

**Short Commentary***Open Access, Volume 3***American Thyroid Association guidelines for evaluation of thyroid nodule: Our experience of patients presenting to AKUH****\*Corresponding Author: Shayan Khalid**

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**Introduction**

Thyroid nodules are one of the frequently seen presentations in the clinic. Thyroid nodules are present in almost 5% of females and 1% males in iodine-sufficient regions [1]. On the other hand it can incidentally be found in as high as 67% of the patients on ultrasound neck. Among all the thyroid nodules, 5-15% come out to be malignant on final histopathology [1]. Thyroid carcinomas can be divided into Differentiated Thyroid Carcinomas (DTC) and undifferentiated carcinomas. The differentiated thyroid carcinomas include papillary, follicular and hurthle cell carcinomas [1]. Among all the thyroid carcinomas reported, 90% tend to be DTC. The undifferentiated group includes anaplastic thyroid cancers [1,2]. Over last 3 decades, the incidence of thyroid cancer is increasing worldwide [1,3]. An increase of almost 4 folds have been seen between 1988 and 2002 in incidence of papillary thyroid carcinoma [1].

Due to advances in the diagnosis and therapeutic options of thyroid nodules and carcinomas, in 2015 American Thyroid Association (ATA) published revised guidelines for thyroid nodules and differentiated thyroid cancer. A new set of guidelines were published after extensive literature review. They advised that any nodule of the thyroid gland which is more than 1 centimeter in size should undergo thorough evaluation [1,4]. The revised recommendations given by ATA include initial evaluation of thyroid nodule, its management, criteria for clinical examination as well as ultrasound, interpretations of fine needle aspiration biopsy results, indications to use molecular markers,

management of benign and cancerous nodules, staging criteria and risk assessment, surgical management, use of radioiodine and thyrotropin suppression therapy [4,5].

Globally the compliance with guidelines by the treating physicians is very variable in terms of thyroid diseases. Various authors have measured the practice pattern of ATA guidelines to understand the differences among the guidelines and actual clinical practice [6]. Famakinwa et al studied the practice patterns against ATA guidelines in United States and concluded that different physicians have variable adherence to the recommended guidelines [7].

Keeping in view the variation in the compliance of physicians with ATA guidelines globally, we aimed to determine the compliance of surgeons with ATA guidelines in one of the largest tertiary care centre of Pakistan. Although, there are several recommendations in ATA guidelines, but for the simplification we chose the strong recommendations that were related to the initial evaluation of a thyroid nodule. The recommendations that were chosen to be evaluated for the compliance were recommendations no. 02, 06, 07, 18 and 34 (Table 1).

A good understanding of guidelines and its compliance in the clinical practice will help educate treatment providers for better assessment and treatment of the patients with thyroid nodules. This will also be helpful to avoid over-treatment or under-treatment of the patients. If the compliance with certain recommendations is low, it can be improved by emphasizing on its importance and outcome.

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**Table 1:** Overview of the 2015 ATA guidelines for adult patient with thyroid nodules and DTC.

Number	Recommendation
02	A) Serum TSH should be measured during the initial evaluation of a patient with a thyroid nodule. B) If the serum TSH is subnormal, a radionuclide (preferably I123) thyroid scan should be performed. C) If the serum TSH is normal or elevated, a radionuclide scan should not be performed as the initial imaging evaluation.
06	Serum TSH should be measured during the initial evaluation of a patient with a thyroid nodule.
07	FNA is the procedure of choice in the evaluation of thyroid nodules, when clinically indicated. (Strong recommendation, High-quality evidence)
18	18FDG-PET imaging is not routinely recommended for the evaluation of thyroid nodules with indeterminate cytology.
34	Routine preoperative measurement of serum Tg and Tgantbodies is not recommended.

### Materials and methods

This retrospective audit of thyroid surgeries was done at our centre, from 1st February 2018 to 31st August 2019, to compare current practices against ATA guidelines [2,6,7,18,34] with the eventual aim of improving the overall management of thyroid nodules and carcinomas. Data on the patients operated during study period was obtained from department of Hospital Information and Management System (HIMS). This de-identified data included patients who underwent thyroid lobectomy or total thyroidectomy with or without neck dissection. Patients with Medullary or Anaplastic carcinoma were excluded. Data was stored and analysed using SPSS version 23. The Quantitative variable i.e., age was calculated as mean and standard deviation. Qualitative variables i.e., gender, occupation and compliance to particular recommendation were calculated as frequency and percentages. Proportions will be compared using chi square test.

### Results

The total number of the cases operated in the given duration of the study was 92 (34.8%) of which were males and 60 (65.2%) females (Table 2). Mean age of the patients was 42.7 years with standard deviation of 12.8.

Following are the compliance results along with the given recommendations (Table 3):

#### 2015 ATA guidelines recommendation 2: Pre-op TSH

A) Serum TSH should be measured during the initial evaluation of a patient with a thyroid nodule (Strong recommendation, Moderate-quality evidence).

