
Clinical Standards Board for Scotland
(now part of NHS Quality Improvement Scotland)

Local Report on service provision for

Adult Renal Services

Renal failure is becoming increasingly common in Scotland. The condition and its treatment impacts greatly on a patient's life and work. Although no cure exists for renal failure, there is much that can be done to improve outcomes and quality of life for patients.

The Clinical Standards Board for Scotland (CSBS) Adult Renal Services Project Group focused on care provided in renal units for adults throughout Scotland. It developed 14 standards relating to the main areas of care for adults with renal failure. There was a particular focus on chronic renal failure, as this represents the vast majority of the workload in renal units. This report presents the findings from the CSBS peer review of performance against the standards.

This report was undertaken by CSBS in late 2002, and has been prepared and published by NHS Quality Improvement Scotland (NHS QIS). CSBS work was incorporated into NHS QIS on 1 January 2003.

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The Clinical Standards Board for Scotland (CSBS) was established as a Special Health Board in April 1999, with the remit to develop and run a quality assurance process for clinical services provided by NHSScotland. The ultimate objective of the work of CSBS is to improve the quality of clinical care provided across Scotland.

About this Report

CSBS published *Clinical Standards for Adult Renal Services* in February 2002. These standards are being used to assess the quality of services provided by NHSScotland nationwide in hospital settings.

This report presents the findings from the CSBS peer review to **Aberdeen Royal Infirmary Renal Unit** managed by **Grampian University Hospitals NHS Trust**. This review visit took place on **23 October 2002** and details of the visit, including membership of the review team, can be found in Appendix 2.

1.1 How the Standards were Developed

In May 2001, CSBS established the Adult Renal Services Project Group under the chairmanship of Dr Brian Junor, Consultant Nephrologist, Western Infirmary, North Glasgow University Hospitals NHS Trust. Membership of the Adult Renal Services Project Group includes both healthcare professionals and members of the public (see Appendix 3).

The Adult Renal Services Project Group oversees the CSBS quality assurance process of:

- developing standards;
- reviewing performance against the standards throughout Scotland, using self-assessment and external peer review; and
- reporting the findings from the review.

When developing the adult renal services standards, CSBS consulted widely throughout Scotland. The views of health service staff, patients, carers and the public were sought, and all the relevant evidence available at the time was taken into account. Draft standards were also piloted at two renal units, at Dumfries & Galloway Royal Infirmary, Dumfries, and the Western Infirmary, Glasgow.

1.2 How the Review Process Works

The CSBS review process has two key parts: local self-assessment followed by external peer review. First, each relevant Trust¹ assesses its own performance against the standards. An external peer review team then further assesses performance, both by considering the self-assessment data and visiting the renal unit to validate this information and discuss related issues. The review process is described in more detail below (see also the flow chart on page 8).

Self-Assessment by the Trust

On receiving the standards, each Trust responsible for the management of a main renal unit assesses its own performance using a framework produced by CSBS. This framework includes guidance about the type of evidence (eg guidelines, audit reports) required to allow a proper assessment of performance against the standards to be made.

The Trust submits the data it has collected for this self-assessment exercise to CSBS before the on-site visit, and it is this information that constitutes the main source of written evidence considered by the external peer review team.

External Peer Review

An external peer review team then visits the renal unit and speaks with local stakeholders (eg staff, patients, carers) about the services provided. Review teams are multidisciplinary, and include both healthcare professionals and members of the public. Training is provided for all CSBS reviewers. Each review team is led by an experienced reviewer, who is responsible for guiding the team in their work and ensuring that team members are in agreement about the assessment reached.

¹ For simplicity, the term 'Trust' is used throughout this document to refer to all the NHS organisations included in this national review. Further details on the renal units in Scotland are provided in Section 2.

The composition of each team varies, and members have no connection with the Trust they are reviewing. This promotes the sharing of good practice, and ensures that each review team assesses performance against the standards rather than make comparisons between one Trust and another.

At the start of the on-site visit, the review team meets key personnel responsible for the service under review. Reviewers then speak with local stakeholders about the services provided, including support group representatives and patients who had been selected randomly using the Scottish Renal Registry database. After these meetings, the team assesses performance against the standards, based on the information gathered during both the self-assessment exercise and the on-site visit.

The visit concludes with the team providing feedback on its findings to the Trust. This includes specific examples of local initiatives drawn to the attention of the review team (recognising that other such examples may exist), together with an indication of any particular challenges facing the Trust.

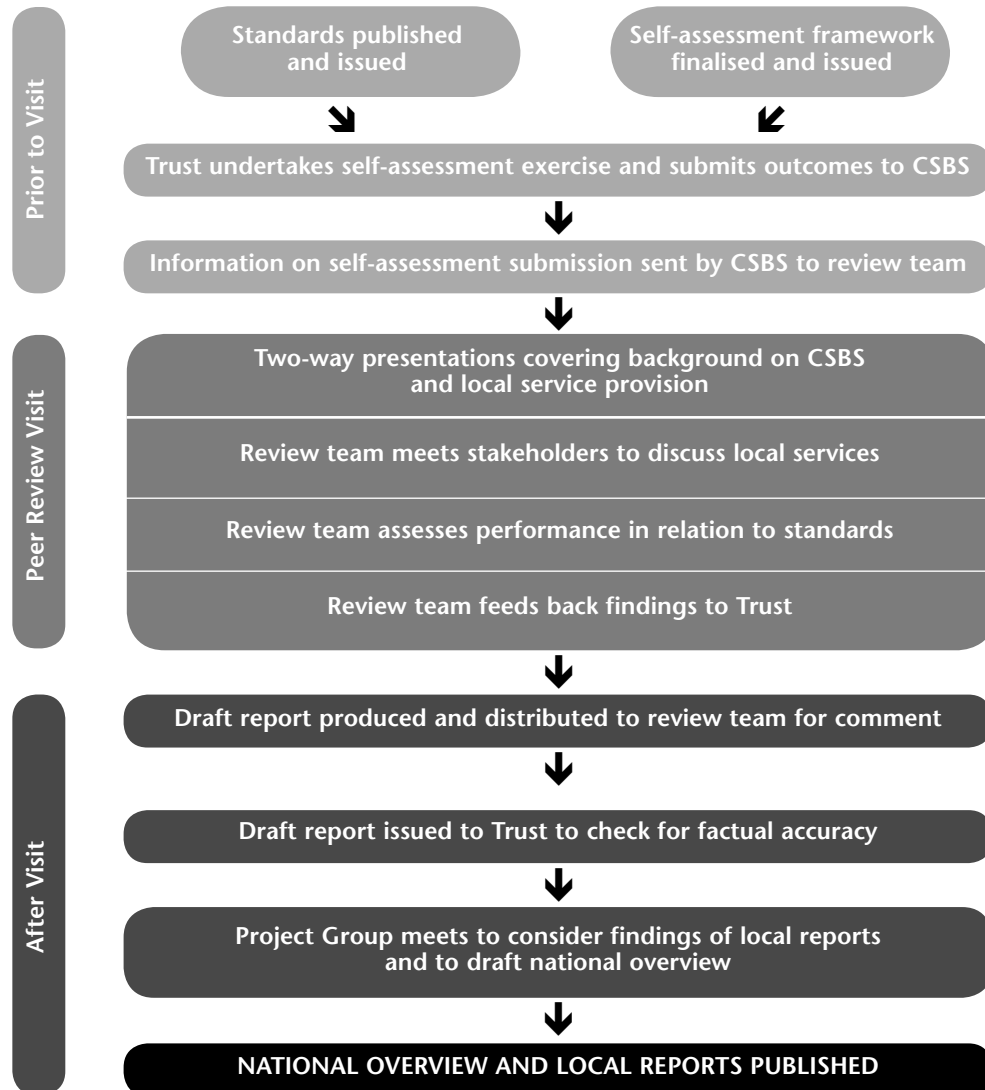
Assessment Categories

Each review team assesses performance using the categories 'met', 'not met' and 'not met (insufficient evidence)', as detailed below:

- **'Met'** applies where the evidence demonstrates the standard and/or criterion is being attained.
- **'Not met'** applies where the evidence demonstrates the standard and/or criterion is not being attained.
- **'Not met (insufficient evidence)'** applies where no evidence is available for the review team, or where the evidence available is insufficient to allow an assessment to be made.

A final category **'not applicable'** is used where a standard and/or criterion does not apply to the Trust under review.

The CSBS review process at a glance:



1.3 Reports

After the review visit, the project officer drafted a local report detailing the findings of the review team. This draft report was sent to the review team for comment, and then to the Trust to check for factual accuracy.

Following completion of the national review cycle, the Adult Renal Services Project Group reconvened to examine review findings and make recommendations to CSBS. The Adult Renal Services Project Group was then responsible for overseeing the production of a national overview of service provision across Scotland in relation to the standards. This document includes both a summary of the findings (highlighting examples of local initiatives and challenges for the service) and recommendations for improvement.

The aim of this review is to report whether the services provided by NHSScotland, both nationally and locally, met the agreed standards, and not to review the work of individual healthcare professionals. In achieving this aim, variations in practice (and potentially quality) within a service will be encountered. In such cases, variations will be reported.

Please note — all reports published by CSBS (now part of NHS QIS) are available on the NHS QIS website.

2 Summary of Findings

2.1 Overview of Local Service Provision

Grampian is situated in north-east Scotland and has a population of around 523,400. About 40% of the local population live in Aberdeen, which is the largest urban area in the region, although a significant proportion live in rural areas. The proportion of older people in the population is lower than the national average, as are levels of illness and deprivation.

Local NHS System and Services

Grampian NHS Board is responsible for improving the health of the local population and for the delivery of the healthcare required. It provides strategic leadership and has overall responsibility for the efficient, effective and accountable performance of the NHS in Grampian.

Clinical services are provided through two Trusts, Grampian University Hospitals NHS Trust and Grampian Primary Care NHS Trust. The Trusts are accountable for the clinical services they provide, through the framework of clinical governance.

Further information about the local NHS system can be accessed via the website of Grampian NHS Board: www.show.scot.nhs.uk/ghb

Aberdeen Royal Infirmary Renal Unit, Aberdeen is one of ten renal units treating adults with renal failure across Scotland. It has satellite units at Dr Gray's Hospital, Elgin, Peterhead Community Hospital and Chalmers Hospital, Banff. Aberdeen Royal Infirmary is also a renal transplant centre.

A main renal unit is the centre of renal expertise for a particular geographical area and manages the provision of renal services within that area. Both out-patient and in-patient renal services are offered, as well as specialist services. In some areas the main renal unit is supported by one or more renal satellite unit. A renal satellite unit is a haemodialysis facility which is linked to a main unit, and is not autonomous for medical decisions. They are largely nurse-led and typically provide a more accessible haemodialysis service to chronic renal patients in general good health, and not requiring the services and care of a main renal unit.

The ten renal units, to which patients in Scotland may be referred on the basis of clinical need (and location), are based at:

- Aberdeen Royal Infirmary
(including three satellite units at Chalmers Hospital, Banff, Dr Gray's Hospital, Elgin, and Peterhead Community Hospital)
- Dumfries & Galloway Royal Infirmary, Dumfries
- Crosshouse Hospital, Kilmarnock
- Glasgow Royal Infirmary
(including two satellite units at Falkirk & District Royal Infirmary and Stobhill Hospital, Glasgow)
- Monklands Hospital, Airdrie
- Ninewells Hospital, Dundee
- Queen Margaret Hospital, Dunfermline
(including one satellite unit at Victoria Hospital, Kirkcaldy)
- Raigmore Hospital, Inverness
- Royal Infirmary of Edinburgh
(including two satellite units at the Western General Hospital, Edinburgh, and Borders General Hospital, Melrose)
- Western Infirmary, Glasgow
(including an annex at Gartnavel General Hospital, Glasgow, and a satellite unit at Inverchilde Royal Hospital, Greenock)

There is also a small renal unit at Gilbert Bain Hospital, Lerwick, Shetland. This operates as an autonomous unit, but due to the small number of patients involved, has not been visited as a part of this review process. However, patients are referred to Aberdeen Royal Infirmary for renal transplant, and for complex acute renal failure.

There are three transplant centres in Scotland to which patients suitable for transplant may be referred. These are based at:

- Aberdeen Royal Infirmary
- Royal Infirmary of Edinburgh
- Western Infirmary, Glasgow

The following information was submitted by Grampian University Hospitals NHS Trust:

At the end of 2001 there were 342 patients receiving renal replacement therapy at Aberdeen Royal Infirmary. There were 54 new patients during 2001. The number of patients on different forms of renal replacement therapy were as follows:

	Aberdeen Royal Infirmary	Dr Gray's Hospital, Elgin	Peterhead Community Hospital	Chalmers Hospital, Banff
- hospital haemodialysis	97	21	9	4
- home haemodialysis	8	-	-	-
- continuous ambulatory peritoneal dialysis (CAPD)	17	-	-	-
- automated peritoneal dialysis (APD)	13	-	-	-
- transplant	173	-	-	-

Patients with suspected renal failure are typically referred to Aberdeen Royal Infirmary for renal investigation. For patients requiring renal replacement therapy, dialysis is started at Aberdeen Royal Infirmary. Haemodialysis is then continued at Aberdeen Royal Infirmary or at one of three satellite units at Dr Gray's Hospital, Elgin, Peterhead Community Hospital and Chalmers Hospital, Banff. Peritoneal dialysis patients continue treatment at home, attending clinics at Aberdeen Royal Infirmary or Dr Gray's Hospital, Elgin.

Patients being considered for cadaveric kidney transplant are typically referred to the transplant unit at Aberdeen Royal Infirmary, with all follow-up being undertaken at Aberdeen Royal Infirmary. Patients suitable for live donor kidney transplantation are referred to the Royal Infirmary of Edinburgh.

For renal patients living in Shetland, there is provision for haemodialysis to be undertaken locally at a small haemodialysis unit, which is managed by staff at Gilbert Bain Hospital, Lerwick. This unit is not a part of Aberdeen Royal Infirmary Renal Unit.

