INDICATIONS FOR TESTING
High clinical suspicion of GHD

ORDER
IGF-1 measurement with z score
AND
insulin-like growth factor binding protein-3 (IGFBP-3) testing

MODERATELY/SEVERELY LOW
IGF-1 (SD < -2) and IGFBP-3 along with delayed bone age: auxologic criteria AND hypothalamic-pituitary defect (eg, congenital malformation, tumor) AND at least 1 additional pituitary hormone deficiency

SOMESTHAT LOW
IGF-1 (SD between 0 and -2) and IGFBP-3: Subsequent provocative GH testing informed by patient characteristics, including the severity of growth failure, the degree of bone age delay, and the presence of other factors that may explain low levels of IGF-1 and IGFBP-3

NORMAL
IGF-1 and IGFBP-3

GHD unlikely
No further testing needed

Patient is prepubertal boy >11 yrs of age or girl >10 yrs of age with predicted adult height within -2 SDs of the reference mean

Yes
PERFORM
Sex steroid priming

GHD confirmed
Perform imaging to rule out tumor, etc. Proceed with treatment

No
PERFORM
GH stimulation testing (if isolated GHD is suspected, perform 2 different provocative tests)

Very low peak GH

Yes

No
CONSIDER
Additional evaluation and observation

ORDER
IGF-1 measurement with z score

Abbreviations
GH Growth hormone
GHD Growth hormone deficiency
IGF-1 Insulin-like growth factor 1
IGFBP-3 Insulin-like growth factor binding protein 3
SD Standard deviation

References