

Indian Health Diabetes Best Practices:
Diabetes and Pregnancy



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Indian Health Diabetes Best Practice: Diabetes and Pregnancy

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What is diabetes during pregnancy?

Diabetes can develop when a woman is pregnant; this is called *gestational diabetes*. Diabetes that is present before a woman becomes pregnant or is diagnosed in the first trimester is called *pregestational diabetes*.

Why is diabetes care during pregnancy important?

Diabetes during pregnancy poses risks for both mother and baby. Consider these facts:

- Approximately 7% of all pregnancies are complicated by gestational diabetes. The prevalence of gestational diabetes is as high as 15% in some groups (ADA, 2004). American Indian and Alaska Native women have approximately 40,000 births per year (Martin *et al.*, 2005). Conservative estimates indicate that approximately 2,800 of these births will be affected by gestational diabetes (based on a 7% incidence of gestational diabetes).
- Among Navajo women, 58% developed diabetes or impaired glucose tolerance within four years of a pregnancy complicated by gestational diabetes, as compared with 40% in the general U.S. population (Steinhart *et al.*, 1997).
- Women with gestational diabetes are more likely to develop blood pressure disorders than women without gestational diabetes. Infants of women with gestational diabetes are at increased risk for complications at birth (ACOG, 2001).
- Diabetes confers long-term risk in offspring for elevated body mass index (BMI) and early onset of type 2 diabetes or impaired glucose tolerance, as well as risk associated with complications of these conditions (Pettit *et al.*, 1998; Pettit *et al.*, 1997).
- Diabetes during pregnancy results in greater perinatal morbidity and mortality. Uncontrolled diabetes during pregnancy increases perinatal complications, such as growth abnormalities, birth injuries, and fetal loss (ACOG, 2001; Mello *et al.*, 2000).
- Exposure to diabetes in the intrauterine environment accounts for approximately 40% of type 2 diabetes in children between the ages of 5 and 19 years (Dabelea *et al.*, 2000).
- More than 70% of people with prenatal exposure to type 2 diabetes develop it by the time they reach early adulthood (between the ages of 25 and 34 years) (Dabelea *et al.*, 2000).

The good news is that opportunities exist at all stages of a woman's reproductive cycle for prevention, intervention, and education regarding diabetes risk and treatment. In fact, clinical trials have shown that blood sugar control prior to pregnancy and during the first trimester markedly reduces rates of birth defects (ADA, 2004).

Best practices for diabetes and pregnancy

The best practice for diabetes and pregnancy describes the best methods for:

- Identifying, monitoring, and referring women at risk of developing diabetes.
- Identifying, monitoring, and referring women with existing (pregestational) diabetes or with a history of gestational diabetes.
- Conducting preconception counseling.
- Providing diabetes education.
- Providing care for women with pregestational diabetes and gestational diabetes.

Table 1 summarizes the best practices for diabetes and pregnancy.

Table 1. Best practices for diabetes and pregnancy.