From the introductory session at the start of the visit, the following points regarding service provision were noted:

- The referral area for Aberdeen Royal Infirmary Renal Unit covers NHS Grampian, NHS Orkney, NHS Shetland (peritoneal dialysis, cadaveric donor kidney transplant and creation of dialysis access for haemodialysis patients only) and NHS Highland (cadaveric donor kidney transplant only).
- There are three haemodialysis patients who receive treatment at the haemodialysis unit at Gilbert Bain Hospital, Lerwick. However, these patients were not included in audit data submitted by Grampian University Hospitals NHS Trust as the Shetland haemodialysis unit is not part of Aberdeen Royal Infirmary Renal Unit.
- There has been a significant increase in the number of dialysis sessions per month, from around 950 in 1992 to approximately 1,810 in 2002. This is reflected across Scotland.
- It was reported that there are insufficient in-patient beds, with the number of beds being cut by 20% to 32 in the year 2000. It was noted that this can impact on dialysis access provision, and result in delays in addressing difficulties with dialysis access.
- Issues surrounding the large acute receiving commitment of nephrologists were highlighted. It was reported that this commitment is excessive and results in difficulties in providing continuity of care to patients with chronic renal failure.
- There are issues around the levels of staffing, which are felt to be low in some areas, particularly social work, dietetic and pharmacy provision. In addition, it was reported that there is insufficient secretarial support for the renal unit.
- While patients attend the unit once for a pre-dialysis visit, there is no regular pre-dialysis clinic. This is recognised to be an issue in the care of pre-dialysis patients.
- There is a dedicated renal transport service, which is run by the Red Cross. This service was developed following a review carried out in 1999, and is funded by new money from NHS Grampian. It was noted that, since the establishment of this service, both staff and patients have reported an improvement in average waiting times for patients being collected from home before dialysis, and collected from the hospital following dialysis. It is hoped that this service will be further modified and improved in due course.

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- Two years prior to the review visit, the in-patient nephrology wards had side wards plumbed for the dialysis of patients with acute renal failure. However, the expansion of the acute renal failure service has resulted in a need for increased capacity. Due to a lack of beds, patients with acute renal failure are currently dialysed in Wards 23 and 24 of the renal unit, alongside patients with end stage renal failure. The increased morbidity and complexity of treating acute renal failure requires increased nursing time to be allocated to the care of these patients. In addition, there is an increased risk of infection for chronic renal patients. As these patients with acute renal failure are often acutely unwell, it is also recognised that caring for them within the chronic renal unit can be disturbing for chronic renal patients. While it is hoped to provide sufficient dialysis for patients with acute renal failure in the renal ward in the future, it is recognised that this is dependent upon an increase in the number of beds available.
 - There has been a significant reduction in the number of kidney transplants undertaken each year, from 34 in 1995 to 6 in 2002 (until October 2002). In addition, the number of kidneys retrieved by the unit has decreased from 43 kidneys, from 23 donors, in 1995 to 20 kidneys, from 10 donors, in 2002. Members of staff and the review team noted concerns around maintaining the expertise of these surgeons in retrieving kidneys due to the small number of retrievals carried out per annum. The unit also raised concerns as to an apparent discrepancy between the number of kidneys retrieved and the number of donor kidneys sent to the unit for transplantation.
 - Consideration is being given to the possibility of establishing a further satellite unit at Inverurie. In addition, it is recognised that improvements to Peterhead Community Hospital Satellite Unit are required. Due to insufficient dialysis stations at this satellite unit, some haemodialysis patients who live near this unit must travel to Aberdeen Royal Infirmary three times per week for treatment.

Scottish Renal Registry

There is clearly a commitment to, and an awareness of, the importance and value of data collection and audit for renal services in Scotland. The Scottish Renal Registry has played a significant role in the development of audit in renal services. It was established in 1991 by the Scottish Renal Association, as a computer-based registry for patients receiving renal replacement therapy for end stage renal disease in Scotland. Once a system of computerised data collection was operational, the Scottish Renal Registry moved into comparative audit between renal units.

The Registry is now able to audit many of the standards developed by the UK Renal Association. This has resulted in renal units across Scotland sending data to the Scottish Renal Registry for the purposes of national audit. In addition to the results of national audits being published in the Registry's Annual Report, all renal units are provided with the national results and their individual unit's results.

2.2 Summary of Findings Against the Standards

A summary of the findings from the review, including examples of local initiatives drawn to the attention of the review team, is presented in this section. A detailed description of performance against the standards/criteria is included in Section 3.

Haemodialysis

Audit data provided by the unit demonstrated that the haemodialysis adequacy target is achieved. There is a comprehensive system in place for regular review of haemodialysis adequacy results, and prompt action taken when the adequacy target is not achieved. Whilst all patients are offered thrice-weekly dialysis, some patients choose to dialyse less frequently.

There is good documentation of patients' haemodialysis adequacy and biochemistry results on Clinical Vision, the electronic patient database.

The quality of water for dialysis is regularly monitored, and the provision of a central water treatment plant helps to facilitate the achievement of Renal Association targets for microbial count. Patients' biochemical results are also regularly monitored, and the percentage of patients achieving the Renal Association standards for pre-dialysis potassium, phosphate and calcium is calculated monthly. It was noted that there are plans to audit these data in the future.

Peritoneal Dialysis

Audit data provided by the unit demonstrated that the peritoneal dialysis adequacy target is met for patients who have been on peritoneal dialysis for more than 8 weeks. There is comprehensive documentation of reasons for patients not achieving the target, with appropriate action being taken.

Peritonitis rates are outwith the limit required by the standard. It was reported that a contributing factor for this is that patients from Orkney typically choose to remain on peritoneal dialysis due to the lack of hospital haemodialysis facilities on Orkney. As a result, these patients tend to suffer more frequent episodes of peritonitis, which would have a limited impact on peritonitis rate data.

Haemoglobin in Patients on Dialysis

Audit data provided by the unit demonstrated that, while the haemoglobin targets are achieved in a minimum of 85% of peritoneal dialysis patients, they are not achieved for haemodialysis patients. The review team acknowledged the efforts made by the unit to achieve haemoglobin targets. However, the limited provision of pre-dialysis clinics was highlighted as a contributing factor for this criterion not being met; insufficient provision of pre-dialysis clinics could result in patients' iron status not being sufficiently addressed prior to beginning dialysis treatment.

Reasons for patients not achieving the target haemoglobin are documented, with appropriate action being taken. Iron status is monitored regularly using ferritin assays. The number of patients receiving blood transfusions is also monitored.

Dialysis Access

Following the review visit, it was brought to the attention of CSBS that calculations provided by the unit based on the unit's audit data had been carried out incorrectly. Although corrected calculations indicated that this criterion was met, it was not possible for the review team to verify this information. Reasons for patients not having permanent access available at their first dialysis are documented.

While the self-assessment and staff at the unit stated that there are no dedicated theatre sessions, it was evident that adequate provision is made for access surgery.

Audit data provided by the unit demonstrated that more than 70% of patients have arteriovenous fistulae or vein graft as their permanent haemodialysis access. The review team commended the low percentage of patients having permanent catheters as haemodialysis access.

