Thyroid disease: assessment and management

NICE guideline [NG145] Published date: November 2019

Guidance

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Information for people with thyroid disease, their families and carers

Presenting information

1.1.1 Ensure that information is presented to facilitate shared decision making, as recommended in the NICE guideline on patient experience in adult NHS services.

General information

1.1.2 Explain to people with thyroid disease who need treatment, and their family or carers if appropriate, that:

- Thyroid disease usually responds well to treatment.
- The goal of treatment is to alleviate symptoms and align thyroid function tests within or close to the reference range.
- People may feel well even when their thyroid function tests are outside the reference range.
- Even when there are no symptoms, treatment may be advised to reduce the risk of long-term complications.

- Even when thyroid function tests are within the reference range, changes to treatment may improve symptoms for some people.
- Symptoms may lag behind treatment changes for several weeks to months.
- Day-to-day changes in unexplained symptoms are unlikely to be due to underlying thyroid disease because the body has a large reservoir of thyroxine.

1.1.3 Provide people with thyroid disease, and their family or carers if appropriate, with written and verbal informa on:

- their underlying condition, including the role and function of the thyroid gland and what the thyroid function tests mean
- risks of over- and under-treatment
- their medicines
- need for and frequency of monitoring
- when to seek advice from a healthcare professional
- how thyroid disease and medicines may affect pregnancy and fertility.

See the recommendations on testing for coeliac disease in people with a diagnosis of autoimmune thyroid disease in the NICE guideline on coeliac disease.

Hypothyroidism (underactive thyroid)

1.1.4 Provide people with hypothyroidism, and their family or carers if appropriate, with written and verbal informa on:

- possible drug interactions of thyroid hormone replacements, including interactions with over-the-counter medicines
- how and when to take levothyroxine.

Thyrotoxicosis (overactive thyroid)

1.1.5 Provide people with thyrotoxicosis, and their family or carers if appropriate, with written and verbal informati on:

- the different causes of thyrotoxicosis
- the consequences of untreated thyrotoxicosis
- the suitability of individual treatment options (for example, antithyroid drugs may be more suitable for mild uncomplicated Graves' disease, surgery may be best for an enlarged thyroid causing compression, radioactive iodine is not usually suitable before puberty)

- the possible benefits/advantages of the treatment options (for example, antithyroid drugs and radioactive iodine are non-invasive treatments, surgery offers rapid relief of symptoms and there is no need to delay pregnancy or fathering a child)
- the possible risks/disadvantages of the treatment options (for example, antithyroid drugs may have side effects, radioactive iodine means limited contact with other people for a few weeks and a need to delay pregnancy or fathering a child, surgery is an invasive treatment that leaves scarring on the neck)
- the risk of and impact of different treatment options on new and existing thyroid eye disease (for example, radioactive iodine may precipitate or worsen thyroid eye disease)
- the need for thyroid hormone replacement if treatment leads to life-long hypothyroidism.

Thyroid enlargement (also known as goitre)

1.1.6 Provide people with thyroid enlargement, and their family or carers if appropriate, with written and verbal information on:

- the causes of thyroid enlargement, including the fact that goitre and nodules are common and are usually not cancerous
- red flag symptoms to look out for (for example, shortness of breath, rapid growth of nodules, hoarse voice, swallowing difficulties)
- treatment options.

To find out why the committee made the recommendations on information and how they might affect practice, see rationale and impact □.

1.2 Investigating suspected thyroid dysfunction or thyroid enlargement

Indications for tests for thyroid dysfunction

1.2.1 Consider tests for thyroid dysfunction for adults, children and young people if there is a clinical suspicion o thyroid disease, but bear in mind that 1 symptom alone may not be indicative of thyroid disease.

1.2.2 Offer tests for thyroid dysfunction to adults, children and young people with:

- type 1 diabetes or other autoimmune diseases, **or**
- new-onset atrial fibrillation.

1.2.3 Consider tests for thyroid dysfunction for adults, children and young people with depression or unexplained anxiety.

