

Thyroid Foundation of Canada

thyrobulletin

La Fondation canadienne de la Thyroïde

Volume 20, No. 3 Autumn 1999



Dr. Robert Volpé, as a member of The Endocrine Society received the following letter.

August 18, 1999

Dear Member:

I'm writing to alert you to a major news story, which has significant implications for endocrinology professionals.

At 5pm (EST) today, the *New England Journal of Medicine* August 19th, Volume 341, Number 8, will present the findings of a recent study which report that maternal thyroid deficiency causes developmental problems for the child. The study, by Dr. James E. Haddow, MD and colleagues has significant implications for all pregnant women who have undetected, untreated hypothyroidism.

Dr. Haddow's research team retrospectively tested serum samples for evidence of hypothyroidism in a group of 25,216 pregnant women who delivered babies between 1987 and 1990. From these samples, they identified 62 women who had been hypothyroid during pregnancy. Their children, who were ages 7 to 9 at the time of the study, were examined for possible neurological or psychological effects of hypothyroidism in utero. A battery of tests for attention, language, reading, and visual-motor performance were administered and the results were compared to those of a carefully matched control group of children whose mothers were not hypothyroid during pregnancy.

The children of the mothers who had been hypothyroid during pregnancy performed less well on all tests. Their mean IQ was reduced by 4 points compared to the control group. Larger IQ differences were seen in children born to a subset of mothers who never received any thyroid hormone treatment (mean IQ decreased by 7 points). Among this group, 19 percent of the offspring had an IQ less than 85 as opposed to 5 percent of children in the control group. This report confirms the findings of several earlier, smaller studies and it suggests that undiagnosed, untreated thyroid hormone deficiency during pregnancy adversely affects brain development.

The Endocrine Society believes this study has important implications for the management of thyroid disease before and during pregnancy. On behalf of its members, The Society will issue a press release and policy statement, which includes the following recommendations:

- A cost-effective strategy for screening pregnant women for hypothyroidism before or early during pregnancy. This will require further research to determine when screening should take place relative to conception, the method of testing, diagnostic criteria for maternal hypothyroidism, treatment guidelines, and the cost of screening.
- For now, women with a personal or family history of thyroid disease, or symptoms suggestive of hypothyroidism, should be screened using TSH levels when they are planning pregnancy, or as soon as possible after conception.
- Women who are found to be hypothyroid during pregnancy should begin thyroid hormone replacement immediately to provide adequate thyroid hormone levels to the developing fetus.
- Thyroid hormone requirements increase by about 25%-50% during



pregnancy. Consequently, women with known hypothyroidism should have their thyroid hormone levels monitored during pregnancy, and appropriate adjustments of thyroid hormone replacement should be made.

The Endocrine Society has begun to contact allied organizations to reach a consensus about how best to address this important issue - at the physician, patient and consumer level.

As President of The Endocrine Society, I will continue to keep you apprised of all developments on this issue and may even call on you to lend your expertise to what may become one of the most important issues for The Endocrine Society.

You may review The Endocrine Society's news release, position statement, and a list of "Frequently Asked Questions" at www.endosociety.org/maternalthyroiddeficiency/.

Again, I am pleased to provide you with firsthand information on this fast-breaking news story and of The Endocrine Society's response.

Sincerely,

J. Larry Jameson, M.D., Ph.D President, The Endocrine Society



President's message

Arliss Beardmore, National President As the second millennium comes to a close and a new one is about to begin, it is an appropriate time to review our accomplishments in the Thyroid Foundation of Canada (TFC). The Foundation has grown through the continuing inspiration of our Founder, Diana Meltzer Abramsky, and the dedicated volunteers who took up this

work on behalf of thyroid patients twenty years ago in Kingston. Today TFC is a strong and vital organization, reaching into every province, with twenty-two chapters across the country.

TFC's Health Guides for thyroid patients, which cover many aspects of thyroid disease, are available in both official languages, in print and also on our award-winning website. Over the last two years, TFC has developed the Thyroid Assessment Questionnaire (TAQ) for distribution to the general public to promote early diagnosis by improving patient/physician communication. TFC's successes should give us a sense of pride in this hardworking organization.

Although a great deal has been accomplished, there is much yet to be done. Communities need chapters. Assistance to enquirers, whether by phone, fax, e- mail or snail mail, must be improved. Educational materials have to be expanded to include recent findings, such as those of the New England Journal of Medicine, August 19, 1999, which states that maternal thyroid deficiency causes developmental problems for the child.

Looking to the future, there are many questions which need to be addressed. Here are some examples. Should TFC lobby for Canada to adopt the Endocrine Society's recommendation that all pregnant women be screened for hypothyroidism? Should TFC advocate routine thyroid screening tests for women 50 and older? When thyroid drugs have been recalled by the U.S. Food and Drug Administration, should TFC urge Health Canada to recall those drugs in this country? What can be done to protect Canadians from inferior thyroid drugs? What can be done to speed up availability of new thyroid medications to Canadians? Are alternative and non-traditional therapies effective? Are they dangerous to thyroid patients? Is treatment with T3 (triidothyronine) the answer to the often-asked question, "Why don't I feel well now that my test results are normal?" Could it be that the patients were right after all?

Acting effectively in these and other areas, means extending our research capabilities and sharpening our advocacy skills. We will require experienced and knowledgeable volunteers who will devote their time and expertise to exploring the answers to these questions.

Promoting the importance of thyroid disease as a significant health issue, improving support services for people coping with thyroid disease, and enhancing the knowledge of healthcare professionals about thyroid disease will require additional human resources and increased funding. Will you roll up your sleeves and help? Will you take out your chequebook and give financial support? There is so much to be done to strengthen and build the Foundation, please consider doing both.

Helpful suggestions for estimating portion sizes when dining out

If you are eating:	It should be the size of:
1 medium bagel	A hockey puck
2 cups green salad	A videotape
2 tbsp. salad dressing	A ping-pong ball
1 medium orange or apple	A tennis ball
3 oz. meat or fish	A deck of cards
1 cup pasta or rice	A baseball
1 oz. cheese	4 dice

We are looking for your story!!

That's right. Tell us how thyroid disease has changed your life, how you've adapted to live a normal life.

Tell us about the struggles you've had to face, the mountains you've climbed.

Send in your life story preferably on disk or by e-mail along with photos of you and your family and friends and we'll make every effort to run it in an upcoming issue of *thyrobulletin*.

Send your life story to:

Ed Antosz 973 Chilver Road Windsor ON N8Y 2K6 Fax: (519) 971-3694 E-mail: eantosz@uwindsor.ca

Racontez nous votre histoire!!

