

Impalpable Thyroid Nodules

[Disclaimer](#)

This pathway applies to thyroid nodules that have been found incidentally through a radiological examination and are impalpable on physical examination. See also:

- [Palpable Thyroid Nodules](#)
- [Thyroid Disease in Pregnancy](#)

COVID-19 note

In the current COVID-19 pandemic the need for FNA investigation of thyroid nodules should be minimised. Only highly suspicious thyroid nodules with overt sonographic features of malignancy warrant biopsy at this time. Discuss these cases with ENT or general surgeon for joint decision making if FNA is truly needed or can be deferred.

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Background – About Impalpable Thyroid Nodules

Thyroid nodules are a common finding. They may be detected:

- by palpation in 10% of women and 2% of men.
- incidentally on ultrasound, CT, MRI.

About 5% of palpable thyroid nodules are malignant, and imaging alone may not reliably identify these.

The optimal management of thyroid nodules is controversial.

Assessment

1. Perform clinical assessment, including:
 - clinical thyroid hormone status e.g., weight loss, sweats, tremor, pulse.
 - symptoms or signs e.g, hoarse voice (late symptom caused by vocal cord paralysis).
 - assess thyroid cancer **risk factors**.

Thyroid cancer risk factors

- History of neck irradiation in childhood
- There are rare familial dominant syndromes predisposing to thyroid cancer, so a family history is relevant.
 - Cowden syndrome – a genetic disorder with increased risk of breast and thyroid disease and malignancies
 - Familial adenomatous polyposis (FAP)
 - Familial thyroid cancer
 - MEN syndrome (multiple endocrine neoplasia)
- Hashimoto thyroiditis (small but recognised risk of lymphoma)
- examine the neck including thyroid gland to assess if nodule is palpable and examine for enlarged lymph nodes. If nodule is palpable follow [Palpable Nodule pathway](#).

2. Arrange [thyroid-stimulating hormone \(TSH\)](#).

Management

- If patient is pregnant, see [Thyroid Disease in Pregnancy](#).
- If TSH elevated or normal and the nodule fulfils **criteria**, arrange thyroid ultrasound.
Thyroid ultrasound criteria
CT or MRI appearances are suspicious (suspicious lymph nodes, calcification, local invasion) or the nodule is seen on PET scan.
- If TSH suppressed, order radionuclide thyroid scan. If the patient is pregnant, nuclear scan is contraindicated, discuss with an [endocrinologist](#).
 - If **hot nodule** which corresponds to the imaging abnormality, follow the [subclinical hyperthyroidism](#) pathway.

Hot nodule

High isotope uptake is likely to indicate a benign but functioning thyroid lesion which has low likelihood of cancer.

- If **cold nodule** which corresponds to the imaging abnormality, arrange thyroid ultrasound.

Cold nodule

A cold nodule has a low isotope uptake, and in most cases will indicate a benign non-functioning nodule or, rarely, cancer.

- Note that the radiological assessment of thyroid nodules is now based on the thyroid image reporting and data system (**TIRADS**).

[Thyroid image reporting and data system \(TIRADS\)](#) is a new reporting system based on the ultrasound characteristics of thyroid nodules. It has been adopted in many countries, including Australia. While clinicians use TIRADS to characterise nodules, they do not follow all its management recommendations, which are costly and can lead to unintended harm.

- Manage thyroid ultrasound result taking into account the full clinical picture, including co-morbidities and patient preference.
- For every fine needle aspiration (FNA) done, there is approximately a 1 in 7 risk of a non-diagnostic result that leads to diagnostic surgery for ultimately a benign condition.
- Request [urgent or routine endocrinology assessment](#) or seek advice for FNA if:
 - **TIRADS 5**, and nodule is 10 mm or greater (these are highly suspicious).
Nodules that are TIRADS 5 \geq 7 points are highly suspicious with a projected risk of malignancy of > 35%.
 - flurodeoxyglucose (FDG) avid thyroid nodule on PET/CT.
 - enlarged or atypical cervical lymph nodes.
- If [TIRADS 5](#) and nodule is 5 to 9 mm, or **TIRADS 4** and nodule is 10 mm or greater, request [urgent or routine endocrinology referral](#) to discuss options.
 - **TIRADS 4**
Nodules that are TIRADS 4 (4 to 6 points) are moderately suspicious and have an intermediate chance of cancer (approximately < 10%).
- If [TIRADS 4](#) and nodule is less than 10 mm, recommend no further investigations, but monitor.
- If **TIRADS 3**, further investigations are not routinely recommended, but monitor.
 - **TIRADS 3**
Nodules that are TIRADS 3 have a low risk of important thyroid cancer, probably 1 to 5%. Routine FNA of this group is more likely to lead to false positive results and unnecessary surgery than it is to find a thyroid cancer.