Nutritional Status

It was evident that the renal dietetic service is reactive rather than proactive. Insufficient dietetic staffing was highlighted as a contributing factor for this. However, the review team acknowledged the high quality service that is available to those patients whom dietitians are able to assess. While the majority of haemodialysis and peritoneal dialysis patients are reviewed 3-monthly at clinics, in the case of large clinics this is not possible, and a system of prioritisation is used to enable patients most at risk of malnutrition to be seen. Concern was also raised as to the lack of dietetic cover for periods of leave.

Those patients who are identified as at risk of malnutrition have nutritional goals set, documented and monitored in accordance with Renal Nutritional Group Standards. There is documentation of reasons for patients not achieving nutritional goals, with appropriate action being taken.

While baseline anthropometry is carried out and documented for all patients undergoing renal replacement therapy, it is not undertaken for pre-dialysis patients.

Drug Therapy

There are protocols in place for all the areas required by the standard. Although these are updated as required, there is no formal review system in place. Staff showed a good awareness of all these protocols.

All patients' prescriptions are regularly reviewed by medical staff at the dialysis clinic. Information and advice about the use of drugs in chronic renal failure or in dialysis patients is provided to patients verbally, and followed up with appropriate written information. The drug leaflets available to transplant patients were commended.

There is designated pharmacy support to the renal unit on a part-time basis. The review team welcomed the recent increase in pharmacy support to the unit, although noted that this is still on a part-time basis.

Access to Multidisciplinary Team

It was reported that patients can be referred to most members of the multidisciplinary team when required. While there is a designated social worker, this service is limited to in-patients. Discussions are on-going with the British Kidney Patients' Association over the funding of a designated renal social worker to cover all renal patients.

Issues with access to the multidisciplinary team were noted in relation to clinical psychology, with long waiting times being reported. While there is no designated counselling service available to renal patients, it was reported that medical and nursing staff are able to provide counselling to some patients when required.

Overall, the review team commended the good multidisciplinary team working and effective communication facilitated by weekly multidisciplinary meetings. These meetings are well attended by medical and nursing staff, dietician and pharmacist, in addition to the renal administrator.

Assessment for Transplantation

There is an effective computerised system in place to ensure prompt assessment of all patients within 3 months of the start of dialysis. All patients on dialysis are reviewed 3-monthly thereafter for their suitability for transplantation. The review team commended the regular review of the transplant waiting list at the weekly multidisciplinary meetings.

Decisions regarding the patients' assessment at the transplant unit are only communicated in writing to the patient, and carer where appropriate, if the patient is added to the transplant waiting list; otherwise patients are informed verbally of the outcome of their assessment. GPs are always informed of decisions regarding patients' assessments in writing. While communication with patients is typically good, there was evidence to suggest that some patients are not aware of their status on the transplant waiting list.

Patients suitable for transplantation are referred to Aberdeen Royal Infirmary Transplant Unit for cadaver donor kidney transplant, or the Royal Infirmary of Edinburgh Transplant Unit for live donor kidney transplant. Type 1 diabetic patients with renal failure are considered for combined pancreas and kidney transplant. If patients wish to pursue this option, they are then referred to the Royal Infirmary of Edinburgh for further consideration.

Kidney Retrieval

The review team commended the low cold storage time achieved by the unit, which ensures cold storage time is kept below 24 hours where possible. There is good documentation of reasons for cold storage exceeding 24 hours.

Due to the small numbers involved, the review team was unable to reliably assess the data and reach an assessment of the percentage of cadaver donor kidneys that function immediately and those that never function.

While there is one trained transplant surgeon who carries out kidney retrievals when available, at other times kidneys may be retrieved by vascular surgeons. Staff interviews highlighted difficulties around maintaining the expertise of surgical staff in this procedure, due to the small number of kidney retrievals carried out each year at the unit. The review team noted this as a challenge for the Trust to address.

Survival Rates

The review team confirmed that both the patient and transplant survival rate following live-related donor kidney transplantation meet the essential limits outlined in the standard. Audit data provided by the unit demonstrated that the essential limits for patient and transplant survival rates at 1 and 5 years following first cadaver kidney graft transplant, as outlined in the standard, are achieved.

Out-patients

Audit data provided by the unit indicated that the essential time limits between referral and appointment, as detailed in the standard, are not met for new patients being seen following referral. However, referrals are prioritised and urgent cases seen quickly.

Example of a local initiative

The review team commended the development of an electronic referral system for GPs as part of a national initiative. This system will enable GPs to book their patients' appointments directly with the unit, and receive an appointment date at the time of booking.

Provision of Patient Information

The review team commended the comprehensive range of information, which is provided to pre-dialysis patients. The locally developed information booklet on peritoneal dialysis was of particular note. However, a challenge to the unit is providing individualised and targeted patient information.

All possible treatment options are discussed with patients, and carers where appropriate. It was noted that previous difficulties with availability of automated peritoneal dialysis have now been resolved. Patients, and carers where appropriate, are involved in decisions about treatment and changes to treatment.

Transportation for Haemodialysis

The review team commended the results of the audit provided by the unit in relation to this standard.

Example of a local initiative

The review team commended the dedicated renal transportation service, which is currently run by the Red Cross with additional funding from NHS Grampian. This service was developed following a review carried out in 1999. While it was recognised that some developments could still be made to the service, both patients and staff reported that it had resulted in good improvements in waiting times for collection from, both home before dialysis, and from hospital at the end of dialysis.

The review team acknowledged the work that has been undertaken to establish three satellite units in Peterhead, Banff and Elgin. However, due to the satellite at Peterhead Community Hospital being at full capacity, some patients from the Peterhead area are travelling to Aberdeen three times each week for haemodialysis. It was reported that consideration is being given to establishing a new satellite unit at Inverurie, which would improve the travelling time for some patients.

Audit: Information/Data Collection

Computerised systems are in place to ensure the continuous collection of the Scottish Renal Registry core data set. There are good computerised links with the

Scottish Renal Registry, and the unit takes part in comparative audits of dialysis through the Scottish Renal Registry. The review team commended the provision of designated IT support to the renal unit.

While there are regular audits of haemodialysis, peritoneal dialysis, type of access surgery and transplant data, there is currently no audit of time of access surgery.

At the time of the visit, the unit was involved in the collection of incidence, management and outcome data on acute renal failure as part of a national study. However, there are no plans to continue collection of these data following the end of the study.

3 Detailed Findings Against the Standards

Standard 1 - Clinical Management/Treatment 1: Haemodialysis

All people on haemodialysis achieve the Renal Association targets set for adequacy. There is regular audit of haemodialysis adequacy (see Standard 14).

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: The target for haemodialysis adequacy is a Urea Reduction Ratio not less than 65% or stable Kt/V not less than 1.2 (dialysis and residual renal function) for thrice-weekly dialysis. This is achieved in a minimum of 85% of patients. Where Kt/V is measured, the method used to calculate is documented.

