Research Gaps in Maternal Weight Gain Ranking Survey

Ranking Measures of Weight Gain in Pregnancy

All of the proposed research questions to address gaps in knowledge rely on some specification of a measurement of weight or body composition.

Please rank the measure you think is most important to address research gaps related to weight gain in pregnancy as #1 and the least important as #12.

* 1. Candidate measure of maternal weight status (at baseline or as measures of change)

	1	2	3	4	5	6	7	8	9	10	11	12
Early pregnancy baseline weight/BMI	○	○	○	○	○	○	○	○	○	○	○	○
Prepregnancy baseline weight/BMI	○	○	○	○	○	○	○	○	○	○	○	○
Total weight gain from first trimester to end of pregnancy	○	○	○	○	○	○	○	○	○	○	○	○
Total weight gain from pre-pregnancy to end of pregnancy	○	○	○	○	○	○	○	○	○	○	○	○
Pattern of weight gain across trimesters (e.g., low-low-high vs. low-high-high, etc.)	○	○	○	○	○	○	○	○	○	○	○	○
Pattern of weight gain across pregnancy as a statistical trend line or function	○	○	○	○	○	○	○	○	○	○	○	○
Rate of weight gain (e.g.. kilograms per week)	○	○	○	○	○	○	○	○	○	○	○	○
Change in BMI from first trimester to end of pregnancy	○	○	○	○	○	○	○	○	○	○	○	○
Change in BMI from pre-pregnancy to end of pregnancy	○	○	○	○	○	○	○	○	○	○	○	○
Body/body fat composition by caliper, impedence, "BodPod" or other measure	○	○	○	○	○	○	○	○	○	○	○	○
Change in body/body fat composition	○	○	○	○	○	○	○	○	○	○	○	○
Anthropomorphic groupings (e.g., waist-to-hip ratio)	○	○	○	○	○	○	○	○	○	○	○	○

Research Gaps in Maternal Weight Gain Ranking Survey

Ranking Outcomes of Weight Gain in Pregnancy

All of the proposed research questions to address gaps in knowledge rely on some specification of an outcome or outcomes of interest.

Please rank the outcome you think is most important to address research gaps related to weight gain in pregnancy as #1 and the least important as #8.

* 2. Candidate outcomes of interest related to maternal weight status (at baseline or as measures of change)

	1	2	3	4	5	6	7	8
Maternal antepartum outcomes	○	○	○	○	○	○	○	○
Development of gestational diabetes	○	○	○	○	○	○	○	○
Fetal outcomes (e.g. stillbirth, fetal distress in labor)	○	○	○	○	○	○	○	○
Intrapartum outcomes (e.g. shoulder dystocia, cesarean birth)	○	○	○	○	○	○	○	○
Neonatal outcomes (e.g. preterm birth, NICU admission, birth injury)	○	○	○	○	○	○	○	○
Maternal postpartum outcomes (e.g. postpartum weight loss, initiation of lactation, duration of lactation)	○	○	○	○	○	○	○	○
Infant health outcomes (e.g. growth in first year of life, developmental milestones)	○	○	○	○	○	○	○	○
Child health outcomes (e.g. overweight and obesity)	○	○	○	○	○	○	○	○

Research Gaps in Maternal Weight Gain Ranking Survey

General Evidence Gaps

For the balance of the survey items we have simplified the questions to indicate "[weight gain in pregnancy]" and "[outcomes]" as generic stand-ins for specific targets. The ranking of the above items will be used later by the group to help merge the prioritization of specific measure of weight gain/outcomes with proposed research questions. This will multiply the number of items for final rankings in a future round.

A number of the research questions and suggestions for new items and edits emphasized the need to understand the inter-relationship of causal factors, for instance calorie expenditure, nutritional content of meals, and maternal weight gain. The intent of these questions is to more clearly understand the independent contribution of specific factors of two types: 1) confounders and 2) effect modifiers. The research questions themselves are not required to be accessible to a lay audience, rather to provide information to guide prioritization of topics to fill gaps in knowledge at the scientific level. *Don't worry about word-Smithing to make the research questions transparent for the public.*

We have grouped the research questions here by focus on confounding versus effect modification. The level of granularity of the items differs from broad to specific.

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

Confounding
Questions about confounding are aimed at assuring that an influence on outcome(s) is not incorrectly attributed to one factor (e.g. weight gain) if actually being driven by another confounding factor (e.g. nutritional composition of the diet). Confounders are associated with both the exposure of interest (i.e. some specific measure of weight gain in pregnancy) and the outcome under study (i.e. some specific maternal, fetal, or infant outcome) and mask or inflate the estimated effects of the exposure of interest.

3. What factors confound the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

4. Does nutrient content of the diet confound the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

5. Does physical activity [metabolic expenditure] confound the relationship between [weight gain in pregnancy] and [outcomes]?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

6. Does socioeconomic status confound the relationship between [weight gain in pregnancy] and [outcomes]?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

7. Does pregravid health status confound the relationship between [weight gain in pregnancy] and [outcomes]?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

8. Does pre-pregnancy BMI or pre-pregnancy weight confound the relationship between [weight gain in pregnancy] and [outcomes]?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Effect Modifiers

Questions about effect modification, also termed interaction, are aimed at understanding whether the relationship between the exposure of interest and the outcome is fundamentally different based on status of another characteristic. For instance: Does Type II diabetes modify the relationship between total maternal weight gain and risk of macrosomia?

