

Routine Weighing at Antenatal Visits

Guideline	Level of evidence	References
Early in pregnancy all women should be offered appropriate written information about weight gain in pregnancy and be given an opportunity to discuss it with their midwife or doctor.	IV	9a
Maternal weight and height should be measured at the first antenatal appointment and the woman's Body Mass Index (BMI) calculated and recorded. (weight[kg]/height[m ²])	IV	1
Repeated weighing during pregnancy should be confined to circumstances where clinical management is likely to be influenced.		1a-7a, 1
Maternal weight change is not a clinically useful screening tool for detection of growth restriction, macrosomia or pre-eclampsia.	IV	1
Good Practice Notes		
These guidelines consider weighing in the context of maternal and fetal outcomes rather than maternal well-being and health promotion strategies. Women may be concerned about weight gain during pregnancy relative to their pre-pregnancy weight. Women form their own views about what is appropriate for themselves and may try to control weight gain through inappropriate strategies. Midwives and doctors should advise women that there is no conclusive evidence indicating ideal weight gain during pregnancy in order for women to adequately nourish their baby and return to their pre-pregnancy weight. Each woman should be offered individualised advice, appropriate to her needs, on strategies to maintain a healthy diet and lifestyle.		8a
If a woman has a BMI <20 or >35 a plan of management should be developed and discussed with her.		

Aim

The aim of these guidelines is to assist doctors and midwives in their decisions about weighing pregnant women to detect fetal growth restriction (FGR), macrosomia and hypertensive disorders of pregnancy.

Introduction

The 3 Centres Collaboration contracted the Royal Women's Hospital (RWH) Clinical Practice Improvement Unit to conduct a comprehensive search and critical appraisal of publications addressing the topic of routine weighing published between January 2000 and June 2005, to inform the proposed review of the 2001 3 Centres Consensus Guidelines on Antenatal Care.

The weighing of pregnant women at every antenatal visit has been routine practice for most midwives and doctors for many years. Weight gain was thought to provide a clinically useful tool for the detection of growth restriction, macrosomia, hypertensive disorders of pregnancy and the prediction of birth weight,^{1a-7a}. This 2005 review found that the evidence for these associations is primarily based on historical data with limited contemporary evidence.

With increasing rates of overweight and obesity in the Australian population, routine weighing can also be viewed in the context of its benefit in helping women to maintain a healthy weight during pregnancy and to return to pre-pregnancy weight. The review of evidence was restricted to the original research questions and hence did not answer these questions specifically. However, the 3 Centres Collaboration team did concur with the RCOG recommendation to ascertain the body mass index at the first antenatal visit as part of the risk stratification process.

Research questions addressed

Does weighing pregnant women at every visit compared to weighing women at selective

visits or weighing not at all have an effect on detection of pre-eclampsia/hypertensive disorders, macrosomia, FGR, and maternal perceptions of the procedure?

Evidence

There is benefit to ascertaining BMI at the first antenatal visit as part of the risk categorization process, based on the outcomes delineated below.

Elevated BMI and excessive weight gain in pregnancy are associated with eclampsia/hypertensive disorders, macrosomia and fetal growth restriction.⁷ More specifically, elevated BMI in pregnancy is associated with preeclampsia, macrosomia, increased perinatal mortality rate and diabetes later in life.¹⁴

"The evidence for these associations is primarily based on historical data with limited contemporary evidence. Evidence currently available is of poor quality and often in settings remote from Australian antenatal care provision." (3 Centres Collaboration conclusion)

- Excessive weight gain in pregnancy is particularly associated with macrosomia and diabetes in later life.⁵
- Low BMI is associated with low birth weight and fetal growth restriction. The evidence for association with preterm birth is conflicting.^{2,3,6,7}
- Low maternal weight gain in pregnancy is particularly associated with low birth weight, fetal growth restriction and preterm birth.³

There was no evidence identified regarding the benefit of weighing women at every visit compared with selective weighing in terms of intervention to prevent macrosomia or fetal growth restriction.

