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The Polemics Surrounding the Diagnosis and Management of Hypothyroidism

Plus the Influences of our Toxic Environment Contributing to
the Lack of Well-Being of the Nation.

This in Turn Leads to a Financial Drain on the State.

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INTRODUCTION

In submitting this paper as a basis for discussion, it is acknowledged that to cover every aspect of these complex and diverse issues in the confines of this brief overview would be impossible.

Diagnosis and Management of Hypothyroidism (under active thyroid gland).

The diagnosis and management of hypothyroidism (DMH) is most certainly problematical inasmuch that it is a highly controversial issue. This has been the cause

of much contention over the decades, none more so than today. Clinical practice for (DMH) is seriously flawed. Misleading information with regard to the interpretation of the 'reference interval' and sole reliance on thyroid function test results play a significant role in undetected hypothyroidism on a global scale. Indeed this issue needs to be addressed urgently.

HYPOTHYROIDISM (under active thyroid Gland)

Set out below are some of the signs and symptoms of an under active thyroid gland

Exhaustion - tiredness all the time (known as "tatt" within the medical profession)

Cold and heat intolerance

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Weight gain

Hair loss

Extremely dry skin

Palpitations

Insomnia

Hoarse voice

Short term memory loss

Persecution complex

Mood swings.

Plus many more signs and symptoms.

Patients who manifest all or some of these signs and symptoms are told that they have ME, depression or some other condition if their blood test result for thyroid function lies within the reference interval. Using the upper and lower end of the reference range as 'cut off' points is bad practice and yet that practice is used universally. The condition of the patient is then perpetuated through lack of a correct diagnosis. Not only has their condition been perpetuated but the humiliation and loss of dignity that they have been subjected to, which has been and is meted out by the medical profession, knows no bounds. This includes accusatory comments made by certain members of the medical profession declaring them to be suffering from some form of mental disease. Sufferers have been exploited by those who take advantage of the sick. In addition they have been discredited and have lived, and are living lives of abject misery. Over decades millions of people have suffered and are suffering today.

The Department of Health (UK) has never commissioned guidelines for DMH with the result that confusion abounds for practitioners, so easy options have evolved.

Thyroid Function Test (TFT)

The word normal, as in 'normal' blood test result', has been and is used today by the medical profession en masse, including biochemists and pharmaceutical companies in their clinical trials protocol. This is but one example of unacceptable terminology that has been subsumed into medical literature and vocabulary, which has resulted in the controversy that surrounds DMH and failure to detect every case of hypothyroidism.

Today hundreds of thousands of people in the UK and millions worldwide are suffering with a chronic illness, namely hypothyroidism - undetected. The medical profession is ignorant of the true number of sufferers of hypothyroidism this is due to the use of incorrect terminology and total reliance on TFT results.

Misdiagnoses

ME/CFS/PVS, Fibromyalgia and depression appear to be the target misdiagnoses for this overt indifference by some members of the medical profession. The accusers have no hard evidence to support their claims. Claims that a sufferer of many hypothyroid symptoms whose TFT result lies within the reference interval does not have a thyroid condition.

Evidence-based Medicine

'Evidence-based medicine' (EBM) only serves to further confuse the issue even more, as time after time many in the medical profession believe that EBM is laboratory evidence. EBM has a '*six step approach*' and unfortunately practitioners are not well acquainted with these facts and even if they were, they would not have the time to put them into operation.

The Environment

We have a toxic environment whereby certain chemicals act as endocrine disrupters and subsequently interfere with production of TSH acting as 'on/off' switches thus causing a person to become hypothyroid (under active) or hyperthyroid (overactive).

The Criminal Perspective

Our prisons and young offenders' institutes are full of inmates suffering from attention deficit disorder (ADD) or attention deficit hyperactive disorder (ADHD) and/or Dyslexia. These conditions are linked to thyroid disease.

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Financial Implications

There are cost implications for The State, National Health Service, also loss of Tax Revenue because people are no longer able to work. Patient's personal expenditure, (which includes visits to specialists and purchase of medications), Insurance company payouts are overwhelming! All of these areas have born the consequences of incorrect medical procedure.

This brief overview will outline what has happened, what is happening and what will happen in the future if these issues are not addressed regarding DMH. In addition

what will happen if toxic chemicals that interfere with thyroid function do not come under stricter control?

THYROID FUNCTION TESTS

The parameters for thyroid function tests are based on, “95% *fiducial limits of so-called healthy people.*” [1] An assumed fixed basis of comparison of so-called healthy people is very loosely termed. When there is such loose terminology to set up the initial parameters for TFT results, then to place sole reliance on the results is surely futile.

There is too much rigidity and not enough flexibility upon interpretation. **OHP**

In 1969, Professor Ralph Gräsbeck helped to develop the reference value concept with Professor Saris.

In 1990 he warned the medical profession not to use incorrect terminology such as, ‘normal values’ and ‘normal reference ranges.’

He also stated that, “*Reference values are not always derived from ‘healthy’ persons and that the field of reference values is only one part of laboratory medicine.*” [2] In my recent communications with Professor Gräsbeck he stated that, “*To make the diagnosis on the basis of only one test such as TSH is decision making based on thin evidence.*” [2a]

This reference indicates that the initial developers of reference values never intended the medical profession to use the terminology ‘normal’ when discussing ‘*reference values*’ or ‘*reference intervals*’.

How many practitioners know how the 'reference interval' was derived in the first instance? If they do know they would have a full understanding of how to interpret the results of the values that lie within the 'reference interval'.

In 1994 The World Health Organisation stated, "*Laboratory experts are recommending abandoning the term, 'normal range' and replacing it by 'reference interval' while keeping in mind that the limit values for the 'reference interval' will depend on the selected population that was investigated for their establishment.*

Experts in the laboratory diagnosis of thyroid disease do not stop to point out that in individual cases the levels of thyroid hormones may well be within the so-called 'normal range' in patients with thyroid disease, and the existing disease can only be diagnosed properly by investigating the spectrum of factors contributing to the regulation of thyroid metabolism.

