

SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

6.7 RENAL DISEASE

The kidneys are responsible for ‘filtering’ blood to remove waste products and water from the body. In chronic kidney disease (CKD), formerly called Chronic Renal Failure, the kidneys gradually stop functioning efficiently. There are many causes of kidney failure but the common and important public health message is that they can all progress to cause end-stage kidney failure requiring dialysis or transplantation (renal replacement therapy, RRT). RRT imposes a large burden on healthcare in Northern Ireland costing over 2% of the budget for less than 0.1% of the population. Using the Glomerular Filtration Rate (GFR) as a measure of how the kidneys are performing, kidney disease is classified from stage 1 to 5 (Table 10)³¹. About 5% of the adult population has CKD stages 3-5 and since 2006 are being registered within the General Practice Quality and Outcomes Framework.

Table 10 - Classification and treatment aims of Chronic Kidney Disease³¹

Stage	eGFR ml/min	Description	Treatment stage
1	90+	Normal kidney function, but urine findings or structural abnormalities indicate kidney disease	Observation, control of blood pressure (<130/80), Lifestyle changes.
2	60-89	Mildly reduced kidney function, and other findings as for stage 1 CKD	Observation, control of blood pressure and risk factors
3	30-59	Moderately reduced kidney function	Observation, control of blood pressure and risk factors
4	15-29	Severely reduced kidney function	As stages 1-3 and planning for the possibility of end-stage kidney failure
5	< 15	Very severe or end-stage kidney failure (established renal failure)	Choice of treatment (dialysis, transplantation, palliative care)

³¹ National Kidney Foundation. K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification and stratification. *Am J Kidney Disease* 2002;39 (Suppl 2): S1-246. (http://www.kidney.org/professionals/kdoqi/guidelines_ckd/toc.htm)

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The majority of individuals with CKD do not progress to needing dialysis and most have no specific renal symptoms. CKD is commoner in older persons with hypertension, diabetes, ischaemic heart disease, other vascular disease and urological disease. The final common pathway of renal function (GFR) decline predicts patients with the highest risks of dialysis and/or excess cardiovascular risk. Clinically individual patients at highest risk are those with the most severe hypertension and/or proteinuria.

In 2004 and 2005 the Department of Health (England and Wales) published two parts of a National Service Framework for Renal Services. Part one dealt with Dialysis and Transplantation and part two focused on progressive CKD, acute kidney injury (AKI) and end-of life care. In 2006 CKD was added to the Clinical Domain of the General Practice contract with 4 indicators as part of the annual Quality and Outcomes Framework. Locally there have been reviews of renal service in 1995 and 2002³².

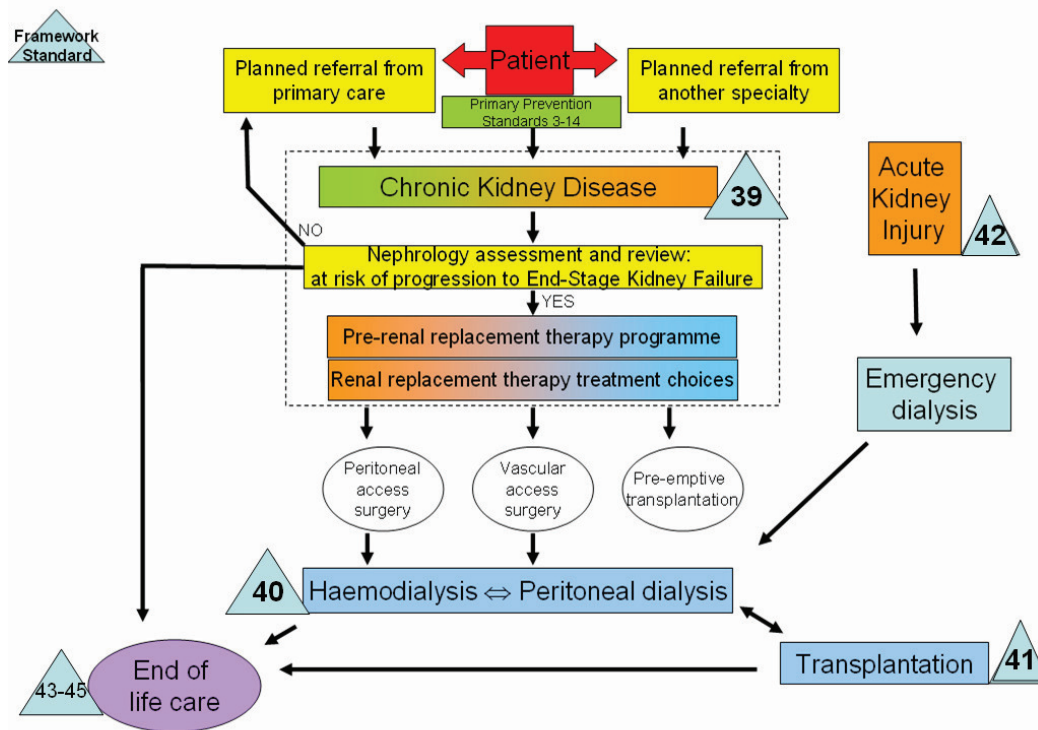
Annual growth in the renal replacement therapy population in Northern Ireland has been occurring at 6-10%. In the UK averaged growth is 7.3% reflecting treating older patients and the provision of expanded dialysis capacity.

