



INDIAN HEALTH DIABETES BEST PRACTICE

Screening for Chronic Kidney Disease

Revised April 2011

Indian Health Service
Division of Diabetes Treatment and Prevention
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<http://www.ihs.gov/MedicalPrograms/Diabetes/>



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Instructions for Using This Best Practice

The Best Practices are organized into topics on how to plan for and successfully implement a Best Practice in your community.

- **Part 1** provides background information on planning your program and evaluation, Key Recommendations, and Key Measures.
- **Part 2** provides details on implementation of the Key Recommendations.
- **Part 3** includes appendices, tools, and resources.
- **Part 4** provides a list of references.

As you prepare to select, implement, and evaluate a Best Practice, consider these planning guidelines:

- Meet with your diabetes team to discuss which Best Practice(s) is best suited for your situation and resources.
- Use data from your Diabetes Outcomes and Audit and/or from a community needs assessment to guide your selection of the Best Practice(s).
- Determine your program goal(s) as a team. For example, your team may decide to conduct a community needs assessment of interest in diabetes education and/or providing community education to increase awareness of risks for diabetes.
- Print out at least Part 1 of the Best Practice(s) your team feels is most appropriate to implement.
- Work with your diabetes team to review and discuss the Best Practice(s). You may choose to read it together as a team.
- Choose at least one Best Practice after carefully considering your goals and resources (funding, staff, and time).
- **Review the entire Best Practice(s) you have selected with your diabetes team:**
 - Confirm that you have selected a Best Practice(s) appropriate for your community needs and resources, and that you are confident that your team can successfully implement, evaluate (measure), and document progress and outcomes.
 - Target the population your team wants to improve outcomes for with the Best Practice(s). Remember, you probably do not have resources to do everything for everyone.
 - Carefully consider the Key Recommendations. The recommendations are based on evidence and have been proven to be effective. You may already be doing some of the recommendations and can easily fit these into your plan or you may want to consider some new recommendations to enhance and strengthen your program. Identify those your team can implement.
 - Carefully review the Key Measures. Choose those that best fit with your goals and the Key Recommendations you have chosen to implement.
 - If one Best Practice does not fit, then review another Best Practice until you find one that fits.

Throughout the document you will find links that draw your attention to important items within the Best Practice pdf. Here is a list of the items:

- **Action!** Indicates a **link**. Please use the link to access more detailed descriptions.
- **Note!** Indicates an **important** item. Pay special attention to this **important** item.

Summary of Key Recommendations and Key Measures

Key Recommendations for Screening for Chronic Kidney Disease Best Practice. These are evidence-based actions that will lead to improved outcomes in the community. Action! See [Part 2](#) for details on the implementation of each key recommendation.

1. Perform screening for early detection of chronic kidney disease (CKD) using both a urine albumin to creatinine ratio (UACR) and GFR.
2. Provide interventions to delay or prevent chronic kidney disease (CKD):
 - Assess CKD risk factors in patients with diabetes.
 - Initiate or intensify treatment in patients at risk for CKD.
 - Control glucose.
 - Treat hypertension.
 - Target is < 130/80 for most patients, but should be individualized.
 - Use an ACE inhibitor or ARB whenever possible.
 - Reduce associated CVD risks.
 - Provide kidney disease education.

Key Measures for Screening for Chronic Kidney Disease Best Practice. These are specific measures that can be used to document changes in outcomes related to implementing the Best Practice.

Note! All SDPI grant programs that choose this Best Practice are **required to report **as required in the terms and conditions attached to the notice of award on the indicated* Measures. Programs may report on other measures as well.****

*1. Percent of individuals with diabetes who were screened for CKD in the past twelve months as evidenced by both urine albumin to creatinine ratio (UACR) and GFR.

*2. Percent of individuals with diabetes who had most recent BP at < 130/80 in the past twelve months (or have comorbidities that dictate a higher target).

