

Indian Health Diabetes Best Practices:  
Cardiovascular Disease and Diabetes



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# Indian Health Diabetes Best Practice: Cardiovascular Disease and Diabetes

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## What is cardiovascular disease?

Cardiovascular disease (CVD) refers to any abnormal condition that is characterized by a problem in heart or blood vessel function. CVD includes atherosclerosis (e.g., coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and high blood pressure.

## Why is cardiovascular care important?

Diabetes contributes to and is a risk factor for CVD, which is the major cause of mortality in people with diabetes. American Indians and Alaska Natives are at particular risk, with a higher prevalence and increasing incidence of coronary heart disease as compared with other U.S. populations (Howard *et al.*, 1999).

Consider these facts (Howard *et al.*, 1999; Kannel, 1985):

- People with diabetes are at 2–4 times higher risk for heart disease as compared with people without diabetes. They are also more likely to die after a first heart attack. 70–80% of mortality associated with diabetes is cardiovascular in nature.
- People with CVD and diabetes have higher rates of case fatality, silent heart attacks, and mortality before reaching care facilities.
- 75% of CVD deaths are related to coronary heart disease. 25% of CVD deaths are related to peripheral vascular disease.
- Unlike other ethnic groups, the incidence of coronary heart disease is increasing in American Indians and Alaska Natives, possibly because of the increasing prevalence of diabetes in this population.
- Diabetes accounts for the majority of the attributable risk for CVD in American Indian and Alaska Native populations.
- Women are disproportionately affected by CVD in diabetes.
- In the general U.S. population, the rising prevalence of obesity and diabetes may reverse the decline in CVD death rates.

CVD risk reduction is critical to reducing morbidity and mortality, as well as improving health and quality of life, in American Indians and Alaska Natives. Indian health programs should implement effective intervention programs to address CVD and diabetes.

## Best practices for cardiovascular disease

The best practice for CVD describes the best methods for:

- Assessing smoking status, providing counseling, and implementing a cessation program.
- Providing medical nutrition therapy.
- Encouraging physical activity and exercise.
- Assisting with weight management.
- Assessing emotional health.
- Assessing, controlling, and treating high blood pressure (hypertension).
- Measuring, evaluating, and treating lipids.
- Providing aspirin and antiplatelet therapy.
- Stopping or slowing the progression of albuminuria.
- Assessing and treating anemia related to chronic kidney disease.
- Identifying and treating sleep apnea.
- Controlling blood sugar.
- Using data systems to monitor and evaluate CVD.

Table 1 summarizes the best practices for CVD and diabetes.

Table 1. Best practices for people at risk of developing or with cardiovascular disease.

Provider Recommendations	Best Practices
<p>1. Assess <b>smoking status</b>, provide counseling, and implement smoking cessation program</p>	<p><b>Why?</b></p> <p>Smoking is a well-defined CVD risk factor, and smoking cessation is a primary, safe, and cost-effective intervention (Schroeder, 2005; ADA, 2004).</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>– Implement the “5 A’s”:</li> <li>• <b>Ask</b> the patient about smoking status.</li> <li>• <b>Assess</b> the patient’s interest in quitting.</li> <li>• <b>Advise</b> all patients with diabetes who smoke that it is important for them to quit.</li> <li>• <b>Assist</b> all patients who smoke to quit by setting a quit date, providing information about how to prepare for the quit date, and offering counseling and medication assistance.</li> <li>• <b>Arrange</b> for follow-up with the patient through a phone call or an appointment after the quit date.</li> </ul>

(Table 1 continued on next page)

Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>1. Assess <b>smoking status</b>, provide counseling, and implement smoking cessation program (continued)</p>	<ul style="list-style-type: none"> <li>– Develop and implement a formal smoking cessation program.</li> <li>– Consider medication, such as nicotine patches or tablets such as Zyban or the generic bupropion.</li> <li>– Record smoking status on the patient’s chart to increase identification of current tobacco users.</li> </ul>
<p>2. Provide <b>medical nutrition therapy</b></p>	<p><b>Who?</b> CVD is the leading cause of death among people with diabetes. Medical nutrition therapy (MNT) can help reduce the risk for heart disease and stroke (ADA 2004; Franz <i>et al</i> 2002).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>– Initial: Consultation with a registered dietitian every 4–6 weeks until reaching therapeutic goals.</li> <li>– Reassess: Every 3–6 months after initial consultation.</li> </ul> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>– Refer the patient to a registered dietitian for MNT. The treating physician must provide the referral.</li> <li>– Conduct a comprehensive nutrition assessment.</li> <li>– Provide individualized goals and intervention.</li> <li>– Make the following dietary recommendations: <ul style="list-style-type: none"> <li>• Total fat: 25–35% of total calories. <ul style="list-style-type: none"> <li>– Saturated fats: Less than 7% of total calories.</li> <li>– Polyunsaturated fats: Up to 10% of total calories.</li> <li>– Monounsaturated fats: Up to 20% of total calories.</li> </ul> </li> <li>• Carbohydrates: 50–60% of total calories.</li> <li>• Fiber: <ul style="list-style-type: none"> <li>– Dietary fiber: 20–30 grams per day.</li> <li>– Increased soluble fiber: 10–25 grams per day.</li> </ul> </li> <li>• Protein: Approximately 15% of total calories.</li> <li>• Dietary cholesterol: Less than 200 mg per day.</li> <li>• Plant stanols and sterols: 2 grams per day.</li> </ul> </li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>2. Provide <b>medical nutrition therapy</b> (continued)</p>	<ul style="list-style-type: none"> <li>• Total calories: Adjust total caloric intake to maintain desirable body weight and prevent weight gain.</li> <li>• Physical activity: Include enough moderate exercise to expend at least 200 kcal per day.</li> <li>• Trans fatty acids: Keep to very low intake.</li> </ul> <ul style="list-style-type: none"> <li>– Refer to the <i>Dietary Guidelines for Americans</i> (DHHS and USDA, 2005).</li> <li>– Refer to the Indian Health Diabetes Best Practices on adult weight management and nutrition and physical activity.</li> </ul>
<p>3. Encourage <b>physical activity and exercise</b></p>	<p><b>Why?</b></p> <p>Physical activity reduces CVD risk and may improve outcomes (Oguma and Shinoda-Tagawa, 2004; Wessel <i>et al.</i>, 2004; Stewart, 2002; Tanasescu <i>et al.</i>, 2002; Lakka <i>et al.</i>, 2001). The benefits of exercise training extend beyond blood sugar control and blood pressure reduction (Wessel <i>et al.</i>, 2004; Stewart, 2002; Dunn <i>et al.</i>, 1999).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>– 30–60 minutes, 3–7 times per week.</li> <li>– In general, daily energy expenditure should include at least moderate physical activity that contributes approximately 200 kcal per day to lower low-density lipoprotein cholesterol (LDL), blood sugar, and body fat.</li> </ul> <p>Physical activity to achieve weight loss will require greater levels of energy expenditure.</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>– Assess CVD status and the need for exercise testing.</li> <li>– Individualize and negotiate goals for physical activity.</li> <li>– Refer to the Indian Health Diabetes Best Practices on nutrition and physical activity.</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>4. Assist with <b>weight management</b></p>	<p><b>Why?</b></p> <p>People who are overweight or obese are at higher risk for CVD and stroke, even if no other risk factors, such as diabetes, are present. Management of weight is one essential component of reducing the risk for CVD (NHLBI, 1998).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>– Body mass index (BMI) &lt;25.</li> <li>– Reduce body weight by 5–10% from baseline in the first six months.</li> </ul> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>– Assess needed calories and match the intake of total energy (calories) to overall energy needs.</li> <li>– Encourage the patient to lose 1–2 pounds per week through energy expenditure or calorie restriction of at least 500 kcal per day, in general.</li> <li>– Promote exercise: Recommend higher levels of physical activity, up to 90 minutes daily.</li> <li>– Refer to a registered dietitian and follow guidelines as outlined above for medical nutrition therapy (NHLBI, 2002; ADA, 2002; Stevens <i>et al.</i>, 2001).</li> <li>– Refer to Indian Health Diabetes Best Practices on adult weight management.</li> </ul>
<p>5. Assess <b>emotional health</b></p>	<p><b>Why?</b></p> <p>Mental health issues, such as depression and substance abuse issues, need attention from the diabetes team (ADA, 2004).</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>– Screen the patient verbally, or provide the patient with a pre-printed screening form, such as the Patient Health Questionnaire (PHQ), for him or her to complete.</li> <li>– Program documentation sections to print automatically on Patient Care Component (PCC+) forms, and to appear as either an optional or required field in the Resource and Patient Management System (RPMS) or other electronic health record.</li> <li>– Refer to the Indian Health Diabetes Best Practices on depression care for more information.</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>6. Assess, control, and treat <b>high blood pressure</b> (hypertension)</p>	<p><b>Why?</b></p> <p>Blood pressure control is a priority for CVD risk reduction; choice of agent is secondary (Snow <i>et al.</i>, 2003; ADA, 2004).</p> <p><b>What are the goals?</b> (ADA, 2004; Snow <i>et al.</i>, 2003; Hansson <i>et al.</i>, 1998)</p> <ul style="list-style-type: none"> <li>- Patients should be treated to a systolic blood pressure of &lt;130 mmHg.</li> <li>- Patients should be treated to a diastolic blood pressure of &lt;80 mmHg.</li> </ul> <p><b>How?</b></p> <p><u>Screening and diagnosis</u></p> <ul style="list-style-type: none"> <li>- Measure blood pressure at every visit. If blood pressure is <math>\geq 130</math> mmHg or diastolic <math>\geq 80</math> mmHg, reconfirm blood pressure on a separate day.</li> <li>- Orthostatic measurement of blood pressure should be done when clinically indicated to assess for presence of autonomic neuropathy.</li> </ul> <p><u>Treatment</u></p> <ul style="list-style-type: none"> <li>- Patients with systolic blood pressure of 130–139 mmHg or a diastolic blood pressure of 80–89 mmHg should be treated with lifestyle and behavioral therapy for a maximum of three months. If the target blood pressure is not achieved within that time, treat with medications.