in children older than age 6-7. Predicting adult height by extrapolating current height percentile may be very inaccurate.
  - “Downchanneling” is physiologic decrease in height percentile to midparental height percentile by age 2-3 years.
  - Remeasure height if only a single value has caused concern.

**SHORT STATURE RECOMMENDATIONS**

- Children growing in low percentile range but with normal growth velocity and above criteria can generally be managed conservatively
- Growth hormone is not used in otherwise healthy children with current or predicted height* in the 2nd-5th percentile range
- Slow weight gain with normal linear growth is more like to be a GI disorder than an endocrine problem, consider GI referral for such cases

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These clinical practice guidelines describe generally recommended evidence-based interventions for the evaluation, diagnosis and treatment of specific diseases or conditions. The guidelines are: (i) not considered to be entirely inclusive or exclusive of all methods of reasonable care that can obtain or produce the same results, and are not a statement of the standard of medical care; (ii) based on information available at the time and may not reflect the most current evidenced-based literature available at subsequent times; and (iii) not intended to substitute for the independent professional judgment of the responsible clinician(s). No set of guidelines can address the individual variation among patients or their unique needs, nor the combination of resources available to a particular community, provider or healthcare professional. Deviations from clinical practice guidelines thus may be appropriate based upon the specific patient circumstances.