

Indian Health Diabetes Best Practices:
Chronic Kidney Disease and Diabetes



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What is chronic kidney disease?

The kidneys prevent major changes in the composition of the blood by removing excess water and waste products produced by the body. If the composition of the blood changes significantly, the body cannot function normally. The most common cause of kidney disease is diabetes. Chronic kidney disease is generally progressive, irreversible, and causes few symptoms until more than three quarters of kidney function is lost. A patient requires dialysis or a kidney transplant to maintain health when more than 85% of kidney function is lost.

Why is chronic kidney disease important?

American Indians and Alaska Natives experience high rates of chronic kidney disease, which leads to significant morbidity, mortality, and cost. Chronic kidney disease often results in end-stage kidney disease; the prevalence of end-stage kidney disease (dialysis or transplantation) in American Indians and Alaska Natives is 3.5 times greater than that of white Americans (Narva, 2003).

The good news is that increasing evidence indicates that the adverse outcomes often associated with chronic kidney disease, such as kidney failure, cardiovascular disease, and premature death, can be prevented or delayed. Consider these facts:

- Earlier stages of chronic kidney disease can be detected through laboratory testing.
- Treatment of earlier stages of chronic kidney disease is effective in slowing the progression toward kidney failure.
- Initiation of treatment for cardiovascular disease risk factors at earlier stages of chronic kidney disease may be effective in reducing cardiovascular disease events both before and after the onset of kidney failure.

This best practice describes how health care providers can identify kidney disease early, better manage the disease and its complications, improve the health status of patients with end-stage kidney disease, and help decrease the morbidity and mortality associated with chronic kidney disease and diabetes.

Best practices for chronic kidney disease and diabetes

The best practice for chronic kidney disease and diabetes outlines the best methods for:

- Identifying and evaluating patients with chronic kidney disease.
- Managing and monitoring patients with chronic kidney disease and diabetes.
- Evaluating the progression of chronic kidney disease.

Table 1 summarizes the best practices for chronic kidney disease and diabetes.

Table 1. Best practices for chronic kidney disease for people with diabetes.

Provider Recommendations	Best Practices
<p>1. Identify and evaluate patients with chronic kidney disease</p>	<p>Why?</p> <p>Early recognition of chronic kidney disease can prevent or delay the onset of adverse outcomes (Levey <i>et al.</i>, 2003).</p> <p>How?</p> <p>Early stages of chronic kidney disease can be detected through routine laboratory tests:</p> <ul style="list-style-type: none"> - Estimate the level of GFR (glomerular filtration rate) on an annual basis with an Indian Health Service (IHS)-approved laboratory method. GFR is the best indicator of kidney function. - Quantitate proteinuria yearly. <ul style="list-style-type: none"> • In patients who are dipstick <i>negative</i>, measure urine albumin to creatinine ratio on an annual basis with an IHS-approved laboratory method. • In patients who are dipstick <i>positive</i>, measure urine albumin to creatinine ratio or protein to creatinine ratio on an annual basis with an IHS-approved laboratory method. - Assign the stage of chronic kidney disease based on the level of GFR using the K/DOQI (Kidney Disease Outcomes Quality Initiative) chronic kidney disease classification. Chronic kidney disease is defined as either kidney damage or a GFR <60 ml/min/1.73m² for at least three months. (You can obtain the K/DOQI chronic kidney disease classification online at: www.kidney.org/professionals/kdoqi/guidelines_ckd/p4_class_g1.htm). - Evaluate patients with chronic kidney disease to determine: <ul style="list-style-type: none"> • Diagnosis (type of kidney disease). • Comorbid conditions. • Severity (assessed by level of kidney function). • Complications (related to level of kidney function). • Risk for loss of kidney function. • Risk for cardiovascular disease.