No doubt that the clinician must be aware of all the limitations when taking care for a patient on the basis of laboratory investigations only. Unfortunately we often observe an unsatisfactory communication between the laboratory and the practitioners, which may in some cases, be the reason for misinterpretation of laboratory results. [3]

What is 'normal' for one person can differ significantly from that of another person. If the word 'normal' is generalised within a set of parameters, then there must be flexibility upon interpretation of the results.

These considerations were commented upon by Peterson in the review "*The latest on reference values*". Klee compared reference limits and decision limits and made it clear that, "*In General, the reference limits should not be used as 'cut-off points'*". He also points to the costs related to wrong diagnosis and he stresses the need for improving the analytical and clinical quality. Fraser points to, "*The flaws of population based reference intervals are due to the biological individuality presented by all. Hence the use of 95% reference intervals is questioned; both due to changed probabilities according to repeated testing and due to misuse of reference limit as decision limit i.e. 'cut-off point'*". Further, the use of population-based reference intervals is criticised as individual reference intervals for each single individual are preferable if available." [4]

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Anderson stated, "*Population-based reference ranges are necessary but that it is important to recognise their limitations for use in individuals.*" [5]

In a letter to the BMJ Haslam (2006) stated, "*Patients' are commonly told, "Your blood test results were absolutely normal"*". And later in the letter, "*In an ideal world, this phrase would never be used. In reality it is used all the time.*" [6] **This is important. It is time to put a stop to incorrect terminology!**

Typically, a patient visits the GP's surgery and relates his/her symptoms to the doctor. The doctor who, with a high index of suspicion of a diagnosis of hypothyroidism, requests a TFT. When the blood test result is returned and the biochemist states 'normal' on the laboratory report, the doctor then disregards all his previous diagnostic

intention that the patient may have a thyroid disorder. Rather than send the patient away he chooses to either diagnose the patient with another condition e.g. ME/CFS Fibromyalgia or depression etc, or he will treat the signs and symptoms independently – very very costly.

Bearing in mind that the biochemist has never seen the patient nor knows the patient's signs and symptoms, how can he state whether the result is normal for that said patient? What the biochemist actually means is that the result lies within the 'reference interval,' but because the biochemist has used the word 'normal' the practitioner believes that the patient is euthyroid – has normal thyroid function.

Here we have a double meaning, which is either deliberate or caused by inexactness of expression, and because of ambiguity with the '*reference interval*' and improvidence by the medical profession, patients are suffering unnecessarily. It would be preferable if biochemists omitted putting comments on the laboratory report.

INTENDED GUIDELINES FOR THYROID FUNCTION TEST.

For many years the reference interval for (TSH) in the UK has been approximately 0.4-5 mU/L, dependent on the assay pack which is used. Recently new guidelines for the TSH reference interval have been suggested by the British Thyroid Association (BTA) and the Association for Clinical Biochemistry (ACB) and the British Thyroid Foundation (BTF).

They suggest remarkably that, *“TSH levels >10mU/L combined with an FT4 below the reference range indicates the presence of overt primary hypothyroidism in ambulant subjects.”* [7]

However, according to the National Audit Office (UK) they stated, *“Whilst these guidelines offer advice on the use of thyroid function tests, they do not introduce an NHS-wide standard of medical care”,* and in their understanding that *“so far NICE has not issued any guidance on the diagnosis and treatment of hypothyroidism.”* [8]

The American Association of Clinical Endocrinologists (AACE) and The National Academy of Clinical Biochemistry (NACB) issued revised guidelines for the testing of TSH in 2002 and encouraged doctors to refrain from using a TSH level of 0.5-5 but instead use a narrower margin based on a TSH level of 0.3 to 3.04. [9] Later these guidelines were revised yet again in 2004 with a TSH level of 0.4 -2.5.

Spencer reported *“The TSH upper reference limit that appears in laboratory reports is inaccurate and that those who are the most healthy euthyroid persons have a serum TSH concentration below 2.5 mIU/L. Also, “Another NACB guideline recommends a target of TSH range of 0.5 to 2.0 mIU/L for levothyroxine replacement therapy. Even if the TSH is confirmed below the reference range, the degree of abnormality has to be interpreted in the context of the individual patient”.* Later in the article it was stated that, *“Clinicians should understand that the reference range is not the ‘normal range’, but merely a marker to be used with other patient-specific factors”.* [10]

In Australia the TSH level is 0.3-3.5 [11]

One has to ask, why then has the upper figure of the 'reference interval' for the TSH (UK) been raised (it is assumed that the latest assay packs are being used), when other countries have lowered the upper figure? Thus UK hypothyroid sufferers are at a distinct disadvantage.

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Additionally Zöphel, Wunderlich and Kotzerke stated, "*Should We Really Determine a Reference Population for the Definition of Thyroid-Stimulating Hormone Reference Interval? The NACB recommended the use of 2.5 mIU/L- 4mIU/L, because reference populations, on which the definition of the reference interval is based, contain individuals experiencing an initial phase of autoimmune thyroid disease, thus skewing the upper reference limit of TSH.* [12]

The TSH blood test is the all-time favourite and is classed by biochemists and endocrinologists alike as the 'gold standard' test. The actual determination of thyroid hormone levels in the blood is not in question it is the interpretation of the results that is the main problem. No one accuses biochemists of wrongly valuing the hormone content of the blood but do biochemists and clinicians know how much T4

is usable for conversion to T3 and how much T3 is usable at cell level? In other words, are the thyroid hormones in the blood all pure, active hormones or are some inactive?

There has been too little attention paid to the standardisation of blood collections. As far back as 1983 Symons & Murphy stated, "*The levels of T4 FT1 and FT4 in patients receiving thyroxine should be interpreted in relation to the time of thyroxine administration. Standardisation of blood collection in patients receiving thyroxine replacement would be desirable*". [13] Twenty three years later and this recommendation for blood collections are still not in place. Professor Ralph Gräsbeck communicated to me recently that rules regarding specimen collections that he managed to get approved nationally and internationally are not followed at all. [13a] See 2a

If a blood sample is taken between the time of ingestion of thyroxine and within six hours the reading for serum hormone levels will show higher. If the biochemist or the practitioner is not aware of this information then their interpretation of the blood test results will be incorrect.

