

Knowledge, Attitude and Practice of Filipino Surgeons Regarding Clinical Practice Guidelines on Thyroid Nodules and Malignancy: A PCS-PSGS -PAHNSI Collaborative Study

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Rationale: In 2008, the Philippine College of Surgeons in collaboration with the Philippine Society of General Surgeons and the Philippine Academy of Head and Neck Surgeons, Inc. had published Evidence-based Clinical Practice Guidelines (CPG) on the Diagnosis and Management of Thyroid Nodules. This was followed by an update in 2013 with a focus on important diagnostic and therapeutic management issues concerning thyroid malignancy. The objective of this study was to assess knowledge gaps and behavioral patterns among users with respect to these CPGs.

Methods: A validated 30 item survey assessing knowledge of, attitudes towards, and adherence to the recommendations of different Evidence based Clinical Practice Guidelines was administered to general surgery residents, PSGS fellows, and otorhinolaryngology residents and consultants performing thyroidectomies.

Results: There were 343 assessable forms. Of the respondents, 276 (80.47%) were general surgeons, 33 (9.62%) were otorhinolaryngologists. There were 66 (19.24%) consultants, and 277 (80.76%) residents. Otorhinolaryngologists were less aware of the local CPGs than their GS counterparts. GS Residents, compared to their consultants, were more aware of the American Thyroid Association guidelines than the local guidelines. Among all respondents, the local guidelines had about equal preference for usage as the American Thyroid Association guidelines. There were no statistically significant differences on the level of knowledge and attitudes among the respondents.

Conclusions: The level of awareness about the PCS Thyroid Guidelines needs to be improved. The dissemination process needs to be reviewed and ensure that all stakeholders will be reached.

Key words: thyroid, clinical practice guidelines

The Philippine College of Surgeons (PCS) in collaboration with the Philippine Society of General Surgeons (PSGS) and the Philippine Academy for Head and Neck Surgery, Inc. (PAHNSI) has developed the Evidence-based Clinical Practice Guidelines (PCS-PSGS-PAHNSI CPG) on the Diagnosis and Management of Thyroid Nodules in 2008. An update to the CPG, which focused on important diagnostic and therapeutic management issues concerning thyroid malignancy, was published in 2013. Based on the Evidence-Based Medicine cycle, after dissemination of a clinical practice guideline, its use and applicability have to be assessed. At present, there are no data regarding the level of knowledge and compliance to the PCS-PSGS-PAHNSI CPG by general surgeons and, especially those working in accredited training institutions.

Given that it was time to update the last PCS-PSGS-PAHNSI CPG, this study was conducted to determine the level of knowledge, attitude and practice of surgeons managing thyroid conditions with regard to the PCS-PSGS-PAHNSI CPG on the diagnosis and management of thyroid nodules.

Methods

Study Design

This is a cross sectional study involving practicing general surgeons, otorhinolaryngologists and residents training in both fields, to determine their knowledge of the contents of the PCS-PSGS-PAHNSI CPG, their attitude towards its use, and their adherence to its recommendations by employing a self-administered survey form.

Study Population

1. General Surgery residents in accredited PSGS training programs in the Philippines
2. PSGS fellows and general surgeons who are members of the staff of these accredited programs
3. Otorhinolaryngology residents and consultants who perform thyroidectomies

Data Collection

A self-administered 30 item validated survey was given to the participants after securing informed consent. (See Appendix 1 PCS-PSGS-PAHNSI Questionnaire for the KAP study)

To facilitate data collection, the questionnaires were given to the subjects during mass gatherings such as the PSGS Surgical Forum last August 2018, the PCS Annual Clinical Congress 2018 and during the residency in-service examinations.

Data Analysis

After the collection, the survey forms were inspected to ascertain the number of questions answered. Incompletely answered questionnaires were still included in the analysis, but questions that were unanswered by more than 20 % of the respondents were excluded from the data analysis. The ordinal data were converted to their numerical equivalents.

The responses were summarized according to the following groups: General Surgery consultants, General Surgery residents, Otorhinolaryngology consultants and

Otorhinolaryngology residents. Subgroup analysis was performed according to specialty (GS vs ORL), level of expertise (consultants vs residents) and year level of residency training.

Statistical Analysis

The primary hypotheses tested were that: 1. There was no difference in the median knowledge scores between groups. 2. There was no difference in the proportion of those who answered “agree” in the attitude questions. 3. There was no difference in the proportion of those who answered “agree” in the practice questions.