</li> <li>- Patients with systolic blood pressure <math>\geq 140</math> mmHg or diastolic blood pressure <math>\geq 90</math> mmHg should be treated with medications plus lifestyle and behavioral approaches.</li> <li>- Multiple medications are often required to attain blood pressure goals.</li> <li>- All patients with high blood pressure (<math>\geq 140/\geq 90</math> mmHg) should be treated with angiotensin-converting enzyme (ACE) inhibitors and thiazide diuretics first line. <ul style="list-style-type: none"> <li>• The HOPE and Micro-Hope study trials support incorporation of ACE inhibitors into the treatment regimen (Snow <i>et al.</i>, 2003; Gerstein, 2002).</li> <li>• The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) emphasized blood pressure treatment over specific medication use and avoiding alpha blockers first line (Snow <i>et al.</i>, 2003; Cushman <i>et al.</i>, 2002). If ACE inhibitors are used, monitor kidney function and serum potassium levels.</li> </ul> </li> <li>- Angiotensin receptor blockers (ARBs) are suitable alternatives if ACE inhibitors are not tolerated.</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>7. Measure, evaluate, and treat <b>lipids</b></p>	<p><b>Why?</b></p> <p>There is a direct association between blood lipid levels and the incidence of CVD. Elevated total cholesterol and low-density lipoprotein cholesterol levels increase the risk of coronary heart disease, and this risk is further intensified by the presence of diabetes, high blood pressure, or smoking (ADA, 2004; Kannel, 2000).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>- Primary goal: LDL-C &lt;100 mg/dl.</li> <li>- Secondary goals: <ul style="list-style-type: none"> <li>• HDL: &gt;40 mg/dl in men; &gt;50 mg/dl in women.</li> <li>• Triglycerides: &lt;150 mg/dl.</li> </ul> </li> </ul> <p><b>How?</b></p> <p><u>Screening</u></p> <ul style="list-style-type: none"> <li>- Measure lipids at least annually and more often as needed to achieve goals.</li> </ul> <p><u>Treatment</u></p> <ul style="list-style-type: none"> <li>- Rule out secondary causes of dyslipidemia (e.g., hypothyroid, familial, etc.).</li> <li>- Encourage lifestyle modification, including reduction of saturated fat and cholesterol intake, weight loss, increasing physical activity, and smoking cessation. For patients who cannot achieve goals with lifestyle modification alone, use medication therapy.</li> <li>- Use statins to lower LDL cholesterol and reduce macrovascular complications in patients (both men and women). Statins may help patients with diabetes and CVD risk factors if their total cholesterol is &gt;135 mg/dl and any LDL level. This suggests that statins may have a beneficial effect in diabetes above and beyond the LDL lowering effect (pleiotropic effect) (HPSG, 2002).</li> <li>- Use lipid-lowering therapy for secondary prevention of cardiovascular mortality and morbidity for all patients (both men and women) <i>who have known coronary artery disease and type 2 diabetes</i>. The LDL goal may be lower in these patients: &lt;70 mg/dl.</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>7. Measure, evaluate, and treat <b>lipids</b> (continued)</p>	<ul style="list-style-type: none"> <li>- Use non-HDL cholesterol to predict CVD risk.                             <ul style="list-style-type: none"> <li>• The Strong Heart Study showed that among American Indian populations, non-HDL cholesterol was a better predictor of CVD than: (1) LDL and triglyceride levels in men and women; and (2) total cholesterol/HDL in women.</li> <li>• Non-HDL cholesterol (total cholesterol minus HDL) can be performed in the non-fasting state and is especially useful in patients with higher triglyceride levels (&gt;200).</li> <li>• Non-HDL cholesterol goals are 30 mg/dl higher than LDL goals (Lu <i>et al.</i>, 2003).</li> </ul> </li> </ul>
<p>8. Provide <b>aspirin and antiplatelet therapy</b></p>	<p><b>Why?</b> Aspirin and anti-platelet use improves CVD outcomes (ADA, 2004).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>- All patients over the age of 30 should be on aspirin or antiplatelet therapy unless otherwise contraindicated.</li> </ul> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Recommend aspirin therapy dosages of 75–162 mg per day; however, the most important factor is that patients take acetylsalicylic acid (ASA) or antiplatelet therapy on a daily basis. (Previous Indian Health Service (IHS) recommendations have been 325 mg per day.)</li> <li>- Recommend aspirin therapy for primary prevention for patients over the age of 40 with additional risk factors. Some authors recommend starting at the age of 30 (ADA, 2004).</li> <li>- Recommend aspirin or anti-platelet therapy for secondary CVD prevention in all patients without contraindication (ADA, 2004).</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>9. Stop or slow the progression of <b>albuminuria</b></p>	<p><b>Why?</b></p> <p>Albuminuria reflects diffuse vascular disease and should be addressed as a CVD risk factor in addition to its role in nephropathy (Miettinen <i>et al.</i>, 1996).</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Conduct annual (at minimum) screening of urine to detect microalbuminuria or proteinuria. Albumin to creatinine ratio is a validated method for determining albuminuria (ADA, 2004b).</li> <li>- Treat with ACE inhibitors. ARBs are a suitable alternative with a similar evidence base, but are not considered the agent of first choice in Indian health care settings (Brenner <i>et al.</i>, 2001; Parving <i>et al.</i>, 2001).</li> <li>- Apply more stringent high blood pressure control (blood pressure &lt;125/75) with overt proteinuria.</li> <li>- Refer to the Indian Health Diabetes Best Practices on chronic kidney disease.</li> </ul>
<p>10. Assess and treat <b>anemia related to chronic kidney disease</b></p>	<p><b>Why?</b></p> <p>Anemia related to chronic kidney disease is related to CVD and poor outcomes. Therefore, anemia must be identified and treated (Levin <i>et al.</i>, 1999; Erslev, 1991; U.S. Recombinant Human Erythropoietin Predialysis Study Group, 1991).</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Treat anemia with therapy directed at erythrocyte production.</li> <li>- Evaluate and treat anemia from any cause.</li> <li>- Refer to the Indian Health Diabetes Best Practices on chronic kidney disease for specific assessment and treatment recommendations.</li> </ul>
<p>11. Identify and treat <b>sleep apnea</b></p>	<p><b>Why?</b></p> <p>Sleep apnea exacerbates risk factors related to CVD, such as high blood pressure and blood sugar control (Babu <i>et al.</i>, 2005; Cooper <i>et al.</i>, 2005; Dhillon <i>et al.</i>, 2005).</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Include sleep apnea assessment, evaluation, and treatment in a CVD risk reduction program.</li> </ul>

