

Is the use of transvaginal ultrasound beneficial in the post-menopausal bleeding pathway?



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Assessing the diagnostic value of ultrasound in screening patients who experience post-menopausal bleeding

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Background

Women who experience PMB and seen by their General Practitioner (GP) are referred to the ultrasound department for a transvaginal ultrasound (TVUS) scan within 72 hours of referral to measure the endometrial thickness. Current guidelines state that any patient with an Anteroposterior (AP) diameter greater than 4mm should be referred to gynaecology for a hysteroscopy and biopsy of the endometrial stroma which is assessed for malignant cells.

The criterion for referral for more invasive testing is a trade-off between sensitivity and specificity and must balance the need for a high detection rate versus the wish to keep invasive testing to a minimum.

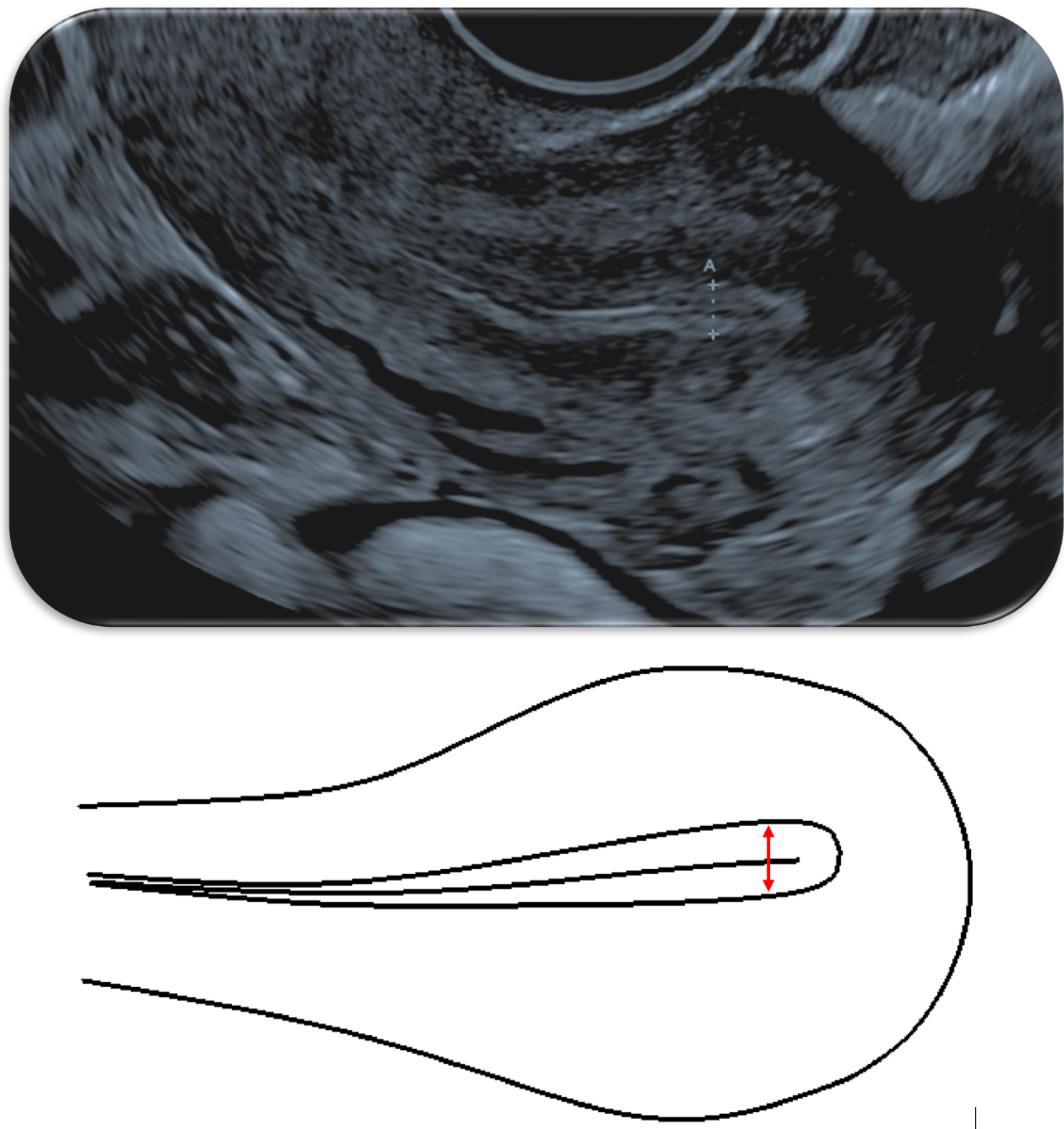


FIGURE 1: CURRENT GUIDELINES FOR MEASURING ENDOMETRIAL THICKNESS.

Aim

To determine the percentage of women with abnormal ultrasound results who also had abnormal biopsy results after hysteroscopy to assess whether the current endometrial measurement threshold can be safely increased for patients taking HRT from the current 4mm recommended threshold.

