Worcestershire Acute Hospitals NHS Trust

Thyroid Disease in Pregnancy (Hypothyroid and Hyperthyroid)

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

These guidelines aim at providing pathways for assessment and management of thyroid dysfunction in pregnancy.

This guideline is for use by the following staff groups:

- Midwives
- Obstetric Doctors

Lead Clinicians

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Approved by Maternity Governance Meeting on:	21st November 2025
Approved by Medicines Safety Committee on: *Where medicines are included in document.*	13th January 2026
Review Date: This is the most current document and should be used until a revised version is in place	21st November 2028

Key amendments to this guideline

Date	Amendment	Approved by:
4th June 2024	Document extended for another 12 months whilst under review	Maternity Governance
November 2025	Full guideline review and addition of hyperthyroidism and other thyroid disorders.	MGM

Contents

2 Responsibility of Care

All pregnant women with thyroid disease in pregnancy should be referred to a joint endocrine/antenatal clinic (Friday morning in WRH, Monday morning Alexandra Hospital and Tuesday morning KTC).

3 Background

Thyroid dysfunction is common in women of reproductive age. The normal functioning of the thyroid gland promotes successful conception and optimal pregnancy outcome. Inadequate, excessive, or delayed thyroid treatment can harm pregnancy and fetus. Management should optimised before, during and after pregnancy by experienced clinicians.

During normal pregnancy, there are dynamic changes in thyroid function to support both the mother and developing fetus. The demands in maternal thyroid hormone production increases by approximately 50% during pregnancy. This is only achievable when there is an adequate supply of iodine for the biosynthesis of thyroid hormones and the absence of thyroid disease.

4 Management

4.1 Iodine Requirements

- Iodine deficiency is the leading cause of preventable neurodevelopmental defects.
- Pregnant and breastfeeding women should consume **200–250 micrograms** iodine daily to prevent deficiency
- To meet this, increase **iodine-rich foods (milk, yogurt, fish)** or take a **150 micrograms** potassium iodide supplement (as present in common prenatal supplements) ideally starting 3 months before or as early in pregnancy as possible.
- Only one iodine-containing supplement should be taken at a time to avoid excess intake.
- Avoid sustained iodine intake over 500 micrograms daily, as it may cause thyroid dysfunction.
- Routine individual iodine status testing is not recommended.

4.2 Testing for thyroid disease in pregnancy

- Routine thyroid function testing is not recommended
- Women with known risk factors for overt thyroid disorders should have thyroid function tested early in pregnancy, ideally in the first trimester (Appendix 1)
- To diagnose thyroid dysfunction in pregnancy, trimester- and manufacturer-specific reference ranges for serum TSH and fT4 are recommended, which are the following in WAHT:

Trimester	TSH	Free T4
1st Trimester	0.05-3.7 mIU/L	6.67-14.12 pmol/L
2nd Trimester	0.31 - 4.35 mIU/L	5.79 – 12.70 pmol/L
3rd Trimester	0.41 - 5.18 mIU/L	6.11 – 12.20 pmol/L

- For treated women, apply treatment targets—not diagnostic ranges—for monitoring.

4.3 Management of hypothyroidism in pregnancy

Treatment of hypothyroidism needs to be adequate, and ideally optimised preconception, with appropriate advice given before pregnancy on instituting an empirical dose increase upon conception to prevent hypothyroidism in early pregnancy.

Adverse pregnancy outcomes include premature birth, low birth weight, pregnancy loss, and impaired neurological development in babies. These are more common and severe in overt hypothyroidism (OH) rather than in subclinical hypothyroidism (SCH).

4.4 Treatment Recommendations for Hypothyroidism Pre-Pregnancy

Clinical situation (Pre – Pregnancy)	**Lab Results**	**Recommendations**
Overt hypothyroidism ***OR*** **Severe sub-clinical hypothyroidism**	TSH ↑ &fT4 ↓ TSH **> 10 mU/L** and normal fT4	Start Levothyroxine **preconception** and titrate to reach **TSH ≤ 2.5 mU/L**
Sub-clinical hypothyroidism (often thyroid peroxidase (TPO) antibody-positive)	TSH above the non-pregnant upper limit **but ≤ 10 mU/L** and normal fT4	Start levothyroxine **pre-conception** and titrate to reach **TSH ≤ 2.5 mU/L**
Isolated hypothyroxinaemia (IH)	Low fT4, normal TSH	Refer to Endocrinology for further assessment
Already on levothyroxine for hypothyroidism and pregnancy test is positive		• **Immediately increase weekly dose by 25–30 %** *either* • Double the usual dose on 2 days each week **OR** • Add 25 micrograms/day if they are taking ≤ 100 micrograms/day **OR** • Add 50 micrograms/day if they are taking > 100 micrograms/day