1.2.4 Consider tests for thyroid dysfunction for children and young people with abnormal growth, or unexplained change in behaviour or school performance.

1.2.5 Be aware that in menopausal women symptoms of thyroid dysfunction may be mistaken for menopause.

1.2.6 Do not test for thyroid dysfunction during an acute illness unless you suspect the acute illness is due to thyroid dysfunction, because the acute illness may affect the test results.

1.2.7 Do not offer testing for thyroid dysfunction solely because an adult, child or young person has type 2 diabetes.

To find out why the committee made the recommendations on indications for tests for thyroid dysfunction and how they might affect practice, see rationale and impact □.

Tests when thyroid dysfunction is suspected

1.2.8 Consider measuring thyroid-stimulating hormone (TSH) alone for adults when secondary thyroid dysfunction (pituitary disease) is not suspected. Then:

- if the TSH is above the reference range, measure free thyroxine (FT4) in the same sample
- if the TSH is below the reference range, measure FT4 and free tri-iodothyronine (FT3) in the same sample.

1.2.9 Consider measuring both TSH and FT4 for:

- adults when secondary thyroid dysfunction (pituitary disease) is suspected
- children and young people.

If the TSH is below the reference range, measure FT3 in the same sample.

1.2.10 Consider repeating the tests for thyroid dysfunction in recommendations 1.2.8 or 1.2.9 if symptoms worsen or new symptoms develop (but no sooner than 6 weeks from the most recent test).

To find out why the committee made the recommendations on tests when thyroid dysfunction is suspected and how they might affect practice, see rationale and impact □.

1.3 Managing primary hypothyroidism

Tests for people with confirmed primary hypothyroidism

Adults

1.3.1 Consider measuring thyroid peroxidase antibodies (TPOAbs) for adults with TSH levels above the referenc range, but do not repeat TPOAbs testing.

Children and young people

1.3.2 Measure TPOAbs for children and young people with TSH levels above the reference range, with possible repeat TPOAbs testing at the time of transition to adult services.

To find out why the committee made the recommendations on tests for people with confirmed primary hypothyroidism and how they might affect practice, see rationale and impact □.

Managing primary hypothyroidism

1.3.3 Offer levothyroxine as first-line treatment for adults, children and young people with primary hypothyroidism

1.3.4 Do not routinely offer liothyronine for primary hypothyroidism, either alone or in combination with levothyroxi because there is not enough evidence that it offers benefits over levothyroxine monotherapy, and its long-term adverse effects are uncertain.

1.3.5 Do not offer natural thyroid extract for primary hypothyroidism[1] because there is not enough evidence tha offers benefits over levothyroxine, and its long-term adverse effects are uncertain.

1.3.6 Consider starting levothyroxine at a dosage of 1.6 micrograms per kilogram of body weight per day (round to the nearest 25 micrograms) for adults under 65 with primary hypothyroidism and no history of cardiovascular disease.

1.3.7 Consider starting levothyroxine at a dosage of 25 to 50 micrograms per day with titration for adults aged 6 and over and adults with a history of cardiovascular disease.

To find out why the committee made the recommendations on managing primary hypothyroidism and how they might affect practice, see rationale and impact □.

1.4 Follow-up and monitoring of primary hypothyroidism

Tests for follow-up and monitoring of primary hypothyroidism

1.4.1 Aim to maintain TSH levels within the reference range when treating primary hypothyroidism with levothyrox If symptoms persist, consider adjusting the dose of levothyroxine further to achieve optimal wellbeing, but avoid using doses that cause TSH suppression or thyrotoxicosis.

1.4.2 Be aware that the TSH level can take up to 6 months to return to the reference range for people who hac very high TSH level before starting treatment with levothyroxine or a prolonged period of untreated hypothyroidism. Take this into account when adjusting the dose of levothyroxine.

Adults

1.4.3 For adults who are taking levothyroxine for primary hypothyroidism, consider measuring TSH every 3 mont until the level has stabilised (2 similar measurements within the reference range 3 months apart), and then once a year.