STATUS: Audit data provided by the unit demonstrated that this criterion is met for patients who have been on dialysis for more than 3 months.
Met

Staff interviews confirmed that the Kt/V measurement is not used.

2: Reasons for patients not achieving the target haemodialysis adequacy are documented and appropriate action taken.

STATUS: Reasons for patients not achieving the target haemodialysis adequacy target are documented on the urea reduction ratio sheets, and appropriate action taken. Comprehensive systems are in place for the weekly review of patients' haemodialysis adequacy results. Action to change treatment when required is prompt, and all changes are documented on the Clinical Vision computerised database system. However, the review team noted that there appeared to be no clear protocol in place for undertaking changes to treatment.
Met

3: Haemodialysis is offered thrice-weekly unless there are specific circumstances.

STATUS: All haemodialysis patients are offered thrice-weekly dialysis, although a small percentage of patients choose to dialyse less frequently.
Met

4: Quality of water for dialysis and/or dialysis fluid is monitored monthly and meets Renal Association targets for microbial count.

STATUS: The review team confirmed that the quality of water for dialysis is monitored monthly and meets Renal Association targets for microbial count.
Met

It was noted that there are some issues with private water systems for home haemodialysis. However, the review team was reassured that technical staff are aware of these issues and are working to improve the quality of the water supply, where possible, through the use of an increased number of water purifiers.

5: The percentage of patients achieving the Renal Association Standards for pre-dialysis potassium, phosphate, and calcium is calculated at a minimum of 3-monthly intervals.

STATUS: The percentage of patients achieving the Renal Association standards for pre-dialysis potassium, phosphate and calcium is calculated monthly, and recorded on the Clinical Vision computerised database. Plans are in place to audit these data in the future.
Met

Standard 2 - Clinical Management/Treatment 2: Peritoneal Dialysis

All people on peritoneal dialysis achieve the Renal Association targets set for adequacy. There is regular audit of peritoneal dialysis adequacy (see Standard 14). There is safe and effective management in place for prevention of peritonitis.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: The target for peritoneal dialysis adequacy is a total weekly creatinine clearance (dialysis and residual renal function) not less than 50 l/week/1.73m² and/or weekly urea Kt/V exceeds 1.7 by 8 weeks after beginning peritoneal dialysis. This is maintained in a minimum of 85% of patients.

STATUS: Audit data provided by the unit demonstrated that this criterion is met.
Met

2: Reasons for patients not achieving the target peritoneal dialysis adequacy are documented, and appropriate action taken.

STATUS: Reasons for patients not achieving the target peritoneal dialysis adequacy are documented, with appropriate action being taken.
Met

3: The percentage of patients achieving the Renal Association Standards for potassium, phosphate and calcium is calculated at a minimum of 3-monthly intervals.

STATUS: The percentage of patients achieving the Renal Association Standards for potassium, phosphate and calcium is calculated 4-6-weekly. The review team commended the frequent monitoring of these results.
Met

4: The use of disconnect systems is standard unless contra-indicated.

STATUS: The use of disconnect systems is standard for all patients.
Met

5: Peritonitis rates are not more than one episode/18 patient-months.

STATUS: Audit data provided by the unit demonstrated that this criterion is not met. It was reported that patients from Orkney choose to remain on peritoneal dialysis due to the lack of hospital haemodialysis facilities on Orkney, and, as a result, have more frequent episodes of peritonitis. The review team noted that this would have a limited impact on peritonitis rate data and could be a contributing factor for the criterion not being met.
Not met

Standard 3 - Clinical Management/Treatment 3: Haemoglobin in Patients on Dialysis

All people on haemodialysis or peritoneal dialysis achieve targets set for haemoglobin levels after 3 months of dialysis. Transfusion is avoided wherever possible.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: The target is a haemoglobin concentration not less than 10g/dl (haematocrit is not less than 30%) after 3 months of dialysis. This is achieved in a minimum of 85% of patients.

STATUS:
Not met

Audit data provided by the unit demonstrated that this criterion is not met, despite efforts to increase the percentage of patients achieving the target: a new IT system has been introduced; treatment for anaemia has been tailored to individual patients' circumstances; and patients have more recently been assigned named consultants who oversee their anaemia treatment. However, the review team noted that the current lack of pre-dialysis clinics could result in patients starting dialysis with poor haemoglobin levels due to their iron status not being sufficiently addressed, and concluded that this could be a contributing factor for this criterion not being met.

- 2: Reasons for patients not achieving the target haemoglobin are documented, and appropriate action taken.

STATUS:
Met

Reasons for patients not achieving the target haemoglobin are documented on the computerised database, Clinical Vision, with appropriate action being taken.

- 3: Iron status is monitored at a minimum of 6-month intervals.

STATUS:
Met

Staff interviews confirmed that iron status is monitored monthly using ferritin assays. The review team noted that while hypochromic red cell results are available on site, they are not available electronically to the renal unit.

- 4: The number of patients receiving blood transfusions is monitored.

STATUS:
Met

The number of patients receiving blood transfusions is monitored.

Standard 4 - Clinical Management/Treatment 4: Dialysis Access

All people requiring dialysis have timely surgery for access.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: Permanent access is available at the first dialysis in a minimum of 60% of patients who present at the renal service more than 3 months before requiring dialysis.

STATUS: Following the review visit, it was brought to the attention of CSBS that calculations provided by the unit based on the unit's audit data had been carried out incorrectly. Although corrected calculations indicated that this criterion was met, it was not possible for the review team to verify this information.
Not met (insufficient evidence)

- 2: Reasons for patients not having permanent access available at their first dialysis are documented.

STATUS: Reasons for patients not having permanent access available at their first dialysis are documented in patient and nursing notes.
Met

- 3: There are adequate dedicated theatre sessions (Reference Guideline: one weekly theatre session per 120 patients (approximately) on dialysis – National Service Standard 3).

STATUS: Although the self-assessment and staff at the unit stated that there are no dedicated theatre sessions, adequate provision is made for access surgery. The review team therefore concluded that this criterion is met. Nephrology and surgical staff reported their satisfaction with the current arrangements.
Met

Desirable Criteria

- 4: A minimum of 70% of patients have arteriovenous fistulae or vein graft as their permanent haemodialysis access.

STATUS: Audit data provided by the unit demonstrated that this criterion is met. The review team noted the high percentage of patients having arteriovenous fistulae or vein graft as permanent haemodialysis access.
Met

- 5: Permanent catheters are used as haemodialysis access in a maximum of 20% of patients.

STATUS: Audit data provided by the unit demonstrated that this criterion is met. The review team commended the low percentage of permanent catheters used as haemodialysis access.
Met

Standard 5 - Clinical Management/Treatment 5: Nutritional Status

All patients receiving dialysis or with low creatinine clearance have nutritional status regularly assessed, evaluated and documented.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: All patients are assessed at least 6-monthly to identify those at risk of malnutrition.