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Table 1. Best practices for people at risk of developing or with cardiovascular disease. (continued)

Provider Recommendations	Best Practices
<p>12. Control <b>blood sugar</b></p>	<p><b>Why?</b></p> <p>CVD risk increases as blood sugar (glycemic) control deteriorates. However, little evidence to date demonstrates that blood sugar control <i>alone</i> significantly improves CVD outcomes in type 2 diabetes. Therefore, blood sugar control is essential, but not solely sufficient for addressing CVD risk (Nathan <i>et al.</i>, 2003).</p> <p><b>What are the goals?</b></p> <ul style="list-style-type: none"> <li>- Basic goal: A1c &lt;7.0%.</li> <li>- Optimal goal: A1c ≤6.5%.</li> </ul> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Measure A1c at least two times a year in patients who have stable blood sugar levels and are meeting treatment goals.</li> <li>- Measure A1c quarterly in patients who do not have stable blood sugar levels or are changing treatment.</li> </ul>
<p>13. Use <b>data systems</b> to monitor and evaluate CVD risk factors among people with diabetes</p>	<p><b>Why?</b></p> <p>Ongoing surveillance data are necessary to monitor risk factors in the population. For example, blood pressure, A1c levels, blood lipids, and BMI are important to monitor and evaluate.</p> <p><b>How?</b></p> <ul style="list-style-type: none"> <li>- Use audit data for each CVD risk factor to examine the trends in levels of assessment, determine level of treatment for each risk factor, determine reasons for sub-optimal results, identify ways to improve, and set goals.</li> <li>- Measure CVD morbidity and mortality rates in the local region or community before and after instituting interventions and programs to determine (or measure) the effect of interventions and programs.</li> </ul>