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Table 1. Best practices for chronic kidney disease for people with diabetes. (continued)

Provider Recommendations	Best Practices
<p>2. Manage and monitor patients with chronic kidney disease and diabetes</p>	<p>Why?</p> <p>Early treatment of chronic kidney disease is effective in slowing the progression of the disease and may reduce the burden of end-stage kidney disease (Levey <i>et al.</i>, 2003).</p> <p>How?</p> <ul style="list-style-type: none"> - Develop a clinic action plan based on the stage of kidney disease. (For more information, please see: www.kidney.org/professionals/kdoqi/guidelines_ckd/p4_class_g1.htm.) - Maintain blood pressure at <130/80. Use ACE inhibitors, diuretics, or ARBs as necessary. - Screen and initiate appropriate treatment for people with GFR <60: <ul style="list-style-type: none"> • Anemia (annual complete blood count (CBC)). • Malnutrition (serum albumin). • Metabolic bone disease (calcium to phosphorus ratio, alkaline phosphatase levels, and parathyroid hormone levels). • Hyperlipidemia. - Provide immunizations for pneumonia, influenza, and hepatitis B. - Assess functional and emotional status and quality of life with a questionnaire developed by Kalantar-Zadeh <i>et al.</i> (2001), called the Short Form 36. You can obtain this questionnaire at: www.nephrology.rei.edu/qol.htm. - Ensure that dialysis access is in place prior to dialysis initiation. - Provide continuity of diabetes care for end-stage kidney disease patients. - Conduct patient education on IHS kidney disease objectives. - Provide appropriate nutrition counseling. - Provide appropriate preparation for kidney replacement therapy, including education on treatment choices, early referral for vascular access, and transplantation.

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Table 1. Best practices for chronic kidney disease for people with diabetes. (continued)

Provider Recommendations	Best Practices
<p>3. Evaluate the progression of chronic kidney disease</p>	<p>Why?</p> <p>The level of kidney function declines over time in most patients with chronic kidney disease. Therefore, providers must monitor and evaluate kidney function (Levey <i>et al.</i>, 2003).</p> <p>How?</p> <ul style="list-style-type: none"> - Assess rate of GFR decline to predict the onset of kidney failure and determine the effect of interventions to slow GFR decline. - Prevent or correct acute decline in GFR. - Use interventions to slow the progression of chronic kidney disease, such as strict blood sugar control, strict blood pressure control, use of ACE inhibitors (angiotensin converting enzyme inhibitors), and use of ARBs (angiotensin receptor blockers). - Follow published guidelines and position statements to prevent, detect, evaluate, and treat diabetes complications. Take into account the higher risk status for diabetes complications among American Indians and Alaska Natives. - Assess cardiovascular disease risk factors and consider patients with kidney disease to be in the highest risk group for cardiovascular disease.



Best practices for health care organizations

A health care organization that wants to improve chronic kidney disease care must be motivated and prepared for change throughout the entire organization. The organization’s leadership must identify chronic kidney disease 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 chronic kidney disease 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>System and programmatic changes</p>	<p><i>Why?</i></p> <p>Changes in health care organizations have been associated with increased delivery of appropriate diabetes care.</p> <p><i>How?</i></p> <p>Health care systems and organizations can help improve chronic kidney disease for people with diabetes by:</p> <ul style="list-style-type: none"> – Ensuring chronic kidney disease is perceived as a priority. – Providing resources for care and prevention. – Implementing chronic kidney disease registries and electronic appointment systems to improve diabetes clinic participation and follow-up. – Using evidence-based practice guidelines and protocols to facilitate clinical decision-making and improve diabetes outcomes. – Using flowsheets and standing orders to improve documentation of appropriate care. – Providing training and continuing education to health care providers to help identify early cases of chronic kidney disease. – Providing chronic kidney disease education to the community to help increase clinic participation and reduce end-stage kidney disease rates.

Essential elements of best practice chronic kidney disease programs

High quality chronic kidney disease 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 chronic kidney disease programs for patients 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.

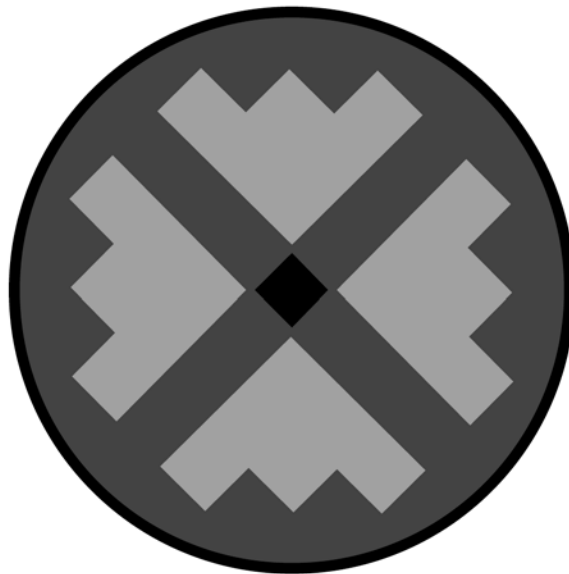


Table 3. Essential elements of basic, intermediate, and comprehensive best practice chronic kidney disease programs for patients with diabetes.