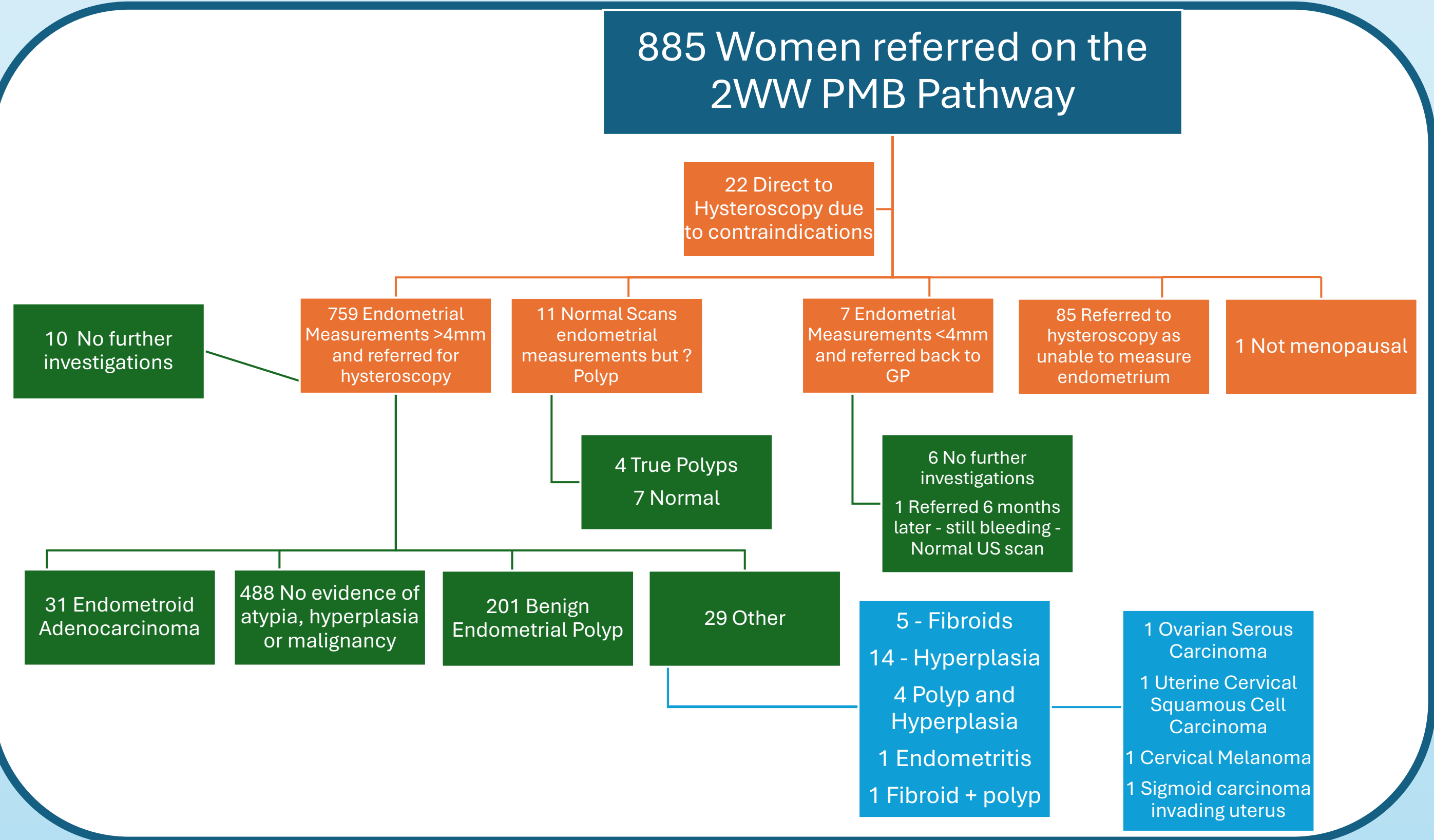
Method

Between 1st August 2022 and 31st July 2023 885 women were referred by their GP for transvaginal ultrasound due to post-menopausal vaginal bleeding. A number of patients were excluded from analysis due to inability to measure the endometrium. **777** women were included in this study.

Results

759 women had abnormal endometrial measurements, Other uterine pathology found during the scan were endometrial polyps, fibroids and fluid within the endometrial cavity.

11 patients had normal endometrial measurement but were referred to hysteroscopy due to the suspicion of endometrial polyps. Only **7 (0.8%)** patients were referred back to their GP following a normal ultrasound scan. Of the 770 woman referred for hysteroscopy, **31 (4%)** were diagnosed with Endometroid Adenocarcinoma.



Discussion

While this study's original aim was to compare endometrial thickness in HRT vs Non-HRT users to determine whether the endometrial thickness threshold could be safely increased for women on HRT, the results raised the question of whether TVUS is a valuable tool in the PMB pathway. While it was sensitive in its detection of malignancy, at the current 4mm endometrial thickness threshold, TVUS shows very poor specificity in its ability to exclude endometrial pathology in PMB patients with only 7 women avoiding further investigations following TVUS.

A 2021 review revealed that the average endometrial thickness in post-menopausal women has increased over time with studies published before 2000 reporting a mean endometrial thickness of 3.5mm and more recent studies a mean measurement of 5.7mm. Theories as to the cause of this increase include improved image resolution, increased HRT