*3. Percent of individuals with diabetes and hypertension who are treated with an angiotensin converting enzyme (ACE) inhibitor or angiotensin II receptor blocker (ARB) (or have a documented allergy/intolerance) in the past twelve months.

PART 1 Essential Elements of Implementing this Best Practice

Purpose

This Best Practice provides guidance for programs that seek to improve the kidney health of people with diabetes and enhance the delivery of effective health care. It describes how the health care team can develop a process for screening and early detection of chronic kidney disease (CKD).

Target Population

This Best Practice provides recommendations for screening, prevention and early detection of chronic kidney disease (CKD) in persons with type 1 or type 2 diabetes.

Action! See **Part 3 – Appendix A. Supplemental Information for information on the Importance of a Chronic Kidney Disease Program.**

Intended Users of this Best Practice

- Primary health care teams
- Diabetes teams
- Diabetes educators
- Leaders of health care organizations

Action! See **Part 3 – Appendix A. Supplemental Information for discussion of the benefits and risks of implementing this Best Practice.**

Definition of Chronic Kidney Disease

Chronic kidney disease (CKD) is the slow progressive decline of the kidneys' ability to remove excess water and waste products from the body. It is a microvascular complication of diabetes and the leading cause of kidney failure.

CKD is defined as three months or longer duration of **either**:

- Decreased kidney function: $GFR < 60 \text{ mL/min/1.73 m}^2$
- Evidence of kidney damage: proteinuria (e.g., $UACR \geq 30 \text{ mg/g}$) or abnormalities on kidney blood tests, imaging or biopsy

Note! GFR= Glomerular Filtration Rate
UACR= Urine Albumin to Creatinine Ratio

Action! See **Screening and Monitoring of CKD in Diabetes FAQ** at:
http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Tools/ClinicalGuidelines/2011_CKD_Screening_FAQ_508c.pdf

Goals of This Best Practice

The goals for this Screening for Chronic Kidney Disease Best Practice are to provide guidelines and resources to screen for, prevent/delay, and diagnose CKD in patients with diabetes who are at risk for CKD, as well as to provide education to them about CKD.

Key Recommendations

These are evidence-based actions that can lead to improved outcomes for persons with type 1 or type 2 diabetes.

Key Recommendations for Chronic Kidney Disease Best Practice. These are evidence-based actions that will lead to improved outcomes in the community.

1. Perform screening for early detection of chronic kidney disease (CKD) using both a urine albumin to creatinine ratio (UACR) and GFR.
2. Provide interventions to delay or prevent chronic kidney disease (CKD):
 - Assess CKD risk factors in patients with diabetes.
 - Initiate or intensify treatment in patients at risk for CKD.
 - Control glucose.
 - Treat hypertension.
 - Target is < 130/80 for most patients, but should be individualized.
 - Use an ACE inhibitor or ARB whenever possible.
 - Reduce associated CVD risks.
 - Provide kidney disease education.

Action! See [Part 2](#) for details on the implementation of each key recommendation.

Planning For Your Program and Evaluation

Key Action Steps include:

1. **Identify your program's goal(s).** There are many program goals consistent with the Key Recommendations of this practice. Choose program goals that fit with the Key Recommendations and your resources. Examples of Program Goals include:

- Increase the number of people with diabetes screened for chronic kidney disease (CKD).
- Increase the number of people at risk for CKD who receive kidney disease education.

2. **Define program objectives** that will be met to reach the program goal(s) in the **SMART format** (specific, measurable, action-oriented, realistic, and time-bound).

Examples of SMART objectives for this Best Practice:

- Increase the percent of adults with diabetes screened for CKD from 75% to 85% by the end of the fiscal year.
- Increase the percent of adults with diabetes with documented kidney disease education from 60% to 85% by the end of the fiscal year.

3. **Use Key Measures.** The following Key Measures can be used to monitor progress and the effectiveness of implementing this Best Practice. Results of measures will indicate the degree of success in implementing the **Key Recommendations** and meeting program goals.