The pathway for patient management with kidney disease is described below along with the position of the 4 renal standards and relations with the other prevention and CVS standards.

³² Renal Services Review 2002. Department of Health and Personal Social Services, Northern Ireland. (http://www.dhsspsni.gov.uk/renal_chpt1_6.pdf)

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Figure 10: Patient journey with kidney disease requiring renal services



The delivery of this complex service will need additional support as already outlined in the DHSSPS Review of Renal Services 2002³². Phased expansion of the specialist renal multidisciplinary workforce coupled to increased dialysis capacity and access to transplantation are critical to enhanced service delivery. High quality information systems are essential components of the Renal Service to enable safe, efficient and effective clinical care to individuals; to allow comparative national audit (with UK Renal Registry and UK Transplant authorities) and to monitor local performance of the standards outlined here. A formal managed clinical network would make best use of the current and future resources and help deliver the highest quality renal services to the Northern Ireland population.

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Overarching standard 39:

All patients with a diagnosis of chronic kidney disease (CKD) should receive timely, appropriate and effective investigation, treatment and follow-up to reduce both the risk of progression and complications.

Rationale:

Since chronic kidney disease (CKD) is a term that amalgamates a number of primary disease processes the management therefore starts often before there is decline in renal function as measured by glomerular filtration rate (GFR). Furthermore in many patients the risk of cardiovascular disease outweighs that of end-stage renal failure. There is either evidence or strong consensus to support the surveillance and aggressive management of risk factors in persons being treated for any of the following conditions that lead to CKD:

hypertension, diabetes, vascular disease, heart failure and both urological and multi-system diseases. The addition of a set of guidelines and audit measures specifically related to the care of patients with CKD reflects a worldwide recognition of the importance of early detection of CKD to facilitate interventions that slow renal function decline and reduce the high risk of cardiovascular disease. This is further supported by the inclusion of specific sections on CKD in Part 2 of the National Service Framework for Renal Services and the latest Quality and Outcomes Framework of the General Medical Services contract for General Practitioners. These clinical practice guidelines are intended to provide clear advice on key aspects of the management of patients with CKD. The associated audit measures are a means whereby hospitals and primary care can assess their performance against a nationally agreed set of outcome indices.

Using the 5 stage CKD classification these patients should have implementation of treatment guidelines and management plans based on disease severity. Importantly a fall in GFR (beyond anticipated age-related decline) and/or the development of proteinuria are strong indicators of higher risk for progressive CKD to dialysis stages and of higher cardiovascular risk.