1.4.4 Consider measuring FT4 as well as TSH for adults who continue to have symptoms of hypothyroidism afte starting levothyroxine.

Children and young people aged 2 years and over

1.4.5 For children aged 2 years and over and young people taking levothyroxine for primary hypothyroidism, consider measuring FT4 and TSH:

- every 6 to 12 weeks until the TSH level has stabilised (2 similar measurements within the reference range 3 months apart), then
- every 4 to 6 months until after puberty, then
- once a year.

Children under 2 years

1.4.6 For children aged between 28 days and 2 years who are taking levothyroxine for primary hypothyroidism, consider measuring FT4 and TSH:

- every 4 to 8 weeks until the TSH level has stabilised (2 similar measurements within the reference range 2 months apart), then
- every 2 to 3 months during the first year of life, and
- every 3 to 4 months during the second year of life.

To find out why the committee made the recommendations on tests for monitoring and follow-up of primary hypothyroidism and how they might affect practice, see rationale and impact.

1.5 Managing and monitoring subclinical hypothyroidism

Tests for people with confirmed subclinical hypothyroidism

Adults

1.5.1 Consider measuring TPOAbs for adults with TSH levels above the reference range, but do not repeat TPOAbs testing.

Treating subclinical hypothyroidism

1.5.2 When discussing whether or not to start treatment for subclinical hypothyroidism, take into account feature that might suggest underlying thyroid disease, such as symptoms of hypothyroidism, previous radioactive iodine treatment or thyroid surgery, or raised levels of thyroid autoantibodies.

Adults

1.5.3 Consider levothyroxine for adults with subclinical hypothyroidism who have a TSH of 10 mIU/litre or higher 2 separate occasions 3 months apart. Follow the recommendations in section 1.4 on follow-up and monitoring of hypothyroidism.

1.5.4 Consider a 6-month trial of levothyroxine for adults under 65 with subclinical hypothyroidism who have:

- a TSH above the reference range but lower than 10 mIU/litre on 2 separate occasions 3 months apart, **and**
- symptoms of hypothyroidism.

  If symptoms do not improve after starting levothyroxine, re-measure TSH and if the level remains raised, adjust the dose. If symptoms persist when serum TSH is within the reference range, consider stopping levothyroxine and follow the recommendations on monitoring untreated subclinical hypothyroidism and monitoring after stopping treatment.

Children and young people aged 2 years and over

1.5.5 Consider levothyroxine for children aged 2 years and over and young people with subclinical hypothyroidis who have:

- a TSH level of 20 mIU/litre or higher, **or**
- a TSH level between 10 and 20 mIU/litre on 2 separate occasions 3 months apart, **or**
- a TSH level between 5 and 10 mIU/litre on 2 separate occasions 3 months apart, and
  - thyroid dysgenesis (an underdeveloped thyroid gland), or

- signs or symptoms of thyroid dysfunction.

During levothyroxine treatment, follow the recommendations in section 1.4 on follow-up and monitoring.

Children under 2 years

1.5.6 Consider levothyroxine for children aged between 28 days and 2 years with subclinical hypothyroidism wh have a TSH level of 10 mIU/litre or higher. During levothyroxine treatment, follow the recommendations in section 1.4 on follow-up and monitoring.

Monitoring untreated subclinical hypothyroidism and monitoring after stopping treatment

Adults

1.5.7 For adults with untreated subclinical hypothyroidism or adults who have stopped levothyroxine treatment fc subclinical hypothyroidism, consider measuring TSH and FT4:

- once a year if they have features suggesting underlying thyroid disease, such as previous thyroid surgery or raised levels of thyroid autoantibodies, **or**
- once every 2 to 3 years if they have no features suggesting underlying thyroid disease.

Children and young people

1.5.8 Consider measuring TSH and FT4 for children aged 2 years and over and young people with untreated subclinical hypothyroidism and a TSH lower than 10 mIU/litre:

- every 3 to 6 months if they have features suggesting underlying thyroid disease, such as thyroid dysgenesis (an underdeveloped thyroid gland) or raised levels of thyroid autoantibodies, **or**
- every 6 to 12 months if they have no features suggesting underlying thyroid disease.