4.5 Treatment Recommendations in *New Diagnosis* of Hypothyroidism in Pregnancy

Clinical situation (during pregnancy)	Lab Results	Initial levothyroxine plan	Follow-up testing
Overt Hypothyroidism OR Severe Sub-clinical Hypothyroidism)	TSH ↑ & fT4 ↓ TSH > 10 mU/L and normal fT4	Start **1.6 micrograms /kg/day** immediately if new diagnosis anytime in pregnancy	Repeat TFTs **after 4 weeks**
Sub-clinical hypothyroidism	TSH between the upper limit of trimester specific level and **10 mU/L** with normal fT4	**If diagnosed in first trimester** strongly consider treatment at a dose of **1.0–1.2 micrograms/kg/day** **If later in pregnancy** Consider treatment as risk of disease progression in pregnancy	If on levothyroxine: check TFTs **4 weeks** after starting If not on treatment: check TFTs every **4–6 weeks** up to 20 weeks, and again at **28 weeks**
Isolated hypothyroxinaemia	Low fT4, normal TSH	Routine levothyroxine therapy not advised	Re-check TFTs in **4–6 weeks** to confirm stability

4.6 Antenatal recommendations

- Increasing the levothyroxine dose as early as possible in pregnancy and do not wait until the booking appointment.
- Ideally, check TFTs and optimise levothyroxine dose in all hypothyroid women in the pre-pregnancy period (or at least early first trimester) to ensure adequate replacement and optimal pregnancy outcome.
- Immediately on notification of pregnancy-Arrange TFT's
- CMW should undertake initial TFT's with booking bloods if not already done by GP (usually at 8-10 weeks).
- Women with well-controlled hypothyroidism are suitable to birth on the Meadow Birth Centre.

4.7 For pregnant women on levothyroxine

- Check TSH and free T4 every 4–6 weeks until 20 weeks, then again at 28 weeks.
- Aim for TSH < 2.5 mU/L and free T4 within the normal trimester and manufacturer-specific ranges.
- Following any change in levothyroxine dose, repeat TFTs after 6 weeks.
- Do not adjust the levothyroxine dose more frequently than every 4 weeks.
- Oral iron can affect the absorption of levothyroxine. Advise patients to take at least two hours apart.

4.8 Manage nausea/vomiting by

- Timing levothyroxine when less likely to vomit

- Splitting the dose into two daily doses, or
- Discussing IV liothyronine with endocrinology if oral intake not possible.

4.9 Postnatal period

- After delivery, most hypothyroid women need a decrease in the thyroxine dosage they received during pregnancy.
- Following birth, for those adequately replaced on levothyroxine preconception, revert to the preconception dose of levothyroxine 2 weeks postpartum.
- In women not taking levothyroxine preconception, stop levothyroxine following birth, and check thyroid function 6 weeks postpartum.

4.10 Monitoring of baby

- All neonates have their TSH measured as part of the Guthrie heel prick test.
- Neonatal hypothyroidism is very rare and thought to be due to transplacental passage of TSH receptor blocking antibodies.
- These antibodies are more common in women with atrophic, rather than Hashimoto's thyroiditis.

4.11 Thyroid peroxidase antibodies in pregnancy (TPOAb)

- Routine testing for TPOAb in women with euthyroidism is not recommended in pregnancy.
- TPOAb even with normal thyroid function is associated with increased risk of miscarriage and preterm labour
- If TPOAb positive but euthyroid, check thyroid function at first contact and at 20 weeks to monitor for hypothyroidism.
- Levothyroxine is not recommended if TPOAb positive without thyroid dysfunction.
- Maternal passage of TPOAb across the placenta is not associated with clinically relevant fetal thyroid dysfunction.