Evidence:

UK Guidelines for the management of Chronic Kidney Disease

<http://www.renal.org/CKDguide/ckd.html>

Hallan S, Dahl K, Oien CM et al. Screening strategies for chronic kidney disease in the general population: follow-up of cross sectional health survey. British Medical Journal 2006;333:1047

<http://www.bmj.com/cgi/content/full/333/7577/1047>

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Clinical Practice Guidelines for the Care of Patients with Chronic Kidney Disease UK Renal Association Clinical Practice Guidelines. 4th Edition 2007
<http://www.renal.org/guidelines/print/CKDfinalMar07.pdf>

National Institute for Health and Clinical Excellence (NICE) Anaemia management in chronic kidney disease (2006)
<http://www.nice.org.uk/Guidance/CG39>

Responsibility for delivery / implementation

Health and Social Care Trusts
Renal Multi-disciplinary team
Primary Care

Quality Dimension

Timely

CKD is generally a slowly progressive disease over a time period of years to decades. This allows for early intervention to prevent Cardiovascular and Renal events.

Effective

There is an excellent evidence base for the interventions that impact and reduce progression and cardiovascular events.

Efficient

These interventions are relatively inexpensive and efficient with less patients requiring treatment to avoid progression than many other accepted interventions.

Equitable

The interventions are equally useful in all races and in most patients studied to date up to age 80. Evidence in patients older than this is somewhat lacking.

Patient Centred

Interventions are well tolerated and welcome to patients as the risks of progressive CKD are serious and contribute to significant disability.

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Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of CKD patients with a record of blood pressure in the previous 15 months and whose blood pressure is 140/85 mmHg or less.	QOF	<u>BP Recorded</u>	
		80%	March 2010
		85%	March 2011
		90%	March 2012
		<u>BP at Target</u>	
		60%	March 2010
Percentage of hypertensive and proteinuric CKD patients treated with an angiotensin converting enzyme inhibitor (ACE-I) or, if a patient is intolerant to an ACE inhibitor, angiotensin receptor blocker (ARB) (unless a contraindication or side effects are recorded)	QOF	65%	March 2011
		70%	March 2012
		60%	March 2010
		65%	March 2011
		70%	March 2012

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Percentage of patients with CKD who have a quantitative record of a proteinuria test in the previous 15 months.	QOF	80%	March 2011
	Laboratory records	85%	March 2012

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Overarching standard 40:

Renal services are to ensure the delivery of high quality, safe and effective dialysis care which is designed around the individual's needs and preferences and are available to all patients of all ages. This should be delivered by a highly skilled multiprofessional workforce to maximise dialysis capacity, improve quality of life and reduce complications.

Rationale:

Established renal failure (ERF) is an irreversible, long-term condition for which regular dialysis or transplantation is required if the individual is to survive. The most common causes of ERF are diabetes, hypertensive vascular disease, glomerulonephritis, pyelonephritis and cystic kidney disease. The risk of renal failure increases with age and during 2005 within NI the median age of patients starting renal replacement therapy (RRT) was 68.3 years. As new ERF patients join existing RRT programmes, it is projected that overall growth of dialysis expansion will need to be on average 5%-7% per year (UK renal registry report 2006).

Most patients with ERF will receive different types of RRT during their lifetime. The various forms of dialysis therapies are complementary and the best way of managing RRT is through an integrated approach to dialysis and transplantation. Service planning and delivery should promote seamless integrated care which is safe, effective and efficient with improved clinical outcomes to enhance the patient experience and improve clinical outcomes.

For the majority of patients renal replacement therapy is as hospital-based haemodialysis. Provision of a native arterio-venous (AV) fistula is the best form of access to reduce health-care associated infections. These rates are highest in those patients treated with long-term central venous catheters. AV fistulae need time to mature before cannulation (at least one month, preferably 3 months).