For the “Knowledge” data, 1 point was given for each correctly answered knowledge item, for a total of 10 points. The Median and IQR of knowledge were compared between specialties, training status, and year level in training (senior vs junior) and were tested for statistical significance at alpha 0.05 using the Mann Whitney U Test.

For the “Attitude” and “Practice”, there were 3 levels of data: Agree, Disagree, and Neutral. Analysis was performed using only levels “Agree” and “Disagree”. The statistical analysis used was the Chi-square test for homogeneity of proportions whenever appropriate. Fisher’s exact test was used for data that failed to meet the requirements for a Chi-square test.

The following were the secondary hypotheses tested: 1. There was no difference in the proportion of individuals who are aware of different CPGs. 2. There was no difference in the proportion of individuals who gave positive feedback on the previous PCS-PSGS-PAHNSI CPGs. 3. The CPG ranked as most favored, was the same regardless of grouping.

The data on “Awareness and Feedback” were also nominal. There were 3 levels of data: “Agree”, “Disagree”, and “Neutral”. Analysis was performed using only levels “Agree” and “Disagree”. The statistical analysis used was Chi-square test for homogeneity of proportions whenever appropriate. Fisher’s exact test was used for data that failed to meet the requirements for a Chi-square test.

The ranked data from Question 2, would be analyzed using ordered logistic regression.

Results

There was a total of three hundred fifty respondents. Seven of these were unclassifiable as to specialty, hence

only 343 could be analyzed (Tables 1 & 2). Majority of the respondents were general surgeons (80.47%). In both specialties, majority of the respondents were trainees (80.76%)

Table 1. Distribution of respondents (N = 343) according to their specialty, training status and year level. Data were reported as n (% for row).

	Specialization		
	ORL	GS	No Response
Consultants (n = 66)	4 (6%)	59 (89%)	3 (5%)
Residents (n = 277)	29 (11%)	217 (78%)	31 (11%)
1st year	9 (45%)	11 (55%)	0 (0%)
2nd year	7 (44%)	8 (50%)	1 (6%)
3rd year	1 (3%)	34 (92%)	2 (5%)
4th year	4 (6%)	60 (91%)	2 (3%)
5th year	0 (0%)	29 (85%)	5 (15%)
No response	8 (8%)	75 (72%)	21 (20%)

Table 2. Summary table for overall knowledge, attitude, practice, feedback, awareness and rank for different CPGs from the 343 volunteers. Data reported as mean (sd) or n (% for row) where applicable.

Knowledge, mean (sd)*7 (1.7)	Agree	Disagree	Neutral	No Response
Attitude				
Q29	41 (12)	258 (74)	40 (11)	11 (3)
Q30	272 (78)	7 (2)	56 (16)	15 (4)
Practice				
Q10	324 (92)	1 (0.3)	19 (5)	6 (2)
Q11	316 (90)	23 (6)	6 (2)	5 (1)
Q14	270 (77)	55 (16)	19 (5)	6 (2)
Q15	60 (17)	236 (67)	48 (14)	6 (2)
Q16	179 (51)	136 (39)	30 (9)	5 (1)
Q17	263 (75)	24 (7)	53 (15)	10 (3)
Q21	67 (19)	237 (68)	40 (11)	6 (2)
Q23	102 (29)	194 (55)	49 (14)	5 (1)
Q27	304 (87)	17 (5)	18 (5)	11 (3)
Q28	276 (79)	12 (3)	51 (14)	11 (3)
Feedback				
Q4	187 (53)	8 (2)	137 (39)	18 (5)
Q5	186 (53)	4 (1)	137 (39)	23 (7)
Q6	216 (62)	3 (1)	107 (31)	24 (7)
Q7	207 (59)	6 (2)	116 (33)	21 (6)
Q8	160 (46)	16 (5)	150 (43)	24 (7)
Q9	139 (40)	21 (6)	173 (49)	17 (5)
Guidelines†	Aware		Not Aware	
PCS 2013	214 (61)		128 (37)	
PCS 2008	173 (49)		169 (48)	
American Thyroid	123 (35)		219 (63)	
AACE	310 (89)		32 (9)	
Other CPG‡	312 (89)		30 (9)	

* Knowledge includes questions 3,12,13,18,19,20,22, 24,25,26

† 8 did not respond regarding their awareness of the guidelines, of those 6 were residents of unknown year level, half of which are general surgeons (GS), the other half did not declare specialization. One was a general surgeon consultant.