5 Management of hyperthyroidism in pregnancy

5.1 Pregnancy care – general principles

- Women with hyperthyroidism on antithyroid drug treatment should have their thyroid function checked as soon as possible in pregnancy. Organise review at the next available joint endocrine clinic.
- All women with previous Graves disease should be seen in the joint obstetric endocrine clinic.
- Add a neonatal alert on Badgernet.
- Consider stopping medication for women with a history of hyperthyroidism who have been euthyroid for ≥6 months on low dose antithyroid drugs (CARBIMAZOLE <10 mg or PROPYLTHIOURACIL <200 mg daily).
- Ensure close thyroid monitoring through TFTs every 2 weeks until end of first trimester.

5.2 When medication is needed

- Use PROPYLTHIOURACIL in early pregnancy at the lowest effective dose; obtain baseline liver tests (0.1 % risk of severe hepatotoxicity).

- If the woman conceived on CARBIMAZOLE, switch to PROPYLTHIOURACIL before 10 weeks (dose ratio 1: 20 CARBIMAZOLE: PROPYLTHIOURACIL). Switching after 10 weeks offers no benefit.
- Many women will require reducing the doses of antithyroid medication as gestation progresses and most can discontinue treatment in late second or early third trimester. After 20 weeks if treatment is still required, consider switching back to CARBIMAZOLE (dose ratio 20: 1 PROPYLTHIOURACIL: CARBIMAZOLE) to limit PROPYLTHIOURACIL hepatotoxicity.
- PROPYLTHIOURACIL is preferred in 1st trimester due to lower risk of teratogenicity. Use the smallest effective dose possible; associated with less severe and potentially resolvable birth defects, including face and neck cysts and urinary tract abnormalities, which may occur in 2%–3% with early exposure.
- Carbimazole may induce an embryopathy, including dysmorphic features, aplasia cutis, choanal and oesophageal atresia, abdominal wall defects, urinary and eye abnormalities, and ventricular septal defects; 2-4% risk if exposure occurs in 6-10 weeks.
- Monitor TSH/fT4 every 2–4 weeks in the first half of pregnancy.
- Monitor TSH/fT4 every two weeks after dose changes
- After 20 weeks of pregnancy 4–8 weekly testing may be appropriate.
- Women who have discontinued antithyroid drugs in pregnancy and maintained normal fT4 concentrations on two consecutive occasions 2–4 weeks apart following cessation of treatment may have less frequent thyroid function monitoring. This can be done at 4–8 week intervals for the remainder of pregnancy.
- Titration antithyroid drugs to achieve fT4 concentrations in the upper half of the pregnancy reference range.
- **Measure TRAb in the first trimester in all women with prior Graves even following definitive treatment.**
    - If TRAb positive or if the woman is on antithyroid drugs, a further measurement at 20 and 28 weeks is recommended as usually declines by 20 weeks and rarely increases after this point.
    - If low or undetectable TRAb level and not taking antithyroid medication, check thyroid function every four weeks until 20 weeks. If euthyroidism is maintained then thyroid function monitoring at 4–8 week intervals for the remainder of pregnancy is acceptable.
- Avoid overtreatment – both maternal hypothyroidism and hyperthyroidism can be harmful.
- Women on antithyroid drugs who develop sore throat or fever need an urgent white cell count to exclude agranulocytosis (less than 1:1000 people taking this medication).

5.3 Fetal consideration

The half-life of PROPYLTHIOURACIL and carbimazole is <48 hours. Therefore, drugs taken before the last menstrual period are unlikely to affect the fetus. Warn that the routine 20-week scan may miss rare drug-linked anomalies.

5.4 For Women with Grave's disease

No extra surveillance is needed if the mother is in sustained remission (no drugs, undetectable TRAb, euthyroid).

If Graves' disease is active, antithyroid drugs are required, or TRAb is detectable, perform monthly growth scans with umbilical-artery Doppler from 26-28 weeks. Uterine Artery doppler is not required.

If TRAb are more than 3 times the threshold for positivity, uncontrolled maternal hyperthyroidism, preeclampsia, or uteroplacental insufficiency, 2-4 weekly auscultation of fetal heart rate for fetal tachycardia.

With significantly raised TRAb level, consider starting monthly ultrasound from 20 weeks onwards (growth, amniotic fluid, fetal heart, hydrops, goitre).