Measures of progress need to occur before the intervention (baseline) and at designated times thereafter. Measurement needs to be frequent enough to provide meaningful information for planning and evaluation.

Key Measures

Key Measures for Chronic Kidney Disease Best Practice. These are specific measures that can be used to document changes in outcomes related to implementing the Best Practice.

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*1. Percent of individuals with diabetes who were screened for CKD in the past twelve months as evidenced by both urine albumin to creatinine ratio (UACR) and GFR.

*2. Percent of individuals with diabetes who had most recent BP at < 130/80 in the past twelve months (or have comorbidities that dictate a higher target).

*3. Percent of individuals with diabetes and hypertension who are treated with an angiotensin converting enzyme (ACE) inhibitor or angiotensin II receptor blocker (ARB) (or have a documented allergy/intolerance) in the past twelve months.

4. **Collect, record, and analyze data** on an ongoing basis; share with the team and the organization leadership.

5. **Use creative ways to display data and measure outcomes, such as graphs or charts.** This helps the team understand the data and know whether there are improvements.

6. **Think about what the data are telling you.** What changes are you seeing? Are they improvements? Use data for planning next steps.

Action! Link to the following resources to help your program improve.

See **Part 3 – Appendix B. Key Measures Example** to assist you with identifying ways to choose Key Measures that incorporate your community data.

See **Part 3 – Appendix C. Improving Chronic Kidney Disease Programs Example** to assist you with applying Key Recommendations and Key Measures to a program plan.

Action! You can also link to an online training and a workbook to get more ideas about setting goals and objectives, and developing a program plan. Available from: (see pages 23-28.) <http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Training/WebBased/Basics/Creating/Workbook.pdf>

Team Notes:

Part 2 Key Recommendations

Note! Part 2 provides **important** detail on the “why?” and “how?” of implementation of each Key Recommendation.

Key Recommendation 1. Perform screening for early detection of chronic kidney disease (CKD) using both a urine albumin to creatinine ratio (UACR) and GFR.

Why?

Diabetes is the leading cause of chronic kidney disease. Delayed diagnosis of chronic kidney disease leads to lost opportunities for prevention and inadequate treatment which may contribute to disease progression. Early recognition of chronic kidney disease can prevent or delay the onset of adverse outcomes (Levey, 2003).

How to Implement the Key Recommendation

A. Screening frequency:

Patients with diabetes should be screened annually for CKD:

- Type 2 Diabetes: starting at diagnosis of type 2 diabetes
- Type 1 Diabetes: starting five years after the diagnosis of type 1 diabetes

B. Screening method:

Two tests which should be used together to give the best assessment of how the kidneys are doing are the urine albumin to creatinine ratio (UACR) and the glomerular filtration rate (GFR).

Urine Albumin to Creatinine Ratio (UACR)

- UACR is performed on a spot urine sample and accounts for urine concentration.
- Albumin is the predominant protein excreted in people with diabetic kidney disease.
- Confirm a positive (≥ 30 mg/g) UACR with a second test three to four months later.
 - Because of variability in urinary albumin excretion, if the second test is < 30 mg/g, then CKD diagnosis can be made if two out of three UACR specimens collected within a three to six month period are positive.
- There is no need to collect 24-hour urine specimens. (UACR results are roughly equivalent to 24-hour protein excretion in grams.)
- Microalbuminuria is defined as a UACR of 30-300 mg/g.
- Macroalbuminuria is defined as a UACR > 300 mg/g.
- As they may elevate urine albumin excretion, avoid screening if infection, fever, congestive heart failure (CHF), marked hyperglycemia, marked hypertension, or if significant exercise within 24 hours.
- People with macroalbuminuria (> 300 mg/g) are at higher risk for progression to kidney failure over the next ten years. (Pavkov ME et al. *Current Diabetes Reports*, 2008)

Action! See **IHS Division of Diabetes CKD Quick Guides** at:

<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=toolsQuickGuides&nav=1>

Glomerular Filtration Rate (GFR)

- Order a serum creatinine to obtain a GFR. Most labs will include an automatically calculated GFR.
- If the lab does not automatically calculate the GFR with the serum creatinine, use the MDRD formula for adults and the Bedside Schwarz equation for youth under 18 years of age.

