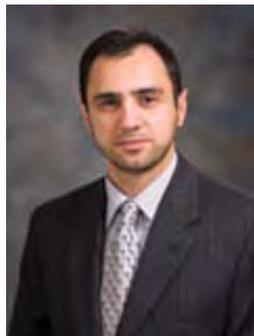




## Thyroid Cancer Survivorship: An Overview

THE UNIVERSITY OF TEXAS  
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**Mouhammed Amir Habra, M.D., FACP, FACE, Assistant Professor, Department of Endocrine Neoplasia and Hormonal Disorders**

There has been a gradual appreciation that the life trajectory of individuals diagnosed and treated for cancer extends far beyond the often limited duration of active therapy. Indeed, both

the national Coalition for Cancer Survivorship (NCCS) established in 1986 and the Office of Cancer Survivorship (OCS) established in 1995 have served to highlight the importance of life after cancer treatment. For many malignancies, cancer is now considered a chronic condition with prolonged life expectancy occasionally punctuated by intervals of disease reactivation requiring treatment but also with need to monitor life-long for the detection and management of potential cancer-related late effects. Thyroid cancer exemplifies this biological profile better than most solid tumors; the Thyroid Cancer Survivors' Association (Thyca) was established in 1995 to provide support and education for survivors of thyroid cancer, their families, and the providers who care for them.

As an offshoot of this emphasis on health care after the acute cancer therapy period, cancer survivorship long-term clinics are emerging as an important mechanism with which to focus on long-term surveillance for disease recurrence, detection and management of potential treatment related complication and late effects including second malignancies as well as promotion of health.

The Thyroid Cancer Survivorship Clinic at M.D. Anderson Cancer was developed to provide an environment where thyroid cancer survivors can be evaluated and their potential sequelae of cancer and cancer therapy addressed. In addition, it can serve as an opportunity to develop evidence-based guidelines for treatment goals and long-term surveillance.

Recent projections estimate that 1,479,350 new cancer cases will occur in the United States during the year of 2009; of these, 37,200 individuals will be diagnosed with thyroid carcinoma.<sup>1</sup> The pool of thyroid cancer patients is expanding because of increasing incidence of the dis-

ease and improved survival of most patients with thyroid carcinoma. The overall 10 year survival for patients with differentiated thyroid cancer approaches 90-95%<sup>2</sup> making this condition a very attractive survivorship model. There are no formally established guidelines to guide thyroid cancer survivors and their health caregivers and there is limited evidence-based information about their long term management needs, goals and targets.

### Sequelae of cancer therapy in thyroid cancer survivors:

Thyroid cancer survivors are generally healthy individuals who lead a productive life after treatment. However, many survivors may face a wide range of long-lasting late effects of their disease in their near normal life span. An earlier report from the University of Texas M. D. Anderson Cancer Center (UTMDACC) showed that two thirds of thyroid carcinoma survivors reported that their prior cancer history and treatments led to significant, lasting symptomatology such as fatigue.<sup>3</sup> Similarly, reports from other institutions showed impaired quality of life in thyroid cancer survivors compared with controls independent of TSH levels.<sup>4,5</sup> Older and less educated patients were reported to have a more significant decrease in quality of life.<sup>6</sup>

### Potential Surgical Complications:

Surgery is the most important initial treatment of thyroid carcinoma. The disease burden at the initial diagnosis and  
(Habra, continued on Page 2)

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(Habra, continued from Page 1) and the presence of lymph nodes determine the extent of initial surgical resection. Not surprisingly more extensive surgery will carry higher risk for unwanted side effects including vocal cord paralysis, regional pain, and hypocalcemia, among others. Fortunately, many of these complications tend to be transient however, some patients may experience long lasting complications. Hypoparathyroidism, in particular, requires continuous monitoring and medication adjustments as these patients need to maintain serum calcium level in a narrow range to avoid problems from hypocalcemia, hypercalciuria, or hypercalcemia.