STATUS: Not all patients are assessed at least 6-monthly to identify those at risk of malnutrition. Insufficient dietetic staffing was identified as a major contributing factor for this. The majority of haemodialysis and peritoneal dialysis patients are reviewed 3-monthly at clinics. However, in the case of large clinics, the dietitian is unable to see all patients attending the clinic, and a system of prioritisation is used to enable those most at risk to be seen. Patients with low creatinine clearance are seen for assessment at regular renal clinics. It was noted that there is no dietetic cover for periods of staff leave. Patients identified as at risk of malnutrition by medical and nursing staff are referred to the dietitian as appropriate.

Not met

2: Patients identified as at risk have nutritional goals set, documented and monitored in accordance with Renal Nutritional Group Standards.

STATUS: Those patients who are identified as at risk have nutritional goals set and monitored in accordance with Renal Nutritional Group Standards. Nutritional goals are documented in patient record cards.

Met

3: Reasons why patients identified as at risk do not achieve nutritional goals are documented, and appropriate action taken.

STATUS: Reasons why patients identified as at risk do not achieve nutritional goals are documented on patient record cards, and action taken as appropriate.

Met

4: There is a designated dietitian with a recognised postgraduate qualification and/or renal experience.

STATUS: Designated renal dietetic staffing comprises one whole time equivalent dietitian, fulfilled by two individuals with renal experience.

Met

Desirable Criteria

5: Baseline anthropometry is documented for all patients at the beginning of dietetic treatment by an individual trained in the technique.

STATUS: Baseline anthropometry is carried out for all patients undergoing renal replacement therapy by a dietitian trained in the technique. The results are documented on patient record cards. However, it was noted that baseline anthropometry is not carried out for low clearance patients. Insufficient dietetic staffing was identified as a contributing factor for this.

Not met

Standard 6 - Clinical Management/Treatment 6: Drug Therapy

All people with chronic renal failure or on renal replacement therapy receive appropriate drug therapy and advice on their medicines.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1.1: There are protocols for: Management of anaemia; Treatment of peritonitis; Immunisation for Hepatitis B.

STATUS: There are protocols for the management of anaemia, treatment of peritonitis and immunisation for hepatitis B, and staff showed good awareness of these.
Met While these protocols are updated as required, there is no formal review system in place.

1.2: In addition, for transplant units there are protocols for: Immunosuppressive regimens; Cytomegalovirus and pneumocystis infection prophylaxis; Renal vein thrombosis prophylaxis; Management of delayed graft function.

STATUS: Clear protocols are in place for all areas required by the criterion and staff showed good awareness of these. While these protocols are updated as required, there is no formal review system in place.
Met

2: All patients' prescriptions are reviewed to ensure their drug therapy is appropriate for their circumstances.

STATUS: All patients' prescriptions are reviewed by medical staff at the dialysis clinic. Changes to prescriptions are recorded on the Clinical Vision computerised database, and are communicated clearly to GPs.
Met

3: Information and advice about the use of drugs in chronic renal failure or in dialysis patients is available to healthcare professionals and renal patients.

STATUS: Information about the use of drugs in chronic renal failure or in dialysis patients is available to healthcare professionals through the Renal Drug Handbook and the internet. Further advice is available on request from the pharmacist.
Met

The pharmacist meets with renal in-patients, and information and advice about the use of drugs in chronic renal failure or in dialysis patients are provided at that point. Medical and nursing staff provide renal out-patients with verbal information about their drugs at clinics; this is followed up with written information. The review team commended the information available to transplant patients.

4: There is a designated pharmacist with a recognised postgraduate qualification and/or renal experience.

STATUS: There is a designated pharmacist with renal experience, who provides support to the renal unit on a part-time basis. The review team noted the recent increase in designated pharmacy support provided to the renal unit.
Met

Standard 7 - Clinical Management/Treatment 7: Access to Multidisciplinary Team

All people with end stage renal failure have access to a multidisciplinary team.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: In addition to the regular medical and nursing staff, patients are referred to the following services when required: physiotherapy; pharmacy; dietetics; occupational therapy; designated social worker with a recognised postgraduate qualification and/or renal experience; primary healthcare team; community hospitals (where applicable); transplant co-ordinator/ liaison nurse; counselling service; clinical psychology; liaison psychiatry.

STATUS:
Not met

Staff interviews confirmed that patients are referred to most of the services when required. It was reported that there is a designated social worker for in-patients, although this service is not available to renal out-patients. Discussions are ongoing with the British Kidney Patients' Association over the funding of a designated renal social worker. Although there is a clinical psychologist to whom patients may be referred, it was reported that long waiting times result in the service not being fully utilised by the renal unit. There were conflicting views as to whether counselling is available to renal patients. While data provided by the unit indicated that there is no dedicated counselling service, staff interviews suggested that medical and nursing staff are involved in counselling some patients.

- 2: Dialysis patients are regularly and confidentially reviewed by a multidisciplinary team including medical and nursing staff, dieticians and pharmacists.

STATUS:
Met

The review team confirmed that dialysis patients are regularly and confidentially reviewed by a multidisciplinary team including medical and nursing staff, the dietician and pharmacist at a weekly multidisciplinary meeting. It was reported that the renal administrator also attends this meeting.

Standard 8 - Transplantation 1: Assessment for Transplantation

All dialysis patients are assessed for suitability of transplantation within three months of starting dialysis.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: All patients are assessed for transplantation within 3 months of starting dialysis and those suitable are referred to a Transplant Centre.

STATUS: Rigorous systems are in place to ensure that all patients are assessed for transplantation within 3 months of starting dialysis. Those suitable are referred to either Aberdeen Royal Infirmary for cadaveric kidney transplantation, or the Royal Infirmary of Edinburgh for live kidney donor transplantation.
Met

2: Patients referred are seen by a nephrologist and surgeon from the Transplant Centre.

STATUS: All patients referred are seen by a nephrologist and surgeon from Aberdeen Royal Infirmary.
Met

3: Decisions regarding the patient's assessment at the Transplant Centre are communicated in writing, to the patient, the GP and, where appropriate, the carer.

STATUS: Decisions regarding the patient's assessment at Aberdeen Royal Infirmary are communicated verbally to the patient, and carer where appropriate. GPs are informed of the decisions regarding their patient's assessment in writing. While it was evident that the verbal communication with patients is typically good, patient interviews highlighted some cases of patients not being aware of their status on the transplant waiting list.
Not met

4: All patients on dialysis are reviewed annually for their suitability for transplantation.

STATUS: Staff interviews confirmed that patients' suitability for transplantation is reviewed 3-monthly at the dialysis clinic. The review team commended the weekly multidisciplinary meeting at which the transplant waiting list is reviewed. In addition, the stage of each patient's assessment for transplantation is also reviewed.
Met

5: All patients on the waiting list are informed of the outcome of their annual review either orally or in writing.

STATUS: While staff interviews suggested that patients on the waiting list are informed of the outcome of their annual review orally, there was evidence to suggest that not all patients are aware of this information. The review team noted that the outcome of patients' annual reviews is documented on the Clinical Vision computerised database.
Not met

6: The percentage of dialysis patients on the waiting list for transplantation is monitored and reviewed annually.

STATUS: The percentage of dialysis patients on the waiting list for transplantation is monitored on an informal, but regular basis.
Met

7: The unit takes part in the Renal Donor Sharing Scheme operated by UK Transplant.