Action! For **GFR calculators** for adults and youth go to:

http://www.nkdep.nih.gov/professionals/gfr_calculators/index.htm

- GFR is the best indicator of kidney function.
- Since GFR is based on serum creatinine, it should be stable for the GFR to be accurate (e.g., do not use in acutely ill patients).
- GFR declines with age and is also affected by the patient's muscle mass; consider this factor when assessing elderly or very muscular patients.
- If GFR is $< 60 \text{ mL/min/1.73 m}^2$, it should be repeated in three months to confirm a diagnosis of CKD.

Team Notes:

Key Recommendation 2. Provide interventions to delay or prevent chronic kidney disease.

Why?

Hypertension management is the primary intervention in delaying or preventing kidney failure. The natural history of chronic kidney disease and diabetes is characterized by hypertension along with increasing albuminuria and decreasing GFR. In patients with type 1 or type 2 diabetes, the natural history is similar, with the exception that the onset of hypertension and cardiovascular disease is earlier in the course of type 2 diabetes. A large number of epidemiological studies and controlled trials have defined hypertension as a risk factor for progression of chronic kidney disease and support the use of antihypertensive treatment to reduce the risk. Early treatment of chronic kidney disease is effective in slowing the progression of the disease, and may reduce the burden of kidney failure (Levey, 2003).

Patient education is an effective and important component in chronic kidney disease prevention.

How to Implement the Key Recommendation

A. Assess CKD risk factors in patients with diabetes:

- Family history of kidney failure
- Duration of diabetes
- Diagnosis of hypertension and whether: (1) it is controlled and, (2) ACE or ARB used
- Diagnosis of cardiovascular disease (CVD) or peripheral vascular disease
- Prolonged consumption of over the counter pain relievers such as aspirin products and other NSAIDs, including ibuprofen, naproxen, and others.
- Smoking

B. Initiate or intensify treatment of patients at risk for CKD

- Control glucose.
- Treat hypertension.
 - Target blood pressure in diabetes is < 130/80, but should be individualized.
 - Treat hypertension using an angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB), whenever possible.
 - Assess for the development of hyperkalemia (serum K \geq 6 mEq/L) every three months when initiating an ACE inhibitor or ARB
 - ACE inhibitors and ARBs are also proven to be effective in slowing the progression of CKD characterized by microalbuminuria in patients with hypertension and type 1 or type 2 diabetes.
- Treatment to achieve target blood pressure may require adding additional antihypertensive medications.
 - Diuretics may increase the beneficial effects of ACE inhibitors and ARBs in patients with hypertension and CKD.
 - Multiple antihypertensive agents are often required to reach target blood pressure goals.

Note! Comprehensive clinical practice guidelines for the treatment of hypertension can be found in The Seventh Report of Joint National Committee (JNC) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure – Complete Report (JNC 7) at:
<http://www.nhlbi.nih.gov/guidelines/hypertension>

Note! The Eighth Report of the Joint National Committee will be available in 2011 and will replace JNC 7.

- Reduce associated CVD risks.
 - Lipid control.
 - Smoking cessation.
 - Consider ASA, if indicated.

- Once CKD is diagnosed, consider nephrology referral if uncertain about the etiology of CKD (e.g., heavy proteinuria, active urine sediment, absence of retinopathy, rapid decline in GFR, abnormal renal ultrasound or resistant hypertension).