Manage suspected or confirmed fetal Graves' disease in multidisciplinary team that includes a Fetal Medicine specialist.

5.5 Delivery

- Birth timing and mode follow usual obstetric indications.
- If the mother has active Graves', needs antithyroid drugs, or has detectable TRAb, plan labour in a Consultant-led unit with continuous fetal monitoring.

5.6 Postnatal

- Check thyroid function 6–8 weeks postpartum in women with prior hyperthyroidism to detect relapse.
- Carbimazole and Propylthiouracil are compatible with breastfeeding; use the lowest effective dose and monitor infant growth.
- Split the maternal daily carbimazole/Propylthiouracil dose into two or three smaller doses if preferred.

5.7 Neonatal management

Babies at high risk need to have neonatal alert on Badgernet.

Mothers where monitoring maybe needed include the following:

- Mother with high levels of thyroid antibodies [thyroid stimulating immunoglobulin (TSI) or thyroid receptor antibody (TRAb)].
- Maternal thyroid antibody status unknown.
- Mother clinically hyperthyroid or receiving antithyroid drugs in third trimester.
- Mother previously treated with radioactive iodine or surgery or with previously affected infants.
- Evidence of fetal hyperthyroidism.
- Family history of TSH receptor mutation.

6 Gestational transient hyperthyroidism

- Gestational transient thyrotoxicosis is caused by high concentrations of hCG stimulating the TSH receptors of the thyroid gland giving rise to low serum TSH and high fT4 concentrations.
- Where hCG concentrations are higher, for example, in multiple pregnancies, hydatiform mole and choriocarcinoma, gestational transient thyrotoxicosis is more common. Also more common in patients experiencing hyperemesis gravidarum.

- Severe nausea and vomiting alone in pregnancy should not trigger thyroid testing unless there are specific signs of thyrotoxicosis or a personal history of thyroid disease.
- Symptoms like weight loss before pregnancy, goitre, eye signs, arrhythmias, or family history suggest Graves' disease rather than gestational transient thyrotoxicosis.
- To differentiate Graves' disease from gestational transient thyrotoxicosis when TSH is low and fT4 high, assess clinical features and measure TRAb and fT3.
- Where there is doubt, a repeat thyroid function test 2 weeks later, demonstrating a declining fT4 concentration without antithyroid treatment, would be supportive of gestational transient thyrotoxicosis. TSH concentrations will take longer to recover and often remain suppressed.
- Graves' disease usually shows pre-pregnancy symptoms, goitre, family history, and raised TRAb/fT3.
- Manage gestational transient thyrotoxicosis through supportive care if symptomatic. Transient treatment with beta-blockers may be useful to control symptoms of thyrotoxicosis and tachycardia.

7 Thyroid nodule and thyroid cancer

In pregnant women with new or enlarging thyroid nodules or goitre, check thyroid function and refer to a specialist for assessment to manage thyroid dysfunction, airway risks, and exclude malignancy.

Where malignancy is suspected on ultrasound, fine needle aspiration can be safely done at any gestation.

Thyroid surgery, if needed, aim to perform between 14 and 22 weeks' gestation to minimize miscarriage and preterm labour risks.

Women with enlarged thyroids in pregnancy should have obstetric anaesthetic review.

Women should be counselled that there is no difference in the rate of recurrence or long-term survival with well-differentiated thyroid cancer identified during pregnancy compared with those diagnosed outside of pregnancy.

8 Postpartum thyroiditis (PPT)

PPT is defined as the development of thyroid dysfunction having excluded other thyroid diseases, within the first 12 months following a pregnancy in a previously euthyroid woman.

It is an autoimmune disorder associated with antibodies to TPO and thyroglobulin, caused by a reactivation of the immune system following the relative immune suppression during pregnancy.

It affects 5–10 % of pregnancies; risk rises to 30–50 % if TPO-antibody positive and is higher in type 1 diabetes, SLE, prior Graves' or Hashimoto's, or family history of thyroid disease.

8.1 Clinical patterns

- ❑ Triphasic (hyper → hypo → recovery) in 20–40 %.
- ❑ Isolated hyperthyroidism in 20–30 %.
- ❑ Isolated hypothyroidism in 40–50 %; up to half of patients become permanently hypothyroid.
- ❑ The thyrotoxic phase usually occurs between 2 and 6 months postpartum but may present up to 12 months following birth.
- ❑ The hypothyroid phase typically presents between 3 and 12 months postpartum and results in permanent hypothyroidism in up to 50%.