STATUS: Aberdeen Royal Infirmary Renal Unit takes part in the Renal Donor Sharing Scheme operated by UK Transplant.
Met

8: Type 1 diabetic patients with renal failure are considered for combined pancreas and kidney transplant.

STATUS:

Met

The review team confirmed that Type 1 diabetic patients with renal failure are considered for combined pancreas and kidney transplant. If patients wish to follow up this option, they are referred to the Royal Infirmary of Edinburgh Transplant Unit for further consideration. Staff interviews confirmed that all Type 1 diabetic patients with renal failure, who are referred to the Royal Infirmary of Edinburgh for live donor kidney transplant, are considered at Edinburgh for combined pancreas and kidney transplant.

Standard 9 - Transplantation 2: Kidney Retrieval

The removal and use of cadaver kidneys for transplantation is carried out to optimise the quality of future renal function.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: Kidneys are retrieved by a transplant surgeon experienced in the procedure.

STATUS: Staff interviews confirmed that there is one trained transplant surgeon who carries out kidney retrievals when available. At other times, kidneys may be retrieved by other surgeons. Both members of staff and the review team noted concerns around maintaining the expertise of these surgeons in retrieving kidneys due to the small number of retrievals carried out per annum.
Not met

2: Cold storage time is below 24 hours, where possible.

STATUS: The review team confirmed that cold storage time is below 24 hours, where possible, and commended the low cold storage time achieved at Aberdeen Royal Infirmary.
Met

3: Reasons for cold storage exceeding 24 hours are documented.

STATUS: Reasons for cold storage exceeding 24 hours are recorded on the documentation which accompanies each donor kidney.
Met

4: Documentation of damage to retrieved kidneys is sent with the donor kidney to the transplant unit.

STATUS: Documentation of damage to retrieved kidneys is sent with the donor kidney to the transplant unit.
Met

5: A minimum of 70% of donor kidneys from people on artificial ventilation, who are confirmed to be dead by brain stem testing, function immediately.

STATUS: Based on the audit data provided, due to the small numbers involved, the review team was unable to reach an assessment of performance against this criterion.
Not met (insufficient evidence)

6: The percentage of kidneys that never function is no more than 5% for people on artificial ventilation, who are confirmed to be dead by brain stem testing.

STATUS: Based on the audit data provided, due to the small numbers involved, the review team was unable to reach an assessment of performance against this criterion.
Not met (insufficient evidence)

Standard 10 - Transplantation 3: Survival Rates

Patient and transplant survival rates following kidney transplantation are within acceptable limits.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: Following live related donor kidney transplantation: Patient survival rate is a minimum of 95% at 1 year; Transplant survival rate is a minimum of 93% at 1 year.

STATUS: The review team confirmed that this criterion is met.
Met

- 2: Following first cadaver kidney graft transplantation: Patient survival rate is a minimum of 95% at 1 year and a minimum of 80% at 5 years; Transplant survival rate is a minimum of 85% at 1 year and a minimum of 66% at 5 years.

STATUS: Audit data provided by the unit demonstrated that this criterion is met.
Met

- 3: Transplant patients are reviewed regularly by a nephrologist or transplant surgeon.

STATUS: The review team confirmed that this criterion is met.
Met

Standard 11 - Patient Focus 1: Out-patients

Waiting times for new patient appointments are within acceptable limits and clinic letters are sent out with minimum delay.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

1: New patients are offered an appointment to be seen within 1 month of referral.

STATUS: Audit data provided by the unit indicated that this criterion is not met.
Not met However, referral letters are prioritised and urgent cases seen quickly.

The review team commended the development of an electronic referral system for GPs. This system will enable GPs to book their patients' appointments directly with the unit, receiving an appointment date at the time of booking.

2: Clinic letters are sent to the GP within 2 weeks of being seen by a nephrologist.

STATUS: Audit data provided by the unit demonstrated that this criterion is not met.
Not met There were conflicting views amongst staff as to whether insufficient secretarial support was a contributing factor for this.

3: Changes in medication are communicated to the GP via the patient using a written note or by updating a drug booklet.

STATUS: Staff interviews confirmed that changes in medication are communicated to
Met the GP via the patient using a written note.

Standard 12 - Patient Focus 2: Provision of Patient Information

All people with chronic renal failure or on renal replacement therapy, and carers where appropriate, are given information to help them make informed choices.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: All people diagnosed with chronic renal failure, and carers where appropriate, are provided with appropriate information materials which are evidence-based, identify treatment options, possible outcomes, risks, possible side-effects, and sources of further information.

STATUS: The review team commended the high standard of written pre-dialysis information available to patients, in particular the locally developed information about peritoneal dialysis. In addition, videos are available and there is information for those who are partially sighted. Verbal information is provided by nursing staff at dedicated visits to the unit. A dedicated access telephone number is given to patients, should they wish to contact a member of the nursing staff for further information. However, a challenge identified was increased individualised and targeted patient information.

Met

- 2: Medical and nursing staff discuss possible treatment options which may include home and hospital dialysis, CAPD and APD, cadaver and live donor transplantation, with patients, and carers where appropriate, at a dedicated appointment or home visit.

STATUS: All possible treatment options are discussed with patients, and carers where appropriate, at each patient's pre-dialysis visit. The review team noted that the current pre-dialysis service is insufficient, with patients attending only one pre-dialysis visit to the unit.

Met

The review team noted that previous difficulties with availability of automated peritoneal dialysis have now been resolved.

- 3: Patients, and carers where appropriate, are involved in decisions about treatment and changes in treatment.

STATUS: The review team confirmed that patients, and carers where appropriate, are involved in decisions about treatment and changes in treatment. Clinic visits are open to carers to attend if the patient wishes.

Met

Desirable Criteria

- 4: There is a designated pre-dialysis nurse specialist.

STATUS: There is no designated pre-dialysis nurse specialist.

Not met

Standard 13 - Patient Focus 3: Transportation for Haemodialysis

Delays for patients attending for dialysis are minimised through reasonable measures taken by the Trust.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: 50% of all patients using hospital transportation are collected from home within half an hour of their allotted pick-up time, and all are collected within one hour.

STATUS: Audit data provided by the unit demonstrated that this criterion is met. The review team noted that a dedicated renal transport system is currently run by the Red Cross, and commended the improvements to the service since this development.
Met

- 2: 50% of all patients begin dialysis within half an hour of appointment time, and all begin within one hour.

STATUS: Audit data provided by the unit demonstrated that a high percentage of patients begin dialysis within half an hour of appointment time, and almost all begin within 1 hour.
Not met

- 3: 50% of all patients using hospital transportation are collected within half an hour of the end of dialysis, and all are collected within one hour, provided they are clinically fit.

STATUS: Audit data provided by the unit demonstrated that a high percentage of patients using hospital transportation are collected within half an hour of the end of dialysis, and almost all are collected within 1 hour.
Not met

- 4: Reasons for delays of more than an hour are documented.

STATUS: Reasons for delays of more than 1 hour are documented on transport audit sheets.
Met

- 5: Patients who wait for hospital transport do so in comfortable surroundings.