#### **Potential Complications after radioactive iodine therapy:**

Radioactive iodine (RAI) is often used as an adjunct treatment in patients with differentiated thyroid carcinoma and is very well tolerated in most cases. However, since salivary and lacrimal glands have iodine uptake transporters, damage to these glands may occur after radioactive iodine leading to problems such as xerostomia, altered taste, dental caries, salivary calculi, enlarged salivary glands, excessive tearing secondary to lacrimal duct obstruction.<sup>7-11</sup>

The risk of secondary malignancies after radioactive iodine is less well established, however, in a review of large cohort of thyroid cancer patients, the risk of second primary malignancies in patients treated with radioactive iodine was increased in a dose dependent manner compared to the general population. The estimated increased risk was about 53 solid tumors and 3 leukemia cases for each 10,000 patients during 10 years of follow-up.<sup>12</sup> Similarly, in a recently published meta-analysis, those treated with radioactive iodine experienced an increased risk of 19% of developing a second primary malignancy compared to controls. The risk was significantly high for leukemia but contrary to previous reports, there was no significant increase reported in solid tumors including bladder, breast, central nervous system, gastrointestinal tract, lung, or melanoma.<sup>13</sup> Such reports are raising awareness regarding RAI potential toxicity and are creating the need to critically re-examine the clinical application of this very targeted and effective modality to optimize its use in patients with more extensive disease who are more likely to derive clinical benefit from radioactive iodine therapy while limiting the exposure of lower risk patients. Despite these recent reports, there are no specific recommendations to screen thyroid cancer survivors differently from general population.

#### **Potential complications from thyroid hormone suppression:**

Thyroid hormone replacement aims to replace thyroid hormone after thyroid ablation and to suppress TSH levels to reduce the risk of cancer recurrence. While most patients do well with thyroid hormone therapy, a group of patients have a poorly explained sense of chronic fatigue despite seemingly appropriate thyroid hormone dosing; some patients continue to complain of fatigue well after the acute cancer treatment. It is still unknown if these patients have selective defect in thyroid hormone replacement at tissue level that was not reflected in their laboratory testing. Attempt to combine levothyroxine (T4) replacement with liothyronine (T3) has anecdotally helped alleviate improve the symptoms of some patients but it has been difficult to document objective clinical benefit in recently conducted clinical trials. At the other end of the thyroid replacement spectrum, some patients may develop hyperthyroid symptoms associated with TSH suppressive therapy that could exacerbate other co-existing disorders such as post menopausal hot flashes and anxiety disorders.

Patients with differentiated thyroid carcinoma often received higher dose of thyroid hormone replacement to suppress TSH production. While TSH suppression improves long term outcome in patients with advanced differentiated thyroid carcinoma, the benefit of this practice is less clear in patients with more limited disease. Long term thyroid hormone suppression can be an additional source of co-morbidity. The incidence of atrial fibrillation is increased by 3-fold in patients over 60 years of age who have TSH less than 0.1 milli Unit/liter.<sup>14</sup> Similarly, subclinical hyperthyroidism is associated with left ventricular dysfunction, increased heart rate, and potentially increased risk for ischemic events. Short term studies that include a small number of patients with endogenous subclinical hyperthyroidism showed the restoration of normal sinus rhythm, normal heart rate and left ventricular mass after normalizing TSH with medical therapy or radioactive iodine. Still, there are no large randomized studies with long term follow up to verify these findings.<sup>15-18</sup>

Conflicting reports exist about the effects of subclinical hyperthyroidism on bone health. Reduced bone density in cortical bones was reported in some studies of women with subclinical hyperthyroidism.<sup>19,20</sup> A meta-analysis found reduced cortical bone density in post menopausal women with exogenous subclinical hyperthyroidism compared to controls while premenopausal women and men did not have significant decline in bone density.<sup>21,22</sup>

## Upcoming Events

**American Society for Bone and Mineral Research's 31st Annual Meeting**, Sept 11-15, 2009, Denver, CO. ([www.asbmr.org](http://www.asbmr.org))

**AACE Advances in Thyroid Cancer Management**, October 16-17, 2009, Chicago, IL. ([www.aace.com](http://www.aace.com)).

**80th Annual Meeting of the American Thyroid Association**, Sept. 23-27, 2009. The Breakers Hotel, Palm Beach, FL. ([http://www.thyroid.org/ann\\_mtg/2009\\_80th/index.html](http://www.thyroid.org/ann_mtg/2009_80th/index.html))

**North American Neuro-Endocrine Tumor Society Annual Conference Diagnosis & Management Strategies: A Multidisciplinary Approach** October 2-3, 2009 Charlotte Marriott City - Charlotte, North Carolina (Additional information to be announced later)

