Western Infirmary
Renal Unit
(Glasgow)

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.

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Setting the Scene 1

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 **Western Infirmary Glasgow Renal Unit** managed by **North Glasgow University Hospitals NHS Trust**. This review visit took place on **12 June 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 Trust[1] 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.

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.

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[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.

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.

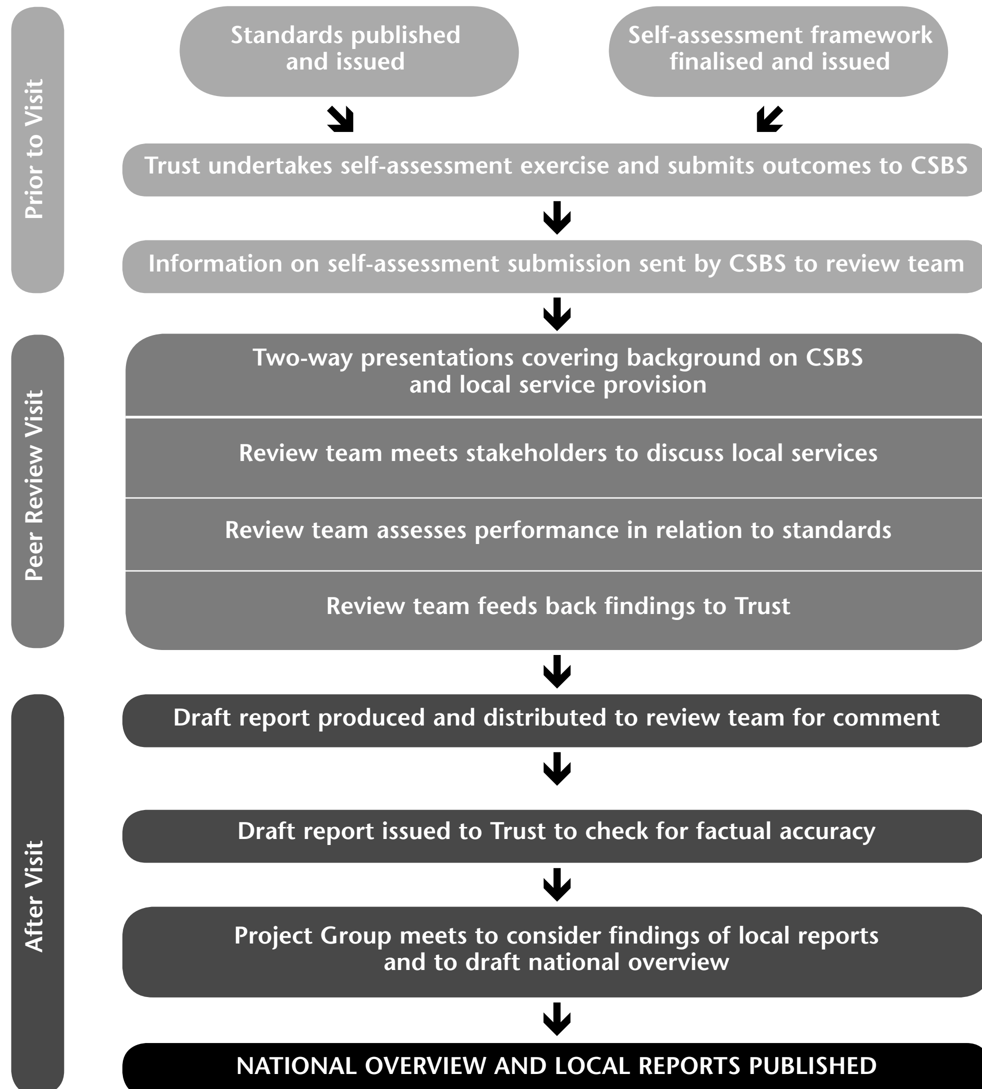
Assessment Categories

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

Greater Glasgow is a compact and densely populated urban region situated in west-central Scotland and has a population of around 911,200. The proportion of older people in the population is below the national average, whereas levels of illness and deprivation are relatively high.

Local NHS System and Services

Greater Glasgow 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 Greater Glasgow.

