bcdiabetes.ca
Patient Care + Research + Clinical Trials

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Dear patient,

My name is Dr. Tom Elliott: I am an endocrinologist, an expert in hormonal conditions including diabetes & thyroid. Your family physician has referred you to me for diagnosis and management of a thyroid condition. Based on your history & blood tests I am confident that you are suffering from hyperthyroidism.

Hyperthyroidism is overactivity of the thyroid gland. It is sometimes called thyrotoxicosis. Individuals with hyperthyroidism may experience a number of symptoms including fatigue, weight loss, tremor, palpitation, sweating, heat intolerance, itch, frequent bowel movements, disturbance of menstrual function, weakness, skin rash or eye symptoms such as pressure, or double vision. There are two common blood tests to screen for & confirm the presence of hyperthyroidism. The first blood test is TSH (thyroid stimulating hormone). TSH is the signal sent by the pituitary gland to stimulate the thyroid gland. The normal range for TSH is 0.3-5.5. In nearly all cases of hyperthyroidism the TSH is very low or undetectable (reported as <0.01). The second test is “free T4”. Free T4 is the amount of thyroid hormone (produced by your thyroid gland) that is circulating in the blood. The normal range for free T4 is 10-20. In hyperthyroidism the free T4 is elevated.

Although there are 3 common causes of hyperthyroidism, I believe you are suffering from **Graves Disease.** I have treated more than 1100 patients with Graves Disease since I started practice in 1992. If you are willing I may ask you to participate in research to help better understand this condition.

The generic name for **Graves Disease** is diffuse toxic goitre: it is known as Basedow's Disease in Europe. Graves Disease is caused by overactivity of the immune system (autoimmunity) – in Graves Disease the body produces antibodies which stimulate the thyroid gland to produce excessive amounts of thyroid hormone. The reasons why the immune system becomes overactive are unknown: it is commoner in women than men, there is a genetic susceptibility (much more common in individuals of Chinese, Japanese and Korean descent) and appears to be more common following traumatic life events such as immigration, divorce or bereavement. Graves Disease does not get better on its own and therefore requires treatment. These treatments include anti-thyroid medication (the usual first line of therapy in my practice), radioactive iodine (used when anti-thyroid medication fails) or surgery (seldom recommended). A detailed discussion of anti-thyroid therapy and radioactive iodine therapy follows on the next page.

A diagnosis of Graves Disease can be made with accuracy in more than 90% of cases based on medical history, physical examination findings and simple blood tests alone. Thus extra tests, including further blood tests such as anti-TSH antibody tests, & thyroid nuclear uptake &

scan and thyroid ultrasound are seldom required. I do not feel you require any further tests at this time.

Graves Disease may also affect the eyes with a condition called Thyroid Orbitopathy - this is associated with prominence, swelling, double vision and tearing. Rarely the eye problem may be serious and require special treatment at the Thyroid Orbitopathy Clinic and the Vancouver General Hospital Eye Care Centre (phone 604-875-4555). The skin of the lower legs may also rarely be affected with a thickening called myxedema - this too requires special treatment by a dermatologist. Treating the overactivity of the thyroid associated with Graves Disease has no effect upon either Thyroid Orbitopathy or myxedema.

For the sake of completeness I include a brief discussion of the other possible causes of your hyperthyroidism: these include Silent thyroiditis & toxic nodular goitre.

Silent thyroiditis is a painless thyroid condition also caused by the immune system. Silent thyroidits causes inflammation of the thyroid gland such that stored thyroid hormone is released. Silent thyroiditis gets better without any treatment, usually over the course of 4-6 weeks. Silent thyroiditis occurs in up to 20% of women in the first year after childbirth and may recur with subsequent pregnancies.

Toxic nodular goitre is a common cause of hyperthyroidism in older individuals. A lumpy thyroid gland (in the lower front of the neck) is often visible or palpable. It is not caused by the immune system and does not get better on its own. Treatment with either radioactive iodine (see discussion below) or surgery is required.