A Trial was conducted by the Departments and Biochemistry, Stobhill Hospital, Glasgow. Pollock et al "*Thyroxine treatment in patients with symptoms of hypothyroidism but thyroid function tests within the reference range: randomised double blind placebo controlled crossover trial.*"

Method

***The trial was a double blind crossover placebo-controlled trial. There were 25 patients (presenting with signs and symptoms of thyroid malfunction) and 10 normal controls (healthy people). Initially some patients and normal controls received thyroxine (100mcgs) and others a placebo. After twelve weeks and a six week break there was a crossover and those on thyroxine were given a placebo and those on a placebo were given thyroxine for twelve weeks. Participants were assessed at the beginning of the trial and after each treatment period, using a variety of clinical, biochemical and psychological measures. [14] At the end of the study neither group was able to identify accurately which treatment*
****period was thyroxine or placebo.

COMMENTS –The duration of treatment was far too short. Many hypothyroid suffers can take twelve months to two years to regain their health.

The initial and only dosage was a 100mcgs of thyroxine and this was never taken up to the optimal for each patient.

Thyroxine was the only preparation of thyroid replacement therapy used in the trial. Some patients may have had a conversion problem whereby T4 (thyroxine) conversion

to T3 (triiodothyronine) was lacking and replacement therapy for these particular patients should perhaps have been Tertroxin (triiodothyronine) T3.

EVIDENCE-BASED MEDICINE

Evidence-based medicine (EBM) is a clinical discipline with a six-step approach that first came into being in the 1990's, and is very much in use today although not fully understood. Endocrinologists depend entirely on a scientific basis for DMH.

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***Haynes, Devereaux and Guyatt “Initially, evidence-based medicine focused mainly on determining the best research evidence relevant to a clinical problem or decision and applying that evidence to resolve the issue. This early formulation de-emphasised traditional determinants of clinical decisions, including physiological rationale and individual clinical experience. Subsequent versions of evidence-based decision making have emphasised that research evidence alone is not an adequate guide to action. Rather, clinicians must apply their expertise to assess the patient’s problem and must also incorporate the research evidence and the patients’ preferences and values before making a management recommendation.”*

[15]

The *subsequent version seems to be well-rounded in its design but there are limitations of available evidence which can limit effectiveness of any approach.

Indications are that this model of evidence-based medicine is not being followed correctly regarding thyroid conditions because in many instances there is a bias towards sole reliance on TFT results while ignoring any biological evidence in the ^{**}diagnose of a patient with hypothyroidism.

Montori states, *Evidence-based endocrinology how far have we come? Evidence-based endocrinology is hindered by limited high level evidence assessing patient-important outcomes, limited systematic summaries of this evidence, lack of time and lack of systematic training of endocrinologists in evidence-based medicine.* [16]

Whatever information doctors' do manage to retrieve, putting evidence-based medicine into practice requires not only their clinical knowledge and experience but expertise in retrieving, interpreting, and applying the results of the scientific studies and then to communicate this to the patients informing them of the risks and the benefits.

The question is how many of those in the medical profession have had scientific training that affords them the knowledge of how to use evidence-based medicine?

Time in the surgery is of the essence not only to the patient but to the attending physician and he most certainly does not have the time to go through the *six steps approach* to evidence-based medicine. [17]

MISDIAGNOSES

Misconceptions within the medical profession in relation to DMH leads to “*chronic hypothyroidism*” which is of course hypothyroidism left untreated which has been and can be suffered by patients for up 40 years. This includes any misdiagnoses that the medical profession wish to identify them with during this period. Often hypothyroid patients are diagnosed with two or more conditions e.g. Lupus and depression or depression and ME etc. when essentially they are suffering with an under active thyroid gland.

When blood test results for thyroid function are solely relied upon and signs and symptoms are not taken into consideration, together with the upper and lower figures of the reference interval used as “cut-off points”, then it is feasible that frequently patients will have been misdiagnosed with other diseases or conditions.

The information below was retrieved on 15/05/2007 from the website of the British Thyroid Association stating that, “*Currently the BTA does not hold the view that treatment for thyroid disease, either under-or-over-active, should be commenced if patients have thyroid function test results within the normal laboratory reference range.* [18] No mention here of observing signs and symptoms, carrying out a clinical appraisal or the history of patient.

It must be stressed that whilst the BTA is putting out literature of the above nature then GP's do not stand a chance of ever diagnosing a patient with hypothyroidism, if their TFT result lies within the 'reference interval'. These patients may have many clinical features of hypothyroidism which are being totally ignored because of sole reliance on TFT results. It has resulted in many thousands of undetected hypothyroid sufferers in the United Kingdom and this equates to millions world wide.

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A great number of patients are misdiagnosed with ME/CFS because their TFT results lie within the reference interval. The medical profession has used and is using today the diagnosis of ME/CFS as a 'dumping ground for these patients.

It also has far reaching effects on patients' families and society in general. e.g. financial hardship, relationship problems, time off work due to sickness, inefficiency in the work place, out of control behaviour, drug and alcohol abuse, anger which can lead to violence, and much more.

Some practitioners think that there is no such condition as ME/CFS and others think that the patients are suffering from a somatoform disorder. Psychiatric clinicians talk of the bio-psychosocial management approach because they fully believe it is a mental problem. There are those who would like to classify it as a psychiatric 'behavioural'

illness. The World Health Organisation classified ME as a “*neurological disorder*” in 1969. Where is the consensus of opinion within the medical profession regarding ME/CFS?

The Countess of Mar at the House of Lords Debate on April 16th, 2002 stated that, *“As Nero fiddled while Rome burned, so the Wessely School fiddles the facts while people suffer and die. And later on she stated, “Simon Wessely, Michael Sharpe, Anthony David and Peter White, all psychiatrists, proceeded systematically to flood the UK literature with their own beliefs about non-existence of ME. They commandeered medical journals and the media. They became self-designated experts in medically unexplained symptoms such as ME, Gulf War syndrome and multiple chemical sensitivity. They have received disproportionate funding, amounting to over 5 million pounds for research into their own beliefs to the exclusion of virtually all research into organic causes. [19] In 2004 they received a further 11.1 million pounds for ‘more research.’*

This Group of psychiatrists have been determined in their exploits to pressurize the medical profession and sufferers into believing that ME/CFS is a mental disorder. Egotism has prevented them from understanding why sufferers do not agree with them.