Provider Recommendations	Best Practices
<p>1. Identify, monitor, and refer women at risk for developing diabetes during pregnancy</p>	<p>Why?</p> <p>All American Indian and Alaska Native women are at increased risk for developing diabetes during pregnancy. Therefore, all American Indian and Alaska Native women for whom there is a high index of suspicion should be screened at the first prenatal visit (IHS/ACOG Task Force on Diabetes in Pregnancy in American Indians and Alaska Natives, 1993).</p> <p>How?</p> <ul style="list-style-type: none"> – Develop and maintain a registry of women of child-bearing years. Consider developing sub-registries of high-risk women, such as women who: <ul style="list-style-type: none"> • Have a previous history of gestational diabetes. • Have delivered an infant weighing greater than 4,000 grams at birth. • Have a first-degree family relative with a history of diabetes. • Have a BMI greater than 25 kg/m². • Are over the age of 25. • Have a history of previous stillbirth, habitual abortion, or congenital anomaly. • Have irregular menstruation. • Have polycystic ovary syndrome.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>1. Identify, monitor, and refer women at risk for developing diabetes during pregnancy (continued)</p>	<ul style="list-style-type: none"> - Provide resources (e.g., brochures and videos) to women with gestational diabetes. For example: <ul style="list-style-type: none"> • The National Institute of Child Health and Development offers free brochures titled, “Am I at Risk for Gestational Diabetes?”, as well as other educational brochures (www.nichd.nih.gov/publications/pubs/nichd_pub_list_032006.pdf). • The American Diabetes Association provides numerous resource materials (www.diabetes.org/gestational-diabetes.jsp). • The National Diabetes Education Program’s (NDEP) <i>Small Steps. Big Rewards. Prevent Type 2 Diabetes.</i> campaign offers materials that can help women with a history of gestational diabetes take steps to prevent or delay type 2 diabetes, as well as help their children lower their risk for the disease. The following educational materials can be ordered from the NDEP website at www.ndep.nih.gov or by calling 1-800-438-5383: <ul style="list-style-type: none"> - “It’s Never Too Early to Prevent Diabetes. A Lifetime of Small Steps for a Healthy Family”: A tip sheet for women who have had gestational diabetes. - “Lower Your Risk for Type 2 Diabetes”: A tip sheet for children at risk for type 2 diabetes. - “Your GAME PLAN to Prevent Type 2 Diabetes”: A booklet for adults to help women and their families make healthy food choices and be more physically active to prevent or delay type 2 diabetes. - Screen women for diabetes using a one-step blood sugar test as outlined in the Indian Health Service (IHS) Standards of Care for Diabetes. The following websites may be helpful: <ul style="list-style-type: none"> • http://care.diabetesjournals.org/cgi/content/full/26/suppl_1/s103 • www.ihs.gov/medicalprograms/MCH/index.cfm • www.ihs.gov/medicalprograms/MCH/W/WHdm.cfm - Refer the patient to the appropriate health care providers if she has a positive diagnosis of gestational diabetes. - Retest pregnant women at 24–28 weeks of gestation if the blood sugar test does not indicate the presence of diabetes.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>1. Identify, monitor, and refer women at risk for developing diabetes during pregnancy</p> <p>(continued)</p>	<ul style="list-style-type: none"> - Provide counseling. Counseling content should include: <ul style="list-style-type: none"> • Prenatal nutrition management (ADA, 2003). <ul style="list-style-type: none"> - Provide nutrition counseling consistent with American Diabetes Association recommendations and by a registered dietitian when possible. - Individualize medical nutrition therapy (MNT) based on maternal weight and height. MNT should include adequate calories and nutrients to meet the needs of pregnancy and should be consistent with the maternal blood sugar goals that have been established. - Use noncaloric sweeteners in moderation. - Encourage women to drink water and consume protein, calcium, and fruits and vegetables, especially those high in folic acid. - Encourage women to avoid alcohol, tobacco, recreational drugs, and caffeine. • Physical activity. <ul style="list-style-type: none"> - Encourage women to participate in moderate, regular physical activity, such as walking most days of the week. (Moderate physical exercise has been shown to lower maternal blood sugar concentrations in women with gestational diabetes. Although the impact of exercise on neonatal complications awaits rigorous clinical trials, the beneficial blood-sugar lowering effects warrant a recommendation that women be encouraged to start or continue a program of moderate exercise (ADA, 2003).)
<p>2. Identify, monitor, and refer women with existing (pregestational) diabetes or with a history of gestational diabetes</p> <p>(Table 1 continued on next page)</p>	<p>Why?</p> <p>Early recognition and management of diabetes during pregnancy improves perinatal and neonatal outcomes (Crowther <i>et al.</i>, 2005; Mello <i>et al.</i>, 2000; ADA, 2006).</p> <p>How?</p> <ul style="list-style-type: none"> - Create and maintain a registry of women with existing (pregestational) diabetes or a history of gestational diabetes. - Screen all women with a history of gestational diabetes during the first prenatal visit. - Refer patients to appropriate health care providers and resources (e.g., American Diabetes Association information at: www.diabetes.org/gestational-diabetes.jsp).

Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>3. Conduct preconception counseling</p>	<p>Why?</p> <p>Education about pregnancy, the importance of family planning, and the risks of diabetes may be important to prevent miscarriages and birth defects. In addition, preconception care aimed at achieving blood sugar control in women with pregestational diabetes prior to pregnancy reduces the rate of birth defects (ADA, 2004; ACOG, 2005; ADA, 2006).</p> <p>How?</p> <ul style="list-style-type: none"> - Set goals and aim content of preconception education to reduce the risk of adverse outcomes for both the mother and the offspring. - Cover the following topics: <ul style="list-style-type: none"> • Making healthy lifestyle choices, including healthy food choices, folic acid supplements, and avoiding tobacco, alcohol, recreational drugs, and caffeine (see #1 above). • Increasing physical activity (see #1 above). • Relationship between diabetes and pregnancy. • Family planning.
<p>4. Conduct patient diabetes education</p>	<p>Why?</p> <p>Women with high blood sugar levels during pregnancy are several times more likely to have a miscarriage, stillbirth, or a baby with a serious birth defect. Diabetes education has been associated with a reduction in these poor maternal and infant outcomes (ACOG, 2001).</p> <p>How?</p> <ul style="list-style-type: none"> - Set goals and aim the content of the education to keep blood sugar in the target range both before and during pregnancy. - Use an IHS-certified (or equivalent) curriculum, such as <i>Beautiful Beginnings</i>. - Cover the following topics: <ul style="list-style-type: none"> • Basic diabetes education. • Blood sugar goals and self-monitoring of blood sugar. • Diabetes self-care skills, such as nutrition management; physical activity; medication use; blood sugar monitoring; preventing, detecting, and treating complications; goal setting; problem solving; and addressing the psychosocial aspects of diabetes.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>4. Conduct patient diabetes education (continued)</p>	<ul style="list-style-type: none"> • Foot care. The weight gained during pregnancy affects foot health, foot fatigue, and foot arches, making properly fitted shoes particularly important during pregnancy. • Oral health care. Periodontal disease during pregnancy is associated with preterm births and low birth weight. Pregnant women should be encouraged to maintain their oral health, which contributes to a healthy pregnancy and birth. • Use of blood sugar lowering agents—only if recommended by the health care provider. • Medication balance, including self-administration of insulin and self-adjustment of insulin doses. • Medical nutrition therapy (see #1 above). • Physical activity (see #1 above). • Folic acid. • Family planning. • Appropriate weight gain goals. • Avoiding alcohol, tobacco, recreational drugs, and caffeine. • Understanding the risk of teratogenicity and long-term effects of diabetes on maternal health. • Development of techniques to reduce stress. • Appropriate medical care and laboratory testing. <p>– Encourage women to keep a logbook or diary to record blood sugars, diet, physical activity, and medication use.</p>
<p>5. Provide patient care for women with pregestational diabetes (Adapted from work by Neil Murphy, MD)</p>	<p>Why? Diabetes treatment has been associated with a reduction in poor maternal and infant outcomes (Crowther <i>et al.</i>, 2005; Mello <i>et al.</i>, 2000).</p> <p>How?</p> <ul style="list-style-type: none"> – Obtain medical and obstetrical history <i>before</i> planning for pregnancy, including information on: <ul style="list-style-type: none"> • Family history of diabetes. • History of gestational diabetes. • Diabetes duration. • Obesity.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>5. Provide patient care for women with pregestational diabetes</p> <p>(Adapted from work by Neil Murphy, MD)</p> <p>(continued)</p>	<ul style="list-style-type: none"> • Age more than 25 years. • Acute complications. • Chronic complications, including retinopathy, nephropathy, high blood pressure, atherosclerotic vascular disease, and autonomic and peripheral neuropathy. • Diabetes management, including regimens with medication, self-monitoring of blood sugar, medical nutrition therapy, and physical activity. • Concomitant medical conditions and medications. • Menstrual and pregnancy history. • Previous stillbirth or baby with birth defects. • Breastfeeding history. • Contraceptive use. • Pregnancy-induced high blood pressure (hypertension). • Large baby in a previous pregnancy. • Support system, including family and work environment. <ul style="list-style-type: none"> – Provide an individual educational evaluation session with a diabetes educator and a registered dietitian. – Conduct a physical exam, including: <ul style="list-style-type: none"> • Blood pressure, including testing for orthostatic changes and an oral health exam for periodontal disease and other dental health issues. • Dilated retinal exam by an ophthalmologist or other eye specialist knowledgeable about diabetic eye disease. • Cardiovascular exam for evidence of cardiac or peripheral vascular disease. If found, patients should have screening tests for coronary artery disease before attempting pregnancy to ensure they can tolerate the increased cardiac demands. • Neurological exam, including examination for signs of autonomic neuropathy.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>5. Provide patient care for women with pregestational diabetes</p> <p>(Adapted from work by Neil Murphy, MD)</p> <p>(continued)</p>	<ul style="list-style-type: none"> - Conduct tests and exams, including: <ul style="list-style-type: none"> • A1c test. • Baseline laboratory test, including complete blood count, serum creatinine, and 24-hour urine (protein and creatinine clearance). (Although obtaining protein and creatinine clearance from a 24-hour urine test can be inaccurate, the test does provide baseline data.) • Ophthalmologic exam. - Review the patient’s current management plan and develop and implement a comprehensive treatment plan that includes: <ul style="list-style-type: none"> • Medical nutrition therapy (see #1 above). • Physical activity consult with exercise physiologist or physical therapist. • Education and counseling on home blood sugar monitoring (including fasting and two-hour postprandial). • Insulin therapy. • Setting goals for self-monitored blood sugar. • Monitoring A1c levels at 1- to 2-month intervals until stable. • Prenatal visits every four weeks until 32 weeks; then every two weeks until 36 weeks; then weekly. • Fetal echo at 18–24 weeks. • Ultrasound monitoring during early first trimester; low-risk patients at 18–20 weeks, 29–33 weeks, and every six weeks thereafter. • Monitor fetal movement. • Non-stress tests: <ul style="list-style-type: none"> - Low-risk: Weekly starting at 34 weeks. - High-risk: Twice a week starting at 32 weeks.