‡ 10% (30/312) reported NCCN, the rest did not mention any CPG.

When asked as to which clinical practice guideline they were aware of and frequently used, most respondents picked the PCS 20081 and PCS 20132 guidelines as well as the American Thyroid Association (ATA) guidelines.³ The majority were aware of the 2013 PCS-PSGS-PAHNSI guidelines as well as guidelines from the ATA, American Association of Clinical Endocrinology (AACE) and National Comprehensive Cancer Network (NCCN). However, comparing specialties, otorhinolaryngologists were less aware of the PCS-PSGS-PAHNSI CPGs than their GS counterparts. Compared to their consultants, GS Residents were more aware of the ATA guidelines than the local guidelines (Figure 1).

For the ranked data (Question 2), greater than 40% of data was missing and ranking was incomplete for most observations. Only a frequency distribution of the ranks could be reported. When the rankings of the CPGs by specialties were compared, both otorhinolaryngologists and general surgeons used the ATA more frequently than the local guidelines. (Figure 2)

In general, the median score on knowledge of the whole sample was 7 (IQR 6 – 8). Subgroup analysis did not show any variation from this estimate and none reached statistical significance (Table 3).

With regards to practice, there is a difference between specialties regarding the performance of ultrasound-guided biopsies. The general surgeon respondents claimed to do it more frequently. In addition, general surgeons claimed to practice advising patients for radioactive iodine ablation after surgery. Among the general surgeons, there was a difference between consultants and trainees with regards to selective use of the ultrasound, advising radioactive iodine ablation and monitoring serum thyroglobulin postoperatively with residents giving more positive response on these aspects of management (Table 4). Since this was a self-administered questionnaire, the authors could not verify if the residents were indeed compliant with guideline recommendations.

With regards to attitude-related questions, there was also no statistically significant difference in responses