Action! See Diabetes Treatment Algorithms (“Urine Albumin Screening and Monitoring” and “Type 2 Diabetes and Chronic Kidney Disease”) at:
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=toolsDTTreatmentAlgorithm>

C. Provide kidney disease education:

For patients with diabetes at risk for CKD discuss the following:

- Risk factors for CKD
- Risk reduction behavior
- Importance of screening for CKD
- CKD diagnosis
- The lack of signs and symptoms of CKD in the early stages
- CKD disease process
- Diabetes self-management education and support is the same as for all patients with diabetes, including MNT to achieve blood glucose and blood pressure target goals

Team Notes:

Additional Recommendations

Working Together with your Community and Organization

In addition to implementing the **Key Recommendations**, programs need to work on broader community and organizational support of the goals they are trying to achieve.

Community Recommendation

Provide kidney disease education and self-management support in the community.

Why?

Chronic kidney disease (CKD) is a major public health problem in many American Indian/Alaska Native (AI/AN) communities. Providing kidney disease education can promote awareness for preventing CKD and empower members of the community to make lifestyle changes, and to seek CKD screening. In addition, knowledge of CKD by family and other community members foster a supportive environment for patients with CKD and kidney failure.

How to Implement the Key Recommendation

- A. **Create community forums** to discuss kidney care, including within the schools.
- B. **Develop educational campaigns that are culturally appropriate.**

Team Notes:

Organization Recommendation.

Recognize that an organization's commitment is essential to improving kidney care.

Why?

Changes in health care organizations have been associated with increased delivery of appropriate diabetes care.

How to Implement the Key Recommendation

Health care systems and organizations can help reduce the risk of chronic kidney disease for people with diabetes:

- A. **Ensure chronic kidney disease is perceived as a priority.**
- B. **Provide resources for prevention and care.**
- C. **Implement chronic kidney disease registries** and electronic appointment systems to improve diabetes clinic participation and follow-up.
- D. **Use evidence-based practice guidelines** and protocols to facilitate clinical decision-making and improve diabetes outcomes.
- E. **Use flow sheets and standing orders** to improve documentation of appropriate care.
- F. **Provide training and continuing education** to health care providers to help screen for, and identify early cases of chronic kidney disease.
- G. **Provide chronic kidney disease education** to the community to help increase clinic participation and reduce chronic kidney disease rates.

Team Notes:

PART 3 Appendices, Tools, and Resources

Appendix A. Supplemental Information

1. Importance of a Chronic Kidney Disease Program

Chronic Kidney Disease (CKD) is a major public health problem in American Indian/Alaska Native (AI/AN) communities. Left untreated, CKD can progress to kidney failure resulting in decreased quality of life and premature death. Treatment options for kidney failure require dialysis or kidney transplantation which increase health care costs. US Renal Data (2010) show that the incidence of ESRD related to diabetes in AI/AN is 333 per million population as compared to 117.8 per million in the white population (or 2.8 times higher).

Adverse outcomes associated with CKD such as kidney failure, cardiovascular disease (CVD), and premature death can be prevented through early detection and intervention. Routine laboratory tests and other screening methods can be used to identify persons at risk for CKD and initiate appropriate treatment modalities. Case management strategies are important to monitor high risk individuals for treatment standards and referral to access appropriate specialized care. Medical nutrition therapy and CKD education are necessary for individualized self-care.

2. Benefits and Risks of Implementing this Best Practice

The benefits of implementing this Best Practice are prevention or delay of adverse outcomes associated with CKD, such as kidney failure, CVD, and premature death through early detection of CKD, treatment of CKD at early stages to slow progression, and initiation of treatment for CVD at earlier stages.

There are no potential harms of implementing this Best Practice.

3. Definition of Chronic Kidney Disease

Increased proteinuria is a marker of kidney damage and over time can lead to a decrease in kidney function. The increased excretion of albumin, a specific type of urine protein, is a sensitive marker for CKD due to diabetes and hypertension. A persistent urine albumin to creatinine ratio (UACR) of at least 30 mg/g for \geq three months is indicative of kidney damage. The glomerular filtration rate (GFR) is accepted as the best measure of kidney function. The loss of nephrons results in decreased kidney function, and is evidenced by a decreased GFR < 60 mL/min/1.73 m² for \geq three months.