Basic Chronic Kidney Disease Programs	Intermediate Chronic Kidney Disease Programs Basic program <i>plus</i> :	Comprehensive Chronic Kidney Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
Community resources and policies			
<ul style="list-style-type: none"> - Recognize chronic kidney disease as a priority. 	<ul style="list-style-type: none"> - Develop clear mechanisms to facilitate vascular access placement, transplant referral, and diagnostic imaging. - Coordinate with nephrology consultants, vascular access surgeons, and local high dependency units (HDU). 	<ul style="list-style-type: none"> - Develop and implement a community education program on diabetes and chronic kidney disease. - Form partnerships with community resources and organizations. 	<ul style="list-style-type: none"> - Develop educational resources. - Form partnerships with the National Kidney Foundation’s Kidney Early Evaluation Program (KEEP), which is a free kidney health screening program designed to raise awareness about kidney disease among high-risk individuals.
Organization leadership			
<ul style="list-style-type: none"> - Support the existing diabetes care delivery system. - Ensure that the clinic administration and providers perceive chronic kidney disease as a priority. - Ensure that the clinic administration offers lab, pharmacy, and public health nursing support. 	<ul style="list-style-type: none"> - Address chronic kidney disease and follow protocols and guidelines. - Set organization-wide goals of improving chronic kidney disease care, reducing the burden of end-stage kidney disease, and integrating chronic kidney disease care into diabetes care. 	<ul style="list-style-type: none"> - Include specific chronic kidney disease outcome measures in the annual performance-based objectives. - Ensure IHS-wide support for integration of chronic kidney disease into the electronic health record. 	<ul style="list-style-type: none"> - Treat anemia in the diabetes clinic. - Establish and use a chronic kidney disease module in the electronic health record.

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

Basic Chronic Kidney Disease Programs	Intermediate Chronic Kidney Disease Programs Basic program <i>plus</i> :	Comprehensive Chronic Kidney Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
Patient self-management support			
<ul style="list-style-type: none"> – Ensure patients have access to interested and competent providers. – Provide family members with the opportunity to join the patient during clinic appointments and visits to the local HDU. 	<ul style="list-style-type: none"> – Provide education within the framework of an IHS-certified (or equivalent) curriculum. 	<ul style="list-style-type: none"> – Develop and implement a comprehensive, culturally appropriate chronic kidney disease education program. 	<ul style="list-style-type: none"> – Ensure patients have access to skilled patient educators.
Delivery system design: Services, programs, systems, and procedures			
<ul style="list-style-type: none"> – Establish a diabetes team that meets on a regular basis. – Implement appointment tracking systems and electronic documentation (e.g., flowsheets and kidney PCC+). – Ensure that erythropoietin and intravenous iron are available to treat anemia. – Measure kidney function using serum creatinine and estimated GFR. – Regularly review medications and treatment plans for patients, including patients on dialysis. 	<ul style="list-style-type: none"> – Include a kidney consultant, chronic kidney disease/end-stage kidney disease educator, and dialysis liaison on the diabetes team. – Incorporate chronic kidney disease into the diabetes clinic. – Provide chronic kidney disease nutrition counseling. – Conduct in-house lab tests, such as creatinine with estimated GFR or urine protein and creatinine. – Develop screening programs. – Develop treatment protocols for anemia, bone disease, hyperlipidemia, and high blood pressure. 	<ul style="list-style-type: none"> – Include a chronic kidney disease case manager on the diabetes team. – Establish a vascular access program. – Apply diabetes standards of care to the treatment of end-stage kidney disease patients. 	<ul style="list-style-type: none"> – Use case management. – Provide quality patient education. – Offer dialysis support groups. – Implement the KEEP screening program.