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Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>6. Conduct patient care for women with gestational diabetes Class A-1</p> <p>(Adapted from work by Neil Murphy, MD)</p>	<p>Why?</p> <p>Diabetes treatment has been associated with a reduction in poor maternal and infant outcomes (ACOG, 2001; Mello <i>et al.</i>, 2000).</p> <p>How?</p> <p>Class A-1 includes women with diet-controlled diabetes that is diagnosed during pregnancy.</p> <ul style="list-style-type: none"> - Obtain medical and obstetrical history. - Provide an individual educational evaluation session with a diabetes educator and a registered dietitian. - Conduct a physical exam, including blood pressure measurement, testing for orthostatic changes, and an oral health exam for periodontal disease and other dental health issues. - Develop and implement a diabetes management plan that includes: <ul style="list-style-type: none"> • Medical nutrition therapy (see #1 above). • Physical activity counseling (see #1 above). • Education and counseling on home blood sugar monitoring (including fasting and two-hour postprandial). • Setting goals for self-monitored blood sugar. • Prenatal visits every four weeks until 32 weeks; then every two weeks until 36 weeks; then weekly. • Ultrasound monitoring during early first trimester; low-risk patients at 18–20 weeks and 29–33 weeks. Consider insulin therapy if abdominal circumference is greater than 70th percentile. • Monitor fetal movement at 32 weeks.

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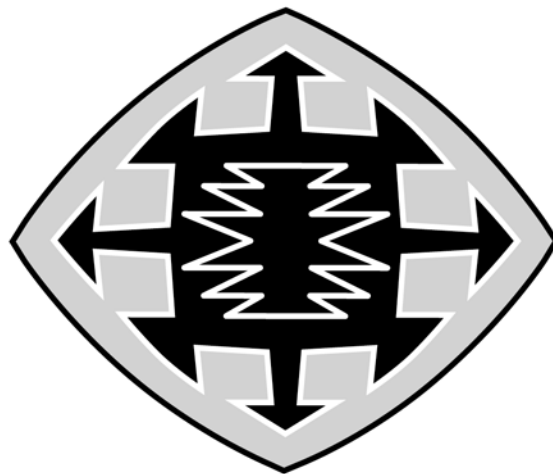
Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>7. Conduct patient care for women with gestational diabetes Class A-2</p> <p>(Adapted from work by Neil Murphy, MD)</p>	<p>Why?</p> <p>Diabetes treatment has been associated with a reduction in poor maternal and infant outcomes (Crowther <i>et al.</i>, 2005; ACOG, 2001; Mello <i>et al.</i>, 2000).</p> <p>How?</p> <p>Class A-2 includes women with unsuccessful control of blood sugar levels after two weeks of nutrition counseling.</p> <ul style="list-style-type: none"> - Obtain medical and obstetrical history. - Provide an individual educational evaluation session with a diabetes educator and a registered dietitian. - Conduct a physical exam, including blood pressure measurement, testing for orthostatic changes, and an oral health exam for periodontal disease and other dental health issues. - Conduct tests and exams including: <ul style="list-style-type: none"> • Baseline laboratory test, including complete blood count, serum creatinine, and 24-hour urine (protein and creatinine clearance). (Although obtaining protein and creatinine clearance from a 24-hour urine test can be inaccurate, the test does provide baseline data.) - Develop and implement a diabetes management plan that includes: <ul style="list-style-type: none"> • Medical nutrition therapy (see #1 above). • Physical activity consult with pre/post blood sugar (see #1 above). • Education and counseling on home blood sugar monitoring and use of logbooks (including fasting and two-hour postprandial). The ideal frequency of blood sugar monitoring has not been established in patients requiring insulin therapy. A common practice is to check blood sugar levels four times daily. A first morning blood sugar level can rule out fasting high blood sugar, and additional one- or two-hour postprandial values can ensure adequate control (ADA, 2003; Turok <i>et al.</i>, 2003). • Setting goals for self-monitored blood sugar. • Select therapy. Consider insulin therapy. • Prenatal visits after blood sugar is controlled every four weeks until 32 weeks; then every two weeks until 36 weeks; then weekly.

(Table 1 continued on next page)

Table 1. Best practices for diabetes and pregnancy. (continued)

Provider Recommendations	Best Practices
<p>7. Conduct patient care for women with gestational diabetes Class A-2</p> <p>(Adapted from work by Neil Murphy, MD)</p> <p>(continued)</p>	<ul style="list-style-type: none"> • Ultrasound monitoring during early first trimester; low-risk patients at 18–20 weeks and every six weeks thereafter. • Monitor fetal movement at 32 weeks. • Non-stress tests: <ul style="list-style-type: none"> – Low-risk (i.e., good control, normal blood pressure, no stillbirth history, or no vasculopathy): Weekly starting at 34 weeks. – High-risk (i.e., poor control, high blood pressure, still birth history, or vasculopathy): Twice a week starting at 32 weeks.



Best practices for health care organizations

A health care organization that wants to improve diabetes and pregnancy care must be motivated and prepared for change throughout the entire organization. The organization’s leadership must identify diabetes and pregnancy care improvement as important work. They must also develop clear improvement goals, policies, and effective improvement strategies. This will help encourage the entire organization to make changes that will help improve diabetes and pregnancy care.