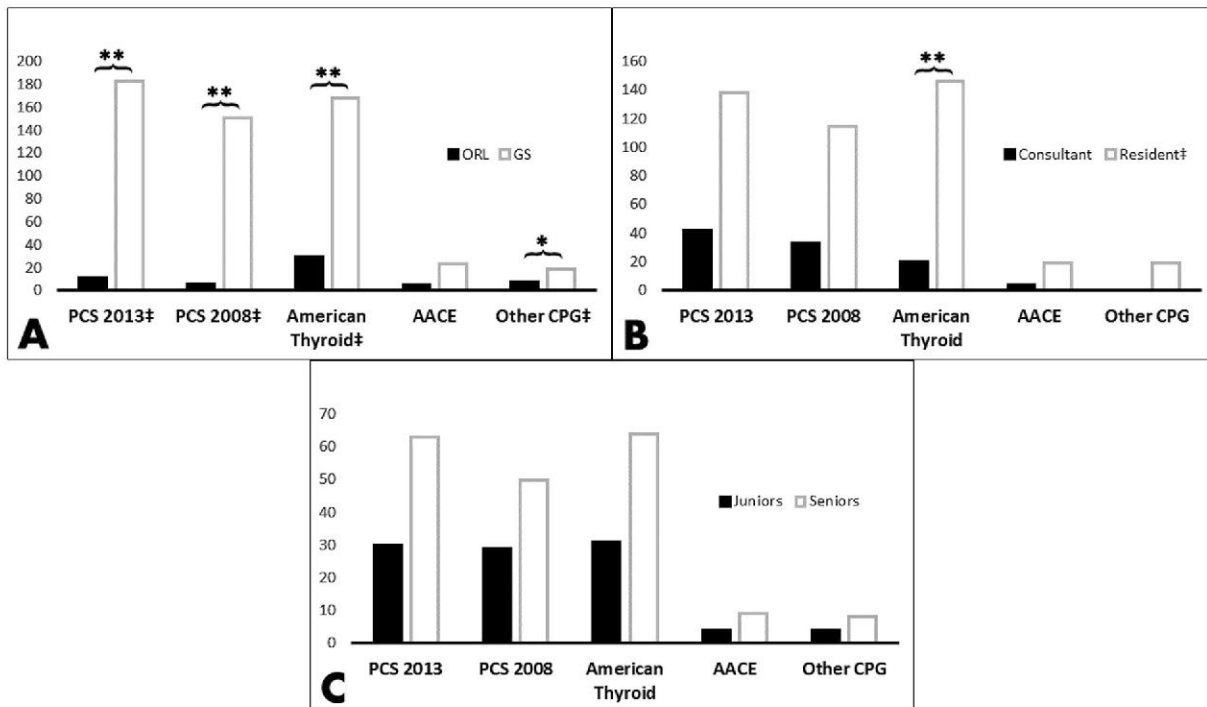


Figure 1. A) Proportions of individuals aware of different CPGs when compared between specialties. B) Proportions of individuals aware of different CPGs when compared by training status among GS respondents; and C) year level in training (seniors vs juniors) among GS respondents. ‡4 GS resident respondents did not provide their year level and did not respond to the question posted. * p < 0.01; ** p < 0.001

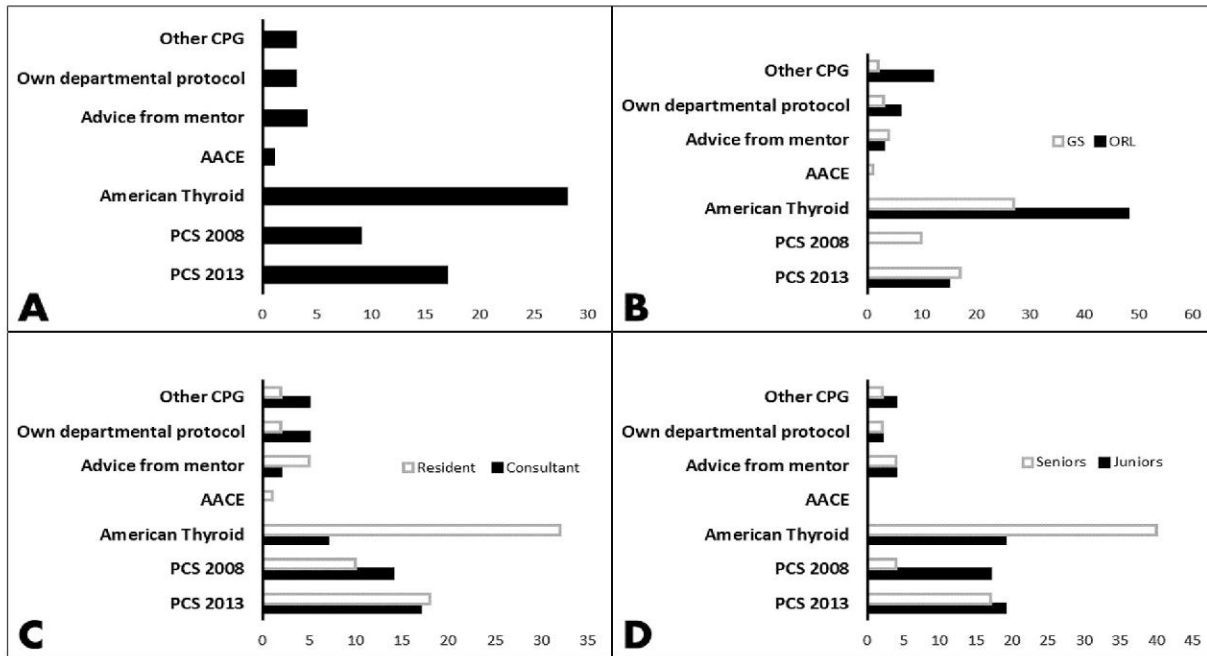


Figure 2. A) The CPG ranked, by percentage, as the most frequently referred to when managing thyroid nodules. B) Percentage reporting CPG preference when the respondents were grouped by specialty. C) Percentage reporting CPG preference when grouped by training status among GS respondents. D) Percentage reporting CPG preference by year level in training (senior vs junior) among GS respondents.