Quelles changements avez vous subit dans votre vie à cause de votre maladie thyroïdienne et comment avez vous adapté une vie normale?

Racontez les difficultés que vous avez enduré durant ce temps.

Faites nous parvenir votre histoire ainsi que des photos de votre famille, vos amis et de vous même, préférablement sur disque ou par courrier électronique. Nous ferons de notre possible d'inclure votre histoire dans uns des prochains numéros.

Faites parvenir votre histoire à:

Ed Antosz 973 Chilver Road Windsor ON N8Y 2K6 Fax: (519) 971-3694 E-mail: eantosz@uwindsor.ca 16 September 1999

His Excellency The Right Honourable Roméo LeBlanc Governor General Of Canada Rideau Hall 1 Sussex Drive Ottawa, Ontario, K1A 0A1

Your Excellency:

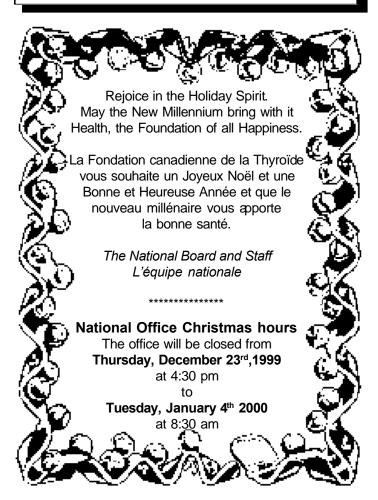
As Founder of the Thyroid Foundation of Canada I am writing to thank you for the gracious manner in which you honoured the Foundation as Patron.

We were especially pleased when you took the time in your very busy schedule to visit and address our Sudbury thyroid chapter.

On behalf of the Foundation I wish to convey to you and Her Excellency our best wishes for a healthy and happy retirement. On my own behalf, as a Member of the Order of Canada, I would like to express my thanks for the beautiful Christmas cards I have received from Your Excellencies.

Yours truly,

Diana Hains Meltzer Abramsky, C.M., B.A.





Letters to the doctor

Robert Volpé, MD, FRCPC, MACP, Medical Adviser to the Foundation

Can you please tell me if you have ever come across anyone in your society who has a lingual thyroid. I was born with this defect (gland embedded in the base of the tongue). This was removed 2 years ago but I am still having problems.

Lyn Thipthorp, Truro Cornwall UK

I have several patients with lingual thyroids. This is a developmental defect whereby the thyroid, which ordinarily starts at the base of the tongue never moves forward into the neck. We treat lingual thyroid by giving patients thyroxine which suppresses the thyroid and it shrinks down. I have had about twenty patients in my practice with lingual thyroids over my long career and we have not required surgery for any of those patients since their thyroid shrank nicely on thyroxine medication. The patient comes from Cornwall but she might go to see Dr. John Lazarus in Cardiff, Wales or Dr. Tony Weetman at the University of Sheffield, Sheffield, England, for further advice.

&&&&&&&&

Would it be possible to ask a question concerning the new thyroid pill that I have recently been changed to. I suffer from hypothyroidism. I was on levothyroxine (0.125 mg) for the last 3-4 years or so. My doctor has since placed me on Cytomel (liothyronine 5 mcg twice daily). I understand that this drug has been given approval to be sold in Canada again. My questions are:

- 1. What is the difference between levothyroxine and liothyronine (Cytomel)?
- 2. Why was Cytomel taken off Canadian shelves and why is it now available in Canada?
- 3. How will I benefit from Cytomel as opposed to levothyroxine?

I was the one who asked my doctor to switch medications because a friend of mine is on Cytomel and has never felt better. She's more energetic and actually has lost weight.

Cindy-McLennan Warren, Maberly ON

In response to this question, I should tell you that the thyroid gland manufactures two thyroid hormones, namely, L-Thyroxine (T4) and L-Triiodothyronine (T3). The major thyroid hormone (T4) actually breaks down to T3, such that most of the T3 in the body comes from this breakdown. Thus, when you give a tablet of T4, the T3 levels will be normal. T3 is the same as liothyronine (Cytomel).

Thyroid Foundation of Canada La Fondation canadienne de la Thyroïde

Founded in/Fondée à Kingston, Ontario, in 1980

Patron

Diana Meltzer Abramsky, CM, BA

Board of Directors

Founder – Diana Meltzer Abramsky (ON)
President of each Chapter (currently 22)
President – Arliss Beardmore (BC)
Secretary – Stephen Clow (ON)
Treasurer – Allan Cruikshank, CA (OC)

Vice-Presidents

Chapter Organization & Development – Joan DeVille (ON)
Education & Research – Nora Hockin (ON)
Publicity & Fundraising – Keith Attoe (ON)
Operations – Irene Britton (NB)
Past President – Donald McKelvie (NB)

Members-at-Large

Marc Abramsky, Ed Antosz, Ellen Garfield, Nathalie Gifford, Phyllis Mackey, Rita Wales

Annual Appointments

International Liaison – Diana Meltzer Abramsky, CM, BA Legal Adviser – LouAnn Chiasson, BA, LLB Medical Adviser – Robert Volpé, MD, FRCPC, MACP

Thyroid Foundation of Canada thanks Health Canada for its financial support. Thyroid Foundation of Canada is a registered charity – number 11926 4422 RR0001. La Fondation canadienne de la Thyroïde remercie Santé Canada pour son support financier. La Fondation canadienne de la Thyroïde est un organisme de bienfaisance enregistré numéro 11926 4422 RR0001.



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Le **thyrobulletin** est publié quatre fois par année: la première semaine de mai (printemps), août (été), novembre (automne) et février (hiver). La date limite pour les articles pour le prochain numéro: le 3 janvier, 2000

Contributions to/à – Editor/Rédacteur: Ed Antosz 973 Chilver Road, Windsor ON N8Y 2K6 Fax: (519) 971-3694 E-mail: eantosz@uwindsor.ca

NOTICE TO ALL MEMBERS

Your membership in the Foundation expires on the date that is printed on the address label on your *thyrobulletin*.

Please use the **Membership/Donation Form** in *thyrobulletin*.

You may renew early – and for one or two years! You will be credited with renewal on the date that you are due to renew.

... Donations are always welcome.

The objectives of the Foundation are:

- to awaken public interest in, and awareness of, thyroid disease;
- to lend moral support to thyroid patients and their families:
- to assist in fund raising for thyroid disease research.