- ❑ Risk factors for permanent hypothyroidism include multiparity, higher concentrations of TPOAb, greater maternal age, more severe hypothyroidism, thyroid hypoechogenicity on ultrasound scanning and a history of pregnancy loss.
- ❑ The risk of relapse of PPT with subsequent pregnancies is as high as 70%, especially in TPOAb positive women

Routine PPT testing is not recommended.

Test thyroid function only if at-risk women develop thyrotoxic symptoms, then repeat every 6 weeks. If results show thyrotoxicosis, check TRAb (± isotope scan) to rule out Graves.

8.2 Diagnosis of PPT

- To confirm the diagnosis of PPT in the presence of an abnormal thyroid function test, perform serial thyroid function testing every 6 weeks with symptom assessment, and exclude other aetiologies. At any point, if thyroid function tests show thyrotoxicosis measure TRAb and consider isotope scans to distinguish between Graves' disease and PPT.
- Isotopes may be used in breastfeeding women as long as the breast milk is discarded for at least 3 days after the radioisotope investigation.
- The major challenge is to distinguish thyrotoxicosis caused by PPT from de novo or recurrent Graves' disease in the postpartum period

PPT	**Grave's Disease**
Usually present during the first 3 months postpartum	Usually present 6 months after birth
Uptake of radioactive isotope (Technetium [99mTc] or radioiodine is low.	Uptake of radioactive isotope (Technetium [99mTc] or radioiodine is increased.
Raised T4:T3 ratio	Large goitre with bruit and Ophthalmopathy
A non-homogeneous hypoechogenic texture and histopathological evaluation demonstrates lymphocytic infiltration.	Raised TRAb levels

8.3 Management of PPT

- PPT is usually self-limiting.
- Antithyroid drugs are not indicated in the management of the thyrotoxic phase of PPT.
- Consider treatment of symptomatic women in the thyrotoxic phase with beta-blockers. Propranolol and Metoprolol are also safe in breast-feeding.
- Levothyroxine replacement is appropriate for women who are very symptomatic during the hypothyroid phase of PPT or actively trying to become pregnant.
- Those who are not treated can be managed expectantly with thyroid function monitoring every 6 weeks until restoration of euthyroidism.
- Following restoration of euthyroidism, monitor serum TSH annually in women with a history of PPT as they continue to be at risk of developing permanent hypothyroidism.

- In women with a history of PPT, test for thyroid dysfunction when planning to get pregnant and as soon as possible in pregnancy.

9 References and Guidelines

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- American Association of Clinical Endocrinology (AACE). (2023) Clinical Practice Guideline: Management of Hyperthyroidism and Other Causes of Thyrotoxicosis. Endocrine Practice, 29(6), pp. 423–482. (See obstetric sections.)