Table 3. Median and IQR of knowledge when compared between specialties, training status, and year level in training (senior vs junior). The statistical significance of the difference is tested using a Mann Whitney U Test.

	n	Median	IQR	p-value
Specialization (overall)				
ORL	33	7	6 – 8	0.15
GS	282	7	6 – 8	
Specialization (residents only)				
ORL	29	7	6 – 8	0.31
GS	217	7	6 – 8	
Training status (overall)				
Consultant	66	7	6 – 8	0.77
Resident	277	7	6 – 8	
Training status (GS only)				
Consultant	59	7	6 – 8	0.97
Resident	217	7	6 – 8	
Year level of trainees (overall)				
Junior	73	7	6 – 8	0.14
Senior	100	8	6 – 8	
Year level of trainees (GS only)				
Junior	53	7	6 – 8	0.41
Senior	89	7	6 – 8	
Year level of trainees (ORL only)				
Junior	17	7	6 – 8	0.93
Senior	4	7	5.5 – 8.5	

Table 4. Proportions of individuals with positive practice when compared between specialties, training status, and year level in training (senior vs junior). The statistical significance of the difference is tested using a chi-square or Fisher's exact, whenever appropriate.

	Question	Proportion	Ratio	Difference	p-value
Specialization (overall)					
ORL	Q10 (PE)	30 (100)	1	0	0.74
GS	Q11 (TSH)	30 (94)	1	0	0.95
	Q14 (routine US)	257 (93)	0.84	13.7	0.05
	Q15 (selective US)	22 (71)	0.73	5.1	0.50
	Q16 (FNAC)	4 (14)	0.89	6.0	0.07
	Q17 (US-FNAC)	16 (51)	0.86	12.5	0.02
	Q21 (total thyroidectomy)	147 (58)	1.19	4.0	0.30
	Q23 (post opTH)	24 (80)	1.36	10.0	0.17
	Q27 (RAIA)	211 (93)	0.86	12.8	0.003
	Q28 (Tg)	27 (93)	0.97	3.4	0.359
Training status (GS only)					
Consultant	Q10	56 (100)	1	0.5	0.60
Resident	Q11	203 (100)	0.97	2.5	0.50
	Q14	53 (91)	0.95	4.2	0.45
	Q15	199 (94)	0.38	13.6	0.04
	Q16	44 (81)	1.01	0.68	0.93
	Q17	173 (86)	0.98	1.6	0.75
	Q21	4 (8)	1.18	3.6	0.58
	Q23	45 (22)	1.1	3.4	0.65
	Q27	33 (59)	0.89	11.7	<0.001
	Q28	113 (58)	0.93	6.5	0.03
Year level of trainees (GS only)					
Junior	Q10	47 (100)	1.01	1	0.46
Senior	Q11	86 (99)	1.01	0.7	0.84
	Q14	50 (96)	0.98	1.5	0.77
	Q15	84 (95)	1.08	1.3	0.86
	Q16	46 (90)	1.15	8.0	0.38
	Q17	77 (92)	0.97	3.2	0.67
	Q21	8 (18)	1.63	11.1	0.16
	Q23	13 (17)	1.62	17.0	0.06
	Q27	30 (63)	1.01	1.2	0.46
	Q28	42 (55)	0.99	1.1	0.66

between specialties and between level of expertise, (Table 5). As a whole, respondents found national clinical practice guideline development worthwhile and would strive to comply with the recommendations of the PCS-PSGS-PAHNSI CPG.

The majority of the respondents felt that the PCS-PSGS-PAHNSI CPGs were easy to understand, applicable to the local setting, and were comprehensive. (Table 6).

Discussion

The Philippine College of Surgeons along with its affiliate societies- Philippine Society of General Surgeons and the Philippine Academy for Head and Neck Surgery, Inc, has been involved in the generation of practice guidelines with the aim of minimizing variations in practice and also to help improve outcomes of treatment and decrease the cost.

Table 5. Proportions of individuals with positive attitude when compared between specialties, training status, and year level in training (senior vs junior). The statistical significance of the difference is tested using a chi-square or Fisher’s exact, whenever appropriate.

	Question	Proportion	Ratio	Difference	p-value
Specialization (overall)					
ORL	Q29	4 (14)	1.16	1.9	0.76
GS	Q30	29 (12) 225 (97) 52 (21)	1.03	2.6	1.0
Training status (GS only)					
Consultant	Q29	6 (13) 22 (11)	1.11	1.3	0.80
Resident	Q30	39 (93) 182 (98)	0.94	5.5	0.08
Year level of trainees (GS only)					
Junior	Q29	6 (13) 6 (8)	1.72	5.5	0.32
Senior	Q30	45 (100) 78 (98)	1.03	2.5	0.53

Table 6. Proportions of individuals with positive feedback when compared between specialties, training status, and year level in training (senior vs junior). The statistical significance of the difference is tested using a chi-square or Fisher’s exact, whenever appropriate.