Table 2 describes the best practices for health care organizations.

Table 2. Best practices for health care organizations.

Organizations Recommendations	Best Practices
<p>1. Establish perinatal fields in diabetes audits</p>	<p>Why?</p> <p>The IHS Standards of Care for Diabetes include standards for pregnancy. Establishing perinatal fields in your diabetes audits will enable you to track your organization’s adherence to these standards.</p> <p>How?</p> <ul style="list-style-type: none"> – Develop a perinatal section in the diabetes audit that includes preconception counseling, family planning, contraception, folic acid supplementation, infant outcomes, alcohol use, pregnancy complications, comorbidities, breastfeeding, and postpartum exam and assessment of blood sugar. The Resource and Patient Management System (RPMS) Women’s Health Package includes diagnosis of diabetes and most recent glycosylated hemoglobin. The RPMS Immunization Package includes immunization data and can populate the diabetes audit for both prenatal and non-pregnant patients. – Establish incidence and prevalence of gestational diabetes, using White’s classification. – Track comorbidities using key ICD-9 data from maternal records, such as high blood pressure, preeclampsia, and delivery complications. – Include infant records and outcomes, such as miscarriage and stillbirths, birth weight, anomalies, and gestational age at birth. – Assess postpartum blood sugar. – Track breastfeeding initiation and duration. – Follow the offspring of diabetic mothers during the first year of life and plan to track for long-term follow-up. – Calculate rates of obesity, diabetes, asthma in the offspring, and maternal weight pre- and post-pregnancy. – Include the history of gestational diabetes on the health summary. – Track physical activity counseling.

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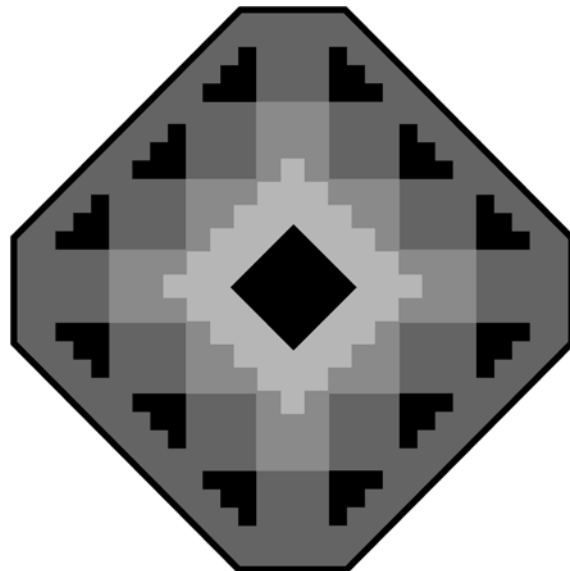
Table 2. Best practices for health care organizations. (continued)

Organization Recommendations	Best Practices
<p>2. Establish policies that support and provide for maternal and child health</p>	<p>Why?</p> <p>Improving the health and well being of women, infants, children, and families is included in the <i>Healthy People 2010</i> objectives because it is an important indicator of a community and nation’s health status and is a predictor of the health of future generations.</p> <p>How?</p> <ul style="list-style-type: none"> – Provide breastfeeding education and support. – Develop policies, mechanisms, and resources for screening, referral, and documentation. – Adopt protocols and standards of care for the management and referral of pregnant women with diabetes and women of childbearing age with diabetes. – Provide information technology support for the gestational diabetes program and ensure staff can access data. – Identify opportunities to initiate prenatal care, including screening for gestational diabetes. – Provide access to antenatal surveillance (e.g., ultrasound, serum markers, fetal echo, etc.). – Ensure access to comprehensive, multidisciplinary education and prenatal services, such as a women’s health provider, diabetes case management, medical nutrition therapy, and public health nursing. – Provide access to specialty services (e.g., podiatry, oral health, perinatology, genetics counseling, etc.). – Develop a mechanism for referrals to community organizations, such as Healthy Start; Women, Infants, and Children (WIC); and Head Start programs.

(Table 2 continued on next page)

Table 2. Best practices for health care organizations. (continued)

Organization Recommendations	Best Practices
<p>3. Support designated staff working with diabetes in pregnancy</p>	<p>Why?</p> <p>People with diabetes have a multi-system chronic disease. They are best monitored and managed by highly skilled health care professionals who are up-to-date on their training and have access to the latest diabetes technology and information. Therefore, a health system that supports its staff is vital to providing the best diabetes prevention and care and obtaining positive outcomes.</p> <p>How?</p> <ul style="list-style-type: none"> - Dedicate resources and time for personnel and staff to obtain education, travel for professional meetings and continuing education, and provide case management services. - Designate a case manager or coordinator. - Define the responsibilities of the case manager, including patient education, referrals to women’s health providers and other disciplines, and scheduling. - Conduct regular meetings for the multidisciplinary team.