FNA is not routinely recommended. However, if a patient is concerned (e.g. about a larger nodule) and is aware of the potential harm from FNA, they can be offered the option to pursue ultrasound-guided FNA in the private sector.
- If **TIRADS 1 or TIRADS 2**, recommend no further investigations.
 - **TIRADS 1 and TIRADS 2**

Nodules that are TIRADS 1 or TIRADS 2 have a very low chance of being cancer (likely less than 2%).

- If no indications for referral or FNA, the nodule is probably benign. Reassess clinically every 6 to 12 months and advise the patient to promptly report any new or progressively enlarging neck lumps.
- If ongoing concerns, arrange [urgent or routine endocrinology assessment](#) or seek [advice](#).
- Follow-up:
 - The optimal follow-up is not known and may not be necessary in some patients.
 - Risk factors for malignancy and age of patient will determine type of follow-up.
 - Consider clinical examination of the thyroid every 6 to 12 months.
 - If nodule becomes palpable, [manage as appropriate](#).

Referral

Include **investigation results** in all referrals. If referring to the public system, a free thyroxine (T4) result is required as per the Statewide referral criteria.

Investigation results to include in referrals

- TSH and free thyroxine (T4)
- Reports and images from diagnostic ultrasound
- Radionuclide imaging, or other imaging if available
- Fine needle aspiration (FNA), if done
- If patient is pregnant and TSH is suppressed, arrange [urgent or routine endocrinology referral](#) for advice on management.
- If FNA is required, refer to a [radiologist](#), [endocrinologist](#), or [endocrine surgeon](#).
- If ongoing concerns, [urgent or routine endocrinology assessment](#) or seek [advice](#).
- If **criteria for high suspicion of thyroid cancer** are met, write "high suspicion of cancer" on the referral.

Clinical suspicion of thyroid cancer criteria

Thyroid swelling **and** ≥ 1 of:

- unexplained voice change or stridor
- thyroid nodule in a child
- cervical lymphadenopathy
- painless thyroid mass rapidly enlarging, i.e. over a period of 2 to 3 months
- family history of multiple endocrine neoplasm
- TIRADS 5 and nodule on Ultrasound
- FNA cytology result indicating a high risk of cancer i.e., **Bethesda** 5 to 6.

Bethesda system

There are six diagnostic reporting thyroid cytology categories and for each, there is an implied risk of malignancy and recommended.

Although Bethesda 4 does not necessarily constitute a high suspicion of cancer, review by an endocrinologist or surgeon is required (risk of malignancy up to 30%).

See Melbourne Pathology – [The Australian Modified Bethesda Structured Reporting for Thyroid Cytology](#).

Information

For health professionals

Further information

- Australian Family Physician – [Thyroid Scans](#)
- Diagnostic Imaging Pathways – [Thyroid Nodule \(Incidental\)](#)
- Inside Radiology:
 - [Thyroid Fine Needle Aspiration \(FNA\)](#)
 - [Nuclear Medicine Thyroid Scan](#)
 - [Ultrasound](#)
- Royal College of Pathologists of Australasia (RCPA) – [Common Sense Pathology \(CSP\): Investigation of Common Thyroid Problems](#)

For patients

- Better Health Channel:
 - [Thyroid: Hyperthyroidism](#)
 - [Thyroid Gland](#)
- Inside Radiology:
 - [Thyroid fine needle aspiration \(FNA\)](#)
 - [Nuclear Medicine Thyroid Scan](#)
 - [Ultrasound](#)

References

1. Royal College of Physicians of London. [British Thyroid Association Thyroid Cancer Guidelines](#). 2. [place unknown]: British Thyroid Association; 2014.
2. [The Third Australian Atlas of Healthcare Variation](#). Sydney: Australian Commission on Safety and Quality in Health Care; 2018. Chapter 3, Thyroid investigations and treatments.
3. Knipe H, Smith D. [ACR Thyroid Imaging Reporting and Data System \(ACR TI-RADS\)](#). Revision 64. [place unknown]: Radiopaedia; 2020.

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