1.5.9 Consider measuring TSH and FT4 every 1 to 3 months for children aged between 28 days and 2 years v untreated subclinical hypothyroidism.

1.5.10 Consider stopping TSH and FT4 measurement in children and young people if the TSH level has stabilise (2 similar measurements within the reference range 3 to 6 months apart) and there are no features suggesting underlying thyroid disease.

To find out why the committee made the recommendations on managing and monitoring subclinical hypothyroidism and how they might affect practice, see rationale and impact.

1.6 Managing thyrotoxicosis

Tests for people with confirmed thyrotoxicosis

Adults

1.6.1 Differentiate between thyrotoxicosis with hyperthyroidism (for example, Graves' disease or toxic nodular disease) and thyrotoxicosis without hyperthyroidism (for example, transient thyroiditis) in adults by:

- measuring TSH receptor antibodies (TRAbs) to confirm Graves' disease
- considering technetium scanning of the thyroid gland if TRAbs are negative.

1.6.2 Only consider ultrasound for adults with thyrotoxicosis if they have a palpable thyroid nodule.

Children and young people

1.6.3 Differentiate between thyrotoxicosis with hyperthyroidism (Graves' disease) and thyrotoxicosis without hyperthyroidism (for example, transient thyroiditis) in children and young people by:

- measuring TPOAbs and TRAbs
- considering technetium scanning of the thyroid gland if TRAbs are negative.

1.6.4 Only offer ultrasound to children and young people with thyrotoxicosis if they have a palpable thyroid nodul the cause of thyrotoxicosis remains unclear following thyroid autoantibody testing and technetium scanning.

To find out why the committee made the recommendations on tests for people with confirmed thyrotoxicosis and how they might affect practice, see rationale and impact □.

Initial treatment in primary/non-specialist care

1.6.5 Be aware that transient thyrotoxicosis without hyperthyroidism usually only needs supportive treatment (for example, beta-blockers).

1.6.6 Consider antithyroid drugs[2] along with supportive treatment for adults with hyperthyroidism who are waitin for specialist assessment and further treatment.

To find out why the committee made the recommendations on initial management in primary/non-specialist care for people with thyrotoxicosis and how they might affect practice, see rationale and impact □.

Initial treatment in secondary/specialist care

1.6.7 Discuss with adults, children and young people with thyrotoxicosis with hyperthyroidism (and their families a carers as appropriate):

- the possible benefits and risks of all treatment options (antithyroid drugs, radioactive iodine, surgery)
- the likelihood of a good response to each option.

1.6.8 Ensure that people can actively participate in decisions about their treatment by following the recommendations in the NICE guideline on patient experience in adult NHS services. This includes presenting information about possible outcomes in a way the person (and their families and carers as appropriate) can understand.

1.6.9 Offer antithyroid drugs[2] to control hyperthyroidism in adults, children[3] and young people who are waiting treatment with radioactive iodine or surgery.

Adults with Graves' disease

1.6.10 Offer radioactive iodine[4] as first-line definitive treatment for adults with Graves' disease, unless antithyroid drugs are likely to achieve remission (see recommendation 1.6.11), or it is unsuitable (for example, there are concerns about compression, malignancy is suspected, they are pregnant or trying to become pregnant or father a child within the next 4 to 6 months, or they have active thyroid eye disease).

1.6.11 Offer a choice of antithyroid drugs[2] (a 12- to 18-month course) or radioactive iodine[4] as first-line definitive treatment for adults with Graves' disease if antithyroid drugs are likely to achieve remission (for example, mild and uncomplicated Graves' disease).

1.6.12 Offer antithyroid drugs[2] (a 12- to 18-month course) as first-line definitive treatment for adults with Graves' disease if radioactive iodine and surgery are unsuitable.