Evidence:

The National Service Framework for Renal Services. Part One: Dialysis and Transplantation (2004)

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4070359

The Renal Association Clinical Practice Guidelines 3a/3b (2007)

<http://www.renal.org/guidelines>

The Renal Association UK Renal Registry, The Tenth Annual Report, December 2007 <http://www.renalreg.com/reports/renal-registry-reports/2007/>

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National Institute for Health and Clinical Excellence (NICE) Renal failure – home versus hospital haemodialysis (2002)

<http://www.nice.org.uk/Guidance/TA48>

Renal Association Standards & Audit Subcommittee

<http://www.renal.org/Standards/standards.html>

European Best Practice Guidelines for haemodialysis Part 1. Nephrol Dial Transplant 2002; 17: Supplement 7 S1-S111

http://ndt.oupjournals.org/content/vol17/suppl_7/index.shtml

Responsibility for delivery / implementation

HSC Trusts

Hospital renal units

Multidisciplinary renal teams

Quality Dimension

Timely

All surgically suitable patients will have timely and appropriate surgery for permanent vascular access or peritoneal dialysis access.

Effective

Renal replacement therapy regimes should comply with national guidelines and standards.

Efficient

All patients on renal replacement therapies should have access to a highly skilled multiprofessional team to deliver an appropriate range of skills in response to their individual needs.

Equitable

All patients who are deemed medically fit should be eligible for renal replacement therapy.

Patient Centred

All patients will have timely education, preparation and be offered renal replacement. They will be supported in their informed decision making about modality choice and in managing their condition to achieve the best possible quality of life.

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Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Number of new haemodialysis patients offered a regular outpatient haemodialysis slot without delayed discharge.	Hospital Patient Administration System (PAS)	Establish baseline Performance levels to be determined once baseline established	March 2011
Percentage of patients who receive dialysis via permanent vascular access	Hospital Patient Administration System (PAS)	60% 65%	March 2011 March 2012 by Trust

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Overarching standard 41:

All children, young people and adults likely to benefit from a kidney transplant should receive a high quality service which supports them in managing their transplant and enables them to achieve the best possible quality of life.

Rationale:

A successful kidney transplant is the most clinically and cost-effective treatment for many patients with established renal failure; furthermore it is associated with significantly improved survival versus continued dialysis in suitable patients (1-3). However, it is recognised that there are difficulties of supplying enough kidneys to meet demand and alternative programmes need to be considered such as heartbeating donors, non-heartbeating donors and living donation. Several months is typically required to provide adequate counseling to patients, consideration of living donor options as well as assessment of cardiovascular and surgical risks to the recipient. Moreover the possibility of pre-emptive transplantation (before the initiation of dialysis) should be considered. Patients may be placed on the waiting list for a renal transplant up to 6 months before the expected start of dialysis. Part 1 of the Renal NSF therefore emphasizes the need for evaluation and preparation for possible transplantation to begin prior to initiation of dialysis in order to minimize the time that dialysis is required prior to transplantation and to facilitate pre-emptive transplantation.

Evidence:

Standards for solid organ transplantation in the United Kingdom, British Transplant Society (2003)

<http://www.bts.org.uk/Forms/standards%20document%20edition%202%20-%20final.pdf>

Multi-professional criteria for monitoring implementation of the National Service Framework for Renal Services, British Renal Society

<http://www.britishrenal.org/Other/Criteria%20for%20success.pdf>

National Service Framework for Renal Services. Part One: Dialysis and Transplantation

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4070359

Responsibility for delivery / implementation

Health and Social Care Trusts

Renal teams

Multidisciplinary Transplant team

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Quality Dimension

Timely

Early introduction of transplantation by the renal team to promote living donation, with culturally appropriate information, discussion and psychological / preparation regarding the risks and benefits of transplantation

Effective

NICE guidance should be followed for immunosuppressive therapy and the treatment of acute rejection episodes

Efficient

All donated kidneys should be adequately matched to the recipient blood and tissue type and be in the best possible condition with a short ischaemic time

Equitable

All patients who are deemed medically fit should be eligible for transplantation.

Patient Centred

All non-English-speaking patients being counselled about risks and benefits of transplantation should have availability of translator services. Visually impaired patients should have information available in large print and audio tape.

