

Triaging women with pregnancy of unknown location using the M6 model

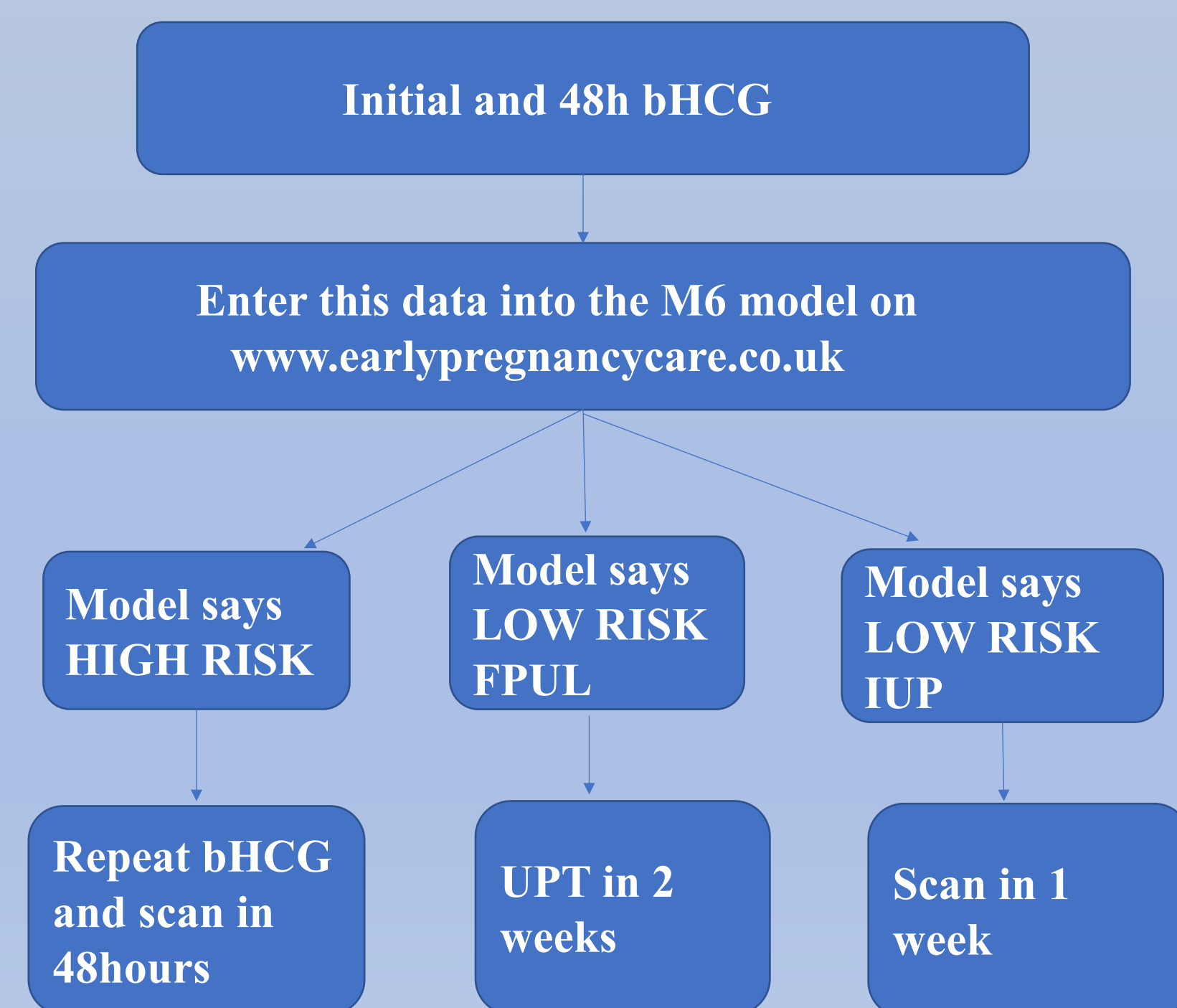
Dr Supriya Preman Thazhath Pullayikudi, Dr Kanaka Kulkarni, Miss Smitha Nidhanee
Department of Obstetrics and Gynaecology , United Lincolnshire Hospital Trust

INTRODUCTION

Pregnancy of unknown location (PUL) is diagnosed when the location of a pregnancy cannot be seen on a transvaginal ultrasound scan (TVS) in a woman who has presented with a positive urine pregnancy test. The possible pregnancy outcomes for women initially classified as having a PUL are *Intra Uterine Pregnancy*, *Failed PUL*, *Persistent PUL* or *Ectopic pregnancy*

The M6 risk-prediction model was published as part of a two-step protocol using an initial progesterone level of ≤ 2 nmol/L to identify probable failing pregnancies (Step 1) followed by the M6 model (Step 2).

The M6 model has been shown to have good triage performance for stratifying women with a pregnancy of unknown location (PUL) as being at low or high risk.



OBJECTIVE

To evaluate the clinical effectiveness of the single step M6 prediction model using bhCG values to risk stratify pregnancy of unknown location (PUL).