They have done a great disservice to those who suffer with ME/CFS and maybe it is time for their arrogant assumptions to be laid to rest. An independent enquiry into this fiasco is much needed.

ME/CFS/FIBROMYALGIA

These three conditions present with the same remarkable variability of signs and symptoms from day-to-day and even from hour-to-hour as do the signs and symptoms of hypothyroidism. Each condition can be triggered by a virus, shock or it can be genetic. In fact the similarities are amazing!

Importantly, Dr Gordon Skinner (virologist) has treated hundreds of patients diagnosed with ME/CFS but who presented with hypothyroid signs and symptoms, although their thyroid function test results were within the 'reference interval'. The majority of Dr Skinner's patients returned to full health after treatment for a thyroid condition. Skinner, Holmes, Ahmed, Davies and Benitez '*Clinical Response to Thyroxine Sodium in Clinically Hypothyroid but Biochemically Euthyroid Patients*' [20]

DEPRESSION

Depression can be a symptom of hypothyroidism. More and more people today are suffering with depression and the considered medication is in the form of antidepressant drugs such as prozac, which can have serious side effects. A news item on the television on the 14th May 2007 stated that, "we are becoming a Prozac nation."

Depression Alliance states, "More than 2 million people in the UK are diagnosed as having depression at any one time with as many as three in four cases of depression neither

recognised nor treated. 70% of recorded suicides are by people who have experienced some form of depression". [21]

The symptoms listed for depression are very similar to some of the features of hypothyroidism. Many with depression may well have a thyroid disorder.

Sokolov, Kutcher and Joffe "*Basal thyroid indices in adolescent depression and bipolar disorder.*" [22]

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Lasser and Baldessarini, "*Thyroid hormones in depressive disorders: a reappraisal of clinical utility.*" [23]

Jackson, "*The thyroid axis and depression.*" [24]

POSTPARTUM DEPRESSION

Postpartum depression can be a natural occurrence after childbirth. However, if this state of depression continues for too long a TFT is advisable. There are countless women suffering with postpartum depression and they have been for many years. This issue should have been investigated a long time ago.

Harris et al, "*Association between postpartum thyroid dysfunction and thyroid antibodies and depression.*" In his conclusion stated, "*Depressive symptoms are associated with positive thyroid antibody status in the postpartum period.*"[25]

Harris - *“Postpartum depression and thyroid antibody status”* stated, *“It has long been known that primary thyroid disorder is associated with mood disorder and vice versa so that the features of major depression can occur in individuals with hypothyroidism.”* [25a]

Australia’s Central Health and Medical Information.

“There is no single test to diagnose postpartum depression. Sometimes depression following pregnancy can be related to other medical conditions. Hypothyroidism e.g. with symptoms such as fatigue, irritability and depression.” [26]

Table (1) shows six diseases with similar features to those of hypothyroidism. Significantly, hypothyroidism is the only one shown whereby aetiology is established.

Table (1)

DISEASE	PREVALENCE APPROXIMATION	S & S	TRIGGER	AETIOLOGY	MAINLY AFFECTING WOMEN	GENETIC ?	Treatment
HYPOTHYROIDISM	UNKNOWN FIGURE	EXHAUSTION MUSCLE PAIN (COGNITIVE PROCESSES IMPAIRED) NEG: MOOD VARIATIONS	SHOCK VIRUS	INSUFF: THYROID HORMONE	√	√	HORMONES RELIEVE ALMOST ALL SYMPTOMS
ME/CFS/PVS	300,000	E MP CPI NMV	SHOCK VIRUS	NOT KNOWN	√	√	Various Treatments Little or no relief
FIBROMYALGIA	250,000	E MP CPI NMV	SHOCK Virus	NOT KNOWN	√	√	Various Treatments Little or no relief
LUPUS	60,000	E MP CPI NMV	VIRUS	NOT KNOWN	√	√	Various Treatments Little or no relief
LONG TERM DEPRESSION	Over 2 MILLION	E MP CPI NMV	SHOCK LONG TERM ILLNESS	NOT KNOWN	√	√	Antidepressants Lift mood

KEY

E = EXHAUSTION – Whereby the body feels completely devoid of energy.

Not to be confused with normal, ‘end of the day’ tiredness.

MP = MUSCLE PAIN – never ending muscular pain.

CPI = COGNITIVE PROCESSES IMPAIRED – Poor concentration, memory
impairment. =

NMV = NEGATIVE MOOD VARIATIONS – Cry or get upset easily, depression.

Indecisiveness, nervousness, anxiety.

Anger, paranoia

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Table 1 is the ‘tip of the iceberg’ where misdiagnoses are concerned.

CRIMINAL PERSPECTIVE

ATTENTION DEFICIT DISORDER (ADD) & ATTENTION DEFICIT HYPERACTIVE
DISORDER

Our prisons and young offenders’ institutes are full of inmates suffering from ADD,
ADHD and/or Dyslexia. These conditions are linked to thyroid disease.

Barnes and Galton stated that, *“a few children suffering from hypothyroidism will be very nervous, hyperactive and unusually aggressive. Emotional problems are frequent. A Low thyroid child may cry for no apparent reason, and object vigorously to any restrictions. Temper tantrums are common, probably related to undue fatigue. The child may sleep longer than youngsters of his/her own age, be a slow starter in the mornings and have a short attention span and flit from one activity to another. Infections are common”*. [27]

These manifestations can be related to ADD and ADHD.

In children, this disorder manifests frustration in many forms. In the classroom when a teacher tries to explain a subject, the lack of comprehension by the child sometimes leads to impatience by the teacher, which in turn prompts the child to react because of his/her frustration to understand the subject. Initially the child is on the defensive and soon becomes frustrated, which later turns to resentment and then defiance and so to anti-social behaviour.