**ThyCa's 12th International Thyroid Cancer Survivor's Conference**, Oct. 16-18, 2009. Boston, MA. (<http://www.thyca.org/ConfFlyer2009.pdf>)

**Third Annual Thyroid Neoplasms Conference**, Oct. 21-24, 2009 El Dorado Hotel, Sante Fe, NM (<http://www.mdandersson.org/conferences>)

**The Endocrine Society ENDO 2010**, June 19-22, 2010. San Diego, CA. ([www.endo-society.org](http://www.endo-society.org))



(Habra, continued from page 2)

Some literature suggest that estrogen and calcium supplementation could ameliorate the effect of TSH suppression on bone loss. Long term thyroid hormone suppression (> 6 years) in women with differentiated thyroid carcinoma reduced the efficacy of bisphosphonate therapy compared with control or women who had thyroid hormone suppression for shorter period (3 years).<sup>23</sup>

**Summary:**

Thyroid cancer survivors enjoy long life expectancy but may experience

life long complications attributable to surgery, radioactive iodine, or thyroid hormone suppression. These potential complications increases over time as the active initial cancer therapy is completed and the acute threat of the malignancy ebbs. Accordingly, a comprehensive examination of individuals treated for thyroid cancer should be undertaken as soon as possible to detect and correct problems and to improve quality of life in these patients.

For a full list of references, please contact Charles Stava, at [cstava@mdanderson.org](mailto:cstava@mdanderson.org).

## Cancer Survivorship - M. D. Anderson Overview

### Fran Zandastra, RN, MBA, OCN, Director, M.D. Anderson Cancer Center Cancer Survivorship Program

The outlook continues to get better for people with cancer. On the strength of public awareness and early detection, and improved forms of treatment, for many patients cancer has evolved from an often-fatal disease to a treatable or chronic condition.

Today, two-thirds of cancer patients can expect to live five years or longer. There are more than 11 million survivors in the United States and an estimated 22.4 million world.

Who are cancer survivors? The National Cancer defines a survivor as anyone who has been diagnosed with cancer, from the time of diagnosis and treatment through the remaining years of life. The definition has been expanded to include people who have been affected by the diagnosis, such as family members and caregivers.

Within this definition are stages or phases of survivorship:

- Living with cancer refers to the experience of receiving a cancer diagnosis and any treatment that may follow
- Living through cancer is the period following treatment in which the risk of cancer recurring is relatively high
- Living beyond cancer refers to post-treatment and long-term survivorship

Why is this important? As many survivors have learned, recovery is not always the end of the cancer experience. Even years after successful treatment, cancer recurrence is a possibility. Cancer therapies can leave health issues that require lifelong monitoring. Finally, recovering from the emotional, social, and economical trauma of cancer can take longer than recuperating from treatment.

To meet the needs of this growing population of long-term survivors, M. D. Anderson is developing survivorship as a distinct phase of the cancer care continuum. The Breast Cancer Survivorship and the Life After Cancer Care Clinics served as models for M. D. Anderson's clinical survivorship plan. These innovative

efforts focused on the ongoing health and well-being of survivors not only disease surveillance, but by proactively addressing their medical and psychosocial needs in areas like osteoporosis, lymphedema and sexuality. Similarly, more than 1,400 young survivors have taken advantage of M. D. Anderson's Pediatric Long-Term Follow-Up Clinic, which helps young people transition to adult life.

The mission of M. D. Anderson's Cancer Survivorship Program is to address the outcomes of cancer and its therapy, and improve cancer survivors' health and quality of life through integrated programs in patient care, research, prevention, and education.

The cancer center is building and expanding the existing family of clinical, research, educational, and mission areas that will, above all, serve the needs of cancer survivors and, secondly, provide a model for similar efforts around the nation and the world.

Building on the platform of M. D. Anderson's multidisciplinary patient-centered model of care, in which every patient benefits from a diverse team of cancer specialists, long-term survivorship care is designed and coordinated by a multidisciplinary team along the distinct "domains" of – disease surveillance, cancer risk reduction, screening for second cancers, late effects monitoring/ management, and quality of life. A component of this care includes provision of a comprehensive care summary and follow-up plan of care. M. D. Anderson's "Passport Plan for Health" is an electronic tool designed for the survivors and their community providers to communicate the survivor's treatment history, follow-up plan of care along the survivorship domains.

