



Adherence to the Institute of Medicine gestational weight gain recommendations in a Perth tertiary hospital.

Erin Clarke¹, Shailender Mehta^{1,2,3}

¹University of Notre Dame, Fremantle, WA ²Fiona Stanley Hospital, Murdoch, WA ³Telethon Kids Institute, Nedlands, WA

BACKGROUND

- Weight gain in pregnancy is necessary to support foetal growth and development. Weight gain above what is needed to meet the requirements of pregnancy is termed 'excess gestational weight gain'.
- Women who gain excess weight are more likely to experience adverse perinatal outcomes. In particular, overweight and obese women are more likely to gain excess gestational weight. With half of Australia's pregnant population falling into this category, this topic is a major public health concern.
- Adverse outcomes of excess GWG include caesarean delivery, gestational diabetes, preeclampsia, macrosomia and preterm birth.
- The Institute of Medicine (IOM) 2009 guidelines on gestational weight gain provide target weight gain ranges based on pre-pregnancy BMI¹. These ranges are associated with the least risk of adverse outcomes, and are as follows:

Table 1. Institute of Medicine 2009 Healthy Weight Gain in Pregnancy guidelines.

Pre-pregnancy BMI (kg/m ²)	Classification	Singleton total weight gain range (kg)
<18.5	Underweight	12.5 - 18
18.5 – 24.9	Normal	11.5 - 16
25 – 29.9	Overweight	7 – 11.5
≥30	Obese	5 - 9

AIM AND OBJECTIVE

Aim: To prevent women from gaining excess weight in pregnancy to reduce their risk of adverse perinatal outcomes.

Objective: In women of all BMIs who received all antenatal care and delivered at an Australian metropolitan tertiary hospital, what proportion have gained gestational weight in accordance with the Institute of Medicine guidelines?

METHODS

- The standard set for this audit was "80% of all women receiving antenatal care will have total gestational weight gain appropriate to the IOM guideline specific to their first trimester BMI within the last 12 months".
- Case definition: Women of any BMI who attended a Perth tertiary hospital for the majority of their antenatal care and delivered in September 2017.
- 50 cases were randomly selected from September 2017.
- Data were collected from the electronic medical records databases BOSSnet and Stork, and recorded into an excel document.
- Data includes date of birth, parity, gestation at delivery, first trimester height and weight, third trimester weight, and presence of gestational diabetes.
- Data were analysed using simple statistics such as means and percentage proportions.

RESULTS AND DISCUSSION

- Excess GWG occurred in 26% of cases, which does not meet the hospital standard for appropriate GWG of 80%.
- However, our hospital proportion of excess GWG is better than that in other studies found in the literature, with proportions of excess GWG ranging from 38 – 47%².
- Women with excess GWG were more likely to be overweight or obese in the first trimester compared to those who did not have excess GWG (Table 2). This association is supported elsewhere in the literature. This suggests that these are a high-risk group who should be at the centre of strategies promoting adherence to IOM guidelines.
- Additionally, women with excess GWG had a higher proportion of gestational diabetes suggesting a possible association between the two. A future study is warranted to investigate this relationship.

Table 2. Characteristics of audit participants.

Characteristic	Total sample	Excess GWG % (n)	Not excess GWG % (n)
Number of patients	50	26 (13)	74 (37)
Age (mean, years)	31	32	31
Country of birth			
Australia or New Zealand	50 (25)	61 (8)	46 (17)
South East Asia	18 (9)	15 (2)	19 (7)
United Kingdom	10 (5)	8 (1)	11 (4)
Africa	6 (3)	8 (1)	5 (2)
China	6 (3)	8 (1)	5 (2)
India or Bangladesh	6 (3)	0	8 (3)
Venezuela	2 (1)	0	3 (1)
United States of America	2 (1)	0	3 (1)
Multiparous	58 (29)	69 (9)	54 (20)
Gestation (mean, weeks)	39.2	39.4	39.1
Weight classification pre-pregnancy			
Underweight	10 (5)	7 (1)	11 (4)
Normal	44 (22)	30 (4)	49 (18)
Overweight	28 (14)	46 (6)	21 (8)
Obese	18 (9)	15 (2)	19 (7)
First trimester BMI (median)	24.67	25.85	23.51
Third trimester BMI (median)	28.71	31.62	27.39
Gestational weight gain (median, kg)	10.28	16	8
Gestational diabetes	26 (13)	38 (5)	22 (8)

GWG = gestational weight gain. BMI = Body Mass Index.

- Factors that inhibit best practice may include a perceived patient sensitivity to discussing weight, lack of healthcare provider education about the guidelines and training about weight counselling, and a hospital lack of resources to deliver necessary weight gain management.
- Immediate actions for improvement will include adding a section on the antenatal record which requires recording ideal weight gain range and signing that advice has been given. An online education package with CPD points could also be developed to increase knowledge of the guidelines.

CONCLUSION

- Whilst the 74% adherence to weight gain recommendations is higher than found in literature elsewhere, there is still a necessity to reduce the prevalence of excess gestational weight gain.
- This audit will be re-conducted in 12 months time to assess for any effect of implemented changes.
- This is an important public health topic and addressing it has the potential to reduce adverse perinatal outcomes.

1. Institute of Medicine. (2009). *Weight gain during pregnancy: Reexamining the guidelines*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20669500>
 2. Goldstein, R. F., Abell, S. K., Ranasinha, S., et al. (2017). Association of gestational weight gain with maternal and infant outcomes: A systematic review and meta-analysis. *Journal of the American Medical Association*, 317(21), 2207-2225. doi:10.1001/jama.2017.3635