- éveiller l'intérêt du public et l'éclairer au sujet des maladies thyroïdiennes;
- fournir un soutien moral aux malades et à leur proches;
- aider à remasser les fonds pour la recherche sur les maladies thyroïdiennes.

Letters to the doctor . . . con't from page 3

When one gives T4, it invariably breaks down to T3, and levels of T3 will be normal when the dosage of thyroxine is appropriate. There thus does not appear to be good reasons for giving added T3, since it only increases the levels of T3 greater than normal, which does not appear to be any advantage at all.

However, recently there has appeared in the medical literature an article suggesting that the addition of T3 would make people feel better. However, at the same time, it is increasing levels of T3 above normal, and this may not be beneficial to people over the long run. For most endocrinologists, the idea of giving added T3 has not achieved any favour and we are generally worried about giving added T3.

T3 works much more quickly than T4, but it is gone much more quickly. Thus giving Cytomel (T3) alone will not maintain stable thyroid hormone levels in the patients. As mentioned above, adding T3 to T4 also has no advantages, as it merely increases the levels of T3 above normal, and this may produce cardiac complications many years down the line.

The reason why Cytomel (T3) was taken off the Canadian shelves was merely a distribution problem of the companies involved. This distribution problem has now been solved, and the medication is back on the shelves as before.

As to your question as to whether you will benefit from Cytomel as opposed to L-thyroxine, there is no intrinsic advantage to Cytomel, and any effect that it might have to make you feel better is probably by making you a little bit hyperthyroid, which as I have stated above, may be a disadvantage over the many years that you will be taking it.



Know your TSH

by Larry Wood

Today, as part of the advances in modern medicine, there are many common screening tests which are indicators of good health or potential health problems. These include tests for cholesterol as a measure of risk for heart disease, a blood sugar test to detect diabetes, and a PSA level test which indicates in men the risk for prostate cancer.

Fortunately, there is also a thyroid test which tells you whether your thyroid hormone levels are right for you. It is called a TSH test (thyroid stimulating hormone) and consists of taking a small amount of blood which is then sent to a laboratory for analysis. All thyroid patients should know their test results and what these numbers may indicate.

For example, if you have too much thyroid hormone in your blood (hyperthyroidism), your pituitary gland senses this and decreases the production of TSH. If, however, your thyroid hormone level is low (hypothyroidism), your TSH levels will be high as your pituitary gland tries to stimulate the thyroid gland to produce more hormone. It is a bit like turning the thermostat up or down if the house is too cold or too hot.

The TSH test is the single most important test to screen for hyper or hypothyroidism, and the only reliable way to tell if your dose

of thyroid hormone is right for you. If you are hypothyroid and taking thyroid hormone, your TSH should be in the normal range. In many laboratories this is 0.5 to 5.0 microunits/ml but you should check the laboratory's normal range as some assays vary in their sensitivity and range of normal values. The normal range may also vary somewhat from country to country. If your TSH results are outside the normal range, further tests of T3 and T4 hormones may be in order.

If you have thyroid cancer, and your physician is giving you high doses of thyroid hormone to suppress the activity of cancer cells, your TSH level should be low.

Whatever the situation is for you, be sure you discuss your TSH results with your physician at the time of your regular check-ups and, above all, know your own TSH number and where it fits within the normal range. Keep a record of the results of each TSH test, note any major changes and discuss them with your doctor. Being well informed about your own condition is surely one of the best ways to help yourself.

Lawrence Wood, MD, FACP, is President of Thyroid Federation International and the Thyroid Foundation of America.

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Thank you.



If you have not made your will yet, will you do it now?
Will you remember the Thyroid Foundation of Canada?

If you plan to update your will, will you do it now? Will you help the Thyroid Foundation of Canada?

If we have helped you, will you help us help others?

A bequest, an insurance policy, a tax exempt donation – will you think about it? Will you do it now?



BURLINGTON-HAMILTON AREA

See Coming Events for November public meeting.

CALGARY AREA CHAPTER

We are seeking new members and volunteers. Please call Marlene at 1-403-271-7811.

FREDERICTON AREA

An education meeting was held on Monday 18 October 1999 in Room 222, D'Avray Hall, University of New Brunswick. For more information regarding activities call Colleen Smith: 506-455-6896. Please note her new phone number.

KINGSTON AREA CHAPTER



Dragon Boat Race: Pablo Paddlers, sponsored by the Kingston Area Chapter.

Kingston Chapter sponsored a team, the *Pablo Paddlers* in the first Dragon Boats races held in Kingston, on 11 September. This was a co-operative project: the chapter received publicity and the races raised money for Hospice Kingston. Our team came in second in both races, quite an achievement for a group who had never paddled in Dragon Boat races previously.

At the request of Nathalie Gifford, national membership chairperson, chapter members prepared a mailing of 1500 letters to lapsed members of the Foundation. They have volunteered to assist in similar national projects in the future.

At the request of Arliss Beardmore, national president, Kingston members staffed the Foundation's 1-800 line from 9:00 am to 6:00 pm the week of September 27th to assess the response to the advertisement in the Monday, September 27th Women's Health section of *The Globe & Mail* newspaper.

LONDON AREA CHAPTER

"Chuck and I want all of our 'thyroid family' friends know how much we appreciated the many expressions of sympathy we received after the death of my brother. With our heartfelt thanks" Barbara Cobbe.

Important: London chapter members, watch for upcoming fund-raising events in year 2000.

MARYSTOWN CHAPTER

A public education meeting was held 25 October at the College of the North Atlantic. On 23 October we staffed an information booth and distributed the Thyroid Assessment Ouestionnaire.

We will be mailing a letter to all our former chapter members, encouraging them to rejoin the Foundation.

MONTREAL CHAPTER

In July, a two-page article was written on thyroid disease in the French newspaper *La Presse*. The article attracted many people who then phoned our info line for more information. We responded to approximately 350 calls.

The Montreal Chapter took part in the *Global Conference* on Aging, 5 September – 8 September, which took place in a conference centre in downtown Montreal. We had a booth which enabled us to give out information on the Thyroid Foundation. Many thanks to all the volunteers. It was an excellent opportunity for exposure and recognition of the Foundation.

On 21 September we held the first lecture of the season at the Montreal General Hospital. Dr. François Gilbert spoke on Thyroid Disease. The lecture was in French, followed by a bilingual question and answer period.

THUNDER BAY CHAPTER

We welcome Darlene Ibey, new president of the Thunder Bay Chapter, Susan Pagnotta having stepped down.