Clinical services are provided through four Trusts, Greater Glasgow Primary Care NHS Trust, North Glasgow University Hospitals NHS Trust, South Glasgow University Hospitals NHS Trust, and the Yorkhill 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 Greater Glasgow NHS Board: www.show.scot.nhs.uk/gghb.

There are two renal units located in Glasgow: the Western Infirmary and Glasgow Royal Infirmary. For the purposes of the CSBS peer review programme each renal unit has been reviewed and reported on separately.

This report focuses on the Western Infirmary, Glasgow, one of ten renal units treating adults with renal failure across Scotland. It has two satellite units at Gartnavel General Hospital, Glasgow, and Inverclyde Royal Hospital, Greenock. The Western 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 Inverclyde 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 North Glasgow University Hospitals NHS Trust for the Western Infirmary Renal Unit:

- The Western Infirmary provides renal transplant services for the west of Scotland.
- At the time of the visit there were 1,160 patients receiving renal replacement therapy. There were 92 new patients during the previous year. The number of patients on different forms of renal replacement therapy are as follows:

	Western Infirmary & Gartnavel Annex	Inverclyde Royal Satellite
- hospital haemodialysis	180	35
- home haemodialysis	-	-
- continuous ambulatory peritoneal dialysis (CAPD)	61	-
- automated peritoneal dialysis (APD)	12	-
- renal transplant	872*	-

*includes patients followed up partly/wholly by Dumfries & Galloway Royal Infirmary, Dumfries, and Crosshouse Hospital, Kilmarnock.

In 2001, 79 renal transplants were carried out, 59 of which were cadaver donor, 16 live related and 4 live non-related.

Patients with suspected renal failure are typically referred to the Western Infirmary for renal investigation. For patients requiring renal replacement therapy, dialysis is started at either the Western Infirmary or Gartnavel Annex, Glasgow. Patients from Argyll & Clyde are then transferred to the Inverclyde Royal Hospital, Greenock,

satellite unit. Patients suitable for peritoneal dialysis continue treatment at home where appropriate, attending clinics at the Western Infirmary.

Transplant patients are typically referred to the transplant unit at the Western Infirmary. Follow up of transplant patients is generally undertaken at the Western Infirmary. Patients from Dumfries & Galloway and Ayrshire & Arran are partly or wholly followed up at Dumfries & Galloway Royal Infirmary, Dumfries, and Crosshouse Hospital, Kilmarnock, renal units respectively.

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

- The referral population covered by primary renal services in Glasgow is approximately 1.6 million and includes NHS Greater Glasgow, NHS Forth Valley and NHS Argyll & Clyde. The referral population covered by the Western Infirmary transplant unit is 2.7 million and includes NHS Greater Glasgow, NHS Ayrshire & Arran, NHS Dumfries & Galloway, NHS Lanarkshire, NHS Argyll & Clyde and NHS Forth Valley.

- Renal in-patients are focused in Glasgow (the Western Infirmary and Glasgow Royal Infirmary renal units) while dialysis out-patients typically receive treatment at the satellite units.

- Plans are in place to develop additional satellite units at Alexandria (late 2002 – 2003), Paisley (2003 – 2004) and South Glasgow (no timescale).

- Action is being taken to increase capacity due to a growth in demand for dialysis. To facilitate discussion and the planning of renal services in NHS Greater Glasgow and surrounding NHS Boards, the West of Scotland Renal Pressures Group has been established, comprising representatives from the relevant NHS Boards and Trusts. The Group is also considering issues surrounding nursing and staffing.

- There is a nation-wide shortage of consultant transplant surgeons, which presents staffing issues in this area for the Western Infirmary Transplant Unit.

- There was a slight decrease in cadaver donor transplants in 2001, and a further decrease is projected. This is due in part to a lack of cadaver donor kidneys.

- Since 1999 there has been an increase in live donor transplants. It is projected that 25 will be undertaken in 2002, with the number stabilising at 25 in future years.

- While the transplant unit has an active policy in the acceptance of kidneys for transplant, both patient and transplant survival rates exceed the standards.