STATUS: The review team confirmed that there is a comfortable area for patients who wait for hospital transport.
Met

Desirable Criteria

- 6: Within the constraints of population density and geography, a unit is available within half an hour's travelling time for patients.

STATUS: The review team acknowledged the work that has been undertaken to establish three satellite units at Peterhead, Banff and Elgin in order to address the issue of the availability of haemodialysis within a reasonable travelling time for patients. However, it was reported that some patients from the Peterhead area are travelling to Aberdeen for haemodialysis as the facilities at Peterhead Community Hospital Satellite Unit are currently at full capacity. In addition, consideration is being given to establishing a new satellite unit at Inverurie, which would improve the travelling time for some patients.
Not met

Standard 14 - Audit: Information/Data Collection

There is continuous data collection to facilitate regular national audit through the Scottish Renal Registry.

Aberdeen Royal Infirmary Renal Unit

Essential Criteria

- 1: There are information systems in place for continuous collection of the Scottish Renal Registry core data set to facilitate audit.

STATUS: Computerised information systems are in place for continuous collection of the Scottish Renal Registry core data set to facilitate regular audit. The review team
Met commended the provision of designated IT support to the renal unit.

- 2: The unit takes part in comparative audits of dialysis and transplantation through the Scottish Renal Registry and, where appropriate, UK Transplant.

STATUS: The unit takes part in comparative audits of dialysis and transplantation through the Scottish Renal Registry and UK Transplant. An automatic link with
Met the Scottish Renal Registry is currently under development to allow for the automation of data transfer from the unit to the Registry.

- 3: There is data collection of the following, where appropriate, to facilitate regular audit: Haemodialysis adequacy (monthly for hospital dialysis and every 3 months for home dialysis); Peritoneal dialysis adequacy (6-monthly); Haemoglobin levels (monthly for hospital dialysis and every 3 months for peritoneal and home dialysis); Peritonitis (occurrence, investigation, treatment and cause); Type and time of access surgery; Immediate function of cadaver kidneys; Patient and transplant survival rates.

STATUS: There is data collection of all these data to facilitate regular audit, with the
Not met exception of time of access surgery, which is not currently collected or audited.

Desirable Criteria

- 4: There is collection of incidence, management and outcome data on acute renal failure.

STATUS: Aberdeen Royal Infirmary Renal Unit is currently involved in the collection of
Met incidence, management and outcome data on acute renal failure as part of a national study. However, no plans are in place to continue collection of these data following the end of the study.

Glossary of Abbreviations — Appendix 1

Abbreviation

APD	Automated Peritoneal Dialysis
CAPD	Continuous Ambulatory Peritoneal Dialysis
EPO	Erythropoietin
GP	General Practitioner
HDU	High Dependency Unit
ITU	Intensive Therapy Unit
MRSA	Methicillin Resistant <i>Staphylococcus aureus</i>
SRR	Scottish Renal Registry
URR	Urea Reduction Ratio

2 Appendix — Review Team Members

Details of Review Visit

The review visit to Aberdeen Royal Infirmary Renal Unit, Grampian University Hospitals NHS Trust was conducted on 23 October 2002. The review team members for this visit were:

Dr Keith Simpson (Team Leader)

Consultant Physician, North Glasgow University Hospitals NHS Trust

Ms Helen Anderson

Lay Representative, Lothian

Dr Iain Henderson

Consultant Nephrologist, Tayside University Hospitals NHS Trust

Mrs Denise Hogarth

Lay Representative, Ayrshire & Arran

Ms Lesley Logan

Project Manager, National Services Division

Ms Jen Lumsdaine

Transplant Co-ordinator, Lothian University Hospitals NHS Trust

Ms Sara Martin

Dietician, Fife Acute Hospitals NHS Trust

Mrs Maureen Perry

Specialist Nephrology Nurse, Tayside University Hospitals NHS Trust

Clinical Standards Board for Scotland Personnel**Ms Rona Smith**

Senior Project Officer, Clinical Standards Board for Scotland

Mrs Fiona Russell (nee Dymitrenko)

Project Officer, Clinical Standards Board for Scotland

Dr Brian Junor (Chairman)

Consultant Nephrologist, Western Infirmary, North Glasgow University Hospitals NHS Trust

Mr Murat Akyol

Consultant Surgeon, Lothian University Hospitals NHS Trust

Mrs Caroline Arnott

Ward Manager, Fife Acute Hospitals NHS Trust

Dr Gordon Baird

General Practitioner, Dumfries & Galloway

Mrs Megan Casserly

Lay Representative, Greater Glasgow

Mrs Rhona Duncan

Renal Dietician, Ayrshire & Arran Acute Hospitals NHS Trust

Mr James Dunleavy

Renal Pharmacist, Lanarkshire Acute Hospitals NHS Trust

Mr Sandy Glass

Lay Representative, Highland

Dr Chris Isles

Consultant Physician, Dumfries & Galloway Acute & Maternity Hospitals NHS Trust

Professor Alison MacLeod

Honorary Consultant Physician/Nephrologist, Grampian University Hospitals NHS Trust

Ms Lesley Logan

Project Manager, National Services Division

Mrs Maureen Perry

Specialist Nephrology Nurse, Tayside University Hospitals NHS Trust

Dr Keith Simpson

Consultant Physician, North Glasgow University Hospitals NHS Trust

The Board member specifically working with the Adult Renal Services Project Group was **Professor John Cromarty**, Trust Chief Pharmacist, Highland Acute Hospitals NHS Trust.

Dr David Steel (Chief Executive), **Mr Sean Doherty** (Review Team Manager), **Ms Rona Smith** (Senior Project Officer), **Mrs Fiona Russell** (nee Dymitrenko; Project Officer) and **Miss Josephine O'Sullivan** (Project Administrator) from the CSBS provided support.

Timetable of Visits — Appendix 4

Organisation Reviewed	Dates
NHS Ayrshire & Arran Crosshouse Hospital, Kilmarnock	2 October 2002
NHS Dumfries & Galloway Dumfries & Galloway Royal Infirmary, Dumfries	23 July 2002
NHS Fife Queen Margaret Hospital, Dunfermline	21 August 2002
NHS Glasgow (North) Glasgow Royal Infirmary Including: Falkirk & District Royal Infirmary (satellite unit) Stobhill Hospital, Glasgow (satellite unit)	26 June 2002
Western Infirmary Including: Gartnavel General Hospital, Glasgow (annex) Inverclyde Royal Hospital, Greenock (satellite unit)	12 June 2002
NHS Grampian Aberdeen Royal Infirmary Including: Dr Gray's Hospital, Elgin (satellite unit) Peterhead Community Hospital (satellite unit) Chalmers Hospital, Banff (satellite unit)	23 October 2002
NHS Highland Raigmore Hospital, Inverness	29 May 2002
NHS Lanarkshire Monklands Hospital, Airdrie	10 July 2002
NHS Lothian Royal Infirmary of Edinburgh Including: Borders General Hospital, Melrose (satellite unit) Western General Hospital, Edinburgh (satellite unit)	19 September 2002
NHS Tayside Ninewells Hospital, Dundee	5 September 2002