In 2003 The BBC reported, *Young offenders 'are ill'. Up to 60% of teenagers in young offenders institutions could be suffering from a behavioural disorder.* Dr Geoffrey Kewley, a consultant paediatrician with the National Learning Assessment and Neurocare Centre states, *"Many young offenders have ADHD and this is based on his experience rather than research"*. [28]

Hauser states, *"Thyroid hormone plays an essential role in prenatal brain growth and development, as well as in normal behavioural and intellectual development."*

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Even moderate impairment of thyroid hormone function has been associated with various problems in behavioural and intellectual development and certain thyroid diseases resistant to thyroid hormone (RTH) are associated with attention deficit disorder (ADD) or attention deficit hyperactive disorder (ADHD) and language disorders." And later in the article,

“Human and animal studies have demonstrated that exposure to dioxin-like compounds can alter thyroid hormone function and produce neurobehavioural changes, but it remains to be definitely established that changes in thyroid function are responsible for the neurobehavioural effects”. [29]

The signs and symptoms of hypothyroidism are diverse and some apply to ADD/ADHD namely, anger, irritability, panic attacks, anxiety, hallucinations, voices in the head, suspicious of people’s motives, persecution complex, easily upset, mood swings, and depression.

Journals have published case reports of those people who have committed criminal acts whilst suffering from a thyroid disorder. See below: -

Easson stated, *“In the course of a hypothyroid psychosis a young man committed murder.*

Ghahbramni and Gooriah stated, *“Chronic fatigue syndrome associated with a psychotic state resulting in multiple murders”.* [30] Nathan et al stated, *“Psychosis is a rare but*

recognized complication of hypothyroidism (otherwise known as ‘myxoedematous madness’).

This is a man charged with attempted murder who was found to be suffering from myxoedematous madness. [31]

There are approximately 300,000 ADHD sufferers in the UK. A high number of these persons could have an under active thyroid.

FINANCIAL ASPECT

STATE - COST IMPLICATION - Invalidity benefit, incapacity benefit, disability living allowance, which includes care component and mobility, wheelchairs, independent living fund.

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NATIONAL HEALTH SERVICE (NHS) – COST IMPLICATION

The financial implication for the NHS for each individual who is an undetected hypothyroid sufferer or is misdiagnosed is considerable and a drain on much needed resources.

There are substantial demands on social, primary and secondary care; Over months or even years each patient can be subjected to diagnostic testing, x-rays, referrals (patients are often referred to more than one specialist), signs and symptoms treated individually with expensive prescriptive drugs (that may not be needed), physiotherapy, unnecessary operations, periods of hospitalisation for investigative procedures and much more. Needlessly, thousands of pounds are expended on each patient and this has become a significant financial burden.

SCIENTIFIC STUDIES AND TRIALS – COST IMPLICATION

There have been certain ineffectual studies and trials that have taken place, which had medical procedure been competent they would never have been needed.

A Group of psychiatrists namely Simon Wessely, Peter White, Michael Sharpe and others received 11.1 million pounds for 'more' research into the claimed benefits of Cognitive Behavioural Therapy in ME/CFS. They ignored physical signs and the results of their research showed ME/CFS to be a mental disorder. If all of the features of a disease are not taken into the equation with regard to researching that said disease then the findings must surely be suspect.

TAX REVENUE - COST IMPLICATION

People unable to work are unproductive thus leading to loss of Tax Revenue,

INSURANCE COMPANIES – COST IMPLICATIONS

Benefits paid out by insurance companies are in the millions.

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PATIENT - COST IMPLICATION

Expenditure for those patients who have been misdiagnosed runs into millions of pounds. Patients will seek alternative treatment to regain their health; this on most occasions is not beneficial. Many patients use their life savings to supplement the cost

of consultants' high fees. Careers and earning capabilities are lost and if patients are unable to work then their State and Vocational Pensions are also adversely affected.

You may ask, why are there more people suffering from hypothyroidism today? Our environment leaves a lot to be desired.

ENVIRONMENT

There are many circumstances that can trigger hypothyroidism such as, child birth, accident (e.g. whiplash), virus, operation, menopause, bereavement etc. Any shock to the system can upset the thyroid gland and therefore it can be the start of an insidious sliding scale of ill health. Nevertheless these triggers are more of natural phenomena.

How Environmental Chemicals Destroy your Endocrine System:

The heading of this subject is powerful, but then so is the damage that is done to our endocrine systems by endocrine disrupters (ED's).

World-wide, millions of people are sick and they tend to work around their sickness with a misplaced notion that all is well. Toxic chemicals bring about sickness.

WHAT IS AN ENDOCRINE DISRUPTER?

ED's can be derived from a naturally occurring plant such as Soya and are known as phytoestrogens, but we can choose to omit Soya from our diet.

ED's also come in the form of synthetic chemicals, hazardous air pollutants from industrial processes; chemicals such as pesticides and herbicides that are sprayed onto crops, fluoride in our domestic water supplies etc, which are not so easy to bypass.

There are three routes whereby toxins can enter our bodies. By inhalation (breathing), oral (eating or drinking), or dermal (through the skin).

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** Toxins are added to the food chain, the air we breathe, the water we drink, the clothes we wear, the cosmetics applied, the toys our children and grandchildren play with, water pipes, flooring, medical supplies, dental preparations, flame-retardants and the use of household plastics, chemicals and DIY materials - and the list goes on.

Research has shown that children exposed to common environmental toxins like dioxin and polychlorinated biphenyls (PCBs) prenatally and during infancy can suffer behavioural, learning and memory problems.

ED's mimic, interfere or block endocrine hormones.

Hisao Seo et al discuss "*Endocrine disruptors and thyroid function.*" They state, "*Indeed suppression of thyroid function by post natal exposure to chlorinated dioxins and related chemicals was reported in Japanese breast-fed infants. A higher intake in dioxin results in decreased serum levels of thyroxine and increased TSH concentrations.*" [32]

We are all exposed to thousands of chemicals. However, it is not the individual exposure of one chemical that needs to be taken into account but the total exposure of chemicals that have a bio-accumulative effect.

