

tests at home must do all this with only the aid of written information or, at best, a telephone hotline.

The Department of Health's enthusiasm for self-care may be based on the premise that visits to health services, including primary care, will reduce as a result. There is some evidence to support this, for example self-monitoring of hypertension led to reduced consultations for blood pressure measurement.¹³ Over three-quarters of the public say, however, that they would be far more confident about taking care of their own health if they had guidance and support from an NHS professional.¹² As this role is likely to fall to primary care, primary care professionals will need to be enabled to give guidance and support if potential benefits are to be realised.

Some may see patient-initiated self-care and self-testing as a threat to their professional role — some patients do not disclose their self-care to their doctors, and a possible extension of the current situation might be that primary care becomes redundant for those patients who can test, treat and refer themselves. It could also be viewed as an important opportunity to strengthen the patient-professional partnership and health outcomes by encouraging people to appropriately use and share their experiences of self-initiated self-care and self-testing. A recent study of GPs' perspectives on their involvement in the facilitation of chronic disease self-management suggested that increasing patient involvement and control is valued, but that it is not necessarily prioritised because it conflicts with other issues, for example professional responsibility and accountability and contextual factors, such as consultation length.¹⁴

We need to ensure that the public have enough information to make informed choices about when and how to care for themselves and when they should share information about self-care with their primary care team. Primary care doctors and nurses also need access to enough good quality information about available self-care activities to be able to ask questions and then advise patients appropriately, and any barriers to them doing so need to be addressed: they need to be able to adapt themselves to consultations with patients who are even more proactive and informed, but also, at the other end of the spectrum, with patients who are unable or unwilling to take a more active role. The clinical and academic communities will certainly have a role to play in listening to the public about why, how and when they self-care or self-test, and in generating and then providing the public and professionals with the information to make sensible self-care choices.

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Chronic kidney disease: a new priority for primary care

Chronic kidney disease is a long-term condition that has been the focus of important recent initiatives. Although only a small minority of individuals with this condition will develop end-stage renal

disease, the presence of even minor renal impairment is an independent risk factor for all cause mortality and cardiovascular disease.¹ The number of patients treated with end-stage renal failure is increasing

dramatically in the UK. Projections for hospital-based haemodialysis indicate an annual growth rate of 6–8%; a steady state is not predicted for at least 20 years.² Currently one-third of people reach

Box 1. Causes of chronic kidney disease

- ▶ Diabetes mellitus
- ▶ Hypertension and vascular disease
- ▶ Acquired obstructive uropathy — especially prostate disease
- ▶ Glomerular disease — for example glomerulonephritis
- ▶ Adult polycystic kidney disease
- ▶ Reflux nephropathy

specialist renal services less than a month before requiring renal replacement, and this group has poorer outcomes.³ Measuring renal function in primary care has the potential to prevent these late referrals by slowing the progression of chronic kidney disease.

There are many causes of chronic kidney disease (Box 1). Their relative importance depends upon age with, for example, acquired obstructive and reflux nephropathies affecting older and younger age groups, respectively. The causes cover a range of severity; patients with adult polycystic kidney disease or established diabetic nephropathy are, for example, more likely to progress to dialysis dependence than those with hypertension or non-diabetic vascular disease. The prevalence of both diabetes mellitus and hypertension are increasing in the developed world. Diabetes is the commonest cause of end-stage renal failure worldwide.

Estimated glomerular filtration rate (eGFR) is a better measure of renal function than serum creatinine. The latter is an insensitive marker of renal function; up to 50% can be lost before the serum creatinine concentration rises above the normal range. Use of eGFR allows early identification of renal damage, thus affording opportunities for aggressive cardiovascular risk-factor management. The abridged Modification of Diet in Renal Disease (MDRD) is the most widely recommended formula for calculating glomerular filtration rate.⁴ This formula is particularly suited to laboratory-based calculation as it requires only four variables — sex, ethnicity, age and serum creatinine.⁴ However, there are inter-

laboratory variations in creatinine assays and correction factors are applied to harmonise laboratory results. Consequently, practitioners should give laboratory-calculated GFR measurements priority over those estimated in-house.

