

# Management of chronic kidney disease in the primary care setting

New BC guidelines will help family doctors identify high-risk patients earlier and delay progression of kidney disease.

**ABSTRACT: According to data from the BC Provincial Renal Agency, as many as 14 000 British Columbians may have kidney disease. A large percentage of these people have diabetes, high blood pressure (the major causes of kidney damage), or both. Unless primary care providers identify these people as being at risk and start active management, these patients may silently progress to having irreversible renal failure. Patients with a decline in renal function generally will notice no symptoms until their kidney function is reduced by 50% to 75%. Therefore, it is up to primary care providers to screen and intervene long before patients feel unwell.**

**R**ecommendation 1 in the BC guidelines for chronic kidney disease<sup>1</sup> published in 2004 lists the following high-risk groups:

- Anyone with diabetes.
- Anyone with hypertension with or without cardiovascular disease.
- Anyone with a family history of kidney disease.
- Anyone of First Nations or Pacific Islands ethnic background.

Additionally, it is clear that being older than 60 years combined with any of the above risk factors multiplies the risk of developing kidney disease. Some experts also believe that being of Asian, South Asian, Hispanic, or African heritage puts a patient at increased risk.

## Screening

Screening in the primary care setting involves a simple blood test (serum creatinine), a random urine sample for albumin-creatinine ratio (ACR), and urinalysis. Abnormal results on these tests should lead to repeated testing to confirm that impaired renal function is persistent. The importance of *early* and *repeated* screening of high-risk patients cannot be overstated. On Vancouver Island, a project called the Kidney Care Initiative has had 15 family

doctors participating since 2003 in a program designed to enhance the skills of primary care providers in managing their patients with kidney disease. Preliminary results from this project indicate a significant number of high-risk patients who were screened with simple blood and urine tests have abnormal kidney function that had not been diagnosed previously. Other studies from the US and Australia report similar findings.<sup>2,3</sup>

Several chronic disease management projects under way in BC are now assisting primary care providers with methods of identifying these patients in their practices. Doctors with computerized records can create a registry of at-risk patients and set up reminders for repeat lab tests and office visits. Doctors in practices that are not yet automated (as recommended by the Vancouver Island Kidney Care Initiative) can use bright-colored stickers (**Figure 1**) to mark charts of at-risk patients. Each time the office staff and the physician pick up one of the stickered charts, they are reminded of the risk factors for that patient and the fact that the patient requires

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ongoing monitoring. For example, when a diabetic man comes in for a painful knee, everyone who sees the patient knows that his chart should have recent results from tests for glycosylated hemoglobin (A1c), ACR, and estimated glomerular filtration rate (eGFR), and if results are not present, these tests should be ordered. Also, because of the patient's risk for kidney disease, the physician should be wary of prescribing a nonsteroidal anti-inflammatory (NSAID), and should choose less nephrotoxic drugs.

**Evaluation of abnormal test results and long-term monitoring**

Now that all laboratories in BC are reporting an eGFR whenever a serum creatinine test is ordered, it is much easier to determine a patient's stage of kidney disease, as recommended by the BC guidelines. Every patient with urine abnormalities or eGFR <90 mL/min/1.73 m<sup>2</sup> should be staged (see **Table**) to facilitate further assessment and management.

Even though the cause of decreased kidney function may seem clear because of the patient's risk factors, the search for an underlying treat-

able cause (such as obstruction, renal artery stenosis, or cancer) should be carried out. If kidney function is declining more than 10% per year or if the patient is in Stage 3 to 5, a referral to a nephrologist is recommended.

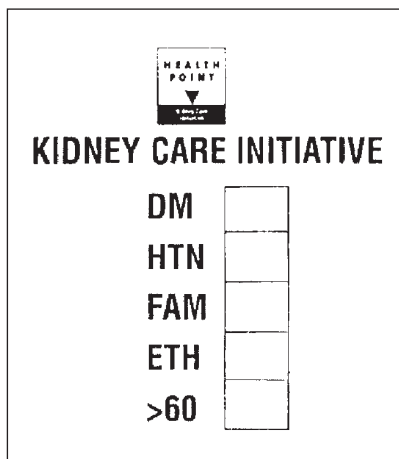
**Enhancing the role of the primary care provider**

In the past it was common for family physicians to turn over care of their patients with declining renal function to a nephrologist. Often the diagnosis

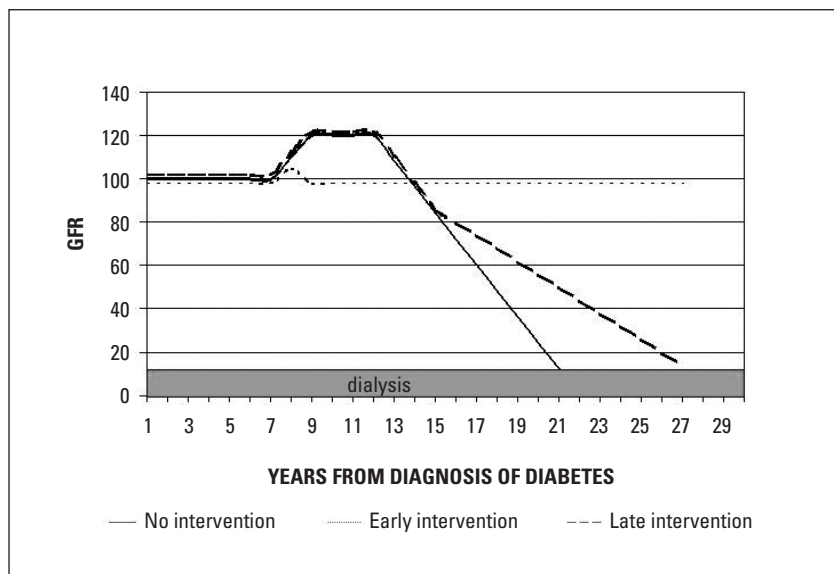
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**Table. Staging of patients with kidney disease, from BC guidelines.<sup>1</sup>**