Essential elements of best practice diabetes and pregnancy programs

High quality diabetes and pregnancy care involves implementing six essential elements* in your health care organization. These elements are:

- Community resources and policies.
- Health care organization leadership.
- Patient self-management support.
- Delivery system design: Services, programs, systems, and procedures.
- Decision support: Information and training for providers.
- Clinical information systems: Collecting and tracking information.

Table 3 summarizes how these elements apply to basic, intermediate, and comprehensive diabetes and pregnancy programs.

* Adapted from the Chronic Care Model, which was developed by the MacColl Institute for Healthcare Innovation at the Group Health Cooperative. For more information on the Chronic Care Model, visit their website at www.improvingchroniccare.org.

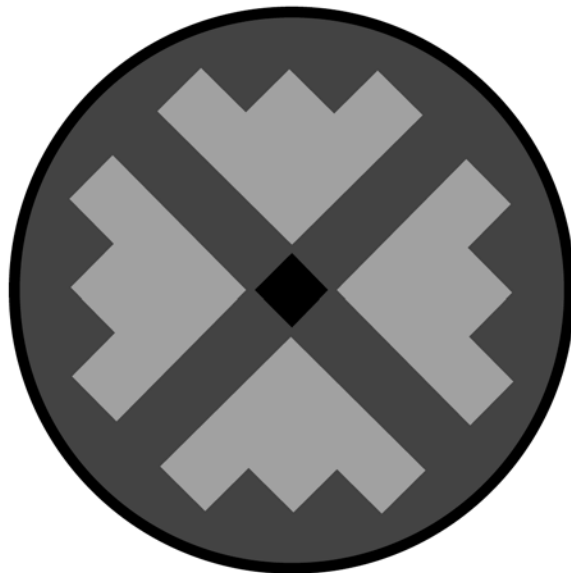


Table 3. Essential elements of basic, intermediate, and comprehensive best practice diabetes and pregnancy programs.

Basic Diabetes and Pregnancy Programs	Intermediate Diabetes and Pregnancy Programs Basic program <i>plus</i> :	Comprehensive Diabetes and Pregnancy Programs Basic and intermediate programs <i>plus</i> :	Examples
Community Resources and Policies			
<ul style="list-style-type: none"> - Collaborate with community programs on gestational diabetes efforts. Programs with which to collaborate may include public health nursing, WIC, Healthy Start, Head Start, as well as tribal health education, housing, and food assistance programs. - Define methods for contract health and specialty care referrals. 	<ul style="list-style-type: none"> - Train field health personnel in gestational diabetes assessment and education. 	<ul style="list-style-type: none"> - Coordinate between gestational diabetes services and local programs. - Develop and implement a community education program on gestational diabetes. 	<ul style="list-style-type: none"> - Offer Medicare enrollment. - Provide specialty clinical services. - Form partnerships with social programs, schools, and health education programs.
Organization leadership			
<ul style="list-style-type: none"> - Support quality improvement. - Provide resources for personnel, staff time, tracking, referral services, and information technology support. - Commit to evaluate and improve practice. - Design and implement a customer-focused system to decrease barriers to timely care. 	<ul style="list-style-type: none"> - Include prevention and treatment of gestational diabetes in the organization's annual goals. 	<ul style="list-style-type: none"> - Include specific gestational diabetes outcome measures in the organization's annual performance-based objectives. 	<ul style="list-style-type: none"> - Dedicate information technology support to create and maintain a registry, support gestational diabetes programs, provide dedicated terminals and software, and assist staff with data access. - Provide staff with time and funding to participate in regional and national perinatal collaboratives. - Hire patient benefits coordinators to establish Medicaid eligibility for high priority prenatal patients.

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice diabetes and pregnancy programs. (continued)

Basic Diabetes and Pregnancy Programs	Intermediate Diabetes and Pregnancy Programs Basic program <i>plus</i> :	Comprehensive Diabetes and Pregnancy Programs Basic and intermediate programs <i>plus</i> :	Examples
Patient self-management support			
<ul style="list-style-type: none"> - Offer basic prenatal care or referrals to prenatal care for women with pre-existing diabetes. - Provide counseling and education on nutrition, exercise, monitoring, medications, and importance of prenatal care. - Accommodate same-day (walk-in) appointments. - Provide family and breastfeeding support groups and programs. - Inform patients about evidence-based guidelines for care. 	<ul style="list-style-type: none"> - Provide culturally appropriate education within the framework of an IHS-certified (or equivalent) curriculum. 	<ul style="list-style-type: none"> - Provide culturally appropriate, comprehensive gestational diabetes education program. 	<ul style="list-style-type: none"> - Encourage patients to use exercise and diet logs. - Help patients with glucometer use. - Distribute patient handouts from the <i>Beautiful Beginnings</i> curriculum. - Refer patients to local educators for nutrition and diabetes self-care. - Provide case management. - Offer flexible scheduling and timely lab services for patients. - Address patient and family concerns through traditional medicine, talking circles, prenatal classes open to family members, and breastfeeding support programs. - Link patients to Healthy Start programs. - Provide patients with emergency medical contact information. - Offer care in family-friendly environments. - Coach the patient to identify alternative self-management strategies.