On November 2nd 2001, Jonathan Leake reported in The Sunday Times that the HEINZ Company admitted lining its cans with an endocrine disrupting chemical, namely Bisphenol A. This chemical can cause early puberty in females and may reduce the growth of reproductive tissues in males.

There are four areas of contamination by toxic chemicals to concentrate on: FOOD CHAIN - AIR - LAND - WATER

FOOD CHAIN - there are many Neurotoxic chemicals present in our food today including certain preservatives, pesticides, herbicides, together with fungicides that are sprayed onto the growing plants.

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GREAT SMOKIES MEDICAL CENTER –Ashville –USA. *“Are Pesticides and Herbicides Bugging You.” And later in the article, “In addition to congenital defects and infertility, human pesticide exposure has been linked with Parkinson’s disease; myasthenia gravis; prostate; testicular and breast cancers; leukaemia; asthma; thyroid disorders; and chronic fatigue. [33]*

Thompson et al. stated in their article, (*"The Health Effects of Waste Incinerators."*)
"The precise content of the emission varies with the materials incinerated: emitted chemicals include persistent organic pollutants, hormone disrupters, and carcinogens but not all the organic components have been identified." [34]

AIR

Atlantic Green Lane – Environment Canada state that there are six common air pollutants:-

- ❖ Sulphur dioxides,
- ❖ Oxides of nitrogen
- ❖ Volatile organic carbon
- ❖ Carbon monoxide
- ❖ Particulate matter
- ❖ Ammonia

Contrails - long contrails left behind by commercial jets, according to NASA linger for hours and eventually become clouds. Commercial jet pollution is therefore added to all other air pollution and is rained upon the land and surface water. According to a former CAA expert, the EU is to bring into force some stricter regulations with regard to emissions from commercial jets.

This unfortunately will not apply to airline companies from non-EU countries. Airline companies have a moral obligation to use engines that burn cleaner fuel. Unfortunately some burn very dirty fuel and “black exhaust” gets into the atmosphere.

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Acid Rain - power generation and general industry are the main sources of sulphur dioxide emissions (the precursor for sulphuric acid as in acid rain). Acid rain is rain, snow or fog that is polluted by acid in the atmosphere and damages the environment.

LAND - Land can become contaminated in many ways:

INDUSTRY

High up on the list is illegal dumping of toxic waste materials into landfill sites.

Land may be contaminated due to previous industrial usage. Build up of gases e.g. methane.

AGRICULTURAL LAND

**Spraying of pesticides and herbicides, arsenic, organochlorines, PCBs etc.

WATER

Fluorosilicic acid is a waste product from the phosphate fertiliser industry taken from chimney scrubbing and added to domestic water supplies worldwide and it is ostensibly to prevent dental caries. It is doing untold damage to our endocrine

systems. It is nothing short of mass medication without a single thought for long term effects on the health of the individuals affected. Fluoride is cumulative in the body. Goldenburg was the first to take advantage of the now much-observed iodine-fluoride antagonism. He deliberated that, because fluoride was the reason behind iodine deficiency/goitre areas, it would therefore reduce the iodine levels in Basedow patients and began to use fluoride effectively to cure Basedow's disease – hyperthyroidism caused by excessive iodine consumption. Why today, is fluoride added to our domestic water supplies? [35]

AGRICULTURAL RUN-OFFS

**Fertiliser and pesticide run-offs during rainfall adds to the level of contamination in surface waters e.g. rivers and lakes. The World Health Organisation has stated that “Herbicides – because of their frequent use near water bodies have often been found in surface water. Furthermore many of those herbicides are fairly mobile in the soil and readily migrate into ground water.”

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Industrial Accidents - Besides the addition of toxic chemicals into the environment there is also the risk of industrial accidents.

This cannot be ignored! The Bhopal disaster in India in 1984 polluted large volumes of water. The explosion at the Chernobyl Nuclear Power Station in the Ukraine in

1986 manifested dust, which travelled and spread over many countries and the effects are still being felt today. Many children in the area of Chernobyl have had or have thyroid cancer. Many children in the North Wales area of the UK contracted leukaemia. In the UK there was an accident at a water works in 1988 with aluminium sulphate.

Polyvinyl chloride (PVC) should be added to the list of toxic chemicals. Professor Frederick vom Saal, University of Missouri was interviewed by Doug Hamilton in 1998, (Producer of Frontline's "Fooling with Nature"). It was stated that every four years one trillion pounds of plastics are made in the world, which subsequently are thrown into landfills and leach back into ground water and surface water. How much more is dumped into landfills today 8 years later?

It is to be remembered that the majority of chemical breakdown is in the liver and therefore the liver is under a great deal of stress from unwanted contamination. Most of the conversion of thyroid hormones e.g. from T4 hormone to T3 hormone takes ******place in the liver and therefore this action can be compromised.

ADVERSE HEALTH EFFECTS ON THE ENDOCRINE SYSTEM BY CHEMICALS THAT ARE KNOWN ENDOCRINE DISRUPTERS

- ❖ Developmental and behavioural disorders
- ❖ Neurological disorders
- ❖ Infertility
- ❖ Fatigue
- ❖ Decreased mental capacity

- ❖ Learning disabilities

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- ❖ Attention deficit/hyperactive disorder
- ❖ Autism
- ❖ Anger and propensity to violence
- ❖ Immunological disorders
- ❖ Short term memory loss
- ❖ Cancers
- ❖ Heart disease
- ❖ Breathing problems
- ❖ Obesity
- ❖ Pancreatic disorders e.g. diabetes mellitus
- ❖ Reproductive disorders

The conditions listed above can be manifested in the condition of hypothyroidism, (under active thyroid gland) although a person need not be suffering from all of these at one time to be classified as hypothyroid.

Table 2

The rise in the diseases in table 2 is of great concern worldwide.

HEART DISEASE	DEPRESSION	OBESITY	CFS/ME	ADD
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**John Vidal (Environment Editor, The Guardian) took part in a pioneering study in 2003. His blood was tested for pollutants and the results were alarming. On 28th October 2003 he stated in The Guardian that, “whoever you are, wherever you live, chances are your body is a ‘chemical dump’. The article also stated that along with 150 others, which included politicians, journalists and members of the public, John’s blood was tested for three groups of pretty nasty chemicals organochlorines, PCB’s, and flame-retardant. John’s results showed exposure to 72 chemicals, which meant that he was contaminated. Some recorded extremely high levels of chemicals.

