

# American Thyroid Association Thyroid Cancer Management Guidelines: utilising risk stratification to optimise patient care

BY R MICHAEL TUTTLE

The steep rise in thyroid surgery around the globe, has led to the development of risk stratification to define the indications for surgery and the extent of surgery as well as adjuvant therapies for papillary carcinoma, to avoid over treatment. The American Thyroid Association (ATA) now recommends a risk adapted management approach, as **Michael Tuttle** explains.

In Autumn 2015, the American Thyroid Association published updated management guidelines for thyroid nodules and thyroid cancer (available at the American Thyroid Association website, [www.thyroid.org](http://www.thyroid.org)) [1]. While 80% of the recommendations in the 2015 update are either unchanged or just slightly modified from 2009 guidelines, 20% of the recommendations are either new or represent substantial changes from the previous guidelines. The 2015 guidelines demonstrate a renewed emphasis on risk stratification in order to optimise an individualised management approach across all aspects of the evaluation and management of thyroid nodules and thyroid cancer [2].

For example, the 2015 guidelines have become even more conservative when it comes to selecting thyroid nodules for further evaluation and biopsy. Nodules that have benign appearing ultrasonographic features do not require biopsy unless they are larger than 1.5 to 2cm. Conversely, the guidelines no longer require fine needle aspiration of thyroid nodules less than 1 cm even if they have highly suspicious ultrasonographic

features. Rather than immediate biopsy, observation with serial ultrasonography is recommended. In fact, an active surveillance management option is endorsed for very low risk thyroid cancers such as intrathyroidal papillary microcarcinomas < 1cm in diameter. Obviously, proper patient selection is the key to a successful active surveillance management approach [3].

With regard to molecular testing in the evaluation of thyroid nodules, the guidelines note that molecular testing may be used to supplement malignancy risk assessment in patients with atypia of undetermined significance (AUS) / follicular lesion of undetermined significance (FLUS) and follicular neoplasms. Furthermore, molecular testing can be considered in the context of cytology that is suspicious for papillary thyroid cancer if the results would alter surgical decision making. While reviewing performance characteristics of various molecular tests currently available, the guidelines do not endorse a specific molecular test, panel or expression array but rather allow the clinician to choose the molecular approach that will provide actionable information for specific patients.

Recognising that complete surgical resection of clinically significant disease is the cornerstone of thyroid cancer management, the guidelines also endorse the use of CT scanning with iodinated contrast when imaging beyond neck ultrasonography is needed for accurate assessment of the extent of the primary tumour and regional lymph nodes, risk stratification and surgical treatment planning. CT with contrast (or MRI with contrast) is recommended as an adjunct to ultrasonographic examination in patients with locally invasive primary tumours and clinically significant metastatic lymphadenopathy prior to surgical resection. The improved outcomes associated with appropriate initial surgery far outweighs the several week delay in radioactive iodine administration in these intermediate and high risk patients.

For the first time, the guidelines specifically address the importance of preoperative vocal cord examination and evaluation of vocal function prior to thyroid surgery. In addition to routinely describing any voice changes, preoperative laryngeal

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examination is recommended for patients with or without preoperative voice abnormalities, known posterior extrathyroidal extension, extensive central nodal metastases or prior surgery that could have placed the recurrent laryngeal nerve or vagus nerve at risk.

Moving away from a “one size fits all” approach to the management of differentiated thyroid cancer, the guidelines now place a renewed emphasis on individualised risk estimates to guide management recommendations with regard to the extent of preoperative staging that is required, the extent of thyroid surgery and lymph node dissections, the role of radioactive iodine for ablation and adjuvant therapy, the duration and intensity of TSH suppression, and long-term follow-up recommendations.

While the 2009 guidelines recommended total thyroidectomy for nearly all thyroid cancer patients with a primary tumour > 1 cm, the 2015 guidelines now provide the option for thyroid lobectomy in properly selected low risk patients (e.g. intrathyroidal papillary cancer, minimally invasive follicular cancer). The guidelines stress that the decision for lobectomy should be a multidisciplinary decision and note that this will require excellent communication between all members of the management team. Patients choosing lobectomy are willing to accept that there is approximately 10% chance of requiring completion thyroidectomy in the future (either a few weeks after the pathology of the lobectomy specimen has been reviewed, or at some point in the future because thyroid cancer is identified either in the contralateral lobe or regional lymph nodes). However, multiple studies now demonstrate that this approach is associated with excellent clinical outcomes in properly selected patients as most patients are followed for years without evidence of recurrent disease and the few patients that do demonstrate recurrent disease are effectively treated with salvage therapy without compromising long-term survival.

Consistent with the 2009 guidelines, the 2015 guidelines continue to call for a very selective approach to routine use of radioactive iodine for remnant ablation, staging, and adjuvant therapy. In addition to using clinico-pathologic

features to classify the patient’s risk with regard to disease specific mortality (TNM / American Joint Committee on Cancer system) and risk of recurrence (American Thyroid Association risk stratification system), the guidelines also endorse the routine use of a non-stimulated thyroglobulin value obtained about six weeks after surgery to aid in decision making about radioactive iodine administration. Furthermore, if the extent of initial surgery is unclear, neck ultrasonography in the early postoperative months can also provide valuable information. These initial risk estimates are then used to determine if radioactive iodine is necessary, what administered activity would be appropriate, the early TSH goals, and the intensity and extent of follow-up studies.

Long-term management recommendations now rely very heavily on response to therapy assessments (also known as dynamic risk stratification) in which data accumulated during follow-up is used to modify initial risk estimates in real time [2]. Re-classifying patients at each follow-up visit as having either an excellent, biochemical incomplete, structural incomplete, or indeterminate response to therapy allows the clinician to tailor ongoing management recommendations in a risk adapted fashion. This approach allows patients with an excellent response to therapy (remission) to transition to a minimalistic follow-up approach (neck ultrasound every 3-5 years or less, non-stimulated serum thyroglobulin every 1-2 years), and normalisation of the TSH to the 0.5-2.5 mIU/mL range. Conversely, patients with a biochemical incomplete response (abnormal Tg without structurally identifiable disease) or a structural incomplete response continue TSH suppression and ongoing functional / structural imaging based on the rate of disease progression.

In summary, the 2015 American Thyroid Association guidelines outline a risk adapted management approach for all aspects of the evaluation and management of thyroid nodules and thyroid cancer. This renewed emphasis on risk stratification provides a road map for more individualised patient management in which treatment and follow-up is minimalistic in low risk patients and appropriately aggressive in high risk patients.

## References

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## SUMMARY

- Risk stratification is the key to all management decisions.
- CT with contrast is recommended for preoperative staging in differentiated thyroid cancer patients with locally advanced disease or clinically significant metastatic regional lymphadenopathy.
- Total thyroidectomy is no longer mandatory for all differentiated thyroid cancers greater than 1cm.



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#### Declaration of Competing

Interests  
None declared

## ABOUT THE AUTHOR

Dr R Michael Tuttle, an Endocrinologist and Professor of Medicine at Memorial Sloan Kettering Cancer Center in New York, designed and validated the first real time risk assessment model for thyroid cancer management in which individual risk estimates are modified over time as a function of response to initial therapy. His clinical practice is entirely devoted to patients with thyroid cancer while his research centres on important management aspects of thyroid cancer including efforts to better define risk of recurrence, risk of death and the potential role for observation in low risk thyroid cancer.