the management of TB in young immigrants and refugees.

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References
1. Heywood N, Kawa B, Long R, Njoo H, Panaro L, Wobeser W, on behalf of the Immigration Subcommittee of the Canadian Tuberculosis Committee. Guidelines for the investigation and follow-up of individuals under medical surveillance for tuberculosis after arriving in Canada: a summary. *CMAJ* 2003;168(12):1563-5.
2. American Thoracic Society and Centers for Disease Control and Prevention. Targeted tuberculin testing and treatment for latent tuberculosis infection. MMWR *Morbid Mortal Wkly Rep* 2000;49(RR-6):1-51.
3. Jaffe IP. Tuberculosis meningitis in childhood [letter]. *Lancet* 1982;1:738.

[One of the authors responds:]

The purpose of the immigration medical examination (IME) is to "identify those who may pose a risk to public health or safety, or may place excessive demands on Canadian health and social services."[1] With respect to TB this primarily involves the detection of people with active infectious (i.e., respiratory) TB and not those with extrapulmonary TB or latent TB infection. Applicants identified as having active TB abroad are denied entry to Canada until they have completed a satisfactory course of treatment and have been reassessed. Those with abnormal chest radiography findings that are consistent with latent TB infection or a history of TB are referred for medical surveillance once they arrive in Canada.[2]

Despite efforts to identify all cases of active respiratory TB in migrants to Canada through the IME process, some cases of the disease do unfortunately occur in recent migrants. Possible reasons include progression to active disease after a person has undergone the IME but before immigration to Canada or presence of active TB when a person applies for refugee status from within Canada. Although the focus of our article[2] was the medical surveillance of recent immigrants, not the IME, Wallace Watson raises a legitimate and frequently asked question regarding the role of tuberculin skin testing as part of the IME. The Immigration Subcommittee of the Canadian Tuberculosis Committee has issued an evidence-based advisory committee statement addressing questions about tuberculin skin testing of new migrants to Canada (see page 1035).[3]

Children are also screened for symptoms of active TB disease during the IME, but, as for adults, they are not screened for latent TB infection. As highlighted by Noni MacDonald, a child up to 5 years of age who is infected with *Mycobacterium tuberculosis* has a 2.2 to 5 times greater risk of progression to active TB disease[4] than an adult without risk factors for disease progression. Our article[2] was a summary of the full guidelines for the investigation and follow-up of individuals placed under immigration medical surveillance. The more comprehensive guideline does discuss young children, recommending that "[y]oung persons (particularly those ≤ 5 years of age) infected with TB who have been identified through investigations of their parent(s) or guardian(s) may be at increased risk of progression to active disease and are likely to tolerate therapy without complications."[5] MacDonald's point about the need for physicians to have information specific to the management of TB in young immigrants and refugees is well taken, and the issue of incorporating specific pediatric recommendations into future Canadian Tuberculosis Committee advisory statements will be raised at the next meeting of the committee.

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References
1. Immigration and Refugee Protection Act, S.C. 2001, c. 27.
2. Heywood N, Kawa B, Long R, Njoo H, Panaro L, Wobeser W, on behalf of the Immigration Subcommittee of the Canadian Tuberculosis Committee. Guidelines for the investigation and follow-up of individuals under medical surveillance for tuberculosis after arriving in Canada: a summary. *CMAJ* 2003;168(12):1563-5.
3. Menzies D. Screening immigrants to Canada for tuberculosis: Chest radiography or tuberculin skin testing? *CMAJ* 2003;169(10):1035-6.
4. Long R, editor. *Canadian tuberculosis standards. 5th ed*. Ottawa: Canadian Lung Association and Health Canada; 2000.
5. Immigration Subcommittee of the Canadian Tuberculosis Committee. Canadian guidelines for the investigation and follow-up of individuals under medical surveillance for tuberculosis after arrival in Canada. *Can Commun Dis Rep* 2001;27 (19):157-65.

Nephrology care in Canada

Caroline Stigant and associates[1] raise several controversial issues in their article on caring for adults with chronic kidney disease. How these issues are resolved could have major implications for the delivery and cost of nephrology care in Canada.

First, the authors do not clearly address the question of who should be tested for kidney disease. People with hypertension, diabetes, cardiovascular disease and autoimmune disease (the risk factors listed in Box 4 of the article) are at high risk and should be screened by urinalysis and by testing for serum creatinine. Conversely, the utility of unselected population screening for renal disease (e.g., by dipstick) is very low,[2,3] and should not be recommended.

The authors suggest that estimating equations be used to identify patients with low glomerular filtration rate (GFR) (e.g., their Table 2). Arguments both for[4] and against[5] this strategy have been published. Stigant and associates[1] argue the pro position, but the con argument is also compelling. Applying estimating equations universally will lead to the "labelling" and referral of many patients who would not otherwise have been identified as having renal failure. These patients will have different demographic characteristics (older age, more women, higher proportion with nonproteinuric renal disease) and probably a lower risk of progression than those identified on the basis of serum creatinine level.[4,5] The benefits of nephrological intervention in such patients is unclear. Moreover, current nephrology resources could not possibly

handle the potential referrals indicated in Table 1 in Stigant and associates' article.[1] A clinical trial is urgently needed to address whether referral triggered by identification of low estimated GFR leads to cost-effective therapy. In the absence of clear evidence of benefit, it may be premature to advocate a strategy with such major resource implications.