- The Western Infirmary acts as a tertiary referral service for patients from outwith NHS Greater Glasgow who require more complicated dialysis access surgery.

- A joint medical and surgical business case has been put forward for the development of a dedicated surgical nursing unit for vascular access at the Western Infirmary. It is anticipated that, if accepted, it will address the issues surrounding a lack of in-patient beds.

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 indicated that the adequacy target is met for patients who have been on dialysis for more than 3 months. Medical input is variable across the sites, particularly at Gartnavel General Hospital, with changes in dialysis prescription typically being nurse-led, and documentation being in the nursing notes.

The review team commended the monthly monitoring of the quality of water for dialysis and noted that results meet Renal Association targets for microbial count.

It was noted that calculation of the percentage of patients achieving the Renal Association standards for pre-dialysis potassium, phosphate and calcium is undertaken at the two sites where the majority of stable patients receive dialysis.

Peritoneal Dialysis

Audit data provided by the unit indicated that the essential limits detailed in this standard for adequacy in patients on peritoneal dialysis are not met. The review team was concerned to note that not all patients are tested for adequacy, with insufficient staffing being identified as a contributing factor for this. However, for patients found not to be achieving the target adequacy there is comprehensive documentation of the reasons for this, and the review team commended the continuity of care provided. Good communication between medical and nursing staff facilitates prompt action being taken in response to poor adequacy.

It was noted that while the percentage of patients achieving the Renal Association targets for potassium, phosphate and calcium is not routinely calculated, there is regular review of patients' results.

Haemoglobin in Patients on Dialysis

Audit data provided by the unit indicated that haemoglobin targets are achieved in the majority of dialysis patients. The review team noted that while haemoglobin targets are met at two sites they are not met for haemodialysis patients at the Western Infirmary. A contributing factor identified is that this site is responsible for the dialysis of the majority of unwell, and therefore less stable, dialysis patients.

A comprehensive system of nurse-led anaemia review is in place. There is also regular monitoring of iron status.

The review team was pleased to note that the unit has recently started to document blood transfusions on the computer system, with the intention of monitoring the number of patients receiving blood transfusions in the future.

Dialysis Access

Audit data provided by the unit indicated that the percentage of patients having permanent access available at their first dialysis is outwith the target set by the standard, as is the percentage of patients in which permanent catheters are used as haemodialysis access. The review team identified insufficient dedicated access to theatre and a lack of in-patient beds as the major contributing factors for this. The review team was pleased to note the Trust's efforts to address the latter. However, a particular challenge to the Trust is the provision of an adequate number of theatre sessions for the patient population.

Nutritional Status

It was noted that not all patients are routinely assessed at least 6-monthly to identify those at risk of malnutrition, and concerns were expressed that not all patients who may be at risk are identified. Time constraints and a shortage of clinic accommodation were cited as contributing factors for this. However, the review team commended the follow-up of those patients who are identified as at risk of malnutrition. Patients are fully involved in the process of setting nutritional goals and a comprehensive system of documentation and monitoring of these goals, in accordance with Renal Nutritional Group Standards, is in place.

While staff interviewed acknowledged the benefits of performing baseline anthropometry, time constraints were identified as a contributing factor for this not being routinely undertaken for all patients at the beginning of dietetic treatment.

Drug Therapy

Protocols are in place for all the areas required, although the review team noted that awareness of transplant protocols is variable. It was felt that wider dissemination

of protocols would be beneficial to the unit. The review team noted the lack of pharmaceutical input into the development of local protocols.

There is routine review of all patients' prescriptions at Inverclyde Royal Hospital, Greenock, and in-patients' prescriptions at the Western Infirmary. However, it was noted that there is no routine review of all haemodialysis patients prescriptions at the Western Infirmary or Gartnavel General Hospital Annex. While information and advice about the use of drugs in chronic renal failure or in dialysis patients is available to healthcare professionals, the review team concluded that information and advice for patients at two of the sites is provided on an ad hoc basis.

The review team expressed concerns about the varying level of pharmaceutical cover across the three sites and identified this as a particular challenge to the Trust.