Treatment of Graves Disease

1) Antithyroid medication. Antithyroid medication in Canada comes in two forms: methimazole ("Tapazole") and propylthiouracil ("PTU"). In other parts of the world carbimazole, a very close relative of methimazole, is often used. Anti-thyroid medication works by interfering with the production of thyroid hormone within the thyroid gland. These medications take 4 to 6 weeks to reach full effect and then remain effective as long as the medication is taken. I use Tapazole as the preferred anti-thyroid medication in my practice. Tapazole comes in 5 and 10 mg tablets. I almost always use 5 mg tablets The initial dose of Tapazole is somewhat arbitrary however I start most patients on two tablets per day – it can be taken once daily or in divided doses (your choice). The higher the dose the greater the anti-thyroid effect.

Both Tapazole and PTU are generally safe to use in pregnancy and during breast feeding providing it is under the close supervision of a physician.

For your convenience, so that you can start your medication sooner rather than later, I have attached a prescription for Tapazole at the end of this document. All you need to do is add your name at the top and take it to the pharmacy. Please start by taking two tablets per day (unless I have recommended an alternate dose). Ultimately the dose of Tapazole is adjusted based on monthly measurements of free T4 (as well as free T3 and TSH: free T3 and TSH are used for fine-tuning). The usual free T4 target is 15-20 (this is the top half of the range in individuals who do not have a thyroid problem). Most patients are treated for a minimum of 6 months, usually for 12 months and occasionally indefinitely.

For your convenience I have attached a requisition authorizing you to have your free T4 level measured every month. Please enter your name, date of birth, PHN and your family physician's name. If you have not had your free T4 level done in the last month get it done within a day of starting the Tapazole. Otherwise get the free T4 level done a month from the date of starting the Tapazole and every month thereafter unless instructed otherwise. The reason for getting the free T4 measured is to determine whether a change in dose of the Tapazole is required. As a generalization the following adjustments might be made. You should first discuss this with your doctor or me:

free T4 level	**dose of Tapazole**
>20	increase dose by 5 mg (one pill) per day
15-20	continue same dose
10-15	decrease dose by 5 mg/ per day (this may mean stopping Tapazole).
<10	decrease dose by 10 mg (2 pills)/day (this may mean stopping Tapazole).

Getting your results: You may get the results of your free T4 from your family physician, at the time you see me in my office or by going online 2 working days after having your blood drawn. For this you need a Patient Portal account: register here https://register.bcdiabetes.ca at no charge. Ongoing use of The Patient Portal is free – it also allows you to read around various medical topics, to keep a journal and to do Q&A with my staff and me.

Side effects: Antithyroid medication has one common side effect and two rare side effects.
Hypothyroidism (low thyroid) is not really a side effect – it is a direct effect of the Tapazole. In this case the free T4 is <10 and you may feel tired, gain weight, have dry skin and become constipated. The treatment is to stop the Tapazole (or reduce the dose by at least 10 mg per day), wait a month and repeat the free T4. If it is still <10 you might require treatment with thyroid replacement medication (l-thyroxine “Synthroid” or “Eltroxin”).
Skin rash is the only common side effect. It occurs in 5-10% of patients and typically appears as "hives" and may be itchy. This rash does usually not go away unless the medication is stopped. If it occurs you should stop the medication and be in contact with your family physician or me.
Hepatitis, inflammation of the liver, is a rare side effect of Tapazole and recovers on its own if Tapazole is stopped. I do not routinely test for this side effect because the blood tests used to detect it, AST and ALT, are frequently mildly elevated in individuals who have Graves Disease itself (not caused by Tapazole). If you feel weak and tired and your free T4 is normal ask your family physician to check your AST and ALT.
Agranulocytosis is an extremely rare side effect & is potentially very serious if it is not recognized and treated appropriately - it occurs in less than 1 in 1,000 cases. Agranulocytosis means a very low white blood cell (WBC) count. WBCs are involved in preventing infection. People with agranulocytosis may develop high fevers, chills, often have a sore throat and feel very unwell. If these symptoms occur you should immediately see your family physician or me and ask for the following bloodtest “WBC and differential”. For your convenience I have attached to this document a requisition for this test. Note – there is no way to predict who is going to get this very rare complication. There is no point in having the WBC and differential test as a routine measure (don't have the test done out of curiosity).