Stage	Description	eGFR (mL/min)	Complications
1	Kidney damage with normal or ↑ GFR	≥90	None
2	Kidney damage with mild ↓ GFR	60–89	<ul style="list-style-type: none"> <li>• Concentration of parathyroid hormone starts to rise</li> <li>• Hypertension possible</li> </ul>
3	Moderate ↓ GFR	30–59	<ul style="list-style-type: none"> <li>• Decreased calcium absorption</li> <li>• Reduced phosphate excretion</li> <li>• Hyperparathyroidism common</li> <li>• Lipoprotein activity falls</li> <li>• Malnutrition potential</li> <li>• Onset of left-ventricular hypertrophy</li> <li>• Onset of anemia, including functional iron deficiency</li> <li>• Hypertension</li> </ul>
4	Severe ↓ GFR	15–29	<ul style="list-style-type: none"> <li>• Triglyceride concentration starts to rise</li> <li>• Hyperphosphatemia</li> <li>• Malnutrition</li> <li>• Metabolic acidosis</li> <li>• Tendency to hyperkalemia</li> <li>• Hypertension</li> </ul>
5	Kidney failure	< 15 or dialysis	<ul style="list-style-type: none"> <li>• Azotemia develops</li> <li>• Heart failure/volume overload</li> <li>• Hypertension</li> </ul>



**Figure 1. Chart sticker used to identify patient at risk for kidney disease.**



**Figure 2.** Comparison of GFR decline in diabetes.<sup>9</sup>

wasn't made until the patient's GFR was 20 mL/min or less and the expectation was that care at this point would mainly be preparation for dialysis. This approach is no longer necessary or, from a resources point of view, even practical. There are too many people at risk for kidney failure and too few nephrologists and dialysis/transplant resources to continue waiting until someone is at Stage 4 to start active treatment. Equally important is the fact that secondary prevention strategies (e.g., renal diet) may not have as great an impact at such a late stage.<sup>4</sup>

Current research has proven the benefit of early intervention in the primary care setting. Aggressive treatment of hypertension with a target BP <130/80 has been shown to delay and sometimes prevent patients from progressing to the next stage of renal disease.<sup>5</sup> Likewise, tight control of blood sugars in diabetics with a target A1c <7.0% can significantly improve prognosis in patients with early diabetic nephropathy<sup>6</sup> (Figure 2). The

use of angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) added to other medications for hypertension and diabetes have been shown to reduce proteinuria and reduce the rate of progression of kidney disease.<sup>7</sup> Smoking cessation is another major intervention that can be initiated and encouraged by the family doctor. Smoking damages kidneys in the same way it damages the cardiovascular system. A family doctor can be a significant influence on a patient who may be thinking about quitting and needs support and motivation to do so.

Other things that family doctors can do to have a dramatic impact on the course of kidney disease include:

- Limit patient's exposure to nephrotoxins such as radiocontrast dyes, NSAIDs, and aminoglycosides.
- Screen for and treat anemia.
- Monitor and treat abnormalities of mineral metabolism.
- Refer patients for appropriate dietary counseling.
- Monitor and treat lipid abnormali-

ties with a target LDL <2.5 mmol/L and a target TC/HDL <4.0).

- Immunize all patients with compromised kidney function for influenza.
- If patients are likely to need dialysis, also immunize for pneumococcal pneumonia and hepatitis B. (Note that MSP will pay for hepatitis B immunization if a patient is likely to undergo dialysis.)

### Patient self-management

As stated in Recommendation 6 of the BC guidelines, "people with kidney disease have better outcomes if they take an active role in the management of their own condition."<sup>11</sup> The primary care provider can play a significant part in promoting self-management. First, the primary care provider can help the patient and family learn about kidney disease and come to accept the diagnosis. Second, the primary care provider can work with the patient to identify goals for care, lifestyle changes, and resources for support. Third, the primary care provider can encourage the patient to monitor progress using a diary or patient flow sheet, such as the one available from BC Health Services. Both the Vancouver Island Kidney Care Initiative and the Fraser Health Kidney Care Initiative have developed new self-management tools for patients. These strategies encourage patients with chronic kidney disease to become actively involved in their own health care and can be successfully integrated into the primary care setting. Also, a number of chronic disease self-management courses are being offered throughout the province. These free courses usually consist of six 2-hour sessions. They are offered in local communities so that a patient and a spouse or partner can attend together to learn about living with a chronic disease, keeping a positive attitude, and developing an action plan tailored

to individual needs. Primary care providers can offer information about these courses and encourage patients to attend.

## Summary

The impact of good kidney care on the individual patient as well as on the family and society as a whole is potentially enormous. If a patient can delay going on dialysis for just 1 year, the benefits can be significant in terms of life quality, to say nothing of the financial savings (estimated at \$100 000 per patient per year). By screening at-risk patients regularly, aggressively treating those with early abnormal kidney test results, and having an organized system for recall and monitoring, primary care providers can make a huge and lasting difference to their patients.

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## Competing interests

None declared.

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