# THYROID DISORDERS IN FERTILITY PATIENTS

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**Key Amendments**

| Date | Amendment | Approved by |
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| 26th January 2022 | Documents extended for 3 years | Mr Hughes |
| 14th December 2020 | Documents approved for 3 years | Miss Blackwell |
| 29th December 2023 | Document extended for 6 months whilst under review<br>Owner updated | Alex Blackwell |
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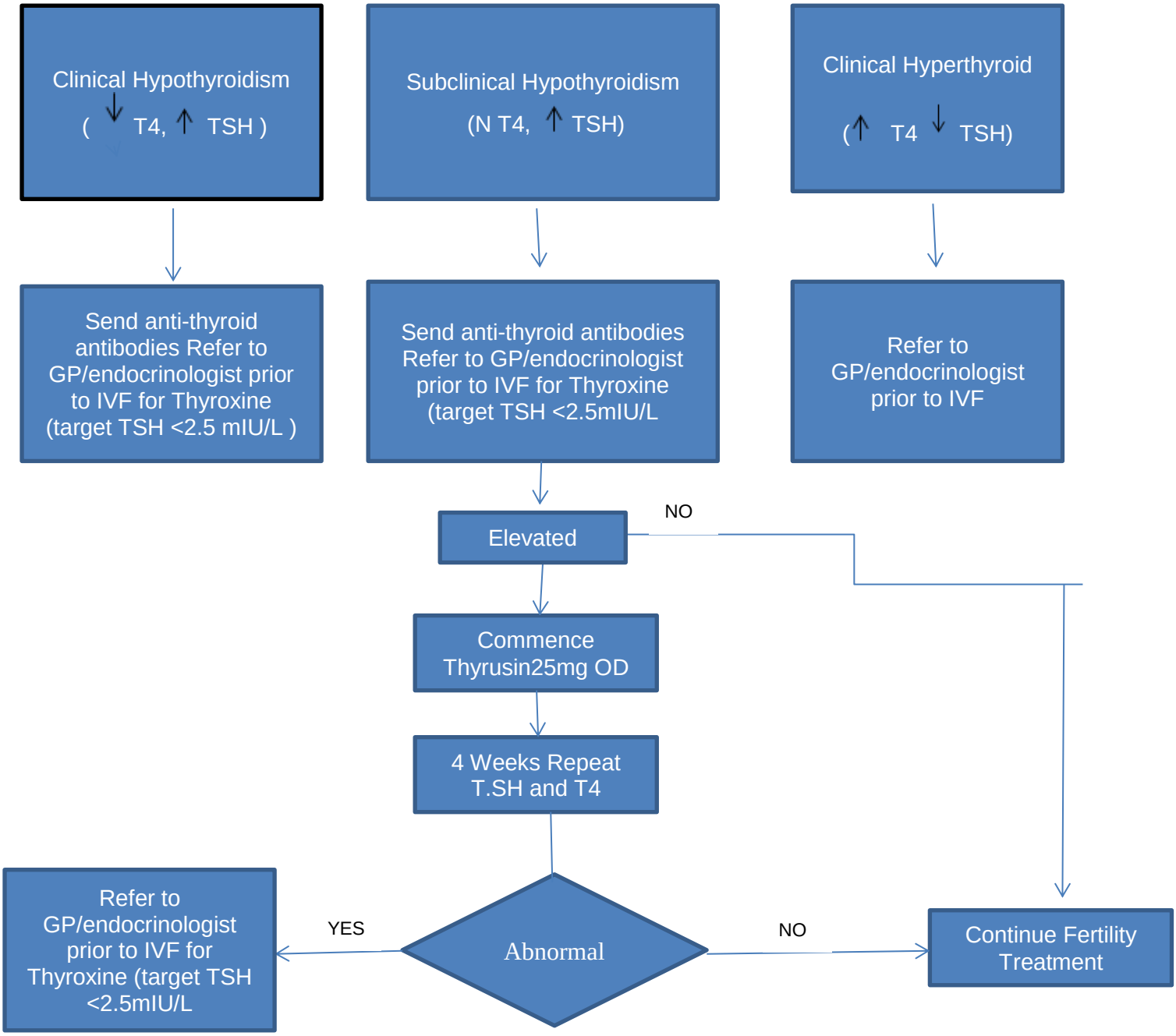
Thyroid dysfunctions are very common in women in reproductive age. However, infertile women are no more likely than the general population to have thyroid disease and the routine measurement of thyroid function should not be offered.
Although preconception and early pregnancy universal screening for thyroid disorders has been proposed it is not widely accepted and according to the NICE guidelines estimation of thyroid functions in infertile patients should be confined to women with symptoms of thyroid disease or risk factors for thyroid disease such as presence of goiter, thyroid antibodies, autoimmune disorders or history of miscarriage or preterm delivery.
Despite these recommendations and due to the crucial role of thyroid function in early pregnancy we recommend requesting TSH prior to commencing IVF and follow the flow chart below.