TORONTO CHAPTER

Lottie Garfield, community liaison, suggested to TV Ontario that it include a segment on thyroid disease in its new *Your Health* program. On its initial program, Tuesday 5 October, Dr. Robert Volpé and three of his patients talked about various aspects of hypothyroidism. The program, which gave the Foundation's 1-800 telephone number, was repeated Wednesday 5 October and Sunday 10 October.

On October 23, 1999, Dr. Robert Volpé, National Medical Adviser addressed our education meeting at Sunnybrook and Women's College Health Sciences Centre. His topic was *Unanswered Questions about Thyroid Disease*.

Dr. Jay Silverberg, Head of Sunnybrook's Department of Endocrinology and Metabolism was present at the beginning of the meeting to explain some new research he is involved with regarding the use of T4 and T3 in the treatment of hypothyroidism.

After the formal part of his presentation Dr. Volpé held an informative Question and Answer session in which many patient questions were answered. After the meeting there was an orientation to greet and recruit new volunteers.



With a small group of dedicated volunteers we continue to provide outreach and respond to a significantly increased number of

requests for information and literature from doctors, hospitals, libraries and community health projects.

For more information about these activities and our education meetings, please call our help line: 1-416-398-6184.

VANCOUVER CHAPTER

We have moved. Our new mailing address is:

Thyroid Foundation of Canada Vancouver Area Chapter Suite 187, 5525 West Boulevard Vancouver, BC, V6M 3W6

Telephone number unchanged: (604) 266-0700

We are currently looking for more volunteers. If you would be interested please contact us at our new address so that we can contact you. Be sure to include your telephone number.

Monthly Draw

Renew your Membership now and become eligible for our Monthly Draw

Every month one lucky Renewing Member will receive a book on thyroid disease.

Our July 1999 winner was: **May Farnsworth**

Ottawa, Ontario
who chose
"The Thyroid Sourcebook"
Sara Rosenthal

Our August 1999 winner was:

Anne Ellis Toronto. Ontario

who chose
"Your Thyroid: A Home
Reference"
Wood, Cooper and Ridgway

Our September 1999 winner was:

Bernice Lester

Hanna, Alberta
who chose
"Your Thyroid: A Home
Reference"
Wood, Cooper
and Ridgway

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Deadline for contributions for next issue (Winter):

January 3, 2000

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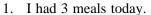
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La date limite pour les articles pour le prochain numéro (hiver):

le 3 janvier, 2000

Daily checkup



- 2. I allowed 4-6 hours between each meal.
- 3. I had at least a minimum number of servings from each of Canada's Food Guide's four food groups:
 - grain products 5 12 servings per day
 - vegetables & fruit 5 10 servings per day
 - milk products: servings per day adults: 2 4 servings children (4-9 years): 2 3 servings youths (10-16 years): 3 4 servings pregnant & breast-feeding women: 3 4 servings
 - meat & alternatives 2 3 servings per day

- 4. I had something from 3 of the above 4 food groups at each meal.
- 5. I had one or more starchy foods at each meal.
- 6. I made lower fat choices.
- 7. I selected a variety of high fibre foods.
- 8. I limited my concentrated sweets (if used) to small amounts with a meal.
- 9. I consumed sufficient fluids (not including tea, coffee and alcohol).
- 10. I did at least 20 minutes of exercise.



Burlington-Hamilton Area

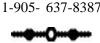
Tuesday 30 November 1999

7:30 pm

Literature display 7:00 pm. Dr. Hertzel Gerstein

Director, Division of Endocrinology and Metabolism, McMaster University, Hamilton, ON Topic: When the thyroid is not doing its job: problems and solutions

Location: Joseph Brant Memorial Hospital, Bodkin Auditorium 1230 North Shore Blvd., Burlington. Free parking. For more information call



Calgary Area Chapter

Saturday 13 November 1999 2:30 pm

Dr. Norman Wong,

Endocrinologist Topic: Hypothyroidism and pregnancy. Location: University of Calgary, Atrium of Health Sciences Bldg., Room G618, 3330 Hospital Drive N.W. Calgary (beside the

March 2000:

Date, speaker and topic TBA

Foothills Hospital)

May 2000:

Date, speaker and topic TBA For more information call 1-403-271-7811



Kingston Chapter

Tuesday 15 November 1999 7:30 pm

Dr. Robyn Houlden,

Endocrinologist Topic: Radioactive iodine treatment of thyroid disease

Tuesday 15 February 2000

7:30 pm

Dr. Katherine Kovacs,

Endocrinologist Topic: Psychiatry and the thyroid.

Tuesday 14 March 2000 7:30 pm

Speaker & Topic TBA

Tuesday 18 April 2000 7:30 pm

Dr. Robert W. Hudson,

Endocrinologist Topic: Nodules: benign & malignant – the manner of presentation, the management and what one can

expect after treatment of these diseases

Location: Ongwanada Resource Centre, 191 Portsmouth Ave., Kingston For more information call: 1-613-389-3691



Kitchener-Waterloo Chapter

Tuesday 23 November 1999 7:30 pm

Dr. Cameron Purdon,

Endocrinologist, Chapter Medical Adviser Open forum.

Topic: Living with thyroid disease – a chance to get your questions answered! Location: Surrey Street Clinic, Guelph, Ontario

Saturday, 29 January 2000 2:00 pm

Hitesh Tailor, Pharmacist Knoll Pharma Inc.

Topic: Thyroid disease and your medication. Information table:

Michelle Donnelly, Territory Manager, Knoll Pharma Inc.



Tuesday 28 March 2000

7:30 pm

Dr. Niloufer Saeed, Family Physician & Haematologist, Kitchener, Ontario Topic: Investigation & treatment of common thyroid disorders as seen by

Tuesday 2 May 2000

7:30 pm

a family practitioner.

Annual Meeting Dr. Tom McDonald,

Chief of Endocrinology & Metabolism, London Health Sciences Centre, University

Campus, London Topic: Thyrotoxicosis Location: The Community Room, Albert McCormick Arena, 500

Parkside Dr., Waterloo For more information call: 1-519-884-6423



London Chapter

Tuesday 16 November 1999 7:30 pm

Dr. Thomas J. McDonald, Endocrinologist, University Hospital, Prof. of Medicine Topic: Hyperthyroidism

Tuesday 21 March 2000 7:30 pm

Dr. Terri Paul,

Endocrinologist, London Health Sciences Centre, University Hospital Topic: Thyroid disease and diabetes: what's the connection.