M.D. Anderson's Survivorship model is in the pilot phase for Genitourinary, Gynecologic, and Endocrine (Thyroid) cancer patients who have completed cancer treatment at M. D. Anderson.

**ENDOPERSPECTIVES**® is a quarterly publication of the Department of Endocrine Neoplasia and Hormonal Disorders at The University of Texas M. D. Anderson Cancer Center.

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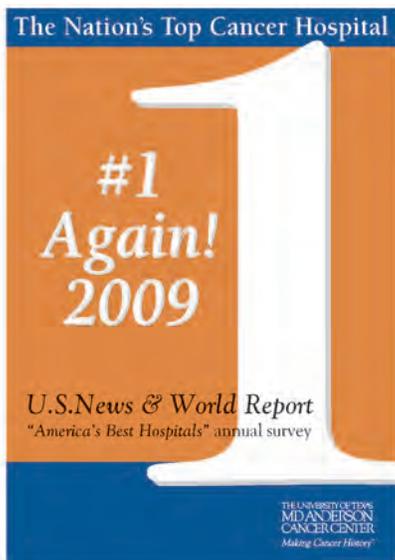
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If interested, please send submissions to Charles Stava, [cstava@mdanderson.org](mailto:cstava@mdanderson.org). We reserve the right to edit for length, content, and style.

Department of Endocrine Neoplasia and HD website: <http://www.mdanderson.org/departments/endocrinology/>

## Dept. of Endocrine Neoplasia & HD Ranked 41st in Nation!



M. D. Anderson Cancer Center has once again ranked No. 1 in cancer care in U.S. News & World Report's "America's Best Hospitals" annual survey. The institution has achieved the top ranking six of the last eight years, and it has been either first or second in cancer care every year since the survey's inception in 1990.

Several M. D. Anderson sub-specialties also are ranked among the best in the nation:

- Ear Nose and Throat - No. 2
- Urology - No. 9
- Gynecology - No. 12
- Digestive Disorders - No. 23
- Diabetes and Endocrine Disorders - No. 41

In a separate survey of pediatric hospitals published by U.S. News & World Report in June, our Children's Cancer Hospital was ranked No. 13 in the nation. **This also was the first time that the Department of Endocrine and Hormonal Disorders was recognized in the survey.**

"Given the narrow focus of our work, and the relatively high morbidity and mortality of the cancer patient population in which we specialize, to be ranked this high is very special. In fact, although we ranked #41 overall, our 8.6% 'reputation score' (percentage of endocrinologists in the last 3 years who recommended us for 'challenging cases') was #13 in the nation" said Steven I. Sherman, MD., chair, Dept. of Endocrine Neoplasia and Hormonal Disorders.

Rankings are based on a reputation survey of board-certified hematologists and oncologists around the nation, nurse-to-patient ratios and Magnet Status, some patient outcomes data, and several advanced technologies and services available to patients and the community.

## Notes from the Endocrine Faculty Team

### Honors and Recognition:

**Robert F. Gagel, MD** and **Steven I. Sherman, MD** were recently elected to the position of Chairman and Treasurer, respectively, of the International Thyroid Oncology Group, based in St. Louis, MO. They both currently serve on the Medical Advisory Council of Thyroid Cancer Survivors Association, Inc.

**Maria E Cabanillas, MD**, joined the Department of Endocrine Neoplasia and Hormonal Disorders as an assistant professor on August 3, 2009. She previously worked with Dr. Sherman as a postdoctoral fellow for one year. More details and a bio-sketch on Dr. Cabanillas will be featured in the next newsletter issue.

### Publications:

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## Featuring the Thyroid Survivorship Clinic

### Sherrie Flores, RNC, WHNP, ANP-C, Dept of Endocrine Neoplasia and Hormonal Disorders

In order to serve better former patients who were successfully treated for thyroid cancer at M. D. Anderson Cancer Center, the Thyroid Survivorship Clinic was officially launched on January 30, 2009 in the Endocrine Center. The clinic sees patients on Mondays, Wednesdays, and Fridays. The primary physician is Dr. Mohammed A. Habra and the mid-level provider is Sherrie Flores, RNC, WHNP, ANP-C. They each bring a wealth of knowledge on survivorship issues.

