

Screening Stability Around the Clinical Threshold in Combined First-Trimester Pre-eclampsia (PE) Risk Assessment

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QUESTION

Can differences in the uterine artery pulsatility index (UtAPI) measurements alter the final preterm PE calculation?

COHORT

Retrospective cohort of 143 women undergoing combined first-trimester screening at UCLH. Senior sonographers received 1:1 training and achieved FMF-accreditation.

ANALYSIS

284* paired measurements generated repeated preterm PE risk estimates (* 2 measurements were missing); classification agreement was assessed with percent agreement, kappa and Cronbach’s alpha.

An exploratory worst-case simulation adjusted UtAPI across the observed limits of agreement before risk recalculation.

PE RISK CLASSIFICATION WAS HIGHLY REPRODUCIBLE

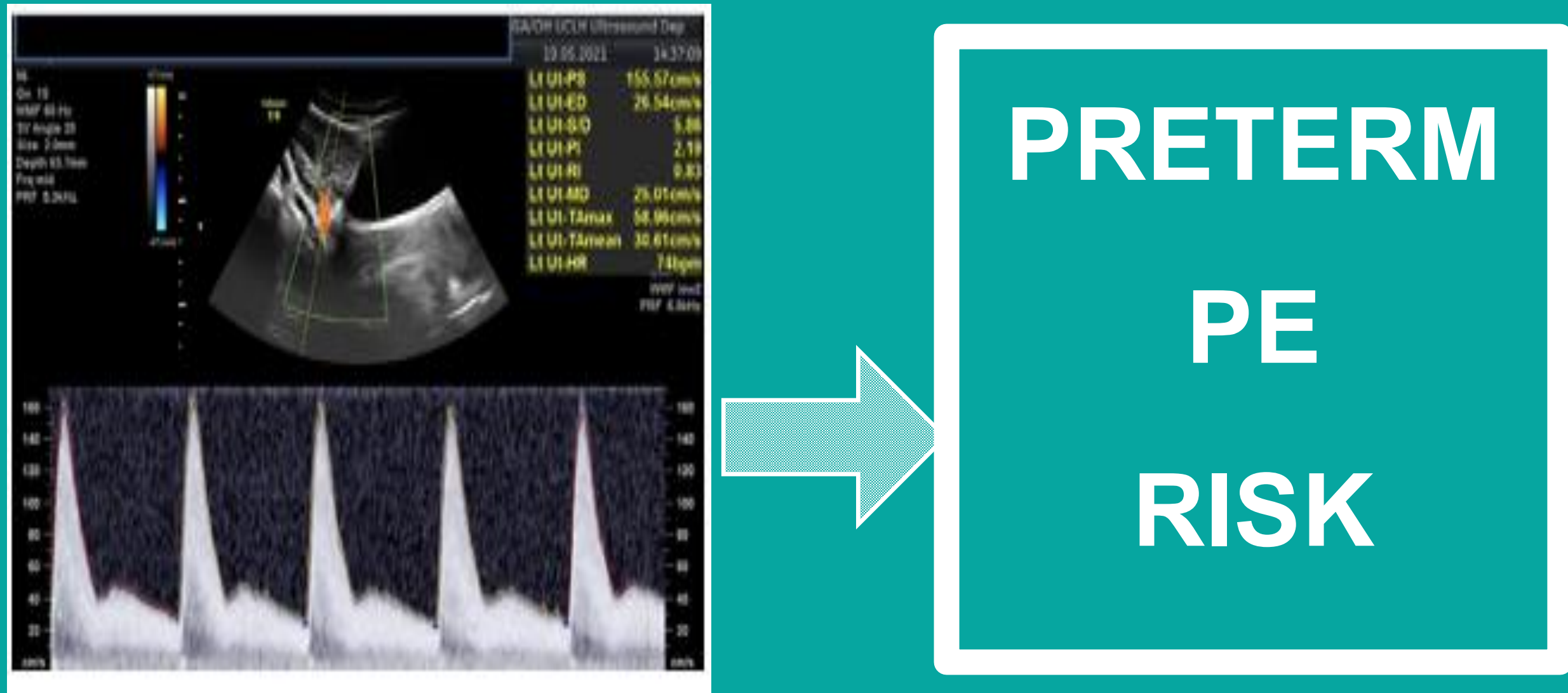
98.9% intra-operator
98.2% inter-operator (Table 1)

80.9% in a deliberate “worst-case” simulation analysis

WHY THIS MATTERS

With rigorous training and standardised protocols, Clinical Units can implement UtAPI-based combined screening reliably, without clinically meaningful instability in PE risk calculation.

First-trimester PE risk calculation demonstrates excellent reproducibility among trained sonographers despite minor variation in mean UtAPI



Intra-operator		
PE risk result	Based on 1st UtA PI -Low risk	Based on 1st UtA PI -High risk
Based on 2nd UtA PI -Low risk	265	2
Based on 2nd UtA PI -High risk	1	16
Pearson chi-squared, $p < 0.001$ Agreement: 98.9% Kappa: 0.91 Cronbach's alpha: 0.99		
Inter-operator		
PE risk result	Operator A -Low Risk	Operator A -High Risk
Operator B -Low risk	264	2
Operator B -High Risk	3	15
Pearson chi-squared, $p < 0.001$ Agreement: 98.2% Kappa: 0.85 Cronbach's alpha: 0.95		

Table 1: Classification Agreement on preterm PE risk result based on the different mean UtAPI values