## Best practices for health care organizations

A health care organization that wants to improve CVD and diabetes care must be motivated and prepared for change throughout the entire organization. The organization's leadership must identify care of patients with CVD and diabetes 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 CVD and diabetes care.

Table 2 describes the best practices for health care organizations.

Table 2. Best practices for health care organizations.

Organization Recommendations	Best Practices
<p><b>System and Programmatic Changes</b></p>	<p><b>Who?</b> Administration and diabetes team members can work together to implement the system and programmatic changes.</p> <p><b>Why?</b> Changes in health care systems and programs have been associated with increased delivery of appropriate diabetes care.</p> <p><b>How?</b> The evidence suggests that the following activities may help improve cardiovascular and diabetes care:</p> <ul style="list-style-type: none"> <li>– Use clinical practice guidelines to facilitate evidenced-based clinical decision-making and improve diabetes outcomes.</li> <li>– Use flowsheets and standing orders to improve documentation of appropriate care.</li> <li>– Provide training and continuing education to health care providers to help improve cardiovascular care.</li> <li>– Provide community cardiovascular education (e.g., smoking cessation education programs) to help increase community awareness.</li> </ul>

## Essential elements of best practice cardiovascular disease programs

High quality CVD and diabetes 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 CVD programs for people with diabetes.

\* 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](http://www.improvingchroniccare.org).

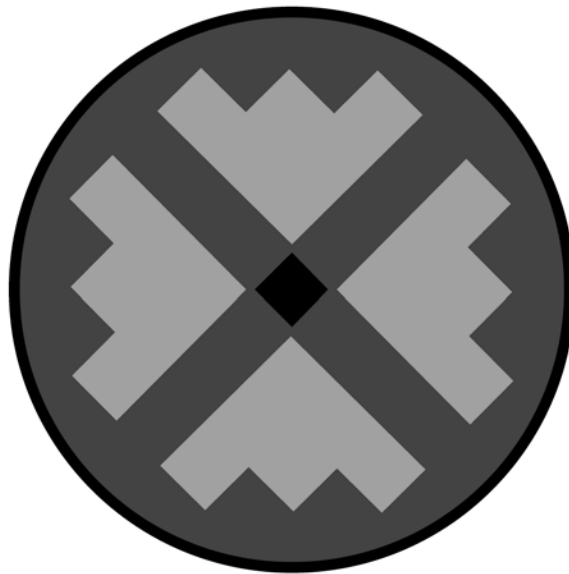


Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes.

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Community resources and policies</b>			
<ul style="list-style-type: none"> <li>– Identify, inventory, and utilize community resources (e.g., smoking cessation programs).</li> <li>– Establish a unified referral mechanism (e.g., referral system for stress testing and cardiology consultation).</li> </ul>	<ul style="list-style-type: none"> <li>– Train field health personnel in CVD assessment and education.</li> </ul>	<ul style="list-style-type: none"> <li>– Coordinate community resources and clinic-based programs.</li> </ul>	<ul style="list-style-type: none"> <li>– Identify smoking cessation resources that are available in the community (e.g., local American Lung Association and American Cancer Society programs).</li> <li>– Establish referral systems for stress testing and cardiology consultation.</li> <li>– Ask providers to help develop a seamless referral process that they will use.</li> <li>– Work with recreation centers, gyms, and fitness programs.</li> </ul>

