

HALTING THE RISE IN OBESITY AND DIABETES

Life Stage: Pregnancy

INTERVENTION POINTS

<p>1. Social Determinants/Health Promotion</p> <p>Health education – antenatal and parenting classes</p> <p>Health promotion – preconception care, weight management, diet and physical activity, lifestyle interventions</p> <p>Risk avoidance regarding risky lifestyles and behaviours; avoidance of risks</p> <p>Promotion of breastfeeding</p> <p>Access to quality, comprehensive prenatal care</p>	<p>2. Primary Prevention/Risk Reduction</p> <p>Risk factor screening and identification</p> <p>Risk reduction regarding risky lifestyles and behaviours; avoidance of risks</p> <p>Preconception care and counselling</p> <p>Health education – antenatal diet, physical activity.</p>
<p>3. Screening & Early Detection</p> <p>Routine antenatal care guidelines and referral pathways</p> <p>Screening guidelines for blood glucose in preconception and antenatal care</p>	<p>4. Care and Treatment</p> <p>Protocols for management of prediabetes and diabetes in pregnancy</p> <p>Protocols for management of overweight and obesity in pregnancy</p> <p>Statutory reporting of diabetes diagnoses for National Register</p>
<p>5. Quality of Care</p> <p>Adherence to national guidelines for clinical management</p> <p>Clinical Care Quality Reporting system with monitoring and accountability mechanisms</p>	

PRECONCEPTION CARE ENCOUNTERS

Preconception care - a set of interventions to identify and modify biomedical, behavioral, and psychosocial risks to a woman's health or pregnancy outcome through prevention and management. Preconception care should be considered as a continuum of care throughout a woman's reproductive life; any form of contact with a health care worker to prepare for a healthy pregnancy.

<ul style="list-style-type: none"> • Measure Height & Weight, Calculate BMI • Provide specific information • Counsel on lifestyle choices and risky behaviours; recommend diet, nutrition and physical activity. • Written Referral to Nutrition services, as indicated. 	<p>Preconception care may include:</p> <ul style="list-style-type: none"> - Provision of specific information - Screening for and treating obesity-related health problems - Customized or general dietary and exercise advice. • <i>Women with diabetes should be counseled on optimizing glycemic control, and pregnancy should be discouraged until control is achieved.</i>
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Gestational Weight Gain (GWG) Guidelines* (Institute of Medicine)

Pre-Pregnancy BMI	Recommended Weight Gain	COMMENTS
Underweight (BMI <18.5)	25-35 lbs / 11.4-15.9 kg	<p>1/3 of women gain excessive weight during their pregnancy. Maternal obesity is associated with several negative pregnancy outcomes.</p> <ul style="list-style-type: none"> • Inform pregnant woman of appropriate weight gain at the beginning of pregnancy • Advice on diet <u>during pregnancy</u> should be more intensive for overweight or obese woman • Provide advice on physical activity during pregnancy
Normal Weight (BMI 18.5 – 24.9)	25-35 lbs / 11.4-15.9 kg	
Overweight (BMI 25.0-29.9)	15-25 lbs / 6.8-11.4 kg	
Obese (BMI ≥30.0)	11-20 lbs / 5.0-9.0 kg	

** For the overweight or obese woman who is gaining less than the recommended amount but has an appropriately growing fetus, no evidence exists that encouraging increased weight gain to conform with the current IOM guidelines will improve maternal or foetal outcomes.*

PREGNANT CLIENT ENCOUNTERS

EVIDENCE

<p>First Prenatal Visit (GA: 8-12 wks)</p> <ul style="list-style-type: none"> • Measure Height & Weight, Calculate BMI • Recommended Gestational Weight Gain based on BMI • Elicit history of Type 2 Diabetes, Gestational DM, large infant (>9 lbs/4 kg), 1st degree family member with DM • Test for undiagnosed Type 2 DM if risk factors present (i.e. pre-pregnancy BMI ≥30, personal history of GDM, known impaired glucose metabolism) at first visit • Counsel regarding excessive weight gain, recommend diet and physical activity • Apply Nutrition Screening tool. 	<ul style="list-style-type: none"> • <i>Women with complex medical conditions (obesity, Diabetes) must be offered referral for assessment by a consultant obstetrician. Referral pathways should be documented.</i> • <i>Structured Maternity Records and Client Passport & Itinerary should be available, showing time-line of prenatal care and what to expect at each visit.</i> • <i>Informing and educating women on appropriate weight gain before and in the beginning of pregnancy may contribute to better dietary compliance.</i> • <i>Diet or exercise, or both, during pregnancy can reduce the risk of excessive GWG, particularly for high-risk women.</i> • <i>Exercise appears to be an important part of controlling weight gain in pregnancy.</i>
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<p>Every 4 weeks for first 28 weeks</p>	<ul style="list-style-type: none"> • Weight – review total weight gain for pregnancy • Urine dip for glucose • Encourage breastfeeding 	<ul style="list-style-type: none"> • <i>Dietary advice interventions for pregnant women <u>may</u> prevent GDM; decrease total GWG; and long-term postpartum weight retention.</i> • <i>Most diets (<u>except</u> high unsaturated or mono-unsaturated fatty acid diet) demonstrated fasting glucose improvement when compared to GWG advice only. DASH-style diet appeared optimal on fasting glucose.</i> • <i>Women receiving Lifestyle interventions were more likely to achieve postpartum weight goals, but no clear evidence of benefit for development of type 2 DM.</i> • <i>Overweight and obese pregnant women benefit from lifestyle, dietary and activity advice which restricts maternal weight gain and lowers prevalence of GDM.</i>
<p>Every 2 weeks until 36 weeks gestation</p>	<ul style="list-style-type: none"> • Screen for GDM at 24-28 weeks gestation in pregnant women not previously known to have diabetes (Do NOT Use HbA1C test) • Offer prenatal / childbirth classes, incl: <ul style="list-style-type: none"> - weight management during pregnancy - promoting breastfeeding - preventing childhood obesity 	
<p>Every week after 36 weeks</p>		
<p>Postpartum visit</p>	<ul style="list-style-type: none"> • Weight & BMI • Review nutrition and exercise • Women with GDM should be screened for DM 6-12 weeks postpartum • Women with GDM should be followed up with screening for development of prediabetes or diabetes 	<ul style="list-style-type: none"> • <i>Women with a history of GDM found to have prediabetes should receive intensive lifestyle interventions or Metformin to prevent diabetes.</i> • <i>Women with a history of GDM should have lifelong screening for development of diabetes or prediabetes, every 3 years.</i>

MANAGEMENT OF DIABETES IN PREGNANCY

- **Pre-existing Diabetes:** preconception counseling; family planning/effective contraception; importance of glycemic control; risks of diabetic retinopathy: dilated eye exam prior or in 1ST trimester, repeat every trimester and for 1 year post-partum.
- **GDM** – lifestyle change; medication (if needed).
- **General principles of management of DM in pregnancy** – avoid teratogenic meds if unreliable contraception; self-monitoring of blood glucose; modified targets for control using HbA1c and BP (for co-morbid hypertensives)

KEY: BMI = Body Mass Index GWG = Gestational Weight Gain GDM = Gestation Diabetes Mellitus DM = Diabetes Mellitus

REFERENCES

1. Tieu, Joanna; Shepherd, Emily; Middleton, Philippa; Crowther, Caroline A. (2017) **Dietary advice interventions in pregnancy for preventing gestational diabetes mellitus.** *Cochrane Database Syst Rev*;
2. Han, S., Middleton, P., Shepherd, E., Van Ryswyk, E., & Crowther, C. A. (2017). **Different types of dietary advice for women with gestational diabetes mellitus.** *Cochrane Database of Systematic Reviews*, 2, CD009275.
3. Tanentsapf,I., Heitmann,B.L., & Adegboye,A.R.A. (2011). **Systematic review of clinical trials on dietary interventions to prevent excessive weight gain during pregnancy among normal weight, overweight and obese women.** *BMC Pregnancy and Childbirth*, 11, doi: 10.1186/1471-2393-11-81.
4. Muktabhant, Benja; Lawrie, Theresa A; Lumbiganon, Pisake; Laopaiboon, Malinee. (2015) **Diet or exercise, or both, for preventing excessive weight gain in pregnancy.** *Cochrane Database Syst Rev*; (6): CD007145, 2015 Jun 15. Article in En | MEDLINE | ID: mdl-26068707
5. Ha V, Bonner A, Jadoo J, Beyene J, Anand S, & de Souza R. (2017). **The effects of various diets on glycemic outcomes during pregnancy: A systematic review and network meta-analysis.** *PLoS ONE*, 12(8), e0182095.
6. Julie Brown, Nisreen A Alwan, Jane West, Stephen Brown, Christopher JD McKinlay, Diane Farrar, Caroline A Crowther (2017) **Lifestyle interventions for the treatment of women with gestational diabetes.**
7. Opray N., Grivell R.M., Deussen A.R., & Dodd J.M. (2015). **Directed preconception health programs and interventions for improving pregnancy outcomes for women who are overweight or obese.** *Cochrane Database of Systematic Reviews*, 7, Art. No.: CD010932.
8. Oteng-Ntim E. **Lifestyle interventions for overweight and obese pregnant women to improve pregnancy outcome: Systematic review and meta-analysis.** *BMC Medicine*. 2012;10(47):1-15
9. Sevilay Temel, Sabine F. van Voorst, Brian W. Jack, Semiha Denкта , and Eric A. P. Steegers (2014) **Evidence-Based Preconceptional Lifestyle Interventions.**
10. Morgan, Philip J; Young, Myles D; Lloyd, Adam B; Wang, Monica L; Eather, Narelle; Miller, Andrew; Murtagh, Elaine M; Barnes, Alyce T; Pagoto, Sherry L. (Feb 2017) **Involvement of Fathers in Pediatric Obesity Treatment and Prevention Trials: A Systematic Review.** *Pediatrics*; 139(2)2017 Feb
11. Kirsten K. Davison, PhD, Selma Gicevic, MSc, Alyssa Aftosmes-Tobio, MPH, Claudia Ganter, MPH, Christine L. Simon, ScM, Sami Newlan, MS, and Jennifer A. Manganello, PhD (2016) **Fathers' Representation in Observational Studies on Parenting and Childhood Obesity: A Systematic Review and Content Analysis.**
12. Michelle S. Wong, Jessica C. Jones-Smith, Elizabeth Colantuoni, Roland J. Thorpe Jr., Sara N. Bleich, Kitty S. Chan (21 June 2017) **The Longitudinal Association Between Early Childhood Obesity and Fathers' Involvement in Caregiving and Decision-Making.**
13. Flynn AC, Dalrymple K, Barr S, Poston L, Goff LM, Rogozinska E, et al. (2016). **Dietary interventions in overweight and obese pregnant women: a systematic review of the content, delivery, and outcomes of randomized controlled trials.** *Nutrition Reviews*, 74(5), 312-328.
14. American Diabetes Association (2017) **Diabetes Care: Standards of Medical care in Diabetes – 2017.** *Journal of Clinical and Applied Research & education*; Vol 40. Supplement 1.
15. Institute of Medicine (IOM)/ACOG (2013, reaffirmed 2016): ACOG Committee Opinion. **Weight Gain during Pregnancy**