The mission of the Thyroid Cancer Survivorship Clinic is to foster the surveillance of patients for recurrence of their disease, while monitoring for and addressing any late effects related to thyroid cancer and its therapies.

The guidelines for transitioning patients to long-term surveillance were established within the department based on overall endocrinologist experience and literature reviews. The clinic is utilized by survivors referred from within our department and plans are currently underway to accept outside referrals in the near future. Patients with no symptoms of recurrence or minimal evidence of disease between one to five years since the date of their last therapy are eligible to be seen in the clinic, contingent

upon their disease stage.

The concept for the survivorship population is to focus on survivors' quality of life and wellness rather than illnesses as they move forward and away from their disease. Besides being seen by Dr. Habra and Sherrie Flores, each patient at the Survivorship Clinic also has a consultation with a social worker and a dietitian. The patient is screened based on the CDC guidelines matched for age, and his/her recent medical history such as bone health, mammograms, pap smears, prostate health, cholesterol screening, dental reports, cardiovascular health, and colon health are carefully studied. Other late effects such as difficulty of swallowing, cardiac disorders, low bone mineral density, dry mouth, intestinal tearing, dental complications, and fatigue are addressed. Referrals to specialists are conducted whenever necessary to ensure the patient's continued well-being and optimal quality of life.

To better monitor the survivors' continued well-being, a prospective database was created to assist in the research of specific issues. This database is being handled by Jeffrey Cui, Database Coordinator, of the Department of Endocrine Neoplasia and Hormonal Disorders.

## Introducing Our New Fellows



### Christina Michaelis, MD

Christina is a native of the Houston area and attended undergraduate studies at the University of Texas in Austin, before starting medical school at UT Southwestern Medical School in Dallas. She stayed at UT Southwestern for her residency in Internal Medicine. While there, Christina participated in retrospective research on

adrenal vein sampling, which prompted her to pursue a fellowship in endocrinology. She is in her second year of fellowship, doing research and clinical work with Dr. Steven Sherman, where she currently works on a research protocol attempting to detect circulating thyroid tumor cells in patients with thyroid cancer, as well as updating a multi-institutional thyroid cancer database. After she completes her fellowship, she would like to focus mostly in clinical practice, likely in the Houston area. Aside from her academic and clinical interests, she enjoys playing tennis and reading, and is a member of a monthly book club.



### Maryam Ijaz Khan, MD

Maryam grew up in Gujranwala, Pakistan and went to King Edward Medical School in Lahore, Pakistan. She completed her residency training in Internal Medicine at Barnes-Jewish Hospital Washington University in St. Louis from 2004-2007. After residency, she worked as a hospitalist at

Memorial Hermann Hospital in The Woodlands for a year before joining the Endocrine Fellowship in June 2008. She thoroughly enjoyed her rotation during her first clinical year at M.D. Anderson where she was fascinated by the unique patient population that are seen here every day. Currently, she is working with Dr. Waguespack on pituitary disorders, working on a database for post-transsphenoidal surgery patients, and participating in clinical trials for patients with acromegaly.

## Wish to refer a patient to M. D. Anderson?



#### Online Referrals:

M. D. Anderson has created an online referral process, myMDAnderson, to help you get your patient into M. D. Anderson as quickly as possible. You can use myMDAnderson to follow the treatment your patients receive by viewing transcribed reports and accessing your patients' schedules. To qualify for this free service, you must be a licensed, practicing physician. To start a referral through myMDAnderson, please access this portal: <https://my.mdanderson.org/public/physicians/user/>

#### Telephone Referrals:

Physician to Physician referrals to the Dept. of Endocrine Neoplasia and H.D., please call 713-792-2841. To speak to a New Patient Referral Coordinator, please call 713-563-4400. For Pediatric Referrals (patients less than 18 years of age), please call 713-792-5410