Access to Multidisciplinary Team

It was reported that there is good access to most members of the multidisciplinary team, particularly for in-patients. However, the review team noted varying awareness amongst staff of counselling, clinical psychology and liaison psychiatry services. It was also noted that there is no designated renal social work provision for out-patients. Time delays were reported for referrals to some services.

The review team established that review of dialysis patients is multidisciplinary at Inverclyde Royal Hospital Satellite Unit. At the Western Infirmary and Gartnavel General Hospital Annex there is regular review of dialysis patients, although not all members of the multidisciplinary team attend the meetings. However, the review team was confident that good communication exists between all relevant staff.

Assessment for Transplantation

Staff interviews confirmed that assessment of patients for transplantation within 3 months of starting dialysis, and annually thereafter, is standard practice at the renal unit. This forms part of the monthly patient review. The review team commended the obvious commitment of staff to transplantation, and noted the good communication that exists between medical and nursing staff and patients.

Recently Introduced

The review team commended the recent introduction of letters, which are sent to patients detailing information regarding the outcome of their assessment for transportation at the Western Infirmary Transplant Unit.

The percentage of dialysis patients on the waiting list for transplantation is routinely monitored, with a formal review taking place annually.

Kidney Retrieval

While cold storage time is kept below 24 hours where possible it was recognised that there is difficulty gaining access to theatre which impacts on cold storage time. It was felt that improved access would facilitate an improvement in this area.

Audit data provided by the unit demonstrated that the percentages of heart-beating cadaver donor kidneys that function immediately, or never function, both fall outwith the essential limits set within this standard. Difficulty in gaining access to theatre was identified as a major contributing factor for this, along with the policy of the Western Infirmary Transplant Unit to accept a higher percentage of marginal kidneys in the interests of offering transplants to a higher percentage of people.

Survival Rates

Audit data provided by the unit demonstrated that this standard is met. The review team commended the high percentage of survival outcomes, particularly in light of the use of marginal kidneys.

Out-patients

The review team confirmed that all new patients are offered an appointment to be seen within one month of referral to the nephrology out-patient service. However, it was recognised that there are delays in sending out clinic letters to the GP. An over-stretched secretarial service and delays in receiving patients' results were highlighted as contributing factors for this.

Example of a local initiative

The review team commended the patient drug record booklet in which changes in medication are recorded, and also the detailed letters outlining patient's results and current medication that are sent to GPs from Inverclyde Royal Hospital every 3 months.

Provision of Patient Information

There is a wide variety of information provided to patients, which is available in different formats, although the review team noted that an increased awareness amongst all staff of the information available would be beneficial. The review team established that good verbal communication exists between staff and patients, with patients and carers being involved in decisions about treatment and changes in treatment.

While a dedicated experienced renal nurse attends pre-dialysis clinics, the review team welcomed the identification of funding for the post of pre-dialysis nurse specialist.

Transportation for Haemodialysis

The review team commended the results of the audit data provided by the unit in relation to this standard. However, it was noted that the results were not in line with staff perception.

Challenges to the Trust are the recording of reasons for delays of more than an hour in transportation, and the provision of comfortable areas for patients to wait for hospital transportation. It was also noted that the travelling time home for some patients following dialysis is excessive. However, the review team was reassured to learn of plans to establish satellite units in Alexandria, Paisley and south Glasgow in the future, thus facilitating a reduction in travelling time for patients from these areas.

Audit: Information/Data Collection

The review team commended the good links that exist between the unit and the Scottish Renal Registry. Computerised systems are in place to ensure the continuous collection of the Scottish Renal Registry core data set. The unit also takes part in comparative audits of dialysis and transplantation through the Scottish Renal Registry.

However, it was recognised that input of the data collected is time-consuming and requires considerable staff time.

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).

Western Infirmary Renal Unit, Glasgow

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: **Met**

Audit data provided by the unit demonstrated that this criterion is met in all patients dialysing for more than 3 months.

The Kt/V calculation is not used.

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

STATUS: **Met**

Reasons for patients not achieving the target haemodialysis adequacy are recorded in the nursing notes and care plan, with appropriate action being taken. The review team noted that medical input is variable across the three sites, with changes in prescription being typically nurse-led.