All individuals with kidney damage are classified as having CKD regardless of the level of kidney function as measured by the GFR. Conversely, all individuals are classified as having CKD regardless of the presence of kidney damage when the GFR is < 60 mL/min/1.73 m². Among individuals with chronic kidney disease, the stage of disease is based on the level of kidney function according to the GFR (see Table 1).

Table 1. Stages of Chronic Kidney Disease

Stage	Description	GFR (mL/min/1.73 m ²)
1	Kidney damage with normal or ↑ GFR	≥ 90
2	Kidney damage with mild ↓ GFR	60 - 89
3	Moderate ↓ GFR	30 - 59
4	Severe ↓ GFR	15 - 29
5	Kidney Failure	< 15

High blood pressure is not included in the definition of CKD or its stages. However, high blood pressure is a common cause and consequence of CKD. Individuals with kidney damage and high blood pressure are at higher risk for loss of kidney function. Thus, individuals with diabetes and high blood pressure need to be screened for early detection of kidney damage and decreased kidney function. In addition, CKD further increases cardiovascular disease (CVD) risk in persons with diabetes. Therefore, modification of CVD risk factors such as tobacco cessation, lipid and blood pressure control is essential.

Action! See the Indian Health Diabetes [Best Practice on Cardiovascular Health](#)

4. Health Questions Addressed by Best Practice

1. What are the key recommendations for early detection of CKD?
2. What interventions are necessary to prevent or delay kidney failure?
3. What resources are needed for a clinic/program to effectively address CKD?

5. Sustaining a Chronic Kidney Disease Program

It is common for new initiatives to require a certain level of maturity before care goals can be achieved. This maturational process may require more than a few years to produce the desired outcomes in a stable and self-sustaining fashion. Sustainability is a critical issue for programmatic success, and can be an elusive target.

Here are some helpful tips for sustaining your program:

- Share data with the community which shows the benefits of early intervention.
- Measure and share with the diabetes team the improvements made in blood pressure control and levels of albuminuria in patients.

Appendix B. Key Measures Example

Remember—this is an example! Apply this process to your community using your data.

Diabetes and chronic kidney disease is increasing in our community. Our health care center and community are concerned about the increasing number of people with diabetes who have kidney failure.

Diabetes team takes action. Our diabetes team talked about addressing this problem and how the diabetes team could be more involved. We read the Screening for Chronic Kidney Disease Best Practice and talked about the Key Recommendations.

Identified sources of data. Local data included:

- Audit data
- RPMS data
- Medical record data
- Contract health data that included information on referral to dialysis centers
 - Data indicated:
 - 70% of people with diabetes had been screened for CKD in the past year.
 - 65% of people with diabetes identified at risk for CKD had received kidney disease education.
 - 50% of patients with diabetes were at BP target goal (< 130/80) or had documentation of higher individualized BP goals.
 - 60% of patients with diabetes and hypertension have been treated with an angiotensin converting enzyme (ACE) inhibitor or angiotensin II receptor blocker (ARB) (or have a documented allergy/intolerance)

Selected suitable Best Practice. After thinking carefully about our goals and resources, and reviewing data, we decided the Screening for Chronic Kidney Disease Best Practice was a good fit for us. We chose to work on two of the Key Recommendations: CKD screening for early detection of CKD and initiate interventions to delay or prevent kidney failure.

Identified Target Population. We decided to start implementing this Best Practice with current patients listed in our diabetes registry.