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Organization leadership</b>			
<ul style="list-style-type: none"> <li>– Obtain evidence of commitment by clinic leadership and health care staff to provide a consistent message about: (1) the relationship between diabetes and CVD risks, as well as morbidity and mortality rates; and (2) best practice approaches to improving care.</li> <li>– Commit to the goals of: (1) decreasing CVD risk among people with diabetes; and (2) promoting CVD risk reduction activities.</li> <li>– Develop a strategic plan with specific goals and objectives, timelines, and regular assessment of adherence.</li> </ul>	<ul style="list-style-type: none"> <li>– Obtain evidence of commitment by tribal leadership, clinic leadership, the community, and health care staff to provide a consistent message about: (1) the relationship between diabetes and CVD risks, morbidity, and mortality rates; and (2) best practice approaches to improving care.</li> </ul>	<ul style="list-style-type: none"> <li>– Provide time, resources, funding, and personnel to CVD and diabetes programs.</li> </ul>	<ul style="list-style-type: none"> <li>– Conduct presentations to the community, health care staff, and tribal leaders to emphasize the link between diabetes and CVD and the importance of using best practice approaches to care.</li> <li>– Allot adequate resources, staff time, and clinic space.</li> </ul>

(Table 3 continued on next page)



Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Patient self-management support</b>			
<ul style="list-style-type: none"> <li>– Offer risk-appropriate self-care education.</li> </ul>	<ul style="list-style-type: none"> <li>– Provide education within the framework of an IHS-certified (or equivalent) curriculum.</li> </ul>	<ul style="list-style-type: none"> <li>– Use patient feedback mechanisms to recognize patient success at increasing self-care management and improving clinical outcomes.</li> <li>– Use provider profiles, “report cards”, or other means to provide patients with feedback on their adherence to practice guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>– Provide home blood pressure monitors, pedometers, and other “trackers” for activity and food intake.</li> <li>– Provide education with a certified diabetes educator.</li> <li>– Develop interactive, ongoing programs.</li> <li>– Ask community members or community health representatives to lead physical activity programs.</li> <li>– Use RPMS and relevant audit data (e.g., CVD risk factors) to help follow-up with patients.</li> <li>– Consider patient challenges and barriers to care, such as transportation, childcare, job, and communication.</li> <li>– Conduct community-wide education programs that tie CVD and smoking to diabetes.</li> <li>– Modify snack and beverage choices at schools, Head Start programs, and senior centers.</li> </ul>

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Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Patient self-management support (continued)</b>			
			<ul style="list-style-type: none"> <li>– Provide information on the long-term benefits of fitness and the relative safety of statins.</li> <li>– Use motivational interviewing techniques and readiness for change assessments.</li> <li>– Use culturally appropriate materials, such as <i>Honoring the Gift of Heart Health Curriculum</i>.</li> <li>– Offer diabetes peer support groups.</li> </ul>

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Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Delivery system design: Services, programs, systems, and procedures</b>			
<ul style="list-style-type: none"> <li>– Use a case management approach (e.g., regular review of CVD risk clinical profiles to make recommendations on focus of care).</li> <li>– Establish a multidisciplinary team that plans and implements programs.</li> <li>– Assign health care workers to perform necessary functions (e.g., perform self-care management training when other desirable disciplines are not available).</li> <li>– Regularly follow-up on CVD risk, complications, and diabetes care, plus provide care for acute problems and prevention.</li> <li>– Identify and use appropriate and competent outside consultation with timely feedback.</li> </ul>	<ul style="list-style-type: none"> <li>– Designate a full-time case manager to review the CVD risk clinical profiles regularly and make recommendations on focus of care.</li> <li>– Establish a well-integrated, multidisciplinary team that plans and implements programs with regular meetings, minutes, and a defined method for communicating plans among themselves and to the entire clinic staff.</li> <li>– Prioritize the patient population according to risks and complications to facilitate optimal use of limited resources.</li> </ul>	<ul style="list-style-type: none"> <li>– Ensure that the CVD case management team is dedicated to the case management approach (i.e., regular review of the CVD risk clinical profiles to make recommendations and referrals, provide highly focused individual care plans, and ensure follow-through).</li> <li>– Ensure that specialist services, including cardiology, noninvasive peripheral vascular disease assessment, stress testing, and other appropriate referral services, are readily available.</li> <li>– Establish a pharmacy, interdisciplinary-directed lipid, or hypertension management program.</li> <li>– Hire or contract with an exercise physiologist.</li> </ul>	<ul style="list-style-type: none"> <li>– Dedicate a portion of a certified diabetes educator or primary care physician’s time to program development and communication.</li> <li>– Integrate education and clinical aspects into the care team by including an educator (e.g., a registered dietitian or nurse who is also a certified nurse educator), behaviorist, clinical provider, pharmacist, exercise specialist, administrator, client representative, and ancillary services representative.</li> <li>– Use diabetes standards of care, best practices, and other evidence-based practice guidelines.</li> <li>– Use electronic medical records and patient management systems.</li> <li>– Triage acute patients (e.g., patients with chest pain, claudication, or any CVD).</li> </ul>