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

STATUS: **Met**

All haemodialysis patients are offered dialysis three times a week.

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

STATUS: **Met**

The review team confirmed that the quality of water for dialysis is monitored monthly. Evidence provided by the unit indicated that the results meet Renal Association targets for microbial count.

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: **Not met**

The percentage of patients achieving the Renal Association standards for pre-dialysis potassium, phosphate and calcium is calculated monthly at the Gartnavel General Hospital Annex and Inverclyde Royal Hospital Satellite Unit, where the majority of haemodialysis patients are treated.

The review team confirmed that the percentage is not routinely calculated at the Western Infirmary. However, it was noted that a report showing the results of patients' pre-dialysis potassium, phosphate and calcium is produced on a monthly basis and reviewed at the multidisciplinary team meetings.

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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.

Western Infirmary Renal Unit, Glasgow

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: **Not met**

The review team confirmed that not all patients on peritoneal dialysis are tested for creatinine clearance. Insufficient staffing was identified as a contributing factor.

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

STATUS: **Met**

Reasons for those patients tested not achieving the target peritoneal dialysis adequacy are recorded in the nursing notes, medical notes, GP letter and on the computer database. Action taken is recorded on the continuous ambulatory peritoneal dialysis (CAPD) Adequacy computer programme and followed up accordingly. Good communication between nursing and medical staff facilitates continuity of care, with prompt action being taken in response to patients not dialysing well.

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: **Not met**

Staff interviews confirmed that the percentage of patients achieving the Renal Association targets is not routinely calculated. However, the review team noted that the results of patients' potassium, phosphate and calcium are collected and reviewed a minimum of 3-monthly.

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

STATUS: **Met**

The use of disconnect systems is standard for all peritoneal dialysis patients.

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

STATUS: **Met**

Audit data provided by the unit indicated that this criterion is 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.

Western Infirmary Renal Unit, Glasgow

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 while this criterion is met for peritoneal dialysis patients, it is not met for haemodialysis patients at the Western Infirmary. A contributing factor for this is that this site is responsible for the dialysis of the majority of unwell, and therefore less stable, dialysis patients.

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 in the nursing notes. It was noted that action taken is largely nurse-led.

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

STATUS: **Met**	Iron status is monitored monthly for haemodialysis patients, and 1-3-monthly for peritoneal dialysis patients.

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

STATUS: **Not met**	Staff interviews confirmed that the number of patients receiving blood transfusions is not monitored. However, the review team noted that the unit has recently started to document blood transfusions on the Proton computer system with the intention of monitoring the number of patients receiving blood transfusions in the future.

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Standard 4 - Clinical Management/Treatment 4: Dialysis Access

All people requiring dialysis have timely surgery for access.

Western Infirmary Renal Unit, Glasgow

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: **Not met**	Audit data provided by the unit demonstrated that this criterion is not met. Two major contributing factors for this are insufficient theatre time and a lack of in-patient beds. The review team was pleased to note that the Trust is working to address these factors.

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

STATUS: **Met**	Reasons for patients not having permanent access available at their first dialysis are documented in the nursing notes, which follow the patient throughout their treatment.

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

STATUS: **Not met**	There is not an adequate number of dedicated theatre sessions for the patient population. In addition, staff interviews highlighted that patients with difficult access are referred for surgery to the Western Infirmary from surrounding areas, therefore increasing the number of patients requiring access surgery.

Desirable Criteria

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

STATUS: **Not met**	Audit data provided by the unit demonstrated that this criterion is not met by a small margin.

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

STATUS: **Not met**	Audit data provided by the unit demonstrated that this criterion is not met. Contributing factors for this are detailed under Criterion 4.1.

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.

Western Infirmary Renal Unit, Glasgow

Essential Criteria

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

STATUS:
Not met

Patients are not routinely assessed at least 6-monthly to identify those at risk of malnutrition, and concerns were expressed that some patients who may be at risk could be missed, particularly amongst the out-patient population. Contributing factors identified for this criterion not being met were time constraints, and lack of clinic space for the dietetic service.