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

9. What physiologic or clinical factors modify the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

10. Does maternal age modify the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

11. Does pre-pregnancy BMI or pre-pregnancy weight modify the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

12. Does weight at menarche modify the relationship between [weight gain in pregnancy] and [outcomes]?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

13. Does use of insulin or other diabetes medications modify the relationship between [weight gain in pregnancy] and [outcomes]?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Please score all iiems, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

14. Does gestational weight gain above targets defined in the 2009 IOM weight gain guidelines contribute to complications (including antepartum, postpartum longer term maternal and infant complications)?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

15. Does gestational weight gain below targets defined in the 2009 IOM weight gain guidelines contribute to complications (including antepartum, postpartum longer term maternal and infant complications)?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

16. Does race modify the relationship between gestational weight gain above (or below) thresholds defined in the 2009 IOM weight gain and complications?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

17. Does maternal age modify the relationship between gestational weight gain above (or below) thresholds defined in the 2009 IOM weight gain and complications?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

18. What are the harms and benefits of offering standardized weight gain recommendations to all pregnant women?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

General Evidence Gaps (Continued)

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

19. Which anthropometric tools are most appropriate for determining adiposity in pregnant women?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

20. What are the strengths and weaknesses of measuring adiposity for the clinical management of weight gain during pregnancy?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

21. What are the strengths and weaknesses of measuring adiposity for the evaluation of the relationship between weight gain and outcomes of pregnancy?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

22. What is the general health literacy (i.e., the level of knowledge, attitudes and self-efficacy) of women regarding gestational weight gain?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

23. Does weight gain during pregnancy influence lactation initiation and maintenance?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

24. Does parity influence the relationship of weight gain and pregnancy outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

25. Do the mother's or father's genetic factors influence the relationship between weight gain and pregnancy outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

26. Is there an interaction between mother's stature and weight gain during pregnancy that affects the outcomes of the pregnancy?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

27. What is the relative impact of total weight gain vs. rate of weight gain vs. timing of weight gain (by trimester) on pregnancy outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

28. What is the effect of gestational weight gain on infant (beyond birthweight) and childhood outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

29. What are the optimal gestational weight gains for women with varying degrees of pre-pregnancy obesity?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

30. What research studies and databases are available to describe the distribution of maternal weight gain (prior to, during and after pregnancy) among different populations of women in the US?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

31. What research studies and databases are available to inform our understanding of the effects of different weight patterns (including underweight and overweight) during pregnancy on maternal and child health outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

Interventions

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

32. Do prenatal care providers have the necessary knowledge, attitudes, and skills to provide appropriate weight gain guidance to women?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

33. Do women receive weight gain guidance from their prenatal clinicians? If so, is the guidance consistent with the 2009 IOM/NRC Gestational Weight Gain publication?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

34. What methods are effective for helping women acquire knowledge and understanding of the goals for weight gain, and skills for controlling weight gain?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

35. What research has been conducted to describe the individual, community, and health care system factors that impede or foster adherence to recommended gestational weight gain guidelines?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

36. What interventions are effective for the outcome of maternal weight gain within the recommended range(s)?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

37. How does physical activity affect maternal weight gain?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

38. How does total caloric intake, and dietary composition of caloric intake affect maternal weight gain?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

Statistical Issue

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

39. In conducting analyses on weight gain in pregnancy, how should one define outliers in pregravid weight, gestational weight gain, postpartum weight, and maternal height?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

40. How should outliers in pregravid weight, gestational weight gain, postpartum weight, and maternal height be handled analytically?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

41. What is the need for standardization of research measures to advance the field of research related to weight gain in pregnancy?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

42. How much variability is there in measurement of factors associated with maternal weight gain and pregnancy outcomes such as definition of diet composition, measurement of maternal and neonatal body composition and agreement on ideal neonatal weight and body composition?

	Ranking Choices
Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

43. Is there a lack of standardization in current research in terms of maternal weight gain measures?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

44. Is there a lack of standardization in current research in terms of birth, maternal, and infant outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Research Gaps in Maternal Weight Gain Ranking Survey

Policy Issues

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

45. How accurate is self-reported compared to measured weight (prepregnancy, in pregnancy, and postpartum) in all populations and among women of varying pregravid weights and gestational ages?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

46. How reliable is self-reported prepregnancy weight in pregnancy by age, parity, and BMI?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

47. What opportunities exist for Title V maternal and child health programs to assist childbearing women in achieving and maintaining recommended weight?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

48. What future research and data collection efforts could improve the efforts of Title V programs to support women from different racial and ethnic backgrounds in their efforts to meet recommended weight guidelines and to improve their maternal health?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

Measurement Issues

Please score all items, from 0 (low) to 10 (high), for the following domains: overall interest, clinical utility, feasibility of the research, and potential to advance the science.

49. Is rate of weight gain, change in BMI, adequacy of rate of weight gain, or total weight gain superior for predicting adverse birth, maternal, and infant outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

50. What are the preferred anthropometric measurements for predicting birth, maternal, and infant outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

51. Does direct measurement of body fat (prepregnancy, in pregnancy, postpartum) and other body composition factors and biomarkers (for example, blood lipids) contribute to the understanding of birth, maternal, and infant outcomes?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	

52. Would a direct measure of body fat prior to pregnancy be more closely related to pregnancy outcomes such as infant birth weight than pre-pregnancy BMI?

Ranking Choices

Overall importance	
Clinical utility	
Feasibility of the research	
Potential to advance the science	