	Question	Proportion	Ratio	Difference	p-value
Specialization (overall)					
ORL	Q4	9 (100)	1.04	4.2	1.0
GS	Q5	13 (100) 154 (97)	1.03	2.5	1.0
	Q6	15 (100) 181 (98)	1.02	1.6	1.0
	Q7	15 (100) 174 (97)	1.03	2.8	1.0
	Q8	12 (100) 131 (90)	1.11	10.3	0.61
	Q9	11 (92) 117 (89)	1.03	3.0	1.0

Training status (GS only)						
Consultant	Q4	25 (100)	1.05	5.0	0.60	
Resident		133 (95)				
	Q5	30 (100)	1.03	3.2	1.0	
		123 (97)				
	Q6	36 (100)	1.02	2.1	1.0	
		143 (98)				
	Q7	33 (100)	1.04	3.5	0.59	
		139 (97)				
	Q8	24 (96)	1.09	7.7	0.47	
		106 (88)				
	Q9	17 (77)	0.85	13.6	0.07	
		99 (91)				
Year level of trainees (GS only)						
Juniors	Q4	26 (90)	0.93	7.2	0.17	
Seniors		62 (97)				
	Q5	25 (96)	0.96	3.9	0.33	
		52 (100)				
	Q6	30 (97)	0.98	1.6	1.0	
		62 (98)				
	Q7	26 (84)	0.84	16.1	0.004	
		60 (100)				
	Q8	24 (86)	0.94	5.8	0.46	
		43 (91)				
	Q9	20 (80)	0.84	15.4	0.09	
		41 (95)				

The first local guideline on the management of thyroid nodules was published in 2008.¹ It provided recommendations on the diagnosis and management of thyroid nodules (benign and malignant) and was intended for utilization by surgeons and other clinicians dealing with thyroid nodules: consultants and trainees; general surgeons, otorhinolaryngologists, endocrinologists, and nuclear medicine specialists. To follow the EBM cycle, prior to its revision in 2013, a survey on knowledge, attitudes and practices in the diagnosis and management of thyroid nodules was conducted. These results were presented during the PCS Annual Clinical Congress on December 4, 2013.

The subsequent update on certain aspects of the Evidence-based Clinical Practice Guidelines on Thyroid Nodules (Focused on the Diagnosis and Management of Well-Differentiated Thyroid Cancer) was then published in 2013.² This update focused on the diagnostic and therapeutic aspects of the management of well-differentiated thyroid cancer including postoperative surveillance. It was based on the most recent available

scientific evidence and the views of local experts at the time. Like the first guideline, it was intended to guide surgeons (fellows, resident trainees) and general physicians involved in the management of thyroid cancer and practicing in the Philippines. Since it is due for another update, this survey was conducted to determine whether it was adequately cascaded and whether its contents were understood and practiced by the stakeholders.

The results of the questionnaire reveal that there is an average level of knowledge of the respondents and that there is no difference across specialties and between resident and consultant. It is in certain aspects of thyroid cancer management that specialties differ with the general surgeons tending to do ultrasound guided biopsy and refer patient for radioactive iodine ablation.

Although a direct observation of how the respondents manage thyroid diseases would be a better way to measure the compliance to the CPG recommendations, this may not be feasible. Response to questions pertaining to practice may be sufficient.

Conclusion and Recommendations

The level of awareness of residents about the PCS-PSGS-PAHNSI Thyroid Guidelines needs to be improved. Higher level surgeons (consultants and senior residents) demonstrated more positive practice and attitude towards the practice guidelines.

The dissemination process needs to be reviewed and ensure that all stakeholders will be reached. There is a need to document outcomes of management according to recommendations in the guideline. Hopefully, the improved awareness will eventually translate to better knowledge and improved practice with better patient care.

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APPENDIX 1: PCS -PSGS -PAHNSI Questionnaire for the Thyroid CPG KAP study

Check the appropriate response.