# Health Profiles and Quality of Life of 518 Survivors of Thyroid Cancer – A Synopsis

Charles J. Stava, MHSA, Dept of Endocrine Neoplasia and Hormonal Disorders

While thyroid cancer is among the few types of cancers that have increased in incidence over the last several years, it usually comes with favorable prognosis. Comprising a vast majority of thyroid cancer cases, differentiated thyroid cancer (DTC) can represent either papillary or follicular thyroid carcinoma; up to 90% of patients with DTC can become permanently cured and live a near-normal life expectancy. Treatment for DTC usually involves multimodality interventions and permanent thyroid hormone replacement. Exposure to these treatment regimens can leave survivors with unwanted health effects that may linger for many years. Unfortunately survivors of thyroid cancer are one of the most under-researched populations of cancer survivors. To this date there are extremely few published studies that record the lasting effects of thyroid cancer and its treatment on adult survivors. One of these publications include the article, Health Profiles and Quality of Life of 518 Survivors of Thyroid Cancer, written by members of University of Texas M. D. Anderson Cancer Center's Life After Cancer Care team, and published in the May 2003 issue of Head & Neck journal. This article will recap the major points of the publication.

In order to better understand the long term health effects of cancer survivors, the Life After Cancer Care Program (LACC) developed a survey that was mailed to over 12,000 survivors who were treated at M. D. Anderson and no longer required treatment for cancer. The survey was also made available on the LACC's website. These surveys contained over 20 questions pertinent to the survivor's health and quality of life. One of the questions included a checklist that permitted the participant to indicate which of the health effects he or she was experiencing or experienced since the completion of treatment. Over 7,000 surveys were returned and 518 (7%) were from survivors of thyroid cancer.

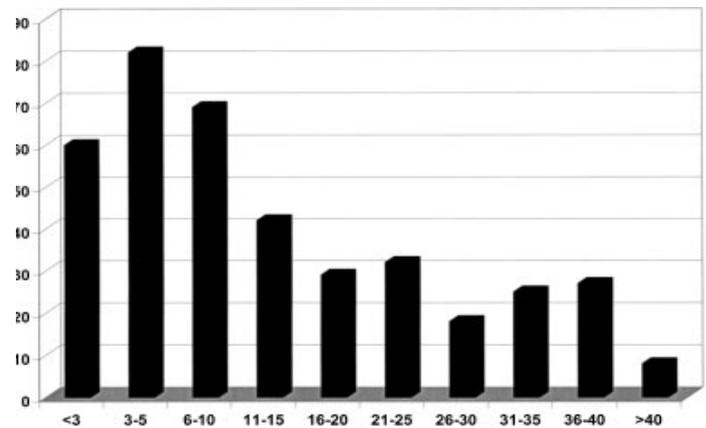
The survey results were analyzed using Statistics for Windows (version 7.0) software program. Frequency distribution and histograms were used to analytically distribute the responses. Descriptive statistics, including percentages, means, standard deviations, and ranges were also used to summarize the information gleaned from the survey.

## Results

Out of 518 thyroid survivors who responded to the survey, 426 (82.2%) were women and 92 (17.8%) were men. The mean age at diagnosis was 37.6 + 11.6 years and that was independent of ethnicity. The men were significantly older than women than the women (43.8 + 12.6 vs. 36.6 + 11.0 years, respectively,  $P < .0001$ ).

The mean interval between the time of cancer diagnosis and the response to the survey was 11.0 + 12.5 years, and there was no significant difference found amongst gender or racial/ethnic groups. Figure 1 shows the distribution of the survivors' time from diagnosis to the time of survey. Most survivors were diagnosed between 3 to 10 years prior to the time of the survey.

Figure 1. Time from diagnosis in years.



The survey included the question 'has cancer affected your overall health' and 334 (64.5%) thyroid cancer survivors responded yes. Significantly more women responded affirmatively than did men (67% vs. 54%,  $P = .03$ ). For those who reported that their health was affected by cancer, we looked at the treatment options that they indicated on the survey. Survivors who were treated with radiation were significantly more likely to report that cancer had affected their health than those who were not treated with radiation (70.5% vs. 39.6%,  $P = .0001$ ).

The checklist on the survey listed 22 specific health effects that the survivors were given the opportunity to indicate which they had experienced or were still experiencing since completion of treatment. We chose to categorize these effects into 9 systems as shown on Table 1. The most frequently reported health effects were neurologic (38.2%) and the least frequently, pulmonary problems, (5.2%). The most specific health effect reported was memory loss, which affected 18.1% of the participants.