1.6.13 Offer total thyroidectomy as first-line definitive treatment for adults with Graves' disease if:

- there are concerns about compression, or
- thyroid malignancy is suspected, or
- radioactive iodine and antithyroid drugs are unsuitable.

1.6.14 Consider radioactive iodine[4] or surgery for adults with Graves' disease who have had antithyroid drugs bu have persistent or relapsed hyperthyroidism.

To find out why the committee made the recommendations on treatment for adults with Graves' disease and how they might affect practice, see rationale and impact □.

Adults with toxic nodular goitre

1.6.15 Offer radioactive iodine[4] as first-line definitive treatment for adults with hyperthyroidism secondary to multip nodules unless it is unsuitable (for example, there are concerns about compression, thyroid malignancy is suspected, they are pregnant or trying to become pregnant or father a child within the next 4 to 6 months, or they have active thyroid eye disease).

1.6.16 Offer total thyroidectomy or life-long antithyroid drugs[2] as first-line definitive treatment for adults with hyperthyroidism secondary to multiple nodules if radioactive iodine is unsuitable.

1.6.17 Offer radioactive iodine[4] (if suitable) or surgery (hemithyroidectomy) as first-line definitive treatment for adult with hyperthyroidism secondary to a single nodule, or life-long antithyroid drugs[2] if these options are unsuitable.

To find out why the committee made the recommendations on treatment for adults with toxic nodular goitre and how they might affect practice, see rationale and impact □.

Children and young people with Graves' disease or toxic nodular goitre

1.6.18 Offer antithyroid drugs[2],[3] for at least 2 years and possibly longer as first-line definitive treatment for childre and young people with Graves' disease.

1.6.19 Consider continuing or restarting antithyroid drugs or discussing radioactive iodine or surgery (total thyroidectomy) for children and young people with Graves' disease who have had a course of antithyroid drugs but have relapsed hyperthyroidism.

1.6.20 For children and young people with hyperthyroidism secondary to a single or multiple nodules:

- offer antithyroid drugs using a titration regimen of carbimazole[2],[3], **and**
- discuss the role of surgery and radioactive iodine with the child, young person and family, following input from the multidisciplinary team.

To find out why the committee made the recommendations on treatment for children and young people with Graves' disease or toxic nodular goitre and how they might affect practice, see rationale and impact □.

Antithyroid drugs for adults, children and young people with hyperthyroidism

1.6.21 Before starting antithyroid drugs for adults, children and young people with hyperthyroidism, check full bloc count and liver function tests.

1.6.22 When offering antithyroid drugs as first-line definitive treatment to adults with Graves' disease, offer

carbimazole[2] for 12 to 18 months, using either a block and replace or a titration regimen, and then review the need for further treatment.

1.6.23 When offering antithyroid drugs to children and young people with Graves' disease, offer carbimazole[2],[3], using a titration regimen, and review the need for treatment every 2 years.

1.6.24 When offering life-long antithyroid drugs to adults with hyperthyroidism secondary to a single or multiple tox nodules, consider treatment with a titration regimen of carbimazole[2].

1.6.25 Consider propylthiouracil for adults:

- who experience adverse reactions to carbimazole
- who are pregnant or trying to become pregnant within the following 6 months
- with a history of pancreatitis.

1.6.26 Stop and do not restart any antithyroid drugs if a person develops agranulocytosis. Consider referral to a specialist for further management options.

To find out why the committee made the recommendations on antithyroid drugs for adults, children and young people with hyperthyroidism and how they might affect practice, see rationale and impact.

1.7 Follow-up and monitoring of hyperthyroidism

Monitoring after radioactive iodine treatment

1.7.1 Consider measuring TSH, FT4 and FT3 levels in adults, children and young people every 6 weeks for the 6 months after radioactive iodine treatment until TSH is within the reference range.

1.7.2 For adults, children and young people who have hypothyroidism after radioactive iodine treatment and are on antithyroid drugs, offer levothyroxine replacement therapy and follow recommendations 1.3.6 and 1.3.7 on dosage of levothyroxine for adults and 1.4.1 to 1.4.6 on monitoring of hypothyroidism.

