

Randall Children's Hospital

Co-Management and Referral Guidelines

Evaluation of Abnormal TSH/Subclinical Hypothyroidism in Children

Phone: 503-413-1600

Fax: 503-413-1915

Randall Children's Diabetes and Endocrine Center

Introduction

Subclinical hypothyroidism is biochemically defined as normal serum free thyroxine (free T4) and elevated serum thyrotropin (TSH) concentration.

- The prevalence in the pediatric population is around 2 percent.
- There appears to be a higher prevalence in girls compared to boys.
- TSH can be mildly elevated in obese children with minimal or no consequence.
- The clinical presentation ranges from incidental diagnosis (asymptomatic) to goiter and/or symptoms suggestive of thyroid dysfunction.
- The rate of conversion of subclinical hypothyroidism to overt hypothyroidism is reported to be between 0 and 28 percent.
- Factors such as presence of a goiter, higher initial TSH and positive thyroid antibodies increase the likelihood of progression.

Evaluation and Management

Whom to screen

- Children who have symptoms of hypo- or hyperthyroidism:
 - weight change
 - irregular periods
 - cold/heat intolerance
 - dry skin
 - poor height velocity
 - poor energy/fatigue
 - constipation
- Children with palpable goiter with or without symptoms
- Children with conditions known to increase the risk of thyroid dysfunction, e.g., obesity, trisomy 21, Turner's syndrome, medications (amiodarone, lithium, ethionamide and others)

Frequency of screening varies based on risk factors.

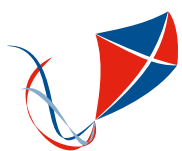
How to screen

- Measure TSH and free T4.
- During the screening process, **there is no need for:**
 - T3 uptake, total T3 or other thyroid uptake studies, as they are not accurate or useful
 - Routine thyroid ultrasound (even if there is a goiter)
 - Thyroid antibodies, including anti-thyroglobulin antibodies, anti-thyroid peroxidase antibodies

How to interpret screening results

- If the TSH is below 5 mIU/ml and the free T4 is normal, the child is euthyroid and no further thyroid work-up is required.
- If the TSH is between 5 and 10 mIU/ml and the free T4 is normal:
 - If the child has a goiter or has symptoms of hypothyroidism (see above), TSH and free T4 should be repeated along with anti-thyroid peroxidase and anti-thyroglobulin antibodies in three months. If the TSH is persistently elevated or upward trending, contact the on-call pediatric endocrinologist to discuss management.

(continued)



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- If the child has no other findings, then the TSH and free T4 should be repeated in six months. If the TSH is trending downward, no more testing is required. If the TSH is stable or trending upward, contact the on-call pediatric endocrinologist to discuss management.
- If TSH is above 10 mIU/ml, contact the on-call pediatric endocrinologist to discuss management. Management may depend on factors affecting thyroid function including obesity, chronic illness, history of radiation, cardiac conditions, medications affecting thyroid function, etc.

When to refer

Urgent referral — *contact the on-call pediatric endocrinologist*

- Significantly elevated TSH (above 30 mIU/ml)
- Significant or asymmetrical goiter

Routine referral — *make a referral to our clinic*

- Persistently elevated TSH; not on treatment
- Continued management of children already started on thyroxine replacement
- Please make a referral to our clinic. It will be reviewed and the child will be seen as soon as possible.

Referral process

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For urgent referrals, call Legacy One Call Consult & Transfer: 1-800-500-9111 to speak with the on-call pediatric endocrinologist.

Maya Hunter, M.D.

Radhika Purushothaman, M.D.

Karin Selva, M.D.

David Snyder, M.D.

Sevket Yigit, M.D.

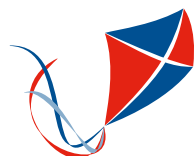
Additional Resources

Kaplowitz P. Subclinical Hypothyroidism in Children: Normal Variation or Sign of a Failing Thyroid Gland? *International Journal of Pediatric Endocrinology*. Volume 2010, Article ID 281453.

<http://www.ijpeonline.com/content/pdf/1687-9856-2010-281453.pdf>

Updated February 2017

Find this and other co-management/referral guidelines online at www.legacyhealth.org/randallguidelines.



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