Detecting slow growth according to serial fundal height measurement reduces stillbirth risk

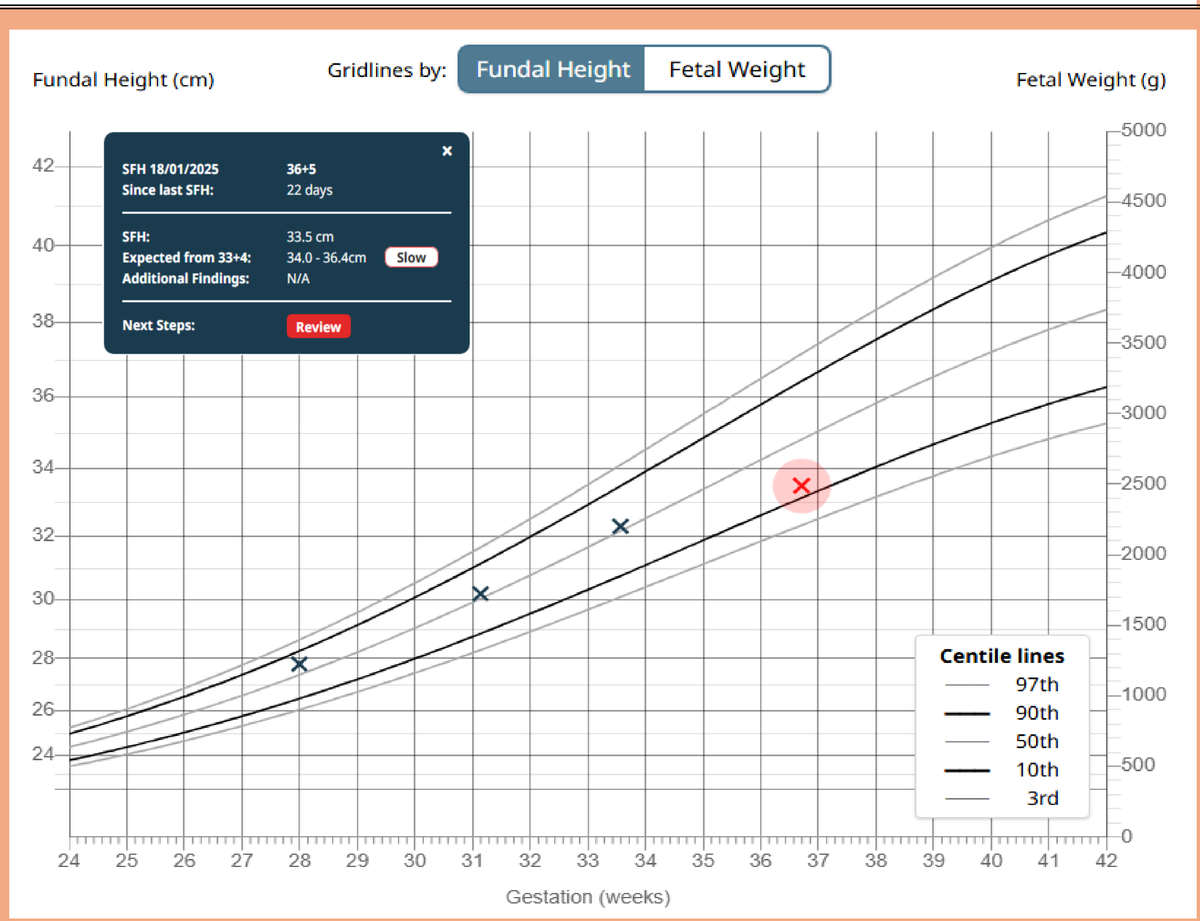
Emily Butler, Hanna Ellson, Hannah Taylor, Jemma Mytton, Oliver Hugh, Jason Gardosi
Perinatal Institute, Birmingham, UK

Objectives

- Standardised measurement of fundal height is important for fetal growth surveillance in low risk pregnancies, it has been shown to improve the identification of small for gestational age (SGA) fetuses in multiple countries[1,2].
- When performed serially during the third trimester, they also allow assessment of growth velocity.
- We investigated the association of stillbirth risk with slow growth determined by digital assessment of serial fundal height.