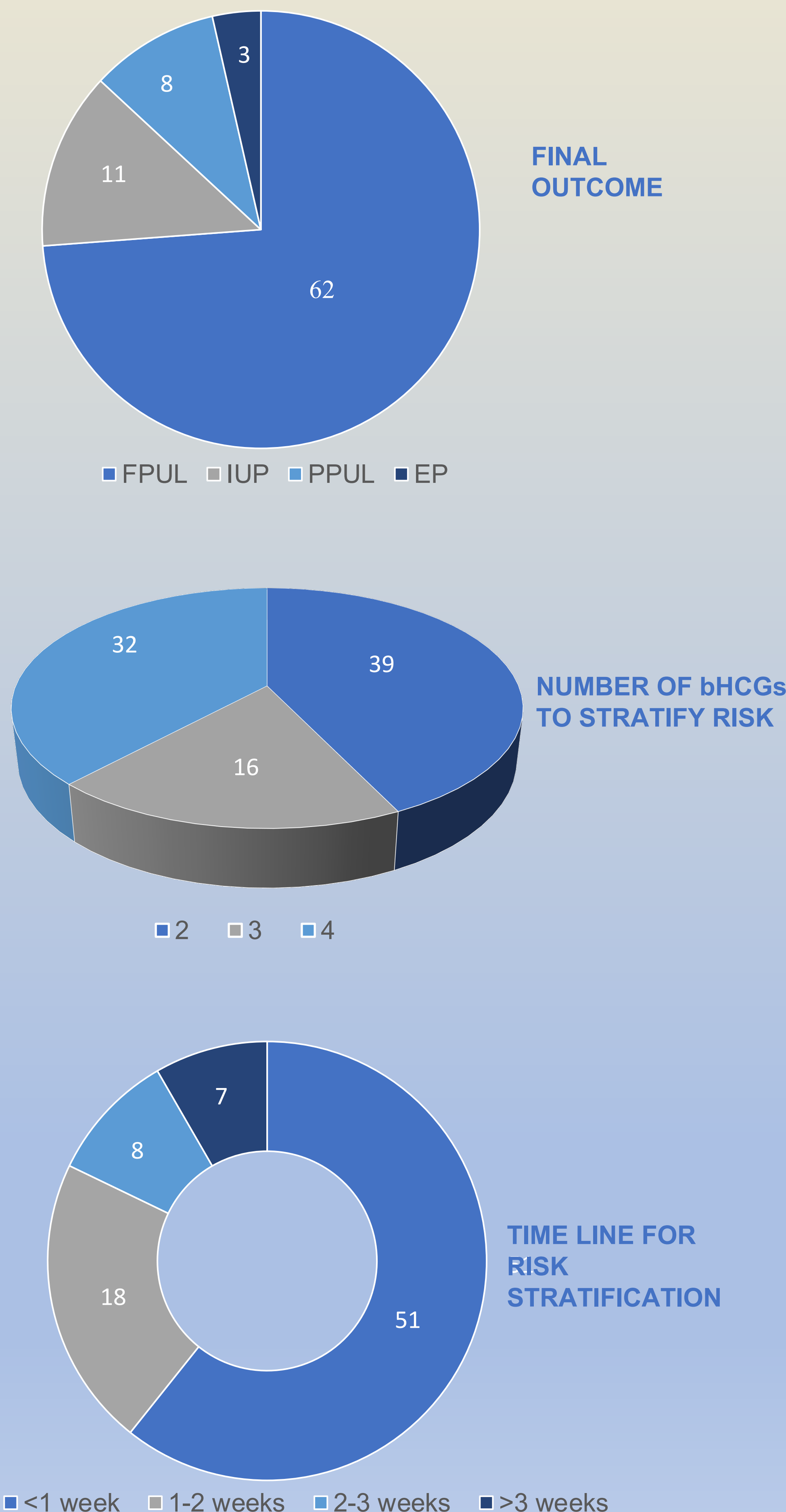
DESIGN

This is a retrospective study done on 84 women diagnosed to have PUL, presenting to the early pregnancy assessment unit at Lincoln County Hospital from March to December 2021. We included patients classified as PUL after their first scan and who were suitable for outpatient management.

METHOD

Patients were followed up according to the outcome of the M6 protocol. Risk prediction for being low or high risk was done using the protected excel sheet on www.earlypregnancy.co.uk with the initial and 48 hour bhCG values. The final pregnancy outcome was defined as – a failed pregnancy, an intrauterine pregnancy or an ectopic pregnancy (including persistent PUL). A risk score of equal to or greater than 5 was considered as a high risk for ectopic pregnancy and followed up clinically after 48 hours. Those classified as 'low risk, probable failed PUL' were advised to perform a urine pregnancy test in 2 weeks and those classified as 'low risk, probable intrauterine pregnancy' were invited for a scan a week later.

Parameters used to determine outcome were - Timeline for risk stratification, Outcomes, Number of bhCGs performed, Number of scans needed, Adverse events.



RESULTS

Of the 84 women with PUL, 39 women were classified as low risk of which none of them had an outcome of an ectopic pregnancy. The other 45 women were classed as high risk for an ectopic pregnancy of which 3 were tubal ectopic pregnancies and 8 were persistent PUL. It had a 100% accurate prediction rate for low risk pregnancies, 33 of which were failed pregnancies and 6 went on to have intrauterine pregnancies. As all the ectopic and persistent PUL cases were accurately predicted as high risk pregnancies none of the patients came to any clinical harm.

CONCLUSIONS

Our study showed that the M6 model is a highly effective means of risk stratifying women with PUL. Many women with a PUL will be low risk and require only a urine pregnancy test to confirm pregnancy failure or a repeat ultrasound to confirm an intrauterine pregnancy. Incorporating the M6 model into regular practice minimizes the follow-ups required for these patients just after 2 visits. There were no misclassified ectopic pregnancies in our study which goes on to show that the M6 model is a clinically safe triage tool to risk stratify and rationalize management of patients with PUL.

References

- 1) Bobdiwala, S., et.al. Triaging women with pregnancy of unknown location using two-step protocol including M6 model: clinical implementation study. *Ultrasound in Obstetrics & Gynecology*, 55(1), pp.105-114.
- 2) Guideline No. 414: Management of Pregnancy of Unknown Location and Tubal and Nontubal Ectopic Pregnancies. *J Obstet Gynaecol Can* 2021;43(5):614–630