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice diabetes and pregnancy programs. (continued)

Basic Diabetes and Pregnancy Programs	Intermediate Diabetes and Pregnancy Programs Basic program <i>plus</i> :	Comprehensive Diabetes and Pregnancy Programs Basic and intermediate programs <i>plus</i> :	Examples
Delivery system design: Services, programs, systems, and procedures			
<ul style="list-style-type: none"> - Establish a gestational diabetes team that meets on a regular basis. - Designate a program coordinator who has access to the health care providers for referrals. - Adopt protocols and standards of care for the management and referral of pregnant women with diabetes and women of childbearing age with diabetes. - Conduct universal screening for diabetes in pregnancy for all American Indian and Alaska Native prenatal patients. - Conduct preconception and interconception monitoring for abnormal blood sugar. - Provide prenatal care. - Establish a physical activity team. - Develop referral systems that emphasize ongoing communication among providers. 	<ul style="list-style-type: none"> - Provide case management. - Ensure written communication among the case managers, primary care providers, and specialists. - Provide intensive diabetes management, including laboratory studies, diagnostic imaging, and comprehensive education programs. 	<ul style="list-style-type: none"> - Provide complete diagnostic and management services, including advanced diagnostic imaging capabilities. - Address and manage diagnosed or anticipated complications as identified by an intermediate level of care program. - Accept referrals from other sites. - Provide full obstetrics and neonatal services. - Refer patients for advanced perinatal services. 	<ul style="list-style-type: none"> - Have the case manager or program coordinator create and maintain a registry, arrange referrals, track outcomes, provide continuity of care beyond the pregnancy, and assist with diabetes audits. - Establish a rural clinic with intermittent provider services and daily health education services. - Use a team approach that allows for scheduled and unscheduled access to clinic services. - Arrange for follow-up in the clinic or in the home with a public health nurse. - Arrange preventive services through individual education or group education with community health representatives. - Develop a specific care plan between providers and specialists, and document the plan in the patient's medical chart to ensure continuity of care.

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice diabetes and pregnancy programs. (continued)

Basic Diabetes and Pregnancy Programs	Intermediate Diabetes and Pregnancy Programs Basic program <i>plus</i> :	Comprehensive Diabetes and Pregnancy Programs Basic and intermediate programs <i>plus</i> :	Examples
Decision support: Information and training for providers			
<ul style="list-style-type: none"> - Educate and train providers on the care of women of childbearing age. - Educate and train providers in motivational interviewing, understanding the social factors surrounding parenting and pregnancy, and identifying social barriers to self-care. - Provide feedback to providers. 	<ul style="list-style-type: none"> - Adopt detailed, evidence-based gestational diabetes care guidelines (see References). 	<ul style="list-style-type: none"> - Train local providers in gestational diabetes care. 	<ul style="list-style-type: none"> - Review guidelines and practice bulletins on gestational diabetes, pregestational diabetes, and preconception and pregnancy care (see References). - Provide staff with the opportunity to attend the IHS/ACOG Obstetric, Neonatal, and Gynecological Care Postgraduate Course. - Review the IHS Perinatology Corner Online, available at: www.ihs.gov/MedicalPrograms/MCH/index.cfm.
Clinical information systems: Collecting and tracking information			
<ul style="list-style-type: none"> - Create and maintain a gestational diabetes registry that generates reminders. - Include a gestational component in the diabetes audit. - Conduct chart reviews and continuous quality improvement with members of the multidisciplinary care team. - Track data, analyze the program, and report outcomes. - Document physical activity. 	<ul style="list-style-type: none"> - Create and maintain a gestational diabetes registry capable of tracking process measures and listing them on the Health Summary. 	<ul style="list-style-type: none"> - Create and maintain a gestational diabetes registry capable of tracking outcomes and listing them on the Health Summary. - Enhance surveillance through linkages with tribal epidemiology centers. - Publish outcomes. 	<ul style="list-style-type: none"> - Use RPMS, electronic health record, or other databases. - Use RPMS health maintenance reminders. - Track pap smears and mammograms in the RPMS Women's Health Package.

Evaluating your diabetes and pregnancy program

Evaluation is important because it helps you see what is working and what is not working in your diabetes and pregnancy program. It will show you if adjustments or changes need to be made to improve your program. Evaluation also provides you with information you can use to share your successes with patients, providers, tribal leaders, administrators, the community, funders, and other stakeholders.