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

STATUS:
Met

Patients who are identified as at risk have nutritional goals set, documented and monitored in accordance with Renal Nutritional Group Standards. The review team confirmed that patients are fully involved in this process.

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

STATUS:
Met

Reasons why patients identified as at risk do not achieve nutritional goals are documented on the dietetic record card and the computer database, with appropriate action being taken.

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

STATUS:
Met

There are two whole-time equivalent designated renal dieticians.

Desirable Criteria

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

STATUS:
Not met

Staff interviews indicated understanding of anthropometry and a keenness to perform the technique. However, it was reported that time constraints do not allow for this to be routinely performed.

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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.

Western Infirmary Renal Unit, Glasgow

Essential Criteria

Criterion	Comment
1.1: There are protocols for: Management of anaemia; Treatment of peritonitis; Immunisation for Hepatitis B.	
STATUS: **Met**	Protocols are in place for all these areas, and are updated as required. The review team confirmed that staff showed a good awareness of them. While there has been no pharmaceutical input into the development of the protocols, the pharmacist demonstrated good awareness of their content.
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: **Met**	Protocols are in place for all these areas, although staff interviewed showed varying degrees of awareness of some of them. The review team felt that wider distribution of the protocols would be beneficial.
2: All patients' prescriptions are reviewed to ensure their drug therapy is appropriate for their circumstances.	
STATUS: **Not met**	Whilst all in-patient prescriptions are reviewed by the pharmacist, the review team confirmed that there is no routine review of all haemodialysis patients' prescriptions at the Western Infirmary and Gartnavel General Hospital Annex. However, it was noted that all renal patients at Inverclyde Royal Hospital Satellite Unit have their prescriptions routinely reviewed by the pharmacist.
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: **Not met**	Information for healthcare professionals is provided in the Renal Drug Handbook, a copy of which is available in each ward area. Pharmacists may also be contacted for further information and advice. Information for patients at the Western Infirmary and Gartnavel General Hospital Annex is provided by medical staff and named nurses, although it was felt this is ad hoc. Information is provided routinely to patients at Inverclyde Royal Hospital Satellite Unit from the pharmacist and named nurse.
4: There is a designated pharmacist with a recognised postgraduate qualification and/or renal experience.	
STATUS: **Not met**	There is a designated pharmacist with renal experience at Inverclyde Royal Hospital Satellite Unit. However, while there is a designated pharmacist with renal experience at the Western Infirmary site, the review team confirmed that the pharmaceutical cover does not extend to the Gartnavel General Hospital Annex.

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

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

Western Infirmary Renal Unit, Glasgow

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**

The review team confirmed that patients are referred to the relevant services when required with the exception of the counselling service, clinical psychology and liaison psychiatry. Staff interviews indicated varying awareness of services offered. It was noted that there is no designated renal social worker for out-patients.

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

STATUS: **Not met**

There are weekly multidisciplinary meetings to confidentially review in-patients at the Western Infirmary, although the pharmacist is not involved. Out-patient haemodialysis patients at the Western Infirmary and Gartnavel General Hospital Annex are reviewed on a monthly basis; review is largely nurse-led at Gartnavel. There is no regular multidisciplinary team meeting to review peritoneal dialysis patients. However, the review team was confident that good communication exists between all members of the multidisciplinary team.

The review team confirmed that dialysis patients are regularly and confidentially reviewed by a multidisciplinary team at the Inverclyde Royal Hospital Satellite Unit.

Standard 8 - Transplantation 1: Assessment for Transplantation

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

Western Infirmary Renal Unit, Glasgow

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: **Met**	Staff interviews confirmed that all patients are assessed for transplantation within three months of starting dialysis. Those suitable are referred to the Western Infirmary Transplant Unit. This assessment forms part of the monthly patient review.

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

STATUS: **Met**	Patients referred are seen by a nephrologist and transplant surgeon from the Western Infirmary Transplant Unit.

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: **Met**	Decisions regarding the patient's assessment at the Western Infirmary Transplant Unit are communicated in writing to the GP. Letters to the patient, and carer where appropriate, detailing this information have recently been implemented.