Stopping tapazole: After 6 or more months your family physician or I may suggest that the tapazole be stopped completely. Six to twelve weeks later (earlier if you don't feel well) you should have your free T4 checked. 60-70% of individuals will have a normal free T4 at the 6-12 weeks mark – this is termed a "remission" meaning that the problem has gone away. In most cases the problem never comes back (= a cure). If hyperthyroidism recurs this is termed a "relapse" or "recurrence" and more therapy is required – either more Tapazole or radioactive iodine (see below). Note, it is difficult to predict which patients will have a recurrence but those who have a big thyroid gland at the beginning of treatment or who are very overactive or have been overactive for a number of years are more likely to recur.

2) Radioactive iodine. This treatment is generally recommended by me as a second line treatment for Graves Disease (I often use it as a first line treatment for individuals over the age of 60: I routinely use it for the treatment of toxic nodular goitre). Iodine is required by the thyroid cells to produce thyroid hormone. If radioactive iodine is given, the thyroid takes it up – the gamma rays emitted from the radioactive iodine then damage the thyroid cells and reduce the amount of thyroid hormone produced – this lowers the free T4 in the blood. Radioactive iodine therapy is highly effective and in 80% of cases need be given once only.
Side effects: There is only one common side effect of radioactive iodine – **hypothyroidism** (low thyroid). It is almost always permanent. Hypothyroidism occurs in 50% of individuals in the first year following radioactive iodine treatment and has occurred in 95% of individuals after ten years. Fortunately the treatment of hypothyroidism following radioactive iodine therapy is very simple – this is to take a single tablet of pure thyroid hormone, l-thyroxine ("Synthroid" or "Eltroxin") every day for the rest of your life. Thyroid hormone is inexpensive and has no side effects if the dose is correct. The dose is generally correct if the free T4 one month after starting thyroid hormone is 10-20. The usual dose (in micrograms) of l-thyroxine is weight (in kilos) X 1.6. Radioactive iodine is taken in a small glass of water, occasionally as a tablet and rarely by injection. It will not make you glow in the dark and will have completely left their system within 4-5 days. During that time you should not cuddle a baby closely or breast feed. Other social activities including physical intimacy may be maintained without risk or fear of contamination. Radioactive iodine must never be given during pregnancy or if pregnancy is a possibility. Individuals treated with radioactive iodine within the previous month should carry a letter from their doctor if they are traveling internationally – they may set off radioactivity detectors at border crossings.

3) Surgery. This is a very effective but seldom used option – simply because of the need for hospitalization, typically for one night. In experienced hands the risks of surgery and the anaesthetic are very small. Removal of most of the thyroid gland will reduce the level of thyroid hormone and the benefits are felt within days. If too much is removed you may become permanently hypothyroid and require life-long thyroid hormone replacement (as with radioactive iodine).

LifeLabs®
Medical Laboratory Services

Laboratory Requisition

This requisition form, when completed, constitutes a referral to LifeLabs laboratory physicians.

THIS AREA IS FOR LAB USE

COMPLETE and ACCURATE information is required in all shaded areas.

Patient Surname (from CareCard) | **First** | **Initial(s)** | **Date of Birth** (DAY / MONTH / YEAR) | **Sex** ☐ F ☐ M

Bill to: ☐ MSP ☐ ICBC ☐ WorkSafeBC ☐ Patient ☐ Other ______ | Chart Number | Room # (LTC use only)

PHN ______ **I.D. Number** ______

Patient Address | **City, Province** | **Postal Code** | **Patient Telephone Number**

Ordering Physician, Address, MSP Practitioner Number
TS Elliott 08526

Locum for: Physician ______ MSC # ______

C0 Number

Date/Time of Collection | Phlebotomist

Date/Time/Name of Medication

Copy to: family physician

Pregnant ☐ No | ☐ Fasting ___ hours prior to test | ☐ Phone ☐ Fax | Telephone Requisition Received By: INITIAL/DATE

Diagnosis and indications for guideline protocol and special tests

For tests indicated with a shaded tick box ☒, consult provincial guidelines and protocols (www.BCGuidelines.ca)

HEMATOLOGY

- ☐ Hematology profile
- ☐ PT-INR ☐ On Warfarin?
- ☐ Ferritin (query iron deficiency)