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Delivery system design: Services, programs, systems, and procedures (continued)</b>			
			<ul style="list-style-type: none"> <li>– Establish protocols or systems for appropriate follow-up and change in therapy for high blood pressure, dyslipidemia, abnormal electrocardiograms (ECGs), and smoking cessation.</li> <li>– Establish clinical goals to emphasize treating to target by implementing therapeutic measures according to standards and evidence.</li> <li>– Use appropriate referral mechanisms.</li> </ul>

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Decision support: Information and training for providers</b>			
<ul style="list-style-type: none"> <li>- Adopt and use practice guidelines.</li> <li>- Train providers on practice guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>- Place focused attention on practice guidelines, with revision as indicated.</li> <li>- Provide opportunities for training in self-management education, medical nutrition therapy, diabetes education, case management, and clinical care.</li> </ul>	<ul style="list-style-type: none"> <li>- Exercise strict adherence to accepted practice guidelines, with regular review and updates as indicated.</li> <li>- Provide opportunities for periodic education, assessment, and re-credentialing or re-certification (if indicated) on practice guidelines and other relevant practices.</li> <li>- Expand opportunities for training in behavioral health and other areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Use the IHS Standards of Care for Diabetes. Negotiate, customize, and agree upon the issues that are not specific to the Standards of Care.</li> <li>- Use the 5 A's (i.e., Ask, Assess, Advise, Assist, and Arrange).</li> <li>- Use Joint National Committee (JNC VII) guidelines on the prevention, detection, evaluation, and treatment of high blood pressure; American College of Physicians (ACP) clinical practice guidelines; and National Cholesterol Education Program's guidelines on the detection, evaluation, and treatment of high blood cholesterol in adults.</li> <li>- Identify mentors for emulation.</li> <li>- Attend CVD and lipid training programs.</li> <li>- Develop simply illustrated, disease-specific patient handouts that describe disease processes.</li> <li>- Use curricula, such as the <i>Honoring the Gift of Heart Health Curriculum</i> and the <i>Balancing Your Life and Diabetes Curriculum</i>.</li> </ul>

(Table 3 continued on next page)

Table 3. Essential elements of basic, intermediate, and comprehensive best practice cardiovascular disease programs for people with diabetes. (continued)

Basic Cardiovascular Disease Programs	Intermediate Cardiovascular Disease Programs Basic program <i>plus</i> :	Comprehensive Cardiovascular Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
<b>Clinical information systems: Collecting and tracking information</b>			
<ul style="list-style-type: none"> <li>– Establish a patient referral system, preferably electronic.</li> <li>– Establish a current and complete CVD risk reduction registry that includes risk and complication identification.</li> </ul>	<ul style="list-style-type: none"> <li>– Establish a patient referral system with tracking mechanisms, preferably electronic.</li> <li>– Establish a current and complete CVD risk registry that includes risk and complication identification with the ability to generate process data.</li> </ul>	<ul style="list-style-type: none"> <li>– Establish an electronic, integrated patient referral system with timely tracking mechanisms on results, treatment, and follow-up.</li> <li>– Establish a current and complete CVD risk registry that includes risk and complication identification with the ability to generate process and outcome data.</li> </ul>	<ul style="list-style-type: none"> <li>– Use RPMS and other electronic health record systems.</li> <li>– Use risk factor stratification (e.g., stage complications and prioritize management).</li> <li>– Use health care summaries in RPMS or other electronic flags to identify patients and coordinate care.</li> <li>– Use provider report cards to give specific feedback on provider performance and patient accomplishment.</li> <li>– Negotiate specific treatment targets and medication use.</li> </ul>

## Evaluating your cardiovascular disease program

Evaluation is important because it helps you see what is working and what is not working in your CVD program for people with diabetes. It will show you if adjustments or changes need to be made to improve your program. Evaluation also provides you with information that 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:

- Diabetes audit data for individuals and for the population of patients with diabetes.
- Clinical Reporting System (CRS) data, such as data for the Government Performance and Results Act (GPRA) and Indian Health Performance Evaluation System (IHPES).
- Other local measures, such as performance improvement and other outcome data.