The management of chronic kidney disease depends on the stage of the disease. A simple, unambiguous staging system that reflects key changes in management is the cornerstone of clinical decision-making. Such a scheme must also serve the needs of nonphysician health care providers, a group that increasingly helps to shoulder the burden of renal disease. Although the US National Kidney Foundation staging system, presented in Box 1 of Stigant and associates' article,[1] is useful for nephrologists and researchers, we think it is unnecessarily complicated for nonspecialists. For years we have used a simpler, 4-level scheme, which we refer to as the "ABCs of chronic kidney disease" (Fig. 1), to teach generalists, students and nurses.

Each stage is highlighted by a change in therapeutic focus. The major task in stage A is establishing the diagnosis and prognosis. Identification of high-risk patients and prevention of disease progression are emphasized, which leads naturally to a discussion among learners of approaches to proteinuria and hematuria.

The major task in stage B (roughly stages 3 and 4 of the National Kidney Foundation) is slowing progression of renal disease and minimizing concomitant renal and cardiovascular conditions. This entails modification of cardiorenal risk factors and management of early comorbidities in chronic kidney disease, including slowing the rate of GFR decline. Every year that a prospective dialysis patient remains off dialysis saves the Canadian health care system $50 000 to $75 000.[6,7]

By the time the patient reaches stage C, it is generally too late to decrease the rate of progression. At this stage the focus is on treatment of advanced cardiorenal comorbidities and preparation for timely initiation of renal replacement therapy.

Stage D is the point at which renal replacement therapy is initiated, generally when the patient has a GFR of 6 mL/min (0.1 mL/s), as recommended by the Canadian Society of Nephrology.[8] The US National Kidney Foundation defines its final stage as GFR less than 15 mL/min (0.25 mL/s).[9] We estimate that, in Manitoba, initiating dialysis at the latter level would increase the cost to an already stressed renal program budget by 20% without proven benefit to the patient.

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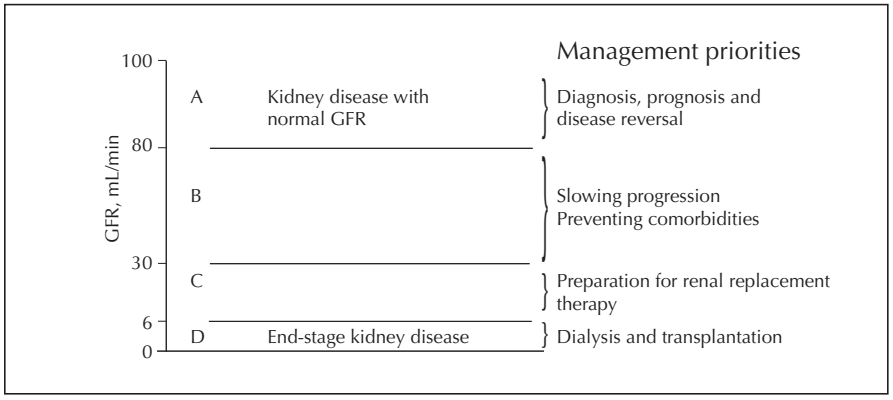

Fig. 1: Simplified staging system for kidney disease.

References

1. Stigant C, Stevens L, Levin A. Nephrology: 4. Strategies for the care of adults with chronic kidney disease. *CMAJ* 2003;168(12):1553-60.
2. Mohr DN, Offord KP, Owen RA, Melton LJ. Asymptomatic microhematuria and urologic disease. A population-based study. *JAMA* 1986; 256:224-9.
3. Yamagata K, Yamagata Y, Kobayashi M, Koyama A. A long-term follow-up study of asymptomatic hematuria and/or proteinuria in adults. *Clin Nephrol* 1996;45:281-8.
4. Coresh J, Astor BC, Greene T, Eknoyan G, Levey AS. Prevalence of chronic kidney disease and decreased kidney function in the adult US population: Third National Health and Nutrition Examination Survey. *Am J Kidney Dis* 2003; 41:1-12.
5. Clase C, Garg A, Kiberd B. Prevalence of low glomerular filtration rate in nondiabetic Americans: Third National Health and Nutrition Examination Survey (NHANES III). *J Am Soc Nephrol* 2002;13:1338-49.
6. Ploth DW, Shepp PH, Counts C, Hutchison F. Prospective analysis of global costs for maintenance of patients with ESRD. *Am J Kidney Dis* 2003;42:12-21.
7. Goeree R, Manalich J, Grootendorst P, Beecroft ML, Churchill DN. Cost analysis of dialysis treatments for end-stage renal disease (ESRD). *Clin Invest Med* 1995;18:455-64.
8. Churchill DN, Blake PG, Jindal KK, Toffelmire EB, Goldstein MB. Clinical practice guidelines for initiation of dialysis. Canadian Society of Nephrology. *J Am Soc Nephrol* 1999;10(Suppl 13):S289-91.
9. National Kidney Foundation (NKF) Kidney Disease Outcome Quality Initiative (K/DOQI) Advisory Board. K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification. Kidney Disease Outcome Quality Initiative. *Am J Kidney Dis* 2002;39(2 Suppl 2):S1-246.

[The authors respond:]

We agree with Keevin Bernstein and Claudio Rigatto that screening for chronic kidney disease should be restricted to high-risk populations, as stated in our article[1] and in the Kidney Disease Outcome Quality Initiative (K/DOQI) guidelines.[2] Screening in unselected populations is of limited value because of false-positive results and consequent need for further testing, as well as increased patient anxiety and decreased cost-effectiveness.

A number of initiatives to systematically evaluate screening and referral strategies are under way, including a randomized controlled trial planned for Canada. In the meantime, our educational article[1] serves to deliver simple, practical recommendations and guidance before the conclusive results of these studies become available. To summarize information presented in our article,[1] we would recommend referral to nephrologists when there are persistent (lasting more than 3 months) abnormalities: reduction in GFR to less