HFE – Hemochromatosis (check ONE box only)
- ☒ Confirm diagnosis (ferritin first, ± TS, ± DNA testing)
- ☒ Sibling/parent is C282Y/C282Y homozygote (DNA testing)

CHEMISTRY

- ☐ Glucose - fasting (see reverse for patient instructions)
- ☐ GTT - gestational diabetes screen (50 g load, 1 hour post-load)
- ☐ GTT - gestational diabetes confirmation (75 g load, fasting, 1 & 2 hour test)
- ☐ Hemoglobin A1c
- ☐ Albumin/creatinine ratio (ACR) - Urine

LIPIDS

✔ One box only. For other lipid investigations, please order under Other Tests section and provide diagnosis.
- ☒ Baseline cardiovascular risk assessment or follow-up (Lipid profile, Total, HDL, non-HDL & LDL Cholesterol, Triglycerides, fasting)
- ☒ Follow-up of treated hypercholesterolemia (Total, HDL & non-HDL Cholesterol, fasting not required)
- ☒ Follow-up of treated hypercholesterolemia (**ApoB only**, fasting not required)
- ☒ Self-pay lipid profile (non-MSP billable, fasting)

THYROID FUNCTION

✔ One box only. For other thyroid investigations, please order under Other Tests section and provide diagnosis.
- ☒ Monitor thyroid replacement therapy (TSH Only)
- ☒ Suspected Hypothyroidism TSH first (plus FT4 if required)
- ☒ Suspected Hyperthyroidism, TSH first (plus FT4 or FT3 if required)

OTHER CHEMISTRY TESTS

☐ Sodium	☐ Creatinine/eGFR
☐ Potassium	☐ Calcium
☐ Albumin	☐ Creatine kinase (CK)
☐ Alk phos	☐ PSA - Known or suspected prostate cancer (MSP billable)
☐ ALT	
☐ Bilirubin	☐ PSA screening (self-pay)
☐ GGT	☐ Pregnancy Test
☐ T. Protein	☐ Serum ☐ Urine

MICROBIOLOGY

LABEL ALL SPECIMENS WITH PATIENT'S FIRST AND LAST NAME, DOB AND/OR PHN & SITE

ROUTINE CULTURE

List current antibiotics: ______
- ☐ Throat ☐ Sputum ☐ Blood
- ☐ Superficial Wound Site: ______
- ☐ Deep Wound Site: ______
- ☐ Other: ______

VAGINITIS

- ☐ Initial (smear for BV & yeast only)
- ☐ Chronic/recurrent (smear, culture, trichomonas)
- ☐ Trichomonas testing

GROUP B STREP SCREEN (Pregnancy only)

- ☐ Vagino-anorectal swab ☐ Penicillin allergy

CHLAMYDIA (CT) & GONORRHEA (GC)

- ☐ CT & GC Testing
  Source/site: ☐ Urethra ☐ Cervix ☐ Urine
- ☐ GC culture: ☐ Throat ☐ Rectal ☐ Other: ______

STOOL SPECIMENS

History of bloody stools? ☐ Yes
- ☒ C. difficile testing
- ☒ Stool culture
- ☒ Stool ova & parasite exam
- ☒ Stool ova & parasite (high risk, 2 samples)

DERMATOPHYTES

- ☐ Dermatophyte culture ☐ KOH prep (direct exam)
  Specimen: ☐ Skin ☐ Nail ☐ Hair
  Site: ______

MYCOLOGY

- ☐ Yeast ☐ Fungus Site: ______

URINE TESTS

- ☒ Urine culture - list current antibiotics: ______
- ☒ Macroscopic → microscopic if dipstick positive
- ☒ Macroscopic → urine culture if pyuria or nitrite present
- ☒ Macroscopic (dipstick) ☒ Microscopic
  - ☐ Special case (if ordered together)

HEPATITIS SEROLOGY

✔ **One box only. For other Hepatitis Markers, please order under Other Tests section.**
- ☒ **Acute viral hepatitis undefined etiology**
  Hepatitis A (anti-HAV IgM)
  Hepatitis B (HBsAg, plus anti-HBc if required)
  Hepatitis C (anti-HCV)
- ☒ **Chronic viral hepatitis undefined etiology**
  Hepatitis B (HBsAg, anti-HBc, anti-HBs)
  Hepatitis C (anti-HCV)