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

Basic Chronic Kidney Disease Programs	Intermediate Chronic Kidney Disease Programs Basic program <i>plus</i> :	Comprehensive Chronic Kidney Disease Programs Basic and intermediate programs <i>plus</i> :	Examples
Decision support: Information and training for providers			
<ul style="list-style-type: none"> - Train providers in chronic kidney disease care. 	<ul style="list-style-type: none"> - Adopt chronic kidney disease screening practices. 	<ul style="list-style-type: none"> - Adopt detailed chronic kidney disease care guidelines and protocols (e.g., K/DOQI guidelines). 	<ul style="list-style-type: none"> - Ensure providers have access to chronic kidney disease and kidney care websites, videos, journals, and other materials. - Share information through the <i>IHS Primary Care Provider</i>.
Clinical information systems: Collecting and tracking information			
<ul style="list-style-type: none"> - Use the Resource and Patient Management System (RPMS) laboratory package and GFR patch. - Establish a chronic kidney disease registry. - Document care in the electronic health record. - Participate in annual diabetes audits. 	<ul style="list-style-type: none"> - Use electronic reminders for providers and patients. - Collect and analyze data (e.g., Kidney Preservation Report). 	<ul style="list-style-type: none"> - Establish a registry capable of tracking chronic kidney disease outcomes and listing them on the Health Summary. 	<ul style="list-style-type: none"> - Use electronic data, including kidney PCC+, chronic kidney disease case management in the electronic health record, and flowsheets.

Evaluating your chronic kidney disease program

Evaluation is important because it helps you see what is working and what is not working in your chronic kidney disease 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 when developing your program and evaluation:

- Blood pressure.
- Laboratory measurements, including estimated GFR, urine albumin to creatinine ratio (UACR), hemoglobin level, albumin, lipids, bicarbonate, calcium, phosphorous, and alkaline phosphatase.
- Documentation of nutritional counseling.
- Documentation of patient education.
- Drug utilization (e.g., ACE inhibitor use).

Sustaining your chronic kidney disease 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 your program:

- Document the status of patients initiating dialysis (e.g., vascular access, anemia, and nutritional status).
- Share data with the community that show the benefits of early intervention.
- Promote rehabilitation of chronic kidney disease patients (e.g., physical and vocational rehabilitation).

Contacting others for help

Contacting other people involved in chronic kidney disease 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 Kidney Disease Education Program (NKDEP) and the National Diabetes Education Program (NDEP). NKDEP provides information on increasing awareness of kidney disease and improving care. 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 these websites: www.nkdep.nih.gov and www.ndep.nih.gov

Real-world best practice programs

Albuquerque Area Diabetes Program

Gordon Quam, RN, Renal Case Manager

☎ (505) 248-4255

✉ gordon.quam@ihs.gov

Mr. Quam is an expert in educating patients on kidney replacement and KEEP screenings.

Santa Fe Indian Hospital Lab

Bert Tallant, MT (ASCP)

☎ (505) 946-9329

✉ btallant@abq.ihs.gov

Mr. Tallant is an expert in implementing laboratory support for chronic kidney disease.

Santa Fe Indian Hospital Renal Clinic

Lori Moore, PharmD

☎ (505) 946-9387

✉ lbmoore@abq.ihs.gov

This clinic has effectively implemented electronic tools.

Zuni Renal Clinic

Stephanie Mahooty, RN, CHN

☎ (505) 782-4431

✉ stephanie.mahooty@ihs.gov

This clinic has effectively managed anemia in the community.

Helpful websites

Chronic kidney disease guidelines are appearing at a rapid rate. The following three websites have the latest and most complete references:

National Kidney Disease Education Program

🔗 www.nkdep.nih.gov/index.htm

National Kidney Foundation

🔗 www.kidney.org/professionals/kdoqi/guidelines

IHS Kidney Disease Program

🔗 www.ihs.gov/medicalprograms/kidney/

General websites:

Atlas of Diseases of the Kidney

🔗 www.kidneyatlas.org

IHS Kidney Disease Program: *IHS Primary Care Provider* articles

This website includes links to a collection of articles that describe a primary care approach to patients with chronic kidney disease.

🔗 www.ihs.gov/medicalprograms/kidney/pro_clinicaltools/clinicaltools_index.asp

National Institute for Diabetes, Digestive, and Kidney Diseases

🔗 www.kidney.niddk.nih.gov/kudiseases/topics/failure.asp

National Kidney Foundation

🔗 www.kidney.org

Nephron Information Center

🔗 www.nephron.com

Renal Physicians Association: Hypertension, Dialysis, and Clinical Nephrology Program

🔗 www.hdcn.com

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