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

STATUS: **Met**	Staff interviews confirmed that it is standard practice for all patients on dialysis to be reviewed annually for their suitability for transplantation. This assessment forms part of the monthly patient review.

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

STATUS: **Met**	The review team confirmed that all patients on the waiting list are informed of the outcome of their review either orally or in writing.

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

STATUS: **Met**	Lists of patients on the waiting list for transplantation are produced monthly, with a formal review taking place annually.

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

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

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

STATUS: **Met**	Type 1 diabetic patients with renal failure are considered for combined pancreas and kidney transplant. This forms a part of the transplant assessment.

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.

Western Infirmary Renal Unit, Glasgow

Essential Criteria

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

STATUS: **Not met**	The review team confirmed that junior surgeons routinely retrieve kidneys without the presence of a consultant transplant surgeon.

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

STATUS: **Met**	The review team confirmed that cold storage time is below 24 hours, where possible.

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

STATUS: **Not met**	Reasons for cold storage exceeding 24 hours are not currently documented, although staff showed a good awareness of the reasons. Concerns were raised regarding issues around access to theatre, and it was felt that improved access would facilitate a reduction in cold storage time. In addition anaesthesia cover was identified as a contributing factor for cold storage exceeding 24 hours.

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

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

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: **Not met**	Audit data provided by the unit demonstrated that this criterion is not met. Staff interviews identified that access to theatre is a contributing factor.

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: **Not met**	Audit data provided by the unit demonstrated that this criterion is not met. Staff interviews highlighted theatre access and the fact that the Western Infirmary accepts a higher percentage of marginal kidneys than other transplant units, as contributing factors.

Standard 10 - Transplantation 3: Survival Rates

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

Western Infirmary Renal Unit, Glasgow

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: **Met**	Audit data provided by the unit demonstrated that this criterion is met. The review team commended both the transplant and patient survival rates for live related donor kidney transplantation.

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: **Met**	Audit data provided by the unit demonstrated that this criterion is met. The review team commended both the transplant and patient survival rates following first cadaver kidney graft transplantation.

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

STATUS: **Met**	The review team confirmed that transplant patients are reviewed regularly by a nephrologist or transplant surgeon at out-patient clinics.

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.

Western Infirmary Renal Unit, Glasgow

Essential Criteria

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

STATUS: **Met**	The review team confirmed that all new patients are offered an appointment to be seen within 1 month of referral.

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

STATUS: **Not met**	Audit data provided demonstrated that this criterion is not met. Delays in receiving patient results and X-ray reporting, and limited secretarial support were highlighted as contributing reasons 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: **Met**	Changes in medication are communicated to the GP via the patient using a discharge letter for in-patients, and updating a drug booklet for haemodialysis and peritoneal dialysis patients. In addition the review team commended the GP letters which are sent every 3 months from Inverclyde Royal Hospital Satellite Unit, detailing patients' current medication.

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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.

Western Infirmary Renal Unit, Glasgow

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: **Met**	Staff interviews confirmed that nursing staff routinely provide those diagnosed with chronic renal failure, and carers where appropriate, with a range of verbal and written information. Written information is available in different languages. Videos are also shown to patients. The review team was confident that patients received the information they required and that all treatment options were identified along with possible outcomes, risks and possible side-effects.

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: **Met**	Pre-dialysis clinics operate with dedicated staff at which possible treatment options are discussed with patients and carers. Staff interviews confirmed that carers are actively encouraged to come to the clinics.

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

STATUS: **Met**	The review team confirmed that both patients and carers are involved in decisions about treatment and changes in treatment. All choices concerning treatment are documented in nursing and medical notes.

Desirable Criteria

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

STATUS: **Not met**	There is currently no designated pre-dialysis nurse specialist. However, the review team was pleased to note that funding has been identified for this post. It was also noted that there is a dedicated experienced renal nurse who attends pre-dialysis clinics.

Standard 13 - Patient Focus 3: Transportation for Haemodialysis

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

Western Infirmary Renal Unit, Glasgow

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: **Met**	Audit data provided by the unit demonstrated that this criterion is met. However, the review team noted that the results of the survey carried out were not in line with staff perception.