1.7.3 For adults, children and young people with TSH in the reference range 6 months after radioactive iodine treatment, consider measuring TSH (with cascading) at 9 months and 12 months after treatment.

1.7.4 For adults, children and young people with TSH in the reference range 12 months after radioactive iodine treatment, consider measuring TSH (with cascading) every 6 months unless they develop hypothyroidism (then follow recommendation 1.7.2).

1.7.5 If hyperthyroidism persists after radioactive iodine treatment in adults, children and young people, consider antithyroid drugs[2] until the 6-month appointment.

1.7.6 If hyperthyroidism persists 6 months after radioactive iodine treatment in adults, children and young people

consider further treatment.

Monitoring after surgery

1.7.7 Offer levothyroxine to adults, children and young people after a total thyroidectomy and follow recommendations 1.3.6 and 1.3.7 on dosage of levothyroxine for adults and 1.4.1 to 1.4.6 on monitoring of hypothyroidism.

1.7.8 Consider measuring TSH and FT4 at 2 and 6 months after surgery, and then TSH (with cascading) once year for adults, children and young people who have had a hemithyroidectomy.

Monitoring of antithyroid drugs

1.7.9 For adults, children and young people who are taking antithyroid drugs for hyperthyroidism, consider measuring:

- TSH, FT4 and FT3 every 6 weeks until their TSH is within the reference range, then
- TSH (with cascading) every 3 months until antithyroid drugs are stopped.

1.7.10 Do not monitor full blood count and liver function for adults, children and young people taking antithyroid drugs for hyperthyroidism unless there is a clinical suspicion of agranulocytosis or liver dysfunction.

1.7.11 For adults who have stopped antithyroid drugs, consider measuring:

- TSH (with cascading) within 8 weeks of stopping the drug, then
- TSH (with cascading) every 3 months for a year, then
- TSH (with cascading) once a year.

1.7.12 For children and young people who have stopped antithyroid drugs, consider measuring:

- TSH, FT4 and FT3 within 8 weeks of stopping the drug, then
- TSH, FT4 and FT3 every 3 months for the first year, then
- TSH (with cascading) every 6 months for the second year, then
- TSH (with cascading) once a year.

To find out why the committee made the recommendations on follow-up and monitoring of hyperthyroidism and how they might affect practice, see rationale and impact.

1.8 Managing and monitoring subclinical hyperthyroidism

Treating subclinical hyperthyroidism

1.8.1 Consider seeking specialist advice on managing subclinical hyperthyroidism in adults if they have:

- 2 TSH readings lower than 0.1 mIU/litre at least 3 months apart **and**
- evidence of thyroid disease (for example, a goitre or positive thyroid antibodies) or symptoms of thyrotoxicosis.

1.8.2 Consider seeking specialist advice on managing subclinical hyperthyroidism in all children and young peop

Untreated subclinical hyperthyroidism

1.8.3 Consider measuring TSH every 6 months for adults with untreated subclinical hyperthyroidism. If the TSH l is outside the reference range, consider measuring FT4 and FT3 in the same sample.

1.8.4 Consider measuring TSH, FT4 and FT3 every 3 months for children and young people with untreated subclinical hyperthyroidism.

1.8.5 Consider stopping TSH measurement for adults, children and young people with untreated subclinical hyperthyroidism if the TSH level stabilises (2 similar measurements within the reference range 3 to 6 months apart).

To find out why the committee made the recommendations on managing and monitoring subclinical hyperthyroidism and how they might affect practice, see rationale and impact □.

1.9 Diagnosing, managing and monitoring thyroid enlargement with normal thyroid function

Investigating thyroid enlargement

The following recommendations apply to adults, children and young people with normal thyroid function.

1.9.1 Offer ultrasound to image palpable thyroid enlargement or focal nodularity in adults, children and young pe with normal thyroid function if malignancy is suspected.