More men were likely to report neurologic effects (40.2% vs. 37.8%), cardiovascular effects (13.0% vs. 10.8%), genitourinary (8.7% vs. 5.6%), and pulmonary effects (8.7% vs. 4.5%) than women. On the other hand, more women were likely than men to report musculoskeletal effects (16.9% vs. 12.0%), gastrointestinal effects (11.5% vs. 4/3%), psychological effects (12.7% vs. 6.5%), endocrinologic effects (9.2% vs. 3.3%), and integumentary effects (6.6% vs. 5.4%).

Table 1. Major system health effects by gender.

Major system	Women		Men	
	N	%	N	%
Neurologic	161	37.8	37	40.2
Cardiovascular	46	10.8	12	13.0
Musculoskeletal	71	16.9	11	12.0
Gastrointestinal	49	11.5	4	4.3
Genitourinary	24	5.6	8	8.7
Endocrinologic	39	9.2	3	3.3
Integumentary	28	6.6	5	5.4
Pulmonary	19	4.5	8	8.7
Psychologic	54	12.7	6	6.5

Chi-square = 17.09,  $p < .05$ .

Continued on Page 7

The association between time elapsed since the time of cancer diagnosis and the reported presence of health problems was significant (chi square = 50.87,  $P < .001$ ) and is outlined in Table 2. Neurologic, gastrointestinal, integumentary, and psychological effects appeared to diminish with the passage of time from diagnosis, whereas cardiovascular, musculoskeletal, genitourinary, endocrinologic, and pulmonary effects were shown to increase with the increase in time.

**Table 2. Major system health effects by time from diagnosis.**

Major system	<10 y		10-20 y		>20 y	
	N	%	N	%	N	%
Neurologic	135	42.1	25	28.7	38	34.5
Cardiovascular	31	9.7	6	6.9	21	19.1
Musculoskeletal	37	11.5	14	16.1	32	29.1
Gastrointestinal	40	12.4	8	9.2	5	4.5
Genitourinary	13	4.0	5	5.7	14	12.7
Endocrinologic	20	6.2	11	12.6	11	10.0
Integumentary	21	6.5	6	6.9	6	5.5
Pulmonary	12	3.7	9	10.3	6	5.5

We chose to compare some of the health conditions reported by our cohort of thyroid cancer survivors with that of a national prevalence database (NHIS). We focused on data for women. There was a significantly lower reported prevalence of arthritis and heart disease among thyroid cancer survivors than in the general population; however, there was a significantly higher rate of migraine headaches reported by the thyroid cancer survivors. Table 3 summarizes the results.

**Table 3. Comparison of thyroid cancer survivors with the general population with respect to occurrence of arthritis, heart disease, and migraine headaches.**

Health condition	National prevalence (persons/1000)	Thyroid cancer survivors (persons/1000)	P-value
Arthritis			
Total	550	136	.00001
<45 y	36	68	.05
Heart disease			
Total	269	59	.00001
<45 y	34	43	.5
Migraine headaches			
Total	24	113	.00001
<45 y	71	130	.004

## Discussion

DTC is an increasingly common disease with a generally excellent prognosis, and survivors experience a near normal lifespan. Their treatment is usually limited to primary surgical resection of disease and radioisotope ablation of residual thyroid tissue or radioiodine-avid tumor deposits.

The survivors of thyroid cancer who participated in the LACC survey reported a relatively fair quality of life. However, this report, however, indicated that the participants believe that their disease experience results in lasting health effects that are generally undesirable.

Age and the passage of time seemed to affect the survivors' perceived impact of their cancer experience on their overall health and specific reported symptoms. To some extent, the passage of time since diagnosis of DTC is associated with the aging of the survivors' population, and the reported health effects reflect age rather than from cancer treatment. However, we did notice that participants who had received some form of radiation were almost twice as likely to report that their cancer had affected their overall health.

Several limitations to this study must be outlined at the outset. It is a subset of a much large cohort, and the survey questions were not specific to thyroid cancer survivors. We had to assume that most of the respondents had DTC, because it is the most frequent form of thyroid cancer and has better survival prognosis than medullary or anaplastic thyroid cancer. In addition, we were not able to distinguish between those who received radioactive iodine from those who received radiotherapy, so they are both grouped together in our analysis, with the assumption that most had radioactive iodine.