Chronic kidney disease is diagnosed from at least two estimates of GFR 3 months apart. This condition can be classified then into five different stages of disease: the first two stages require evidence of renal damage in the presence or absence of mildly impaired glomerular filtration; stages three to five can be diagnosed from reduced eGFR alone.⁵ A new diagnosis of chronic kidney disease should prompt comparison with historical creatinine readings, as the rate of change of renal function is at least as important as current level. Studies suggest that at least 80% of individuals with this condition have disease that is comparatively stable over time.⁶

The prevalence increases with age and it is more common in females than males, in contrast to end stage renal failure which is more frequent in men. In fact, it affects approximately 10% of the adult population at all stages, with 5% in the more advanced stage three to five disease.⁷ However, just as with most cardiovascular risk factors it is largely asymptomatic. The prevalence increases with age and it is more common in females than in males. Ethnicity has not been fully explored. However, some epidemiological studies show an increased prevalence in black, south Asians and Hispanic populations which may be related to the increased prevalence of hypertension, diabetes mellitus and obesity in these groups.

Until recently all renal pathologies were regarded as highly specialised with management based in secondary or even tertiary care. There are now international moves to promote primary care management. In the UK, a range of interventions are being used to improve the quality of chronic disease management in primary care. Non-financial incentives to improve the management of chronic kidney disease include the guidance within the National Service Framework for Renal Services² and the clinical guidelines produced by the

Joint Specialty Committee for Renal disease of the Royal College of Physicians of London and the Renal Association.⁸ The National Institute for Health and Clinical Excellence is expected to issue further guidance by 2008.⁹ General practice receives financial incentives to improve the management of chronic kidney disease through the Quality and Outcomes Framework (QOF).¹⁰ In the US, family physicians are urged to monitor renal function in all aged over 60 years, in those with a family history of kidney disease, and in individuals at increased cardiovascular risk.¹¹ In Australia, estimated GFR reporting has been introduced using the same formula as in the UK, enabling similar guidelines to be implemented.¹²

The aim of these incentives and guidance is to increase awareness in general practice and to re-focus the identification, assessment and management of this condition into primary care. These patients will benefit from interventions that can be implemented in general practice. Of greatest importance is tight blood pressure control and attention to cardiovascular risk, with the preferential use of angiotensin converting enzyme inhibitors and angiotensin II receptor blockers.⁸ Other aspects of good management include: monitoring of glomerular filtration rate after diagnosis to assess stability; measurement of proteinuria, a marker of severity and possible reversibility; medication reviews to avoid medications that may impair renal function; the exclusion of prostate disease and other causes of urinary tract obstruction; recognition of the effect of intercurrent illness upon renal function; smoking cessation; and weight loss in the obese.⁸

Most patients with chronic kidney disease should be suitable for management in primary care according to agreed protocols. A specialist opinion should be sought in those with deteriorating function, significant abnormalities in urinalysis or renal anaemia. Patients with more severe chronic kidney disease (eGFR <30 ml/min/1.73m²) should be discussed with a nephrologist⁸ to allow formulation of a care plan agreed on a case-by-case basis.

However, there are several points in the current guidelines that need careful clarification and further debate:

- The recommended formula to estimate glomerular filtration rate identifies a very high proportion of elderly, particularly elderly women as having chronic kidney disease.⁷ There are concerns in some quarters that this represents over diagnosis. Age-related decline in kidney function is common and an expected loss of 10 ml/min/1.73m² per decade beyond the age of 40 years is frequently quoted.¹³ However, this decline is probably a consequence of clinical or sub-clinical vascular disease rather than a 'normal' finding and should still be managed with cardiovascular risk factor intervention, until clarified by further research. Studies do suggest that strict treatment of blood pressure in older people is effective in slowing the rate of renal decline.^{14,15}
- Difference in blood pressure standards may be unhelpful for busy clinicians. Current UK guidelines from the Renal Association suggest a target of 130/80 mmHg, or 125/75 mmHg in the presence of greater than 1g/day proteinuria (total protein creatinine ratio 100 mg/mmol).⁸ The QOF suggests 140/85 mmHg¹⁰ and American guidance suggests a target of 130/85 mmHg.⁵
- Current guidance both in UK and US recommends all patients with stage three to five chronic kidney disease to have a parathyroid hormone blood test.⁸ The cost-effectiveness of this measure needs careful evaluation, with the high prevalence of this condition. Current guidance also recommends that people with a parathyroid hormone concentration over 70 ng/L also have serum 25-hydroxyvitamin D concentration checked, increasing costs further.⁸

In summary, chronic kidney disease is a new priority for primary care. Its management presents a new challenge for primary care professionals in the identification and monitoring of the disease, but probably no greater than other clinical challenges to which general practice has risen in the last two decades.

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Conflict of interest

Simon de Lusignan has received (as the lead of a primary care informatics study team at St George's — University of London) grants from Roche to process routinely collected general practice data as part of the NEOERICA study. Gabriela Gomez and Hugh Gallagher have no conflicts of interest.

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