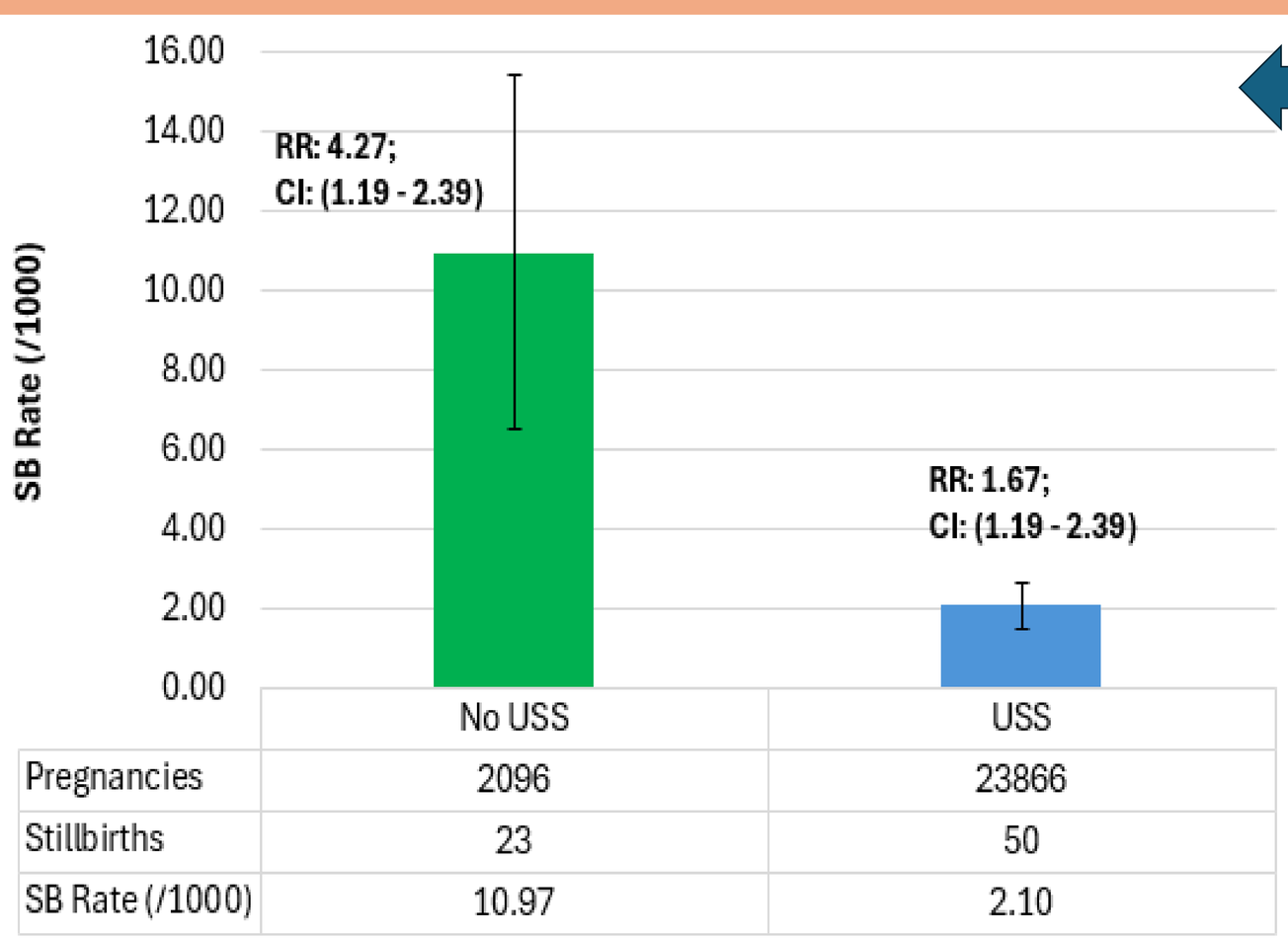
Methods

- The study cohort consisted of singleton pregnancies, with at least two third trimester standardised fundal height (SFH) assessments in UK hospitals between 2018 – 2024. Expected date of delivery was based on routine first trimester scan.
- Outcome data included stillbirth, defined as a fetus with no signs of life from 24+0 weeks gestation.
- From the last two serial SFH measurements, we calculated the projected optimal weight range (POWR)[3] to determine whether the fetus had slow growth.
- Small for gestational age (SGA) was defined as less than the tenth centile, customised for maternal height, weight, parity and ethnic origin.
- Stillbirth rates are presented per thousand, and stillbirth risk by relative risk (RR) and 95% confidence interval (CI)



Results

- This low risk cohort consisted of 222,335 deliveries including 267 stillbirths (1.67).
- The average gestational age of the last 2 SFH measurements was 34+2 and 37+5 weeks.
- The last fundal height measurement was SGA in 6.0% of cases, and the last two SFHs indicated slow growth in 16.8% of pregnancies, with 77.1% not being SGA according to last SFH.
- Fetuses with slow SFH growth but no ultrasound scan had a significantly increased stillbirth risk: RR 4.27, CI 2.70-6.76.
- The risk was less severe when slow growth according to SFH measurements was followed by ultrasound scan: RR 1.67, CI 1.19-2.36.
- These fetuses were delivered on average at 39+3 weeks, = 5 days earlier than fetuses with slow growth that did not have a scan following the SFH measurements (40+1 weeks).



	No USS	USS
Pregnancies	2096	23866
Stillbirths	23	50
SB Rate (/1000)	10.97	2.10

Conclusion

Digital assessment of serial SFH provides an important additional parameter for fetal growth surveillance and can reduce stillbirth risk. Pregnancies with slow fundal height growth regardless of fetal size are at increased risk and require urgent referral for further investigation.

References

1. Butler E, Hugh O, Gardosi J. Evaluating GAP for stillbirth prevention:. J Perinat Med.2022;50:737–47. https://doi.org/10.1515/jpm-2022-0209

2. Ahmed F, Hanook S, Shah F, Arsalan M, Lopez M, Martinez-Egea J, Figueras F. CustOmized versus standard fundal-height measuREments for the detection of small-for-gestational age fetuses in low-risk women (CORE study): A randomized controlled trial. Int J Gynecol Obstet 2024. https://doi.org/10.1002/ijgo.16107

3. Perinatal Institute. Fetal growth rate calculator. 2022. https://growthrate2.perinatal.org.uk/