While mortality from DTC is low, it is apparent from this study that co-morbidity may be significantly more pronounced than generally appreciated. There are no published studies that systematically investigated the long term health effects and quality of life issues in thyroid cancer survivors for us to compare our cohort of survivors with.

Further studies will be needed to understand the extent and manner with which thyroid cancer and its treatment contributes to the health profile of this group. Continued focus on the long-term effect of cancer therapy is important for cancer survivors in general, and in particular, for this group of survivors with a near-normal life expectancy in general

*Schultz PN, Stava C, Vassilopoulos-Sellin R. Health Profiles and Quality of Life of 518 Survivors of Thyroid Cancer. Head & Neck. 2003 May; 25(5):349-56.*

## Clinical Trials

Phase II trial of Sunitinib (SU11248) in Iodine-131 refractory, unresectable differentiated thyroid cancers and medullary thyroid cancers

The goal of this clinical research study is to learn if sunitinib can help control thyroid cancer that has spread outside the thyroid. The safety of this drug will also be studied. Patients must have histologically or cytologically conformed papillary, follicular, or Hurthle cell carcinoma; or medullary thyroid carcinoma. The patient's disease must have progressed despite treatment with iodine-131 therapy or they cannot be candidates for iodine-131 therapy, as well as their malignancy could not be removed by surgery. They must have radiographically or biochemically measurable disease, and cannot have received prior receptor tyrosine kinase inhibitors or external beam radiation to the tumor region.

For more information, please contact Cheryl Mize, Research Nurse, at 1-713-792-2841 for further information.

A multicenter, randomized, blinded study to assess safety and efficacy of pasireotide LAR vs. octreotide LAR in patients with ac-

tive acromegaly .

This goal of this clinical research study is to compare an investigational treatment for acromegaly against the standard treatment for acromegaly. Pasireotide long-acting release (LAR), which is also known as som230 LAR, will be compared against Sandostatin® LAR (octreotide LAR). Researchers want to learn if pasireotide LAR can help to control acromegaly. The safety of pasireotide LAR will also be studied.

This is open to patients with active acromegaly demonstrated by a lack of suppression of GH nadir to  $< 1 \mu\text{g/L}$  after an oral tolerance test with 75 g of glucose (OGTT) (not applicable for diabetic patients) or a mean GH concentration of a 5-point profile within a 2 hour time period of  $> 5 \mu\text{g/L}$  AND an elevated circulating IGF-1 concentration (age and sex adjusted). Patients who received pasireotide (SOM230) prior to randomization or have had pituitary irradiation within the last 10 years may not be considered.

For more information, please contact Pat Degen, Research Nurse Supervisor, at 1-713-792-2396.

## Presenting the Thyroid Nodule Clinic



### Do you need a Resource for a Suspicious Thyroid Nodule?

Thyroid nodules are fairly common, representing the most common endocrine problem in the United States, but effective evaluation is extremely important to rule out thyroid cancer.

Dr. Naifa Busaidy, Director of the Thyroid Nodule Clinic at M. D. Anderson Cancer Center says, "The clinic serves as a resource for our physicians and all patients with thyroid nodules. We want to be a part of your team in providing an exceptional experience for the community physician and their adult and pediatric patients."

Getting a rapid and accurate diagnosis in one place at one time for a patient anxious about whether or not they might have cancer, improves the experience for all those involved. The experienced multidisciplinary team of endocrinologists, surgeons, mid-levels, cytopathologists radiologists and ultrasonographers at M. D. Anderson are here to help you. We also have two pediatric endocrinologists who can evaluate pediatric patients of all ages.

- All patients receive within one day:
- Consultation with a thyroid specialist
  - Thyroid ultrasound
  - Thyroid biopsy, if needed
  - Multidisciplinary conference to discuss treatment options, if needed.

The Thyroid Nodule Clinic is located inside the Endocrine Center at M. D. Anderson Cancer Center at 1515 Holcombe in Houston, Texas.

For more information or to refer a patient for an appointment:  
New Patient Referral Coordinators: 713-563-4400, and 713-792-5410 for patients under 18 years of age.  
Physician to Physician Referrals: 713-792-2841  
Online Referrals: <https://my.mdanderson.org/>

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