Consultant GS ENT PCS Fellow
 PBS Diplomate Non boarded
 PSGS Fellow
 PSOHNS fellow
 Resident GS ENT Year level

1. Which of the following CPGs on Thyroid Nodules are you aware of?
 - PCS 2013 Update on certain aspects of EBCPG focused on diagnosis and management.
 - PCS 2008 EBCPG on Thyroid Nodules (Focused on the Diagnosis and Management of Well Differentiated Thyroid Cancer)
 - American Thyroid Association guidelines
 - AACE guidelines
 - Others _____

2. Which of the choices above do you frequently refer to when managing thyroid nodules? Rank from 1 as the most often used to the least often used:
 - PCS 2013 Update on certain aspects of EBCPG focused on diagnosis and management.
 - PCS 2008 EBCPG on Thyroid Nodule
 - American Thyroid Association guidelines
 - AACE guidelines
 - Advice from mentor or senior staff
 - Our own department/institution treatment protocol
 - Others _____

3. PCS 2013 Update on certain aspects of EBCPG focused on diagnosis and management. (K)
 Agree Disagree Neutral
4. The 2008 PCS EBCPG on Thyroid nodules are easy to understand.
 Agree Disagree Neutral
5. The 2013 PCS EBCPG on Thyroid nodules are easy to understand.
 Agree Disagree Neutral
6. The recommendations contained in the 2013 PCS EBCPG on Thyroid Cancer are applicable in my setting.
 Agree Disagree Neutral
7. The recommendations contained in the 2008 PCS EBCPG on Thyroid Nodules are applicable in my setting.
 Agree Disagree Neutral
8. The 2013 PCS EBCPG is complete and encompasses all aspects of management of thyroid nodules from benign to malignant.
 Agree Disagree Neutral
9. The 2008 PCS EBCPG is complete and encompasses all aspects of management of thyroid nodules from benign to malignant.
 Agree Disagree Neutral
10. When I encounter a patient with an anterior neck mass, the initial thing I do is a thorough history and complete physical exam. (P)
 Agree Disagree Neutral
11. I request for serum TSH in all patients with thyroid nodules. (P)
 Agree Disagree Neutral
12. Only those with symptoms of hyperthyroidism should have a serum TSH level determination. (K)
 Agree Disagree Neutral
13. All patients with an anterior neck mass should undergo neck ultrasound. (K)
 Agree Disagree Neutral
14. I request for a thyroid ultrasound in all cases of anterior neck mass. (P)
 Agree Disagree Neutral
15. I request for thyroid ultrasound only if the mass is unilateral on PE. (P)
 Agree Disagree Neutral
16. I do FNAC on all cases of thyroid nodules. (P)
 Agree Disagree Neutral

17. I get a higher biopsy yield if I do US guided FNAC than blind biopsy. (P)
 Agree Disagree Neutral
18. The advantage of having a thyroid ultrasound includes the following: allows me to determine which nodule to biopsy, in case of multinodular goiter; determine whether there are nodules in a nonpalpable thyroid lobe.
 Agree Disagree Neutral (K)
19. If I get a reading of follicular tumor on FNAC, I would request for an intraop FS. (K)
 Agree Disagree Neutral
20. If I get a reading of follicular tumor on FNAC, I will do lobectomy and isthmusectomy and wait for the final histopath before further treatment. (K)
 Agree Disagree Neutral
21. I do total thyroidectomies for all nodular goiters regardless of thyroid lobe involvement. (P)
 Agree Disagree Neutral
22. One indication for total thyroidectomy is a malignant thyroid nodule more than 1 cm. (K)
 Agree Disagree Neutral
23. After surgery for thyroid malignancy, I give thyroxine replacement immediately even w/o biopsy result. (P)
 Agree Disagree Neutral
24. Thyroid hormone as suppression therapy should be given for well differentiated thyroid cancer. (K)
 Agree Disagree Neutral
25. If preop biopsy of a 2 cm thyroid nodule turns out to be malignant, I would do a total (K) thyroidectomy.
 Agree Disagree Neutral
26. Radioactive iodine remnant ablation should be done 4 to 6 weeks after total thyroidectomy (K)
 Agree Disagree Neutral
27. I advise my patients with well differentiated thyroid cancer to undergo RAI remnant ablation after surgery if indicated. (P)
 Agree Disagree Neutral
28. I use serum thyroglobulin to monitor my patients with well differentiated thyroid cancer after treatment. (P)
 Agree Disagree Neutral
29. With available CPGs from foreign countries, it is a waste of time to embark on CPG development. (A)
 Agree Disagree Neutral
30. I try to follow the recommendation of the PCS CPG on thyroid nodules. (A)
 Agree Disagree Neutral