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All who took part were offered counselling and those who had alarmingly high individual readings were given medical advice

Porterfield stated that, “*Certain polyhalogenated aromatic hydrocarbons such as polychlorinated biphenyls (PCB’s) and dibenzo-p-dioxins (dioxins, 2, 3, 7, 8,-*

terachloridienzo-p-dioxin) have been shown to have neurotoxic effects and to alter thyroid function during critical periods of thyroid hormone-dependent brain development. [36]

Environmental Protection Agency – “*Health Effects of PCB’s*”. [37]

There are three common denominators:

- Worldwide decline in health.
- Neurotoxic chemicals (that are known endocrine disrupters) that brings about sickness.
- Total reliance and misinterpretation of thyroid function test results bring about undetected hypothyroidism.

Prevention is better than cure and it would make sense if dangerous toxic chemicals were limited in the environment. Instead we now have a worldwide pandemic of hypothyroidism with the majority of sufferers undiagnosed so the true figure of hypothyroid suffers is not known. These health issues need to be addressed urgently because our immune systems are being radically compromised!

Earlier it was stated that ED’s mimic, interfere or block endocrine hormones. This is a fact! Then what value is there in testing for thyroid hormone levels in the blood?

******Much more research is needed in this area.

EDM

At the time of writing this presentation 161 MP's had signed an Early Day Motion initiated by Mark Oaten M.P. regarding DMH. MP's received communication from their constituents with regard to DMH. Each contact related his/her own experience with the result that many MP's are now concerned for the health of their constituents.

PETITION

There are almost 3,000 signatures on a petition that was handed in to the General Medical Council as a formal complaint against the medical profession. The wording of the petition is set out below: -

THE PETITION

We the undersigned [thyroid patients, families/friends] wish to lodge this petition with the General Medical Council as a formal complaint against the clinical practice of the majority of the medical profession with regard to the diagnosis and management of hypothyroidism on four counts: -

1. Over reliance on thyroid blood test results and a total lack of reliance on signs, symptoms, history of the patient and a clinical appraisal.

2. The emotional abuse and blatant disregard by the majority of general practitioners and endocrinologists over the suffering experienced by untreated/incorrectly treated thyroid patients and their lack of compassion over the fate of these patients.

3. Stubbornness by the majority of general practitioners and endocrinologists to treat patients suffering with hypothyroidism with a level of medication that returns the patient to optimal health. In addition, the unwillingness to prescribe alternative thyroid treatment for patients on individual clinical grounds e.g. a combination of T4/T3, T3 alone or a natural thyroid treatment such as Armour Thyroid.

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The ongoing reluctance to encourage debates or further research on hypothyroidism.

In addition we formally request an independent investigation into patients who are hypothyroid, which includes examination of clinical results of patients treated by private doctors (whose work is outside NHS directives), and comparative examination of clinical results of patients treated by NHS practitioners who diagnose and manage hypothyroidism.

Liam Byrne M.P. then Secretary of State for Health was sent a copy of the petition.

His reply was most satisfactory. [\[38\]](#)

The GMC's reply completely missed the point and yet both the GMC and Liam

Byrne M.P received exactly the same petition. [\[39\]](#)

SUMMARY

The most chilling factor that has come out of the research is, ironically, that the medical profession has been, and is responsible for a high proportion of: -

Heart disease

Obesity

Depression

ME/CFS

Fibromyalgia

Infertility etc

Misdiagnosis

Areas of Concern Regarding Thyroid function Test results

- ❖ The 'reference interval' for thyroid function testing is made up very loosely but heavily relied upon.
- ❖ The upper figure and the lower figure of the reference interval are nearly always used as 'cut-off' point.
- ❖ In 1990 the medical profession was warned not to use the terminology 'normal range', it is used continually today.
- ❖ Using the TSH test result as the only indicator to diagnose hypothyroidism is thin evidence. Internationally the upper figure for the TSH has come down from 5mIU/L to 3.5mIU/L in Australia and to 2.5mIU/L in the United States, whereby the UK upper figure has been raised to over 10mU/L for a diagnosis of hypothyroidism. There appears to be no consensus of opinion between other countries and the UK regarding DMH.
- ❖ Biochemists writing on the laboratory report indicating whether or not the patient has a 'normal' result. The attending physician for the patient abides by this information.

❖ Flawed Laboratory methodology.

Taking these points into account the thyroid function test appears to be a very weak indicator. When the parameters are loosely made up initially and there are ambiguities within the terminology for DMH this can bring about misinterpretation and the consequences can result in undetected hypothyroidism hidden in a misdiagnosis.

One topic of NICE interventional procedure is, quote, '*whether there is inappropriate variation in practice across the country*' unquote. When terminology is misleading and there is ambiguity there is bound to be variation in practice. There is variation in medical practice regarding DMH [40]

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There is some concern that the intended new guideline for the upper figure of the TSH (thyroid stimulating hormone) set at more than 10mU/L by the BTA, ACB and the BTF, could be utilised by the medical profession simply because there are no other guidelines set, which subsequently could be responsible for even more cases of undetected hypothyroidism.

Medicine is not an exact science and it never will be because of the individualistic make-up presented by each person.

Reference values were developed by Professor Ralph Gräsbeck and Professor Saris in 1969. After a warning from the developers in 1990 there is still no respite from the use of unacceptable terminology that has been incorporated into medical literature and vocabulary. It is not surprising that undetected hypothyroidism is now on a global scale. The Health Service and others would benefit substantially if these discrepancies in medical procedure were corrected. Work load would be dramatically reduced and costs would be lowered if successfully treated patients no longer frequently attended the GP's surgery with a multiplicity of signs and symptoms all seemingly unrelated.

Incorrect terminology for TFT results is one of the culprits of erroneous procedure resulting in undetected hypothyroidism.