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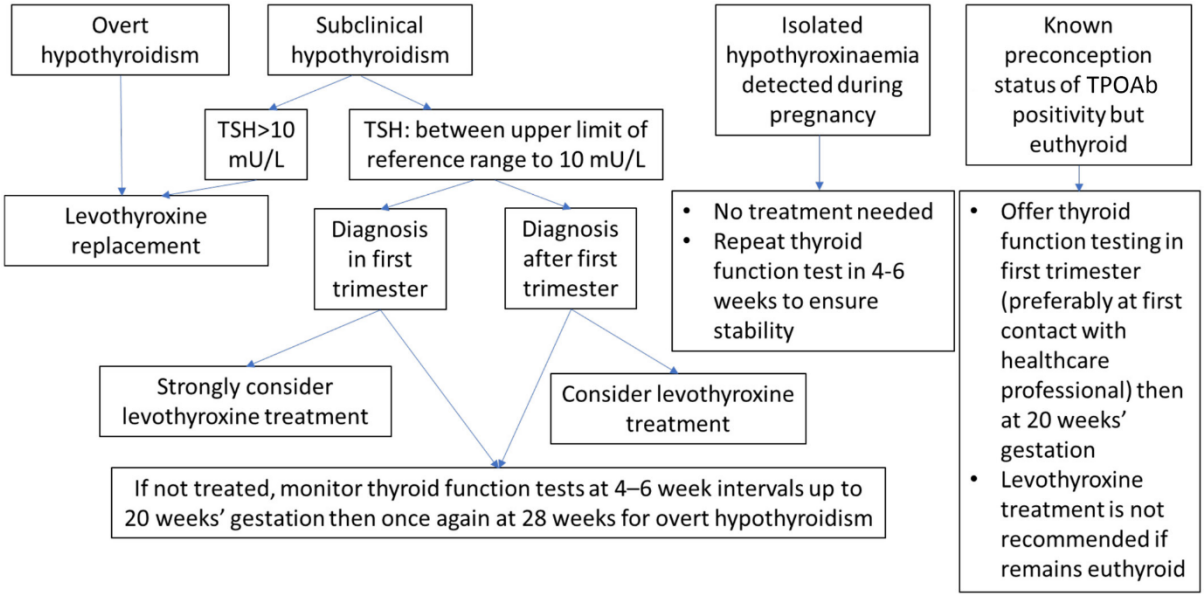
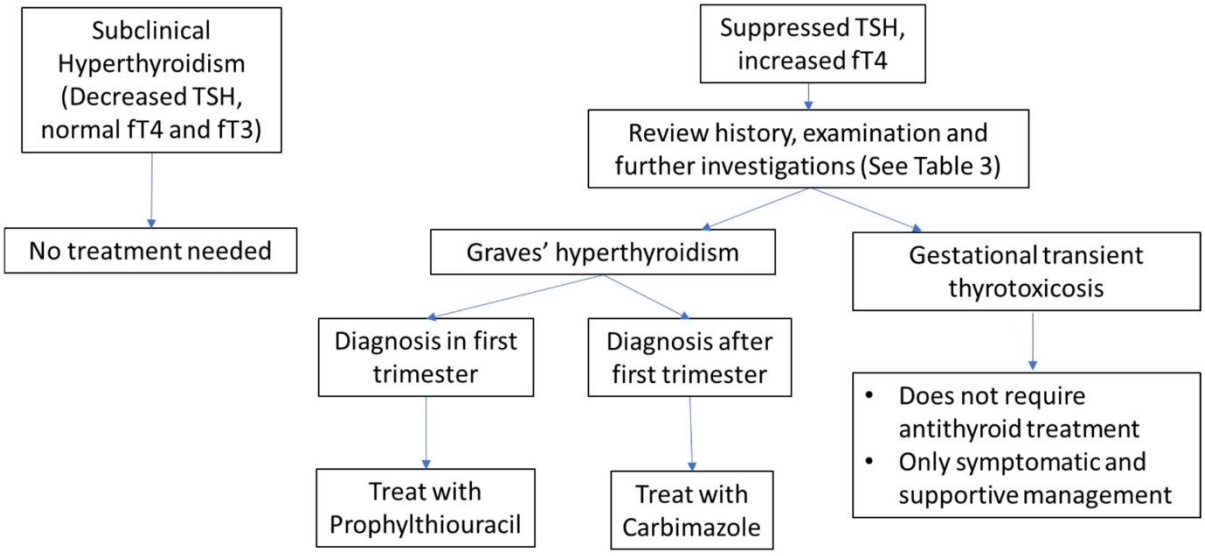
10 Appendix 1: Management of Hypothyroidism and Related Disorders in Pregnancy (Adapted from GTG 76)



11 Appendix 2: Management of Hyperthyroidism, Thyrotoxicosis and Related Disorders Diagnosed During Pregnancy (Adapted from GTG 76)



12 Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: (Responsible for also ensuring actions are developed to address any areas of non-compliance)	Frequency of reporting:
	WHAT?	HOW?	WHEN?	WHO?	WHERE?	WHEN?
	Thyroxine dosing in early pregnancy	Notes Audit	Annually	Audit MW	Mat Gov	Annual
	TRAB testing in hyperthyroid patients	Notes audit	Annually	Audit MW	Mat gov	Annual

13 Contribution List

This key document has been circulated to the following individuals for consultation:

Designation
All Maternity staff

This key document has been circulated to the chair(s) of the following committee's / groups for comments:

Committee
Maternity Governance Meeting

14 Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	~No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	No

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval