Pregestational Diabetes and Pregnancy

1. **Before attempting to become pregnant, women with type 1 or type 2 diabetes should**:
   a. Receive preconception counselling regarding optimal diabetes management, and nutrition preferably in consultation with an interdisciplinary pregnancy team, to optimize maternal and neonatal outcomes [Grade C, Level 3].

   b. Strive to attain a preconception A1C $\leq$7.0% ($\leq$6.0% if safely achievable) to decrease the risk of:
      - Spontaneous abortions [Grade C, Level 3 for type1 diabetes; Grade D, Consensus for type 2 diabetes]
      - Congenital malformations [Grade C, Level 3]
      - Pre-eclampsia [Grade C, Level 3]
      - Progression of retinopathy in pregnancy [Grade A, Level 1A for type1 diabetes; Grade D, Consensus for type 2 diabetes].

   c. Supplement their diet with multivitamins containing 5 mg folic acid at least 3 months preconception and continuing for at least 12 weeks postconception. From 12 weeks postconception and throughout the pregnancy, the first 6 weeks postpartum and as long as the breastfeeding continues, supplementation should consist of a multivitamin with 0.4 to 1.0 mg folic acid [Grade D, Consensus].

   d. Discontinue medications considered to be potentially embryopathic, including any from the following classes:
      - ACE inhibitors and ARBs [Grade C, Level 3]. In the setting of hypertension, these may be replaced with antihypertensives that are known to be safe in pregnancy (calcium channel blockers, beta-blockers, labetolol, hydralazine and methyldopa) [Grade D, Consensus]
      - Statins [Grade D, Level 4]

   e. Undergo an ophthalmologic evaluation by an eye care specialist. Repeat asessments should be performed during the first trimester, as needed during the rest of pregnancy and within the first year postpartum [Grade A, Level1 for type 1 diabetes; Grade D, Consensus, for type 2 diabetes].

   f. Be screened for nephropathy [Grade D, Consensus]. If microalbuminuria or overt nephropathy is found, glycemic and blood pressure control should be optimized to minimize maternal and fetal complications and progression of nephropathy [Grade C, Level 3].

2. **Women with type 2 diabetes who are planning a pregnancy or become pregnant should:**
   a. Switch from oral antihyperglycemic agents to insulin [Grade D, Consensus]. This should preferably be done prepregnancy, except in the setting of PCOS, where metformin can be safely used for ovulation induction. The safety of metformin beyond ovulation induction in women with type 2 diabetes remains unknown [Grade D, Consensus].

   b. Receive an individualized insulin regime to achieve glycemic targets, with consideration given to intensive insulin therapy [Grade A, Level1].

3. For Glycemic Targets for women with type 1 or type 2 diabetes - see reverse.

4. **Women with type 1 diabetes in pregnancy** should receive intensive insulin therapy with multiple daily injections or an insulin pump to attain glycemic targets during pregnancy [Grade A, Level 1A].

POSTPARTUM

Women with type1 diabetes in pregnancy should be screened for postpartum thyroiditis with a thyroid stimulating hormone at 6 weeks postpartum [Grade D, Consensus].

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Pregestational Diabetes and Pregnancy (continued)

Table 1. Recommended glycemic targets for preconception and during pregnancy*	
Pre-pregnancy A1C	≤ 7.0%*
During pregnancy	
Fasting and preprandial PG	3.8 - 5.2 mmol/L
1h postprandial PG	5.5 - 7.7 mmol/L
2h postprandial PG	5.0 - 6.6 mmol/L
A1C (%)	≤ 6.0% (normal)

* A1C ≤6.0% if this can be safely achieved. In some women, particularly those with type 1 diabetes, higher targets may be necessary to avoid excessive hypoglycemia

A1C = glycated hemoglobin PG = plasma glucose

Pregnant women with type 1 or type 2 diabetes should:

a. Strive to achieve target glucose values:
   - Fasting/preprandial PG: 3.8 to 5.2 mmol/L
   - 1h postprandial PG: 5.5 to 7.7 mmol/L
   - 2h postprandial PG: 5.0 to 6.6 mmol/L

b. Perform self-monitoring of blood glucose (SMBG), both pre- and postprandially (≥4 times/day if needed) to achieve glycemic targets and improve pregnancy outcomes [Grade C, Level 3].

c. Receive nutrition counselling from a registered dietitian who is part of the diabetes healthcare (DHC) team during pregnancy [Grade C, Level 3] and postpartum [Grade D, Consensus]. Recommendations for weight gain during pregnancy should be based on pregravid body mass index (BMI) [Grade D, Consensus].

d. Avoid ketosis during pregnancy [Grade C, Level 3].

Breastfeeding: All women should be encouraged to breastfeed, since this may reduce offspring obesity, especially in the setting of maternal obesity.

Reference:
Canadian Diabetes Association Clinical Practice Guidelines Expert Committee (2008). Diabetes and Pregnancy. Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. Canadian Journal of Diabetes, 32, Supplement 1, S 168-S180.
Website: http://www.diabetes.ca

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