## Sustaining your cardiovascular disease program

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

- Document improved outcomes, long-term cost-savings, and effectiveness to justify the continuation of your program.
- Commit *Special Diabetes Programs for Indians* funds to CVD risk reduction.
- Ensure administrative support for committing personnel, resources, time, and space to activities that support CVD risk reduction.
- Help tribal leadership and community members understand CVD issues and obtain their commitment to address CVD locally.
- Report outcomes to stakeholders on a routine and regular basis.

## Contacting others for help

Contacting other people involved in cardiovascular and diabetes care 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. 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.
- 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](http://www.ndep.nih.gov)

## Real-world best practice programs

### **Claremore Indian Hospital**

Pharmacy-based Lipid Management Program

Cory Wilton, DPh, NCPS

☎ (918) 342-6586

Claremore Indian Hospital's Comprehensive Indian Health Care Cardiovascular Risk Reduction and Disease Prevention Program provides evidence-based and financially responsible cardiovascular risk reduction therapy.

### **Native American Cardiology Program**

James Galloway, MD

☎ (928) 214-3920 (Flagstaff Office)

☎ (520) 694-7000 (Tucson Office)

🌐 [www.ihs.gov/medicalprograms/cardiology](http://www.ihs.gov/medicalprograms/cardiology)

The Native American Cardiology Program provides comprehensive cardiovascular care, interventions, and risk reduction with a systemic approach to moderate- and high-risk cardiovascular individuals. The program also provides programmatic CVD prevention guidance.

## Helpful websites

### **American College of Physicians**

🌐 [www.acponline.org](http://www.acponline.org)

### **American Diabetes Association**

🌐 [www.diabetes.org](http://www.diabetes.org)

### **Dietary Guidelines for Americans 2005**

🌐 [www.healthierus.gov/dietaryguidelines/](http://www.healthierus.gov/dietaryguidelines/)

### **Framingham Calculator**

🌐 <http://hp2010.nhlbihin.net/atp/iii/calculator.asp?usertype=prof>

Be advised that a specific calculation will be available for American Indian and Alaska Native populations in the next two years from the Strong Heart Study.

### ***Honoring the Gift of Heart Health Curriculum***

🌐 [www.nhlbi.nih.gov/health/prof/heart/other/aian\\_manual/index.htm](http://www.nhlbi.nih.gov/health/prof/heart/other/aian_manual/index.htm)

### **IHS Division of Diabetes Treatment and Prevention**

🌐 [www.ihs.gov/medicalprograms/diabetes/index.asp](http://www.ihs.gov/medicalprograms/diabetes/index.asp)

### ***IHS Guidelines for the Treatment of Dyslipidemia in Native Americans***

🌐 [www.ihs.gov/medicalprograms/cardiology/card/LipidGuidelines.pdf](http://www.ihs.gov/medicalprograms/cardiology/card/LipidGuidelines.pdf)



**Joint National Commission on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII)**

🔗 [www.nhlbi.nih.gov/guidelines/hypertension/](http://www.nhlbi.nih.gov/guidelines/hypertension/)

**National Center for Biotechnology Information**

🔗 [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

**National Cholesterol Education Program**

🔗 [www.nhlbi.nih.gov/about/ncep/](http://www.nhlbi.nih.gov/about/ncep/)

**National Cholesterol Education Program *Evaluation and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III)***

🔗 [www.nhlbi.nih.gov/guidelines/cholesterol/atp3xsum.pdf](http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3xsum.pdf)

**National Heart, Lung, and Blood Institute**

🔗 [www.nhlbi.nih.gov/index.htm](http://www.nhlbi.nih.gov/index.htm)

**National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines**

🔗 [www.kidney.org/professionals/KDOQI/index.cfm](http://www.kidney.org/professionals/KDOQI/index.cfm)

**National Lipid Education Council**

🔗 [www.lipidhealth.org](http://www.lipidhealth.org)

**Native American Cardiology Program, IHS Center of Excellence in Cardiology**

🔗 [www.ihs.gov/medicalprograms/cardiology/card/index.cfm](http://www.ihs.gov/medicalprograms/cardiology/card/index.cfm)

**U.S. Department of Agriculture Food Guidance System**

🔗 [www.mypyramid.gov](http://www.mypyramid.gov)

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