use and elevated obesity rates. The results from this study support this theory as only **2.3%** of women had what is considered a 'normal' endometrial thickness of less than 4mm but over **65%** of patients had a normal, inactive endometrium. This questions whether the endometrial thickness threshold extracted from early studies is transferable to the present-day population.

Conclusion

This study has questioned the diagnostic value of TVUS adhering to the current endometrial thickness threshold of 4mm. This study highlighted the need to review the PMB pathway, whether this is abolishing the use of TVUS and removing this step in the pathway creating a more streamlined approach; or reviewing the current endometrial thickness threshold. Based on these results and the evidence provided, increasing the threshold from 4mm to 5mm would offer comparable sensitivity but increase the specificity of TVUS, reducing the need for invasive diagnostic procedures by up to 19% and overall, validating its position in the PMB pathway.

Statistic	Value	95% CI	Statistic	Value	95% CI
Sensitivity	100.00%	92.75 to 100.00 %	Sensitivity	97.96%	89.15 to 99.95 %
Specificity	2.51%	1.50 to 3.94%	Specificity	22.21%	19.21 to 25.43%
Positive Likelihood Ratio	1.03	1.01 to 1.04	Positive Likelihood Ratio	1.26	1.19 to 1.33
Negative Likelihood Ratio	0.00		Negative Likelihood Ratio	0.09	0.01 to 0.64
Disease prevalence	6.41%	4.78 to 8.38%	Disease prevalence	6.41%	4.78 to 8.38%
Accuracy	8.76%	6.85 to 10.99%	Accuracy	27.06%	23.94 to 30.36%

FIGURE 8: STATISTICAL ANALYSIS OF THE DIAGNOSTIC TOOL TVUS WITH AN ENDOMETRIAL THICKNESS THRESHOLD OF 4MM (TABLE 2) AND 5MM (TABLE 3) FOR ALL PATIENTS

References

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