Identified Program Goals:

- To increase the number of people with diabetes screened for CKD
- To increase the number of people with diabetes who receive kidney disease education
- To increase the number of people with diabetes who have blood pressure at target goal
- To increase the number of people with diabetes and hypertension who are treated with an ACE inhibitor or ARBs (or have a documented allergy/intolerance)

Identified SMART objectives based on our resources and data:

- To increase the percent of patients with diabetes screened for CKD in the past twelve months from 70% to 80% by the end of the fiscal year.
- To increase the percent of diabetes patients who receive kidney disease education in the past twelve months from 65% to 75% by the end of the fiscal year.
- To increase the percent of diabetes patients with most recent blood pressure at target goal in the past twelve months from 50% to 60% by the end of the fiscal year.

- To increase the percent of people with diabetes and hypertension who are treated with an ACE inhibitor or ARBs (or have a documented allergy/intolerance) from 60% to 70% in the next twelve months.

Selected Key Measures. We chose the corresponding Key Measures for these Objectives and Key Recommendations. Data will be collected at baseline and mid-year.

Table 2. Selected Key Measures

	A. Measure	B. <u>Baseline</u> or beginning value and date (collected prior to starting activities)	C. Most recent value and date (if applicable)	D. Data source (where did these numbers come from)
1	* Percent of patients with diabetes screened for CKD	70% as of 1/23/2011	72% as of 4/01/2011	RPMS
2	* Percent of diabetes patients who received chronic kidney disease education	65% as of 1/23/2011	67% as of 4/01/2011	RPMS
3	Percent of diabetes patients with blood pressure at target goal	50% as of 1/23/2011	51% as of 4/01/2011	RPMS
4	* Percent of individuals with diabetes and hypertension who are treated with an ACE inhibitor or ARBs (or have a documented allergy/intolerance)	60% as of 1/23/2011	65% as of 4/01/2011	RPMS

* Required Key Measure

Appendix C. Improving Screening for Chronic Kidney Disease Example

Remember—this is an example! Ask these questions in your community, thinking about your local needs, resources, and tracking systems.

There are four fundamental questions to ask as you plan and implement your Best Practice. These questions (and sample answers) are:

1. What is your target population?

- This Best Practice provides recommendations for screening and early detection of Chronic Kidney Disease (CKD) in persons with type 1 or type 2 diabetes, regardless of age.

2. What are you trying to accomplish by implementing this Best Practice?

- To prevent/delay the onset of chronic kidney disease (CKD) in patients with diabetes.
- To detect CKD early in order to implement interventions which reduce the likelihood that patients will progress to kidney failure.
- To develop a systematic, multi-disciplinary team approach to screening, prevention, and early detection of CKD.

3. How will you know if what you do makes things better?

- Collect and display data on an ongoing basis; analyze the data and use it to plan next steps.
- Improved data results suggest that things are getting better. For example:
 - Within six months, a 10% increase was seen in the number of patients with diabetes who have achieved their blood pressure goal.

4. What can you do to make things better?

- Receive leadership support to improve diabetes kidney care.
- Identify gaps in kidney screening and identify realistic solutions.

Tools and Resources

Note! Very useful patient and provider information can be found at the NIH's National Kidney Disease Education Program (NKDEP) website. This material is consistent with the IHS approach and standards of care.

National Kidney Disease Education Program

<http://www.nkdep.nih.gov/index.htm>

Information Sheet on Urine Albumin-to-Creatinine Ratio (UACR) and Estimated Glomerular Filtration Rate (eGFR) In Evaluating Patients with Diabetes for Kidney Disease,

http://www.nkdep.nih.gov/resources/UACR_GFR_QuickReference_508.pdf

Additional Resources

Narva, AS. *Reducing the burden of chronic kidney disease among American Indians.* Adv Chronic Kidney Dis, 2008;(15):168-73.

