

# Pregestational Diabetes in Pregnancy: Prevalence, Risk Factors, and current Guidelines: a Systematic Review of the Literature.

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## Introduction and Aims:

Pregestational diabetes refers to the presence of Type 1 or Type 2 diabetes mellitus in a woman before she becomes pregnant, the prevalence of which is likely 2-5% of pregnant Australian women. We performed a systematic review of the literature with the **aim** being to summarise and review current guidelines for fetal surveillance in pregestational diabetes and the levels of evidence behind the guidelines, to determine whether new recommendations exist for fetal surveillance for pregestational diabetes.

## Results:

Table 1 summarises the recommendations, grouped by time of gestation, from databases\* that provided relevant guidelines.

Source	Booking	12/40	20/40	22-24/40	28/40	32/40
PPGs		Nuchal translucency, serum screening	Morphology US (document on request form that woman has pregestational diabetes)	In absence of morphology US, fetal echo in women with HbA1c >10		
NICE	Dating scan	Nuchal translucency, serum screening. (Research question: should we offer, at 16/40, hCG, AFP, unconjugated oestriol, and inhibin A)	Morphology US (Research question: whether TVUS could be useful given morph US often inadequate due to maternal obesity)		Growth scan and AF volume	Growth scan and AF volume
ADIPS	Dating scan	Nuchal translucency, serum screening	Morphology US	Consider repeat morphology US	Growth scan + Umbilical artery dopplers	
Oxford University Press	Dating scan		Fetal echo		"Fetal growth and AF volume, four weekly, from 28-36 weeks"	"Fetal growth and AF volume, four weekly, from 28-36 weeks"

## Discussion:

Suggestions for surveillance regimes in antenatal guidelines were generally similar, with the NICE guidelines reflecting the highest level of evidence.

## Conclusion:

It is unclear which fetal monitoring regimes confer better outcomes for women with pregestational diabetes and their newborns. Some guidelines have indeed highlighted potential research questions for the field; we hope this short summary stimulates further interest and research investment in the topic.

Source	34/40	36/40	38/40, to 40+	Comments
PPGs		Consider umbilical artery flow if: evidence of microvascular or macrovascular disease, hypertension, IUGR, smoker		
NICE		US growth and AF volume	Offer tests of fetal wellbeing	'Routine monitoring of fetal wellbeing (... fetal umbilical artery Doppler recording, fetal heart rate recording and biophysical profile testing) before 38 weeks is not recommended... Unless there is a risk of fetal growth restriction.' 'Provide an individualized approach to (fetal monitoring) for women with diabetes and a risk of fetal growth restriction'
ADIPS	Growth scan (34-36/40) + UA, dopplers if abnormalities present	Growth scan (34-36/40) + UA, dopplers if abnormalities present		'Formal testing of fetal wellbeing (eg CTG, umbilical Doppler blood flow studies or biophysical profile) is not necessary in an otherwise uncomplicated pregnancy before 36 weeks gestation'
Oxford University Press		"Fetal growth and AF volume, four weekly, from 28-36 weeks"		'When macrosomia identified on US a specialist decision regarding method and timing of delivery is necessary'

**Table 1:** Summary of guideline recommendations for fetal surveillance, grouped by time of gestation.

\***Databases searched:** PPGs= South Australian Perinatal Practice Guidelines, NICE= National Institute of Clinical Excellence, ADIPS= Australian Diabetes in Pregnancy Society, the Colleges of Obstetric & Gynaecology of Australia and New Zealand, America, Canada and the UK, Oxford University Press Association of Physicians and the American Diabetes Association (ADA).