Investigation of hepatitis immune status
- ☒ Hepatitis A (anti-HAV, total)
- ☒ Hepatitis B (anti-HBs)
- ☒ **Hepatitis marker(s)** HBsAg

HIV SEROLOGY

- ☐ HIV Serology
  (patient has legal right to choose not to have their name and address reported to public health – non-nominal reporting)
  - ☐ Non-nominal reporting

OTHER TESTS

- ☐ ECG
- ☐ Fecal Occult Blood (Age 50-74 asymptomatic q2y) Copy to Colon Screening Program.
- ☐ Fecal Occult Blood (other indications)

free T4, free T3, TSH
AST, ALT
monthly

Standing Order requests - expiry and frequency must be indicated — after 12 months

Physician Signature — TS Elliott

Date

Requisition is valid for one year from the date of issue.

LifeLabs®
Medical Laboratory Services

Laboratory Requisition

This requisition form, when completed, constitutes a referral to LifeLabs laboratory physicians.

THIS AREA IS FOR LAB USE

COMPLETE and ACCURATE information is required in all shaded areas.

Patient Surname (from CareCard) | First | Initial(s) | Date of Birth (DAY / MONTH / YEAR) | Sex ☐ F ☐ M

Bill to: ☐ MSP ☐ ICBC ☐ WorkSafeBC ☐ Patient ☐ Other _____ | Chart Number | Room # (LTC use only)

PHN _____ I.D. Number _____

Patient Address | City, Province | Postal Code | Patient Telephone Number

Ordering Physician Address, MSP Practitioner Number: TG Elliott 0856 | Locum for: Physician _____ MSC # _____ | C0 Number | Date/Time of Collection | Phlebotomist

Copy to: family Physician | Pregnant? ☐ Yes ☐ No | ☐ Fasting ____ hours prior to test | ☐ Phone ☐ Fax | Date/Time/Name of Medication | Telephone Requisition Received By: INITIAL/DATE

Diagnosis and indications for guideline protocol and special tests

For tests indicated with a shaded tick box ☐, consult provincial guidelines and protocols (www.BCGuidelines.ca)

HEMATOLOGY

- ☐ Hematology profile
- ☐ PT-INR ☐ On Warfarin?
- ☐ Ferritin (query iron deficiency)
- HFE – Hemochromatosis (check ONE box only)
  - ☐ Confirm diagnosis (ferritin first, ± TS, ± DNA testing)
  - ☐ Sibling/parent is C282Y/C282Y homozygote (DNA testing)

CHEMISTRY

- ☐ Glucose - fasting (see reverse for patient instructions)
- ☐ GTT - gestational diabetes screen (50 g load, 1 hour post-load)
- ☐ GTT - gestational diabetes confirmation (75 g load, fasting, 1 & 2 hour test)
- ☐ Hemoglobin A1c
- ☐ Albumin/creatinine ratio (ACR) - Urine

LIPIDS

✔ **One box only. For other lipid investigations, please order under Other Tests section and provide diagnosis.**

- ☐ Baseline cardiovascular risk assessment or follow-up (Lipid profile, Total, HDL, non-HDL & LDL Cholesterol, Triglycerides, fasting)
- ☐ Follow-up of treated hypercholesterolemia (Total, HDL & non-HDL Cholesterol, fasting not required)
- ☐ Follow-up of treated hypercholesterolemia (ApoB only, fasting not required)
- ☐ Self-pay lipid profile (non-MSP billable, fasting)

THYROID FUNCTION

✔ **One box only. For other thyroid investigations, please order under Other Tests section and provide diagnosis.**

- ☐ Monitor thyroid replacement therapy (TSH Only)
- ☐ Suspected Hypothyroidism TSH first (plus FT4 if required)
- ☐ Suspected Hyperthyroidism, TSH first (plus FT4 or FT3 if required)

OTHER CHEMISTRY TESTS

- ☐ Sodium
- ☐ Potassium
- ☐ Albumin
- ☐ Alk phos
- ☐ ALT
- ☐ Bilirubin
- ☐ GGT
- ☐ T. Protein
- ☐ Creatinine/eGFR
- ☐ Calcium
- ☐ Creatine kinase (CK)
- ☐ PSA - Known or suspected prostate cancer (MSP billable)
- ☐ PSA screening (self-pay)
- ☐ Pregnancy Test ☐ Serum ☐ Urine

The personal information on this form and any medical data subsequently developed will be collected and used in compliance with the Personal Information Protection Act of British Columbia to provide medical services. Our privacy policy is available at www.lifelabs.com. Use of this form implies consent for the use of de-identified patient data and specimens for quality assurance purposes.