Tuesday 16 May 2000

Speaker and topic TBA Location: London Public Library Auditorium, 305 Oueens Avenue, London. Free admission, all welcome, open to the

public. For more information call: 1-519-649-5478



Marystown Chapter:

March 2000

more information later



Montreal Chapter

Wednesday **17 November 1999**

7:30 pm.

Speaker & topic TBA

Wednesday 16 February 2000

7:30 pm. **Pharmacist** Topic: TBA

Wednesday 18 March 2000 7:30 pm.

Dr. J. Enrique Silva,

Professor of Medicine & Physiology, McGill University

Topic: Recent progress in thyroid disease research.

Saturday 8 April to Tuesday 11 April 2000 Art exhibition and sale

Wednesday 17 May 2000

7:30 pm.

Annual meeting and election

Location: Montreal General Hospital, Livingston Hall, 6th floor

For more information call: 1-514-482-5266



Ottawa Chapter

Tuesday 9 November 1999 7:15 for 7:30 pm

Dr. Erin Keely,

Associate Professor, Internal Medicine and Endocrinology, University of Ottawa and Medical Adviser to chapter Topic: Thyroid disease, pregnancy and childbirth



Tuesday 15 February 2000 7:15 for 7:30 pm.

Dr. John Gay, Associate Professor Endocrinology, University of Ottawa Topic: *Thyroid disease and osteoporosis*

Tuesday 18 April 2000

7:15 for 7:30 pm.

Annual General Meeting and Patients
Panel moderated by

Dr. Timothy O'Leary,

Associate Professor of Endocrinology,
University of Ottawa.
Location: Auditorium, Ottawa
Hospital, Civic Campus. All are
welcome. For more information call
1-613-729-9089

Présentation générale (en français) jeudi, 25 novembre 1999 à 19h30

Dr. Sandra Babin,

endocrinologue, Centre hospitalier régionale de l'Outaouais, auditorium, 9ieme étage, Centre hospitalier régionale de l'Outaouais, 116, boulevard Lionel-Émond, Hull Sujet: *Maladies Thyroïdiennes:*Pour de plus amples renseignements, composer le 1-613-729-9089



Toronto Chapter

Mid-winter Meeting and Topic TBA Location: Harrison Hall, Lecture Theatre, Sunnybrook and Women's College Health Sciences Centre,

> 2075 Bayview Avenue, Toronto, Ontario. For more information call: 1-416-398-6184



Vancouver Chapter

For more information, call the help-line, (604) 266-0700



Questions from Hamilton

Robert Volpé, MD, FRCPC, MACP, Medical Adviser to the Foundation

t an education meeting held in Hamilton on 19 November 1998, time did not permit Dr. Hertzel Gerstein, the speaker, to answer all the questions posed by the audience. In the last two issues (Volumes 20, No.1 & 20, No.2) Dr. Robert Volpé answered many of these questions. In this issue he answers the remaining questions.

Pregnancy

- Q1. Can transient thyroiditis be diagnosed at beginning of pregnancy? If only postpartum, what is the time frame? Could it possibly be a year postpartum? What are the effects of taking PTU on the foetus?
- A. Transient thyroiditis can occur in early pregnancy, but it is quite rare. It can be diagnosed by the presence of appropriate symptoms, signs and blood tests for thyroid function and thyroid autoantibodies. However, usually thyroiditis presents in the postpartum period from 3-6 months after delivery. and then the condition itself may last several months thereafter. A year after delivery is somewhat late for this event. As for the taking of propylthiouracil during pregnancy, the dosage must be lowered in the third trimester since higher doses could cause foetal goitre and foetal hypothyroidism. However, low doses are usually quite safe.
- **Q2.** Is postpartum hypothyroidism to be treated temporarily? Should your doctor take you off medication to see if your thyroid would return to normal?
- A. Postpartum hypothyroidism can be treated temporarily as this condition generally only lasts for less than a year. The doctor could take a patient off the medication to determine whether the thyroid has returned to normal. However, there are reasons for continuing thyroxine forever in such circumstances. This is because there is a very high recurrence rate after future pregnancies and this can be prevented by long term thyroxine therapy.

- **Q3.** Is it normal to go from postpartum hypothyroidism to Hashimoto's disease?
- A. It is quite common to go from postpartum hypothyroidism to permanent Hashimoto's thyroiditis. After ten years, about half the patients who had postpartum thyroiditis will have Hashimoto's thyroiditis.

Thyroid disease – miscellaneous

- Q1. If high body temperature is cause for concern, what about low temperature? Is a consistently low body temperature a symptom of thyroid disease, even if the tests are fine?
- A. Low basal body temperatures are exceedingly common, and unless the patient is deathly ill, generally do not mean much. Certainly a consistently low body temperature is not a symptom of thyroid disease when function tests are normal. This is a complete fallacy.
- Q2. What does it mean to have a persistently low body temperature all the time? Which is harder to diagnose hyper or hypothyroidism? Why are the doctors not cognizant of the symptoms of particularly hypothyroidism? If thyroid reading is in normal range, is it normal for the person?
- A. Once again, there is no significance to a persistently low basal body temperature. This has been promulgated in the 'marginal literature' and it has been even claimed that this is a better test than the routine thyroid function tests. This is completely wrong as the thyroid function tests, particularly the TSH, are extremely sensitive. If all these tests are normal, then the thyroid itself is quite normal in terms of thyroid function.

Doctors are quite cognizant of the symptoms of hypothyroidism. The problem is that these symptoms are very non-specific and can occur in a wide range of non-thyroidal diseases. Fatigue, malaise and lassitude are extremely common amongst the population and usually do not signify

hypothyroidism. If the thyroid function tests are within the normal range, once again, particularly the TSH, then it is normal for that person. It is true that there is a range of normal but if the TSH is within normal limits, then that patient has normal thyroid function.

- Q3. If one has liver abnormalities would it make sense to give T3 and T4 orally and not just levothyroxine?
- A. Even with liver abnormalities, L-thyroxine converts to triiodothyronine quite normally. This occurs in many other tissues of the body other than the liver.

Q4. What is Cushing's disease.

A. Cushing's disease is a disease of the adrenal glands and has nothing to do with the thyroid. It is due to over activity of the adrenal glands, causing high blood pressure, rounding of the face and body, thinning of the skin, osteoporosis, and high blood sugars. It is a very dangerous disorder.



Autoimmune **Endocrinopathies**

Edited by Robert Volpé, MD Humana Press, Totowa, NJ, 1999. US\$175. ISBN 0896036804

This volume on the subject of autoimmune endocrine diseases adds to the prolific output of Bob Volpé on this subject. As a thyroid doctor, I am delighted to see that there is such an emphasis upon autoimmune thyroid disease, although there are major contributions on insulin-dependent diabetes and other organ-specific endocrine diseases.