B) If the serum TSH is subnormal, a radionuclide (preferably I123) thyroid scan should be performed (Strong recommendation, Moderate-quality evidence).

C) If the serum TSH is normal or elevated, a radionuclide scan should not be performed as the initial imaging evaluation (Strong recommendation, Moderate-quality evidence).

For this recommendation, the laboratory work up of the pa-

tients undergoing thyroidectomy was checked. The compliance with part A of the recommendation, which is to get TSH levels done prior to surgery, was 95.7%. However, in only 4.3% of the patients, this recommendation was not followed.

Compliance with part B and C of the recommendation no. 2 was also studied. The results showed that the compliance with part B and C of the recommendation no. 2 was 84.7%, and in 15.2% of the patients, the recommendation was not followed.

#### 2015 ATA guidelines recommendation 6: Pre-op ultrasound

Thyroid sonography with survey of the cervical lymph nodes should be performed in all patients with known or suspected thyroid nodules (Strong recommendation, High-quality evidence).

To measure the practice patterns against this recommendation pre-operative work up of the patients who were planned to undergo thyroidectomy was examined. This recommendation was followed in 64.1% (59) of the patients who presented in the clinic, while in 35.9% (33) of the patients, this recommendation was not followed. Among the 33 patients who did not get a pre-operative ultrasound, 12 patients had undergone a CT scan before surgery, which could be the reason for sipping the ultrasound.

#### 2015 ATA guidelines recommendation 7: Pre-op FNAC

FNA is the procedure of choice in the evaluation of thyroid nodules, when clinically indicated (Strong recommendation, High-quality evidence).

For evaluating the compliance of this recommendation, patient records were examined. Compliance to this recommendation was 81.5% (75), while in 18.5% (17), this recommendation was not followed.

#### 2015 ATA guidelines recommendation no. 18: Pre-op 18FDG-PET imaging

18FDG-PET imaging is not routinely recommended for the evaluation of thyroid nodules with indeterminate cytology.

In order to check the compliance with this recommendation, the radiological records of the patients undergoing surgery were examined. The compliance found to be with this recommendation was 97.8%.

#### 2015 ATA guidelines recommendation 34: Pre-op serum Tg and Tg antibodies

Routine preoperative measurement of serum Tg and Tg antibodies is not recommended.

This recommendation was followed in 98.9% of the cases underwent total thyroidectomy. In only one patient, serum thyroglobulin was done pre-operatively.

**Table 2:** Demographics.

Male	34.8%
Female	65.2%
Mean age	42.7 years (STD 12.84)

**Table 3:** Compliance with recommendations 02, 06, 07, 18 & 34.

Recommendation no.	Compliance
02	95.7%
06	64.1%
07	81.5%
18	97.8%
34	98.9%

## Discussion

To our knowledge, this is the first study in Pakistan to examine the compliance of American Thyroid Association guidelines for thyroid nodule and differentiated thyroid carcinoma among health care professionals. Overall, practice patterns were according to the established guidelines. Our findings confirm that compliance with recommendation 02, 18 and 34 is high being 95.7%, 97.8% and 98.9% respectively. However, the compliance to recommendation 06 is 64.1% and recommendation 07 is 81.5% which needs further improvement. Famakinwa et al., in 2010, conducted a study to measure the adherence of healthcare professionals with ATA guidelines. In his study, he measured the compliance of Recommendation No. 26, 27 and 32 of ATA guidelines. He concluded the compliance to be 76%, 71% and 62% respectively [7]. Our findings are in concordance with the literature in adherence to practice guidelines by health care providers.

In recent years, wide ranges of treatment choices have been made available since the advancement in medical technologies have been sky rocketing. Every new treatment choice comes with its own advantages and disadvantages. The physician then has to go through mental gymnastics to balance and compare the risks and benefits before application. That is why treatment guidelines are made for standard and safe practice. Even with presence of practice guidelines inconsistency compliance is seen. A study in which effect of guidelines among two different hospital in the same medical community was seen, Studnicki et al found statistically significant difference among management of breast cancer [8]. Jack wennberg postulated the difference in practice among physicians has variations in quality of care and cost of treatment [9]. Differences in patient care with endocrine disorders have been previously shown on the basis of health care providers lack of awareness, patient age or even race, Sosa et al found black patients and patients more than 80 years undergoing thyroidectomies had longer hospital stay against the advised practice guideline, higher hospital cost and increased complication rates [10,11]. Panigrahi et al. published a study in 2010 to measure the compliance for the treatment of medullary thyroid cancers. The study concluded that variations do exist in practice patterns across United States with regard to surgical guidelines for medullary thyroid carcinoma and one should adhere to proposed guidelines for better patient outcomes [12].