MICROBIOLOGY

LABEL ALL SPECIMENS WITH PATIENT'S FIRST AND LAST NAME, DOB AND/OR PHN & SITE

ROUTINE CULTURE

List current antibiotics: _____

- ☐ Throat ☐ Sputum ☐ Blood
- ☐ Superficial Wound Site: _____
- ☐ Deep Wound Site: _____
- ☐ Other: _____

VAGINITIS

- ☐ Initial (smear for BV & yeast only)
- ☐ Chronic/recurrent (smear, culture, trichomonas)
- ☐ Trichomonas testing

GROUP B STREP SCREEN (Pregnancy only)

- ☐ Vagino-anorectal swab ☐ Penicillin allergy

CHLAMYDIA (CT) & GONORRHEA (GC)

- ☐ CT & GC Testing
  Source/site: ☐ Urethra ☐ Cervix ☐ Urine
- ☐ GC culture: ☐ Throat ☐ Rectal ☐ Other: _____

ONLY IF very unwell severe sore throat high fever shaking chill

STOOL SPECIMENS

History of bloody diarrhea? ☐ Y ☐ N

- ☐ C. difficile testing
- ☐ Stool culture
- ☐ Stool ova & parasite exam
- ☐ Cryptosporidium (high risk) 2 samples

DERMATOPHYTES

- ☐ Dermatophyte culture ☐ KOH prep (direct exam)
  Specimen: ☐ Skin ☐ Nail ☐ Hair
  Site: _____

MYCOLOGY

- ☐ Yeast ☐ Fungus Site: _____

URINE TESTS

- ☐ Urine culture - list current antibiotics: _____
- ☐ Macroscopic → microscopic if dipstick positive
- ☐ Macroscopic → urine culture if pyuria or nitrite present
- ☐ Macroscopic (dipstick) ☐ Microscopic
- ☐ Special case (if ordered together)

HEPATITIS SEROLOGY

✔ **One box only. For other Hepatitis Markers, please order under Other Tests section.**

- ☐ **Acute viral hepatitis undefined etiology**
  Hepatitis A (anti-HAV IgM)
  Hepatitis B (HBsAg, plus anti-HBc if required)
  Hepatitis C (anti-HCV)
- ☐ **Chronic viral hepatitis undefined etiology**
  Hepatitis B (HBsAg, anti-HBc, anti-HBs)
  Hepatitis C (anti-HCV)

Investigation of hepatitis immune status

- ☐ Hepatitis A (anti-HAV, total)
- ☐ Hepatitis B (anti-HBs)
- ☐ **Hepatitis marker(s)** HBsAg

HIV SEROLOGY

- ☐ HIV Serology
  (patient has legal right to choose not to have their name and address reported to public health – non-nominal reporting)
- ☐ Non-nominal reporting

OTHER TESTS

- ☐ ECG
- ☐ Fecal Occult Blood (Age 50-74 asymptomatic q2y) Copy to Colon Screening Program.
- ☐ Fecal Occult Blood (other indications)

WBC + differential

Standing Order requests - expiry and frequency must be indicated

Date | Physician Signature

Requisition is valid for one year from the date of issue.

D2350 (05/15-A)

MI# LOP-FO-012

Patient's name

℞ **Tapazole 5 mg**

take ii (two) tablets once daily (or as directed): dispense 200 tablets, no repeats

once you start tapazole have blood test for free T4 every month until further notice (see attached) & see MD for review.

- also see attached requisition for WBC & differential – only go for this blood test if you develop high fever/chill/severe sore throat or feel very unwell – do not do this test done "routinely"

T.G. Elliott, MBBS FRCPC, BCCPS #11129

Note – this prescription should not be used for any drug other than Tapazole. The insertion of any other drug into this prescription is fraudulent.

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