The authors of this text are some of the world leaders in this field, and bringing them together is a tribute to the collaborations and friendships Bob Volpé has established over the years. I especially enjoyed reading a summary of the genetics of diabetes and thyroid disease by Terry Davies and his colleagues, as well as Tony Weetman's discussion of thyroid-associated ophthalmology and dermopathy, and a review of the epidemiology of thyroid disease by Mark Vanderpump and Michael Tunbridge. I also learned a lot about subjects with which I was much less familiar such as autoimmune adrenal, gonadal and pituitary failure.

I think this book provides an excellent overview of current knowledge on the subject of autoimmune endocrine disease, and as such it is of great interest to endocrinologists with an interest in immunology, and indeed to the immunologist with an interest in endocrinology. I recommend it highly.

Jayne Franklyn. Reprinted from The Endocrinologist Newsletter, Society of Endocrinology, UK, Autumn 1999.

Thyroid Orbitopathy Indicator

An 'early warning' thyroid project

he University of British Columbia (UBC) in association with the Thyroid Foundation of Canada (TFC), Vancouver General Hospital and St. Paul's Hospital has initiated an 'early warning' thyroid project. It is expected to greatly improve detection and therefore treatment of thyroid orbitopathy (Graves' Orbitopathy).

Thyroid orbitopathy, the swelling and protrusion of the eyes, is a devastating autoimmune condition that has a significant impact on the patient's daily activities and quality of life. It is usually associated with (and often develops following) hyperthyroidism, the most common form of which is thyrotoxicosis or Graves' Hyperthyroidism.

The Thyroid Foundation of Canada gives a conservative estimate that approximately 1 in every 100 Canadians is affected by this condition. Research has shown that an estimated 60% of these patients experience some signs of orbitopathy. If these patients can be reached early in the development of their disease, effective treatment may be used to lessen the impact on patient health.

A diagnostic tool designed to measure a patient's risk of developing thyroid orbitopathy would provide an effective method of raising awareness and improving control of the debilitating disease. The diagnostic tool will take the form of a questionnaire, the Thyroid Orbitopathy Indicator (TOI).

Its contents will be developed through clinician consultation, patient focus groups and literature searches relating to Graves' Orbitopathy. The resulting questionnaire will be easy for the patient to understand and answer, brief to limit the burden on the patient's time and patience, and straightforward for administrators to score.

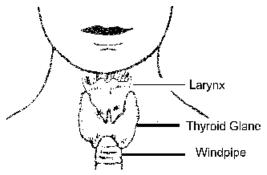
Once it has been designed, it will be tested on hyperthyroid patients recruited from Vancouver General Hospital and St. Paul's Hospital. These patients will be given a copy of the questionnaire, and clinical assessments at regular intervals over an 18-month period. Both UBC and TFC are enthusiastic about this recent thyroid initiative.

The study will be based out of the Vancouver General Hospital Eye Care Centre under the direction of Jack Rootman, MD, FRCSC, Professor of Ophthalmology and Pathology, University of British Columbia. The TOI development coordinator is Mark Linder.

All inquiries concerning the project may be addressed to Mark Linder at 2250 Willow Street, Vancouver, BC, V5Z 3N9, Canada. Tel: (604) 875-4111, ext 62880 Fax: (604) 875-4663, E-mail: mlinder@interchange.ubc.ca

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Glossary



Glossaire

Antibodies: Molecules produced by the lymph tissue to neutralize the effect of a foreign substance.

Hashimoto's thyroiditis: Hashimoto's is the most common cause of hypothyroidism. It is a disorder of the thyroid gland, most common in middle-aged women, in which the body's antibodies attack the thyroid tissue.

Hormone: Chemical substances produced by the body's glands to control the functioning of the body's organs. They are carried by the blood.

Hyperthyroidism: A disease that occurs when the thyroid gland produces **too much thyroid hormone.**

Hypothyroidism: A disease that occurs when the thyroid gland does **not produce enough thyroid hormone.**

Immune system: The body's system that protects it from foreign organisms.

Levothyroxine sodium: A man-made form of the main hormone produced by the thyroid gland. It is the most common drug for treating hypothyroidism.

Osteoporosis: A condition of depleted bone mass. The result is weakened or compressed bones that may be broken by minor injuries and/or curvature of the spine.

Pituitary gland: A gland situated at the base of the skull. The pituitary gland monitors the bodily processes and produces Thyroid Stimulating Hormone (TSH), a hormone that signals the thyroid gland to produce thyroid hormone.

Thyroid gland: A tiny butterfly-shaped gland located in front of the wind pipe. It regulates your body's organs through the thyroid hormone it produces.

TSH test: A simple blood test used to uncover thyroid disease. Thyroid Stimulating Hormone (TSH) is a hormone that rises or falls with abnormal thyroid function. This test measures TSH hormone levels in the blood to detect if the thyroid is working properly.

Myth: most people with an underactive thyroid are obese!

Anticorps: Molécules produites par les tissus lymphatiques pour neutraliser une substance étrangère.

Hormone: Substance produite par une glande et déversée dans le sang, ayant une action physiologique spécifique au niveau de divers organes.

Hyperthyroïdie: Maladie découlant d'une sécrétion hormonale excessive de la thyroïde.

Hypophyse: Glande située à la base du crâne. L'hypophyse régularise les processus de l'organisme et produit la TSH, ou thyréostimuline hypophysaire, hormone stimulant la sécrétion d'hormones par la thyroïde.

Hypothyroïdie: Maladie découlant d'une sécrétion hormonale insuffisante par la thyroïde.

Lévothyroxine sodique: Forme synthétique de la principale hormone sécrétée par la thyroïde. C'est le médicament le plus fréquemment prescrit dans les cas d'hypothyroïdie.

Ostéoporose: État caractérisé par une diminution de la masse osseuse. Les os affaiblis ou comprimés peuvent se fracturer aux chocs mineurs ou, dans le cas de la colonne vertébrale, sous l'effet de la courbure.

Système immunitaire: Système de protection de l'organisme contre les germes étrangers.

Test de la TSH: Test sanguin simple utilisé pour déceler les maladies thyroïdiennes. La sécrétion de TSH (thyréostimuline hypophysaire) augmente or diminue en cas d'anomalie de la fonction thyroïdienne. Ce test consiste à mesurer les concentrations d'hormone dans le sang pour déterminer si la thyroïde fonctionne correctement.