Mahadevia et al in 2003 surveyed the knowledge of practicing endocrinologist with 1990 NIH recommendations for patients with asymptomatic hyperparathyroidism, almost 50% of low volume endocrinologist and 25% of high volume endocrinologist were not aware of NIH guidelines [13]. Difference in management among surgeons is also very common, Kouvoraki reported 89% awareness of NIH guidelines among surgeons but an inclination of high volume surgeons towards surgery on patient who did not meet NIH criteria but was having symptoms [14]. Treatment guidelines are formulated by professional

teams, based on data published in the literature after thorough literature search, yet there is a paucity in the compliance [15]. Paolo et al. conducted a similar study to measure the adherence of practice guidelines in differentiated thyroid cancers. He concluded that improved patient outcomes are directly proportional to adherence to the proposed clinical guidelines [6].

This is the first study to assess the adherence to guidelines among healthcare professionals in our region. A prospective study can be done after a reinforcement of recommendation to see better results in favour of the patients. Adherence to guidelines with rate of morbidities can be accesses as well. A collaborative effort among hospital management, physicians and policy makers should be enforced to publicize and propagate evidence based guidelines and reduce the disparities in quality of patient care.

## Conclusion

The adherence to recommendation no. 02, 18 and 34 of ATA guidelines was commendable. However, more adherence is required in recommendation no. 06 and 07.

## References

1. Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, Mandel SJ, et al. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer: the American Thyroid Association (ATA) guidelines taskforce on thyroid nodules and differentiated thyroid cancer. *Thyroid*. 2009; 19: 1167-1214.
2. Noone AM, Cronin KA, Altekruse SF, Howlander N, Lewis DR, Petkov VI, et al. Cancer incidence and survival trends by subtype using data from the surveillance epidemiology and end results program, 1992–2013. *Cancer Epidemiology and Prevention Biomarkers*. 2017; 26: 632-641.
3. Horn Ross PL, Lichtensztajn DY, Clarke CA, Dosiou C, Oakley Girvan I, Reynolds P, et al. Continued rapid increase in thyroid cancer incidence in california: Trends by patient, tumor, and neighborhood characteristics. *Cancer Epidemiology and Prevention Biomarkers*. 2014; 23: 1067-1079.
4. Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, et al. 2015 American Thyroid Association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: The American Thyroid Association guidelines task force on thyroid nodules and differentiated thyroid cancer. *Thyroid*. 2016; 26: 1-133.
5. Haugen BR, Sawka AM, Alexander EK, Bible KC, Caturegli P, Doherty GM, et al. American thyroid association guidelines on the management of thyroid nodules and differentiated thyroid cancer task force review and recommendation on the proposed renaming of encapsulated follicular variant papillary thyroid carcinoma without invasion to noninvasive follicular thyroid neoplasm with papillary-like nuclear features. *Thyroid*. 2017; 27: 481-483.
6. Goffredo P, Roman SA, Sosa JA. Have 2006 ATA practice guidelines affected the treatment of differentiated thyroid cancer in the United States? *Thyroid*. 2014; 24: 463-471.
7. Famakinwa OM, Roman SA, Wang TS, Sosa JA. ATA practice guidelines for the treatment of differentiated thyroid cancer: Were they followed in the United States? *The American journal of surgery*. 2010; 199: 189-198.
8. Studnicki J, Schapira DV, Bradham DD, Clark RA, Jarrett A. Response to the National Cancer Institute alert: The effect of practice guidelines on two hospitals in the same medical community.

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- Cancer. 1993; 72: 2986-2992.
9. Mullan F. Wrestling With Variation: An Interview With Jack Wennberg: The creator of modern-day evaluative clinical sciences discusses what motivated him to define and pursue this area of study. *Health Affairs*. 2004; 23: VAR-73-VAR-80.
  10. Sosa JA, Mehta PJ, Wang TS, Yeo HL, Roman SA. Racial disparities in clinical and economic outcomes from thyroidectomy. *Annals of surgery*. 2007; 246: 1083-1091.
  11. Sosa JA, Mehta PJ, Wang TS, Boudourakis L, Roman SA. A population-based study of outcomes from thyroidectomy in aging Americans: at what cost? *Journal of the American College of Surgeons*. 2008; 206: 1097-1105.
  12. Panigrahi B, Roman SA, Sosa JA. Medullary thyroid cancer: Are practice patterns in the United States discordant from American Thyroid Association guidelines? *Annals of surgical oncology*. 2010; 17: 1490-1498.
  13. Mahadevia PJ, Sosa JA, Levine MA, Zeiger MA, Powe NR. Clinical management of primary hyperparathyroidism and thresholds for surgical referral: a national study examining concordance between practice patterns and consensus panel recommendations. *Endocrine Practice*. 2003; 9: 494-503.
  14. Kouvaraki MA, Greer M, Sharma S, Beery D, Armand R, Lee JE, et al. Indications for operative intervention in patients with asymptomatic primary hyperparathyroidism: Practice patterns of endocrine surgery. *Surgery*. 2006; 139: 527-534.
  15. Hilly O, Stern Shavit S, Iran S, Feinmesser R. Treatment decisions and adherence to guidelines in the treatment of low risk papillary carcinoma of the thyroid. *The Israel Medical Association journal: IMAJ*. 2014; 16: 548-552.