The Resource and Patient Management System (RPMS) can calculate the eGFR automatically when a serum creatinine test is ordered. Online calculators are available at:

http://nkdep.nih.gov/professionals/qfr_calculators/index.htm

Web-based Resources

National Kidney Disease Education Program (NKDEP) <http://nkdep.nih.gov/index.htm>

US Renal Data System <http://www.usrds.org/>

IHS Kidney Disease Program <http://www.nkdep.nih.gov/>

CDC CKD Initiative <http://www.cdc.gov/diabetes/projects/kidney.htm>

National Kidney and Urologic Diseases Information Clearinghouse (NKUDC) is a service of the National Institute for Diabetes, Digestive, and Kidney Diseases (NIDDK)

<http://www.kidney.niddk.nih.gov/kudiseases/topics/failure.asp>

The Strong Heart Study <http://strongheart.ouhsc.edu/chdcalculator/calculator.html>

Based on information collected over a ten-year period in American Indians over the age of 30, a "risk calculator" to predict the risk of coronary heart disease has been developed for AI/AN populations with high rates of diabetes and albuminuria. A major new finding was that albuminuria is an independent risk factor for development of heart disease. In addition, the effects of diabetes may be stronger in the AI/AN population than in the general population.

IHS

Division of Diabetes Treatment and Prevention

- **CKD Training**
 - Clinicians can receive CME/CE credit for completing training modules on CKD issues.
 - <http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=trainingWebBased>

- **Diabetes Algorithm Cards**
 - These were developed to be quick references on a number of diabetes-related clinical topics: urine albumin testing, CKD, glucose control, insulin usage, hyperlipidemia, hypertension, neuropathic pain, and foot care.
<http://www.ihs.gov/MedicalPrograms/diabetes/index.cfm?module=resourcesDTTtreatmentAlgorithm>

- **CKD Quick Guide Cards**
 - Provide concise information on how to screen for and diagnose CKD, as well as how to address complications of CKD.
 - <http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=toolsCKDQuickGuides>

Atlas of Diseases of the Kidney <http://www.kidneyatlas.org>

National Kidney Foundation <http://kidney.org>

Nephron Information Center <http://www.nephron.com>

Renal Physicians Association: Hypertension, Dialysis, and Clinical Nephrology Program
<http://www.hdcn.com>

A workbook (with online training course) on effective program planning and evaluation. Division of Diabetes Treatment and Prevention [Internet]. [Updated 2009 April 27; cited 2009 June] Creating Strong Diabetes Programs: Plan a Trip to Success [38 pages with one page sample in appendix]. Available from:
<http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Training/WebBased/Basics/CreatingWorkbook.pdf>

The online training course on effective program planning and evaluation. Division of Diabetes Treatment and Prevention [Internet]. [Updated 2009 July; cited 2009 June] Creating Strong Diabetes Programs: Plan a Trip to Success. Available from:
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=trainingBasicsCreating>

Examples of Current Best Practice Programs

Cherokee Diabetes Program

Eastern Band of Cherokee Indians

Sally Sneed, RN, BA

Manager

Cherokee Diabetes Program

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The Cherokee Diabetes Program (CDP) strives to improve the physical and emotional health of the Cherokee people by providing care in the areas of medicine, health-related education, behavioral health and complementary health. CDP has made concerted efforts to increase CKD screening in all their patients with diabetes.

Santa Fe Indian Hospital Lab

Bert Tallant, MT (ASCP)

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

Zuni Renal Clinic

Gayle Romancito, RN

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This clinic has developed an effective model for nurse case management for chronic kidney disease.

Additional Contacts

Contacting other people involved in diabetes chronic kidney disease 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”. Experts that sites might contact for further ideas and assistance:

Area Diabetes Consultant website:

<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=peopleADC>

Andrew Narva, MD

Chief Clinical Consultant for Nephrology for IHS and Director of the National Kidney Disease Education Program

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Gordon Quam, RN

IHS, Division of Diabetes Treatment and Prevention

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Mr. Quam is an expert in educating patients on kidney replacement and the National Kidney Foundation’s “Kidney Early Evaluation Program” (KEEP) screenings.

Part 4 References

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