Screening for gestational diabetes mellitus based on different risk profiles and settings for improving maternal and infant health

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Key findings

This updated review was to assess the effects of screening for gestational diabetes mellitus based on different risk profiles and settings on maternal and infant outcomes.

- More women were diagnosed with GDM in the universal screening group than in the risk-factor screening group (3152 participants; low-quality evidence). There were no data reported under this comparison for other maternal outcomes including hypertensive disorders of pregnancy, caesarean birth, perineal trauma, gestational weight gain, postnatal depression, and type 2 diabetes.
- Neonatal outcomes: large-for-gestational age, perinatal mortality, mortality or morbidity composite, hypoglycaemia; and childhood/adulthood outcomes: adiposity, type 2 diabetes, and neurosensory disability, were not reported under this comparison.
- There was no clear difference between the primary care and secondary care screening groups for GDM, hypertension, pre-eclampsia, or caesarean section birth (690 participants; low-quality evidence). There were no data reported for perineal trauma, gestational weight gain, postnatal depression, or type 2 diabetes.
- There was no clear difference between the primary care and secondary care screening groups for large-for-gestational age, neonatal complications: composite outcome, including: hypoglycaemia, respiratory distress, need for phototherapy, birth trauma, shoulder dystocia, five minute Apgar less than seven at one or five minutes, prematurity (690 participants; low-quality evidence), or neonatal hypoglycaemia participants (690 participants; very low-quality evidence).
- There was one perinatal death in the primary care screening group and two in the secondary care screening group (690 participants; very low-quality evidence).
- There were no data for neurosensory disability, or childhood/adulthood adiposity or type 2 diabetes.

Evidence included in this review

Two trials that randomised 4523 women and their infants were included. One trial was a quasi-randomised including 3742 women and compared universal screening versus risk factor-based screening, and one trial randomised 781 women and compared primary care screening versus secondary care screening. Authors were not able to perform meta-analyses due to the different interventions and comparisons assessed. Both trials were conducted in Ireland.

Quality assessment

Overall, there was moderate to high risk of bias due to one trial being quasi-randomised, inadequate
blinding, and incomplete outcome data in both trials. Authors used GRADE to assess the quality of the evidence for selected outcomes for the mother and her child. Evidence was downgraded for study design limitations and imprecision of effect estimates.

**Clinical implications**

Low-quality evidence suggests universal screening compared with risk factor-based screening leads to more women being diagnosed with GDM. Low to very low-quality evidence suggests no clear differences between primary care and secondary care screening, for outcomes: GDM, hypertension, pre-eclampsia, caesarean birth, large-for-gestational age, neonatal complications composite, and hypoglycaemia.

**Further research**

Further, high-quality randomised controlled trials are needed to assess the value of screening for GDM, which may compare different protocols, guidelines or programmes for screening (based on different risk profiles and settings), with the absence of screening, or with other protocols, guidelines or programmes. There is a need for future trials to be sufficiently powered to detect important differences in short- and long-term maternal and infant outcomes, such as those important outcomes pre-specified in this review. As only a proportion of women will be diagnosed with GDM in these trials, large sample sizes may be required.

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