Thyroïde: Minuscule glande en forme de papillon placée en avant de la trachée qui régularise la fonction des organes par l'intermédiaire des hormones qu'elle sécrète.

Thyroïdite de Hashimoto: C'est la cause la plus commune d'hypothyroïdie. Il s'agit d'un trouble de la thyroïde, très fréquent chez les femmes d'un àge mûr, durant lequel des anticorps produits par l'organisme attaquent le tissu thyroïdien.

Mythe: la plupart des insuffisants thyroïdiens sont obèses



By Jody Ginsberg, MD, FRCPC

is more threatened than ever!

Medical Research is the only way to advance our understanding about the causes of thyroid disease with a view to developing new treatments. However, funding for research in thyroid disease

Because of the economic climate, the amount of funding available for medical research from government agencies has decreased in recent times. Unfortunately, thyroid research may be more hard hit than other areas. Agencies controlling research funding want more "bang for the buck" and are naturally directing their resources to diseases with the highest mortality rates such as heart disease and cancer. Fortunately, thyroid disease rarely results in death. However, research into the immunology of thyroid disease or on how thyroid cells grow may have direct application into such serious diseases as insulin-dependent diabetes and cancer. The high prevalence of thyroid disease in the population, its significant morbidity and effect on workdays lost should prompt further research into this area. As

Important reasons to support thyroid research

government agencies become less able to fund research into thyroid disease, private agencies such as the Thyroid Foundation of Canada will play an increasing role in ensuring the continuance of thyroid-related research in the future.

Here are some examples as to how thyroid research in Canada in recent times is benefitting patient care:

- Drs. Jean Dussault in Quebec and Paul Walfish in Ontario developed the methodologies used in screening programs for congenital hypothyroidism. These techniques, now applied worldwide, have identified a congenitally hypothyroid infant in 1:5000 births. Appropriate treatment provided early has prevented mental retardation in these infants. Without research into how thyroid hormone measurements could be made from blood applied to a filter paper spot, such programs would not be achievable.
- Dr. Robert Volpé in Toronto has characterized the nature of the immune defect responsible for autoimmune thyroid disease. His laboratory is currently studying animal models in which thyroid disease can be induced or caused to regress upon manipulation of the immune system. Potentially, similar

manipulations of the immune system in a patient prone to develop thyroid disease may lead to the prevention of autoimmune thyroid disease in the future.

- Dr. Roger Rittmaster and colleagues in Halifax are studying a protocol for treatment of Graves' disease. Based on a similar protocol which was successful in Japanese subjects, these investigators are determining if such a treatment could be applied to Canadians. If so, their study could point to a different way of treating Graves' disease.
- Drs. Jack Rootman and David Kendler of Vancouver are outlining the natural history of thyroid eye disease and how available and new treatments should be applied.

These important projects could not have been successful without support for medical research. The Thyroid Foundation, through its Summer Studentship and Fellowship programs has played a critical role in many of these and other important research initiatives.

Dr. Ginsberg, Director, Division of Endocrinology & Metabolism, University of Alberta, was Medical Adviser to the Thyroid Foundation of Canada 1993-1996.

"Today is a gift, that's why it is called the present."

To realize the value of one year:

Ask a student who has failed a final exam.

To realize the value of one month:

Ask a mother who has given birth to a baby.

To realize the value of one week:

Ask an editor of a weekly newspaper.

To realize the value of one hour:

Ask the lovers who are waiting to meet.

To realize the value of one minute:

Ask a person who has missed the train, bus or plane.

To realize the value of one second:

Ask a person who has survived an accident.

To realize the value of one millisecond:

Ask the person who has won a silver medal in the Olympics.

Time waits for no one. Treasure every moment you have. You will treasure it even more when you can share it with someone special.

Canadian initiative:

Thyroid Assessment Questionnaire

What's that? Well, it is the most recent communication initiative undertaken by the Thyroid Foundation of Canada. It is a neat little questionnaire that anyone can answer in a few minutes, then take to their doctor as a talking point to discuss their thyroid concerns. A simple idea, but one that demanded great organization and hard work.

As the first lay thyroid organization in the world, the Thyroid Foundation of Canada has always been attuned to the problems experienced by thyroid sufferers. Through its contact with many thousands of patients, it has become increasingly concerned about the problem of delayed diagnosis.

Patients may feel that their symptoms are not important enough to mention to their physicians. Symptoms may be attributed to signs of aging, to menopause, to general fatigue or the result of stress. Without the complete picture of symptoms, however, thy-

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roid disease can be overlooked. Patients experiencing the effects of thyroid disease may need help communicating with their physician. Ironically, just when it is most important to talk with the family doctor, thyroid sufferers may be least able to do so. The result may be delayed diagnosis and prolonged suffering. Left untreated, thyroid dysfunction can lead to other health problems, including cardiovascular disease, osteoporosis, anxiety and depression. Early diagnosis is critical.

The goal of the Thyroid Assessment Questionnaire (TAQ) project is improved communication. The final product is a professionally designed brochure, a well-tuned questionnaire developed through the cooperative efforts of volunteers, health care professionals, government, the private sector, and the general public.

Government played a key role in launching this project by providing the primary source of funding which made it possible to hire a Project Manager, to evaluate the project, and to document it for future use by other health organizations.

Business sector participants to whom we owe our success and thanks are Knoll Pharma Inc. and MDS Metro Laboratory Services. The latter donated blood testing and collection services. Their employees, in particular team leaders Andrea Safavi and Cheri Drew, Vancouver, volunteered their time and considerable expertise to conduct

three days of clinic activity. Knoll Pharma provided additional funding and a wealth of marketing knowledge and organizational support through the efforts of Product Manager Mahen Gundecha and Media Consultant Barry Ashpole.

The general public involved in the project included 30 focus group members, 1200 clinic participants, and more than 2,000 people attending TAQ forums and field trials.

The TAQ is a work in progress. Our initial efforts resulted in its successful launch, and the future holds much more. Encouraged by this success, the Foundation set up focus groups to develop a French version of the TAQ. Plans are also underway for a TAQ to be developed in Vancouver for the Chinese population.

In addition to the Foundation's excellent information available for patients already diagnosed with thyroid disease, the TAQ is intended for the general public to increase awareness of thyroid disease and to facilitate communications between the physician and patient. If it succeeds in doing so, we will be well pleased with our TAQ project.

An extract from ThyroWorld, publication of Thyroid Federation International

TAO Press Release

In conjunction with the printing and wide-spread distribution of the TAQ this summer, Media Consultant, Barry Ashpole, distributed a TAQ Press Release across the country to the media: radio, television and the press.