## Hypothyroidism, Subclinical Hypothyroidism (SCH) and Autoimmunity (Anti-TPO)

Overt hypothyroidism occurs in 0.3-0.5% of pregnancies, and SCH occurs in 2-3%. Thyroid autoantibodies are found in 5-15% of women during childbearing age, and chronic autoimmune thyroiditis is the main cause of hypothyroidism. Untreated maternal overt hypothyroidism is associated with adverse neonatal outcomes including premature birth, low birth weight, preeclampsia, placental abruption and neonatal respiratory distress. Long term consequences include lower neuropsychological development indices related to the crucial role of the thyroid function for the fetal neurological development. Treatment with levothyroxine has been demonstrated to reduce these risks.
Even maternal TSH levels in the upper normal range are associated with increased fetal loss, as compared with lower “normal” levels. During the last years inconsistent studies have been unable to establish a clear recommendation about treatment of SHT (normal thyroxine levels and raised TSH) for patients undergoing IVF treatment and the beneficial effect of thyroxine replacement for pregnancy outcomes. Only recently a meta-analysis in an ART setting has provided the strong evidence needed to recommend thyroxine replacement for SHT before IVF in view of the improved outcomes achieved i.e. reduction in miscarriage rate and increase on live birth rate. The target TSH should be a level below 2.5, mIU/L (Velkeniers 2013)
A positive association exists between the presence of thyroid antibodies and pregnancy loss (miscarriage) in spontaneous pregnancies. This association could not have been confirmed for IVF pregnancies. Universal screening for antithyroid antibodies and possible treatment, cannot be recommended at this time. However because women with elevated anti-TPO antibodies are at increased risk for progression to frank hypothyroidism, treatment of those patients with levothyroxine seems reasonable with a target TSH of less than 2.5 mIU/L

## Hyperthyroidism and Subclinical Hyperthyroidism

The prevalence of hyperthyroidism in pregnancy ranges from 0.1 to 0.4% with Grave's disease accounting for 85% of cases. Hyperthyroidism of Grave's disease may be aggravated by high levels of hCG in the first trimester.
Maternal hyperthyroidism is associated with both gestational and fetal risks that are related to the disease itself and/or to the medical treatment of the disease. Inadequately treated maternal thyrotoxicosis is associated with an increased risk of medically indicated preterm delivery, intrauterine growth restriction and low birth weight, preeclampsia, congestive heart failure, and fetal death.
Propylthiouracil (PTU). If available, is recommended as the first-line drug for treatment of hyperthyroidism during the first trimester of pregnancy, because of the possible association of methimazole (MMI) with specific congenital abnormalities that occur during the first trimester organogenesis.
There is no evidence that treatment of subclinical hyperthyroidism improves pregnancy outcome and treatment could potentially adversely affect fetal outcome.



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