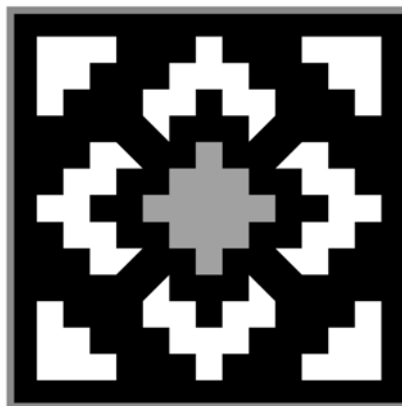
Consider including the following data in your evaluation:

- Presence of a registry.
- Documentation of screening.
- Documentation of preconception preparation.
- Maternal and fetal outcomes.

Sustaining your diabetes and pregnancy program

Often, for diabetes goals to be reached, programs must be in place for more than a few years. Here are some helpful tips for sustaining the program:

- Establish a fiscal workgroup to acquire data for referred care (e.g., fetal and maternal medicine), cost of gestational diabetes care (including care in a neo-natal intensive care unit), referral care, and delivery complications.
- Ensure staff have access to continued education opportunities on current practices.
- Ensure that education programs for patients are accessible and culturally appropriate.
- Establish policies to promote retaining staff.
- Integrate care and collaborate with women's health care providers, internal medicine personnel, diabetes educators, and providers from other disciplines.
- Work with epidemiology programs to determine the incidence and prevalence of gestational diabetes, pregestational diabetes, morbidity and mortality associated with diabetes in pregnancy, and the effect on offspring. Use this data to perform a fiscal analysis of the cost to the system.



Contacting others for help

Contacting other people involved in diabetes and pregnancy is important because they can help you get started. Your peers at other health care organizations can share their expertise, materials, and ideas, and can also tell you what has worked for them and what has not worked. This can help you avoid reinventing the wheel. Here are some tips on how to connect with others:

- Ask your Area Diabetes Consultant for the names of people who may be able to help you.
- Contact the IHS Division of Diabetes Treatment and Prevention for ideas. They may be able to point you in the right direction.
- Ask the IHS Integrated Diabetes Education Recognition Program for suggested contacts. They have names and contact information for people who work with IHS-accredited diabetes education programs.
- Flip through issues of *Health for Native Life Magazine*. The magazine profiles many diabetes programs throughout Indian Country. The articles may give you ideas for activities to try and people to contact.
- Review resources from the National Diabetes Education Program (NDEP). NDEP offers materials that will help your program get started, including information specifically for American Indians and Alaska Natives. You can access these resources at the website: www.ndep.nih.gov

Real-world best practice programs

Alaska Native Medical Center

Neil Murphy, MD
IHS Chief Clinical Consultant for Obstetrics and Gynecology

☎ (907) 729-3154

✉ nmurphy@scf.cc

✉ 4320 Diplomacy Drive, PCC-WH
Anchorage, Alaska 99508

The Alaska Native Medical Center has developed diabetes in pregnancy management guidelines, which you can access at:

www.ihs.gov/medicalprograms/mch/m/documents/dmpreg102504_002.doc

Bethel Diabetes Prevention and Control Program

Peter Christianson

✉ Yukon-Kuskokwim Health Corporation
PO Box 528
Bethel, Alaska 99559

This program uses a four-tier remote and rural health delivery system. Diabetes educators, women's health providers, community health aides, and the village clinic collaborate to provide care predominately to women with Class A-1 gestational diabetes. (The program also provides care to women with Class A-2 gestational diabetes.)

Chickasaw Nation Diabetes Program

Douglas Busha, PA-C

☎ (580) 421-4532

Northern Navajo Medical Center

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Gestational Diabetes Case Manager
Diabetes Education Counseling Center

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✉ PO Box 160
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Pine Ridge

Terry Friend, CNM

☎ (605) 867-3003

✉ tfriend@abr.ihs.gov

✉ Pine Ridge Hospital
East Highway 18
Pine Ridge, South Dakota 57770

This program serves predominately women with Class A-2 gestational diabetes.

Helpful websites

American Diabetes Association

✉ www.diabetes.org

Indian Health Service

✉ www.ihs.gov

Indian Health Service Maternal and Child Health

✉ www.ihs.gov/MedicalPrograms/MCH/sitemap.cfm

Indian Health Service Online Diabetes in Pregnancy Guidelines

✉ www.ihs.gov/MedicalPrograms/MCH/M/documents/DMPreg102504_002.doc

Indian Health Service Perinatology Corner Online: Diabetes in Pregnancy—Screening and Diagnosis

✉ www.ihs.gov/MedicalPrograms/MCH/M/DP01.cfm#top

Indian Health Service Perinatology Corner Online: Diabetes in Pregnancy—Management and Postpartum

✉ www.ihs.gov/MedicalPrograms/MCH/M/DP21.cfm#top

Sweet Success Program

The Sweet Success Program is for pre-pregnant and pregnant women with diabetes. The program was developed by the Regional Perinatal Programs of California through the California Diabetes and Pregnancy Program.

☞ www.llu.edu/llumc/sweetsuccess/

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