1.9.2 Consider ultrasound of incidental findings on imaging if clinical factors suggest malignancy as a possibility.

1.9.3 When making decisions about whether to offer fine needle aspiration cytology, use an established system grading ultrasound appearance that takes into account:

- echogenicity
- microcalcifications
- border
- shape in transverse plane
- internal vascularity
- lymphadenopathy.

1.9.4 Reports of ultrasound findings should:

- specify which grading system has been used for the assessment.
- include information on the features in recommendation 1.9.3 **and**
- provide an overall assessment of malignancy, **and**
- confirm that both lobes have been assessed, **and**
- document assessment of cervical lymph nodes.

1.9.5 Use ultrasound guidance when performing fine needle aspiration cytology.

1.9.6 See the NICE guideline on suspected cancer for recommendations on referral for suspected head and ne cancers (including thyroid cancer).

To find out why the committee made the recommendations on investigating thyroid enlargement and how they might affect practice, see rationale and impact □.

Managing non-malignant thyroid enlargement

1.9.7 Do not offer treatment to adults with non-malignant thyroid enlargement, normal thyroid function and mild c no symptoms unless:

- they have breathing difficulty **or**
- there is clinical concern, for example, because of marked airway narrowing.

1.9.8 Repeat thyroid ultrasound and TSH measurement for adults with non-malignant thyroid enlargement who a not receiving treatment, if:

- malignancy is subsequently suspected, **or**
- compression is suspected.

1.9.9 Consider repeating thyroid ultrasound and TSH measurement for adults with non-malignant thyroid enlargement who are not receiving treatment, if:

- the person's symptoms worsen **or**
- they develop symptoms, such as hoarseness, or shortness of breath.

1.9.10 For children and young people with non-malignant thyroid enlargement and normal thyroid function, discus management with a specialist multidisciplinary team.

1.9.11 For adults with normal thyroid function and a cyst or predominantly cystic nodule with no vascular components, offer aspiration if it is causing compressive symptoms, with possible ethanol ablation if there is re-accumulation of cyst fluid later.

1.9.12 For adults with normal thyroid function and a non-cystic nodule or multinodular or diffuse goitre, consider th following if they have compressive symptoms relating to thyroid enlargement:

- surgery, particularly if there is marked airway narrowing **or**
- radioactive iodine ablation, if there is demonstrable radionuclide uptake, **or**
- percutaneous thermal ablation (see the NICE interventional procedures guidance on ultrasound-guided percutaneous radiofrequency ablation for benign thyroid nodules).

To find out why the committee made the recommendations on managing thyroid enlargement and how they might affect practice, see rationale and impact □.

Terms used in this guideline

Adults

People aged 16 years and over.

Cascading

Measuring FT4 in the same sample if TSH is above the reference range and measuring FT4 and FT3 in the same sample if TSH is below the reference range.

Children and young people

People under 16 years.

Hyperthyroidism

Excess production and/or secretion of thyroid hormones (overactive thyroid gland).

Hypothyroidism

Inadequate production and secretion of thyroid hormones (underactive thyroid gland).

Menopausal women

This includes women in perimenopause and post menopause.

Subclinical hyperthyroidism

TSH levels below the reference range, with FT3 and FT4 within the reference range.

Subclinical hypothyroidism

TSH levels above the reference range, with FT4 within the reference range.

Thyrotoxicosis

Thyrotoxicosis is a disorder of excess circulating thyroid hormones caused by increased production and secretion (hyperthyroidism) or by the release of stored thyroid hormones (thyroiditis).

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[1] Natural thyroid extract does not have a UK marketing authorisation so its safety is uncertain.

[2] Use of carbimazole is subject to MHRA advice on contraception (Drug Safety Update, February 2019) and risk of acute pancreatitis (Drug Safety Update, February 2019).

[3] At the time of publication (November 2019), carbimazole did not have a UK marketing authorisation for children under 2 years. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing medicines Ð guidance for doctors for further information.

[4] Healthcare professionals should follow the 2017 regulations on medical exposure to ionising radiation.