

# Evaluation of thyroid nodules – review of agreement between U grade and TI-RADS scoring tools in a single ultrasound unit.

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## Background.

An audit within our department of 50 thyroid US studies evaluated the assessment and consistency of reporting of thyroid nodules. This identified a broad range of reporting styles, with most reporters using a descriptive approach with occasional use of either a U grade<sup>1</sup> or TI-RADS<sup>2</sup> score by some reporters. The audit revealed a requirement to provide more consistent reporting of thyroid nodules between practitioners with a view to providing more consistent management advice to referring clinicians. This small study seeks to provide guidance to determine the best method of reporting of thyroid nodules within our institution.

## Aims.

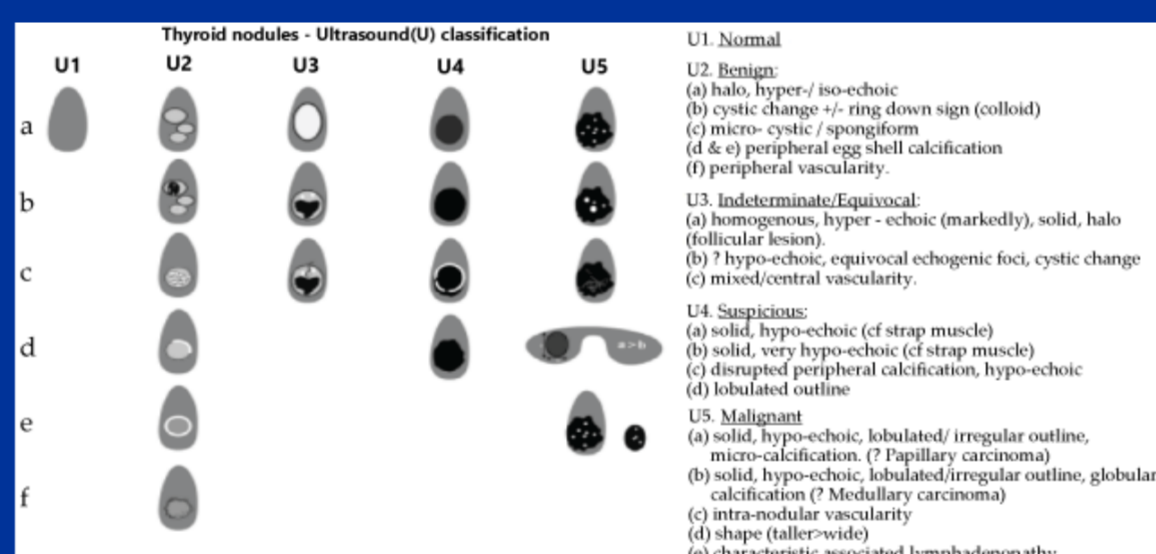
To ensure consistency in the reporting of thyroid nodules by adoption of a single reporting system within our institution.

## Objectives

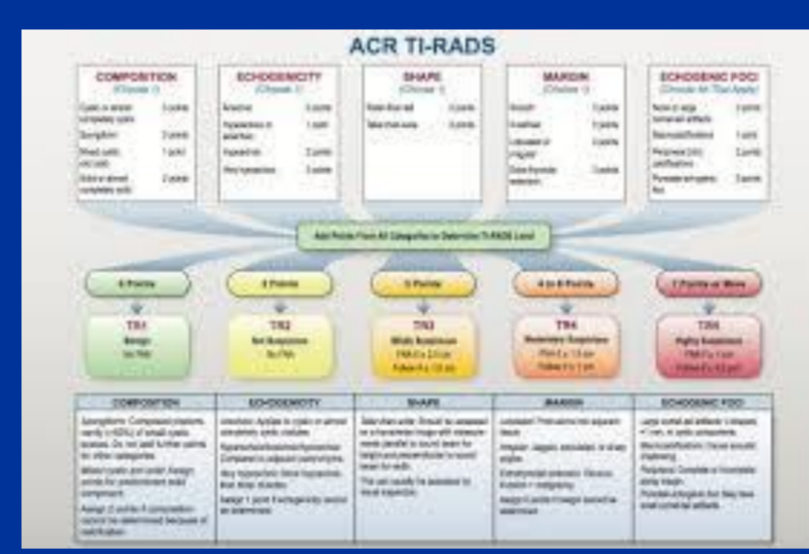
1. To assess the level of agreement between different practitioners during assessment of thyroid nodules.
2. To assess the level of agreement between the U grade system and TI-RADS system within our institution.
3. To determine individual preferences in using the U grading and TI-RADS tool.

## Methods:

8 experienced reviewers retrospectively and independently assessed the same images of 10 thyroid lesions, displayed either on a PC monitor or PACS display screen. Reviewers were asked to provide both a U grading and TI-RADS score for each thyroid nodule based on this imaging. Agreement between reviewers for each scoring system was assessed using intra-class correlation. Kappa analysis was used to assess agreement between scoring systems. Because of slight differences in scoring systems, each nodule was characterised as benign, indeterminate or suspicious during Kappa analysis to make meaningful comparison between scoring systems.



U Grading System<sup>1</sup>



TI-RADS Scoring System<sup>2</sup>

## Results:

### Agreement between reviewers.

Intra-class correlation results are given in table 1 (below). This is good agreement between reviewers for both U grading and TI-RADS systems. There was no significant difference in inter-rater agreement between the two scoring systems.

Table 1. Intra-class Correlation Coefficient.

	Intra-class correlation (average measures)	95 <sup>th</sup> % confidence interval	Interpretation
U Grade	0.7	0.48 – 0.89	Good
TI-RADS	0.75	0.55 – 0.91	Good

### Agreement between grading systems.

Kappa analysis between scoring systems is shown in table 2 below. It demonstrates very good agreement between TI-RADS AND U grading system in differentiating thyroid nodules into benign, indeterminate and suspicious groups

Table 2. Kappa analysis between U and TIRADS scoring

TIRADS Score	U Grade		
	Benign	Indeterminate	Suspicious
Benign	2	0	0
Indeterminate	1	2	0
Suspicious	0	0	5

## Conclusion

Although sample size is limited, results show good agreement between reviewers and between scoring systems in the ultrasound assessment of thyroid nodules in this sample. This study does not justify promotion of one scoring system over another. Reviewers in our institution expressed a preference for the TI-RADS system. The reasons for this were not explored within this study.

## References

1. BTA Guidelines for the Management of Thyroid Cancer. Clinical Endocrinology. Vol 81, supp 1 2014
2. Russ G et al. Prospective evaluation of thyroid image reporting and data system on 4550 nodules with and without elastography. European Journal of Endocrinology. 201; 168:649-655