Recommendation (Grade B)

The 3 Centres Collaboration concurs with the RCOG recommendations:

“Maternal weight and height should be measured at the first antenatal appointment, and the women’s BMI calculated and recorded (weight [kg]/height[m²]).

“Repeated weighing during pregnancy should be confined to circumstances where clinical management is likely to be influenced.”

Methods of search and

Appraisal

Search strategy

- The OVID interface was used to search the following electronic databases:
 - MEDLINE: 2000 – May 2005
 - CINAHL: 2000 – May 2005
 - EBM Reviews: January 2000 – May 2005
- Cochrane Database: 2005 Issue 2
- Review of article citations and Cochrane Library references for additional citations
- Guidelines developed by specific Colleges of Obstetricians and Gynaecologists were searched including:
 - Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)
 - Royal College of Obstetricians and Gynaecologists (RCOG)
 - Society of Obstetricians and Gynaecologists Canada (SOGC), and
 - American College of Obstetricians and Gynecologists.
- Guidelines developed by other groups were searched for via the internet, on the United States National Guidelines Clearinghouse.

Search terms

Terms used to identify relevant citations are outlined in Appendix I. The search included search terms for:

- Pregnancy

- Weighing
- Visits / consultation
- Hypertension in pregnancy
- Macrosomia
- Fetal growth restriction
- Maternal perceptions
- Weight gain

Initial search

Two guidelines/statements retrieved for antenatal weighing were considered, including application of the AGREE tool by the project team.

- Royal College of Obstetricians and Gynaecologists (RCOG). Clinical Guideline: Antenatal care: routine care for the healthy pregnant woman (2003)¹.
- Institute for Clinical Systems Improvement (ICSI). Health Care Guideline: Routine prenatal care. (2003)²

In addition to the guidelines, the initial search retrieved 155 citations.

Key citation selection

The 157 citations (including guidelines) were triaged into those:

- Possibly containing relevant evidence or authoritative opinion (46 citations), and
- Unlikely to contain relevant evidence or authoritative opinion (111 citations). These citations were either too general or not relevant to the topics to be addressed and were not considered further.

The 46 citations were retrieved and further screened to identify those studies with respect to quality of methodology and possible relevance to Australian obstetric practice. As a result of this exercise 17 articles were classified as key citations, and were subjected to systematic critical appraisal by the project team. The evidence within these 17 key citations fell into the following levels (see Appendix IV for definitions):
Level I evidence: 0 publications
Level II evidence: 0 publications,
Level III evidence: 8 publications,
and
Level IV evidence: 9 publications.

References

1. Royal College of Obstetricians and Gynaecologists (RCOG). Evidence based guidelines Antenatal care: routine care for the healthy pregnant woman. 2003 (Level IV) (http://www.rcog.org.uk/resources/Public/Antenatal_Care.pdf)
- 1a. Dawes MG, Grudzinskas JG. Repeated measurement of maternal weight during pregnancy. Is this a useful practice? *BJOG* 1991;98:189-194.
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- 2a. Harris HE, Ellison GT, Holliday M, Nickson C. How accurate are antenatal weight measurements? A survey of hospital and community clinics in a South Thames Region NHS Trust. *Paediatric and Perinatal Epidemiology* 1998;12(2):163-75. (Level IV)
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- 3a. Dawes MG, Green J, Ashurst H. Routine weighing in pregnancy. *BMJ* 1992;304: 487-489.
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- 7a. Theron GB, Thompson ML. The usefulness of a weight gain spurt to identify women who will develop preeclampsia. *European Journal of Obstetrics, Gynaecology, and Reproductive Biology* 1998;78(1):47-51. (Level IV)
8. Neufeld LM, Haas JD, Grajeda R, Martorell R. Changes in maternal weight from the first to second trimester of pregnancy are associated with fetal growth and infant length at birth. *American Journal of Clinical Nutrition* 79(4): 646-52 (42 ref) 2004. (Level III-2)
- 8a. Wiles R. The views of women of above average weight about appropriate weight gain in pregnancy. *Midwifery* 1998;14:254-260. (Level IV)

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Note: References with an “a” are the original 2001 references