The words "normal", "cut off levels" "upper limits and lower limits" "borderline" "all affect decision making regarding a diagnosis. If the terminology "cut off levels" was abandoned there would be no "borderline" cases. A person either is hypothyroid or is not hypothyroid.

The word limit in its context of 'upper limits' and 'lower limits' is far too restrictive and too confining for reference values which are loosely made up in the first instance and too tempting to use as a 'cut off' point. It should be removed from medical terminology in relation to 'reference intervals'.

In an article in the European Journal of Endocrinology, Vol: 154, Issue 5, 2006 [] A total of 8 endocrinologists discussed “cut off levels” of the TSH and definition of the upper “normal limit” of serum TSH. [41]. This is bad practice.

Areas of concern regarding medical procedure for DMH

- ❖ Total reliance on thyroid blood test results.

- ❖ One indicator is used (i.e. the blood test result) for DMH when other markers should be taken into account e.g. signs, symptoms history and a clinical appraisal.

- ❖ Outdated, misleading and incorrect terminology in medical literature and medical vocabulary.

- ❖ Doctors’ lack of training in the diagnosis of thyroid conditions

- ❖ Within the medical profession there is no consensus of opinion regarding DMH.

- ❖ Standardisation of blood collection not adhered to.

Endocrinologists perpetuate the use of incorrect terminology with regard to DMH. Certain well known psychiatrists insist that the condition of CFS/ME is a mental behavioural problem.

While these two groups are dictating to the medical world, the problem of undetected hypothyroidism will remain obscure as will the solution to determining the aetiology of CFS/ME

The medical profession has been approached on these issues many times but their inflexibility knows no bounds. If this matter is not addressed then sufferers will have no respite from their torment.

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Inheritance - DNA

DNA is responsible for the genetic propagation of most inherited traits. In humans these traits range from hair colour to disease susceptibility.

If a child is born of parents who are both untreated hypothyroid sufferers the child surely then becomes susceptible to hypothyroidism.

Thyroid hormones are compromised by neurotoxic chemicals in the environment and therefore people become hypothyroid and thus need treatment. Worldwide, people are exposed to chemicals that are known endocrine disrupters e.g. polychlorinated

biphenyl's (PCBs). The majority of chemicals that come onto the market each year are not tested for toxicity, or indeed tested for their ability to disrupt hormones.

In some areas technological advances in the field of medicine are destroying the whole essence of the clinician's care for the patient. When TFT results for DMH are solely relied upon the practitioner is in danger of losing sight of his/her patient in the biological sense and also their powers of observation are at risk of being lost completely. In other words, the GP's discretion and initiative have been inappropriately dispossessed.

Those suffering with any of the diseases or conditions listed below need a reappraisal of the illness or condition in the light of the evidence in this paper.

URGENT INVESTIGATION IS NEEDED FOR THOSE SUFFERING WITH: -

- ❖ ME/CFS/PVS/FIBROMYALGIA

- ❖ DEPRESSION

- ❖ POST NATAL DEPRESSION

- ❖ INFERTILITY

- ❖ CERTAIN CONDITIONS LINKED TO HEART DISEASE – possibly linked to hypothyroidism. E.g. high cholesterol levels, blood clotting problems, and/or high blood pressure.

- ❖ ADD & ADHD – CHILDREN & YOUTH in schools

- ❖ ADD & ADHD – YOUNG OFFENDERS – Those serving sentences in the young offenders units.

- ❖ ADD & ADHD – ADULT OFFENDERS – Those serving prison sentences.

- ❖ ADD & ADHD - ADULTS

- ❖ ALZHEIMER'S

- ❖ SENILE DEMENTIA

- ❖ OBESITY

Vanderpump, Ahlquist, Franklyn and Clayton BMJ 1996 state, *“Many aspects of the management of thyroid disease have not been subjected to controlled clinical trials yet there are established practices which have never been questioned”*. [42]

The medical profession has for decades and is today entrenched into unacceptable medical procedure with regard to DMH. I have, for thirteen years, raised awareness to the DOH and to the medical profession regarding the unacceptable procedure and the polemics surrounding DMH all to no avail. Dr Skinner, Dr Ahmed and I met with the department of Health three times during that period and each time we were encouraged to go and find funding for clinical trials. Clinical trials are much needed in

this area but they will not erase unacceptable medical terminology or unacceptable medical practice. We believe that the DOH should now take full responsibility and therefore we urge ministers to press for an independent enquiry especially in view of the evidence that has been put forward in this paper. This is without doubt the most monumental 'faux pas' in medical history

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Thyroid Stimulating Hormone – working on previous figures for the reference interval.

TSH (TSH rises when the thyroid gland needs to produce more actual hormone).

E

N

C

E

95%

I

2.5

N

T

E

R

V

A

L

0.5

A patient with the above result plus many signs and symptoms of hypothyroidism can be told that their thyroid chemistry is normal so no condition of hypothyroidism exists. The patient's TSH level could have been down at 1 prior to any blood test for thyroid dysfunction thus a rise of 1.5 would be significant.

FT4 - Free T4 (working on previous figures).

FT4 lowers when the thyroid gland is producing too little hormone.

R
E
F
E
R
E
N
C
E

I
N
T
E
R
V
A
L

95%

RESULT = 12

Once again a patient may be manifesting many signs and symptoms of hypothyroidism but if their result lies within the reference interval they are told that their thyroid chemistry is normal so no condition of hypothyroidism exists. Some patients need to be at the upper end of the reference interval to be in good health.

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When a patient is on thyroid replacement therapy, total reliance on thyroid blood test results is still in evidence.

FT4

E
R
E
N
C
E

95%

I
N
T
E
R
V
A

L Blood test result = 12

after P. has comm. TRT

10

Patient has a blood test - result = 8 Patient is diagnosed

The patient, at a later date, has a second blood test which reveals that the patients FT4 hormone has risen to 12 (inside the reference interval). The patient is then told that their blood chemistry is now normal. No interest is shown regarding signs and symptoms which could still be a problem.

The patient's hormone level may need to be nearer the upper level of the reference interval for that said patient to be euthyroid. (normal thyroid chemistry).