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Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of dialysis and CKD Stage 5 patients who are medically suitable and have evidence of transplant discussion and education.	Clinical Information system Renal Unit Audit	60%	March 2010
		65%	March 2011
		70%	March 2012
Number of living donation kidney transplants that renal transplant teams should achieve annually	UK Transplant (http://www.uktransplant.org.uk)	6 living donors pmp	March 2010
		8 living donors pmp	March 2011
		10 living donors pmp	March 2012
Percentage of patients waiting no longer than 6 months for a live donor transplant	UK Transplant (http://www.uktransplant.org.uk)	Baseline established	March 2010
		Performance levels to be determined	March 2011
Percentage of patients with a documented plan for post-transplant immunosuppression	Transplant Unit Audit	80%	March 2010
		85%	March 2011
		90%	March 2012

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Overarching standard 42:

All people at risk of, or suffering from, acute kidney injury / acute renal failure should be identified promptly, with hospital services delivering high quality, clinically appropriate care in partnership with specialised renal teams. Prevention of AKI should be a priority for all clinicians in both primary and secondary care.

Rationale:

Acute kidney injury (AKI) (formerly acute renal failure) is sudden decline in kidney function, often occurring over hours or days. It can occur in people with previously normal kidney function or in those who have background CKD, which may or may not have been previously identified. If it is severe, emergency extra-corporeal therapies such as haemodialysis are required to keep the person alive.

AKI most frequently occurs with injuries and diseases having a secondary effect on damaging the kidneys. Where AKI does occur it is frequently compounded by prescribed medicines. Severe infection and low blood pressure (such as due to infection or blood loss) are among the commonest causes and this often happens post-operatively. Rare but important forms of AKI are important causes of long-term kidney damage (CKD) so it is important to identify this quickly as early treatment may slow or even reverse the kidney failure. AKI is potentially fatal but in many cases reversible if appropriately treated. Finally pre-existing CKD has been identified as a major factor contributing to the development of AKI though often in the setting of other risk factors known to reduce the reserve of renal function such as age, diabetes and reduced cardiac function.

There are problems with the definition of AKI and lack of good epidemiological data outside of intensive care and renal units. Regional or trust based clinical information systems are urgently required to assess the local epidemiology of AKI and thus develop systems to best treat such patients.

Evidence:

The National Service Framework for Renal Services. Part two. Quality requirement three: Acute renal failure

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4101902

The Renal Association Clinical Practice Guidelines 3a/3b (2007)

<http://www.renal.org/guidelines>

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Bellomo R, Ronco C, Kellum JA, Mehta RL, Palevsky P, the ADQI workgroup: Acute renal failure - definition, outcome measures, animal models, fluid therapy and information technology needs: the Second International Consensus Conference of the Acute Dialysis Quality Initiative (ADQI) Group. Crit Care 2004, 8:R204-R212 <http://bmc.ub.uni-potsdam.de/cc2872/cc2872.pdf>

Kidney Disease. Improving global outcomes (KDIGO) <http://www.kdigo.org>

Abosaif NY, Tolba YA, Heap M, Russell J, El Nahas AM: The outcome of acute renal failure in the intensive care unit according to RIFLE: model application, sensitivity, and predictability. Am J Kidney Dis 2005, 46:1038-1048 <http://www.ncbi.nlm.nih.gov/pubmed/16310569>

Responsibility for delivery / implementation

Health and Social Care Trusts

Quality Dimension

Timely

Prompt identification of people at risk of or suffering from acute renal failure.

Effective

Appropriate pre-operative testing and interventions, in accordance with the NICE guideline on pre-operative testing.

Efficient

Early preventative action to avoid need for dialysis or admission to critical care units.

Equitable

All patients with acute kidney injury irrespective of age and comorbidities should be assessed by a senior doctor with prior experience in managing patients with acute kidney injury.

Patient Centred

When patients have complex comorbidities decisions about commencing dialysis should be made following discussion with patients, where possible, and relatives.

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Performance Indicator:	Data source	Anticipated Performance Level	Date to be achieved by
Development of evidence based consensus guidance on the prevention and management of AKI	Hospital Information systems Renal clinical information systems Intensive Care Clinical Information systems	Development of guidance	December 2010