Souffrez-vous de fatigue. dépression, anxiété. changement de poids inexpliqué, ou difficulté à tolérer la chaleur ou le froid? Ce sont tous des symptômes communs des maladies thyroïdiennes. Venez assister à la première séance d'information publique en français de la division de la région d'Ottawa et recevez copie d'un nouveau questionnaire qui vise à faciliter les communications entre patient et médecin et à améliorer le traitement des maladies thyroïdiennes.

Conférencière:

Dr. Sandra Babin, endocrinologue

25 novembre 1999 à 7h30 p.m.

Auditorium, 9ième étage

Centre hospitalier régional de l'Outaouais

116 boulevard Lionel-Émond, Hull, QC

Information: 613-729-9089

Thyroid disease at a glance

hyroid disease has many faces, yet all of its symptoms originate with trouble in the thyroid gland. The thyroid gland is a small, butterfly-shaped gland weighing only an ounce. But it is also command central for many organs in the body, including the heart, brain, and liver. The thyroid gland also regulates metabolism and cell growth.

The thyroid gland secretes two major hormones, T4 (thyroxine) and T3 (triiodothyronine). These hormones travel to the organs of the body via the bloodstream. When all systems are go, Thyroid Stimulating Hormone (TSH) is released by the pituitary gland, which triggers the production of T3 and T4.

When T3 and T4 are at the appropriate levels, TSH will level off as it should. However, if there is too little T4 and T3, TSH will be elevated. If there is too much T4 and T3, TSH will be suppressed. In this way, TSH is a marker of thyroid function and thyroid hormone levels.

Hypothyroidism – occurs when the thyroid gland is underactive and produces insufficient thyroid hormone. It is the most common thyroid disorder, occurring more frequently in women than in men. Hypothyroidism affects 6% - 10% of women over the age of 65.

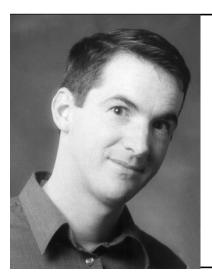
Treatment for hypothyroidism is straightforward. Synthetic levothyroxine (LT4) is a safe and effective thyroid hormone replacement therapy. In fact, it is one of the top three most commonly prescribed drugs in North America.

Hyperthyroidism – is a less common disorder affecting approximately 2% of women and .02% of men. It occurs when the thyroid gland is overproductive. The elevated T3 and T4 levels can have a dramatic impact on body functions, speeding up metabolism by 60%- 100%. Patients with hyperthyroidism have sometimes been described as being anxious to a point of not making sense.

There are a range of treatments available for hyperthyroidism, including antithyroid drugs, radioiodine treatment, and surgery. All are effective, though no one treatment ever results in a complete cure.

Thyroid cancer – fortunately, is extremely rare, accounting for less than 1% of all cancers. Total or partial thyroidectomy is the only treatment option. If the cancer has spread to the lymph nodes, these must also be removed.

Nodules – about 5% of the population have 'bumps' on the thyroid gland known as nodules. They are more common in women than in men and are probably caused by low T3 and T4. Provided they are solitary, nodules have just a 5% - 10% chance of being malignant.



The Thyroid Foundation of Canada wishes to welcome Yves Mayrand to the national office staff. Yves will be the Membership Services Coordinator and looks forward to serving all the Foundation's members.

La Fondation canadienne de la Thyroïde souhaite la bienvenue à Yves Mayrand à l'équipe du bureau national. Yves nous joint comme coordinateur des services aux membres et prendra plaisir à vous servir.

Recent thyroid cancer survivor/singer

Singer Donna Mae, of Stoney Creek, Ontario, is thriving and not just surviving, after having a bout with thyroid cancer. She has fully recovered and is singing again, doing benefit shows to increase awareness of thyroid cancer and to raise money for cancer research. A portion of her earnings is donated to the Canadian Cancer Society.

Besides doing benefits, she also provides encouragement, over the Internet, for others diagnosed with cancer. Her website is: http://www.geocities.com/Broadway/Wing/5603

Dear Donna Mae,

Thank you very much for the press clipping profiling your benefit concert this past weekend in Stoney Creek. I have no doubt that the event of July 4th was an overwhelming success. The Stoney Creek News article was excellent. I myself had an opportunity to hear the Stoney Creek concert announced here in Hamilton via radio.

On behalf of the Canadian Cancer Society, please accept our sincere appreciation for all your hard work and commitment in developing these benefit concerts to assist people living with cancer, and their families.

Ultimately, these are the true benefactors of your support. I am confident that your Burlington performance will be equally successful.

Regards, Kevin McDonald, Community Outreach Canadian Cancer Society, Central West Region

Thyroid Australia

Congratulations to Thyroid Australia upon the publication of its first newsletter, *THYROID FLYER*. Thyroid Australia, a newly formed national thyroid organization, was founded in Melbourne in June 1999. It is aimed at the one in fourteen Australians who are affected by thyroid conditions. The first issue contains articles on *Iodine Deficiency Disorders, The Thyroid and Iodine, Should Pregnant Women be Tested.* Welcome, Thyroid Australia, to the ever-growing group of thyroid organizations around the world.

	•	ooks are available from prices include taxes,	•		Canada.		
			Price	Quantity	Total		
	How Your Thyroid Works		\$12.00		\$		
	Your Thyroid: A Home Re	ok for Patients - Hamburger, Joe eference - Wood, Lawrence C., M	D,		\$		
	Cooper, David S., MD, Ridgeway, Thyroid Disease, The Fact		\$21.00		5		
	Tunbridge, W.M.G., MD	,, ,	\$27.00		\$		
	The Thyroid Sourcebook -	Rosenthal, M. Sara	\$27.00		\$		
	Video: The Woman Behind the Foundation				\$		
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	will support the	Senior 65+	\$15.00	\$25.00	\$		
Thy	roid Foundation	Student	\$15.00	\$25.00	\$		
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National Office/Bureau national

Staff/équipé Katherine Keen, National Office Coordinator/Coordinatrice du bureau national

Yves Mayrand, Membership Services Coordinator/Coordinateur des services aux membres

Office Hours/ Heures du bureau Tues.- Fri., 8:30 am - 12:00 pm/1:00 pm - 4:30 pm • Mardi à vendredi, 8h30 à 12h00/13h00 à 16h30 Tel: (613) 544-8364 / (800) 267-8822 • Fax: (613) 544-9731 • Email: thyroid@kos.net

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