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

STATUS: **Not met**	Audit data provided by the unit demonstrated that the vast majority of patients begin dialysis within half an hour of appointment time, but not all begin within 1 hour. The most common reason identified for this was waiting for another patient to complete their dialysis session at the end of a shift.

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: **Not met**	Audit data provided by the unit demonstrated that the vast majority of patients using hospital transportation are collected within half an hour of the end of dialysis, but not all patients were collected within 1 hour.

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

STATUS: **Not met**	It was reported that reasons for delays of more than 1 hour are documented by renal staff at Gartnavel General Hospital Annex. However, this information is not routinely recorded at the Western Infirmary or Inverclyde Royal Hospital.

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

STATUS: **Not met**	The review team concluded that the areas provided for patients to wait for hospital transport are not comfortable, with some patients opting to wait elsewhere in the hospital.

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: **Not met**	The review team concluded that this criterion is not met. It was noted that the travelling time home for some patients following dialysis is excessive. However, the review team was reassured to learn that plans are in place for satellite units to be established in Alexandria, Paisley and south Glasgow in the future.

Standard 14 - Audit: Information/Data Collection

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

Western Infirmary Renal Unit, Glasgow

Essential Criteria

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

STATUS: **Met**	Information systems are in place for continuous collection of the Scottish Renal Registry core data set to facilitate audit.

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

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

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: **Not met**	The review team confirmed that all these data are collected routinely to facilitate regular audit, with the exception of peritoneal dialysis adequacy; this information is only collected for some patients.

Desirable Criteria

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

STATUS: **Met**	The Western Infirmary Renal Unit is currently involved in the collection of incidence, management and outcome data on acute renal failure as part of a year-long national 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 *Staphylococcus aureus*
SRR	Scottish Renal Registry
URR	Urea Reduction Ratio

2 Appendix — Review Team Members

Details of Review Visit

The review visit to Western Infirmary Renal Unit, North Glasgow Hospitals University Trust was conducted on 12 June 2002. The review team members for this visit were:

Professor Alison MacLeod (Team Leader)
Honorary Consulant Physician/Nephrologist, Grampian University Hospitals NHS Trust

Dr Carol Brunton
Consultant Nephrologist, Highland Acute Hospitals NHS Trust

Mrs Rhona Duncan
Renal Dietician, Ayrshire & Arran Acute Hospitals NHS Trust

Mrs Ann Dunlop
Charge Nurse, Ayrshire & Arran Acute Hospitals NHS Trust

Mr Jetmund Engeset
Consultant Transplant Surgeon, Grampian University Hospitals NHS Trust

Ms Jen Lumsdaine
Transplant Co-ordinator, Lothian University Hospitals NHS Trust

Ms Alison McGilvray
Lay Representative, Forth Valley

Mr Scott McJarrow
Lay Representative, Grampian

Clinical Standards Board for Scotland Personnel

Mr Sean Doherty
Review Team Manager, Clinical Standards Board for Scotland

Mrs Fiona Russell (nee Dymitrenko)
Project Officer, Clinical Standards Board for Scotland

Adult Renal Services Project Group — Appendix 3

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	26 June 2002
Including: Falkirk & District Royal Infirmary (satellite unit)	
Stobhill Hospital, Glasgow (satellite unit)	
Western Infirmary	12 June 2002
Including: Gartnavel General Hospital, Glasgow (annex)	
Inverclyde Royal Hospital, Greenock (satellite unit)	
NHS Grampian	
Aberdeen Royal Infirmary	23 October 2002
Including: Dr Gray's Hospital, Elgin (satellite unit)	
Peterhead Community Hospital (satellite unit)	
Chalmers Hospital, Banff (satellite unit)	
NHS Highland	
Raigmore Hospital, Inverness	29 May 2002
NHS Lanarkshire	
Monklands Hospital, Airdrie	10 July 2002
NHS Lothian	
Royal Infirmary of Edinburgh	19 September 2002
Including: Borders General Hospital, Melrose (satellite unit)	
Western General Hospital, Edinburgh (satellite unit)	
NHS Tayside	
Ninewells Hospital, Dundee	5 September 2002