

Transporting Patients to and from the Dialysis Unit – A National Audit

Introduction

Patients receiving hospital haemodialysis commonly identify travelling time to the dialysis unit as an important factor in the quality of their care. In 2002 the Clinical Standards Board for Scotland (CSBS, now part of NHS Quality Improvement Scotland – NHS QIS) set the standard that *“Delays for patients attending for dialysis are minimised through reasonable measures taken by the NHS board.”*

The standard is assessed against six criteria, of which we surveyed the following:

- 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.
- Within the constraints of population density and geography, a unit is available within half an hour’s travelling time for patients.
- 50% of all patients begin dialysis within half an hour of appointment time and all begin within one hour.
- 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.

In 2003 we analysed the travelling time for patients using geographical information software (GIS) and showed that 90.3% of renal replacement therapy patients in Scotland had a dialysis unit within 30 minutes travelling time. Health boards varied with the target achieved for 99.9% of patients in NHS Greater Glasgow and 0% in NHS Eileanan Siar and NHS Orkney. These data only demonstrated achievable travelling times assuming optimum transport, and many patients stated that this did not represent their experience. We wanted to capture a better representation of the actual patient experience.

Methods

A questionnaire was designed by a joint Scottish Renal Registry / Scottish Renal Association/ NHS QIS steering group and was amended after piloting in two dialysis units. All patients receiving regular haemodialysis in Scotland on 8-9/09/2008 were included in the audit. A standard audit form was administered by the nursing staff in the 30 dialysis units open on those dates. On 15-16/12/2008 a second opportunity was offered to non-responding patients who had been dialysing in September 2008, to complete the form. Completed forms were returned to the Scottish Renal Registry and data were entered by NHS QIS staff. Subsequent analysis was performed using SPSS for Windows v16.0.

Results

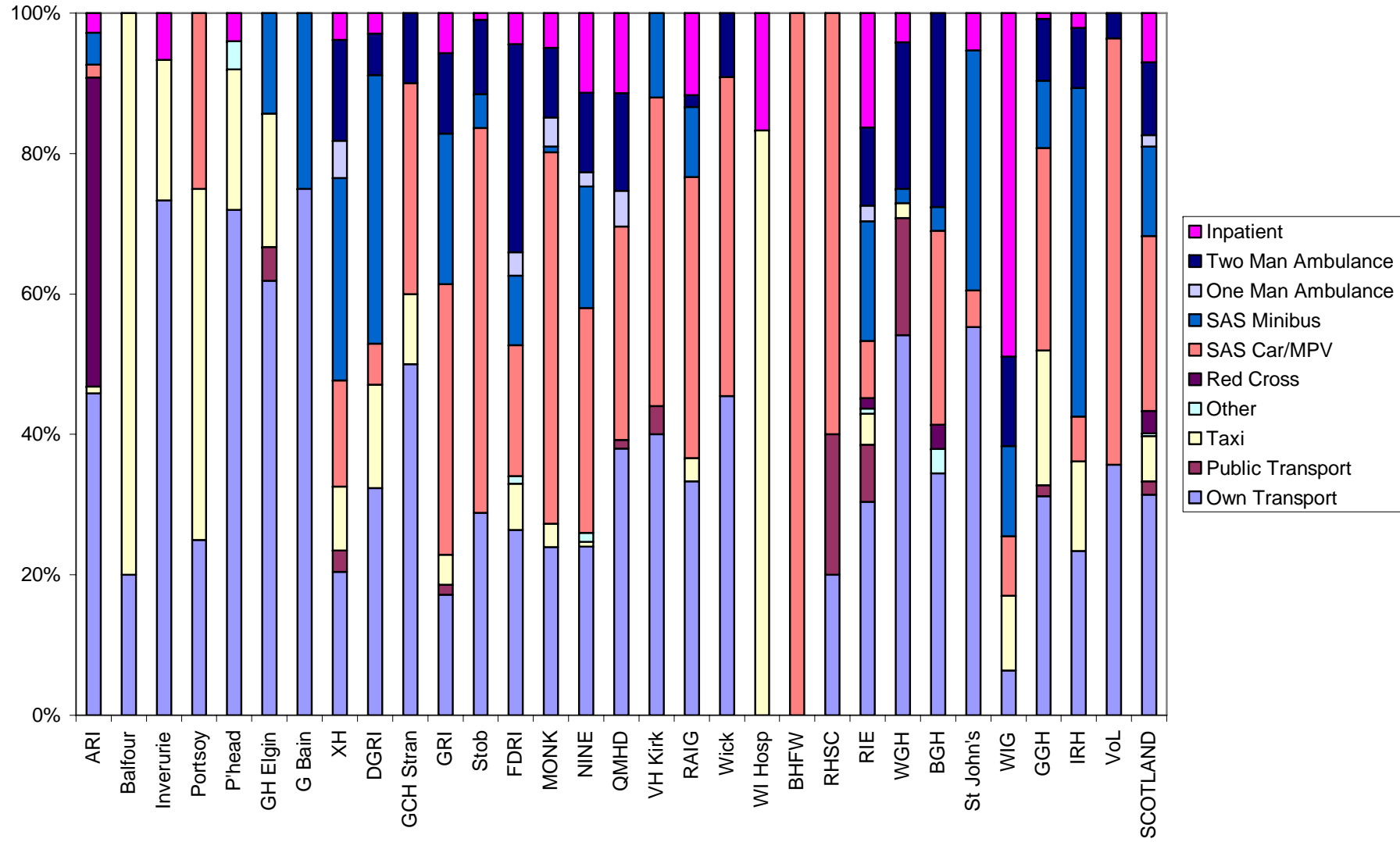
On 8-9/09/2008 1776 patients were receiving hospital haemodialysis in Scotland. Audit forms were returned by 1602 patients (90%, range 78-95%). Table 1

Types of transport used to reach the dialysis unit are shown in figure 1. There was marked variation in the types of transport used by patients in different dialysis units. 7.7% of patients thought that they were not travelling to their closest dialysis unit. Of those patients 36.5% were due to a lack of capacity in their preferred unit, 14.6% were awaiting the imminent opening of a new dialysis unit in Perth and for 7.3% required isolation facilities which were not available at their closest unit. For 10.2% it was because of their clinical condition and 15.3% were for reasons of patient choice.

Table 1 Audit form returns

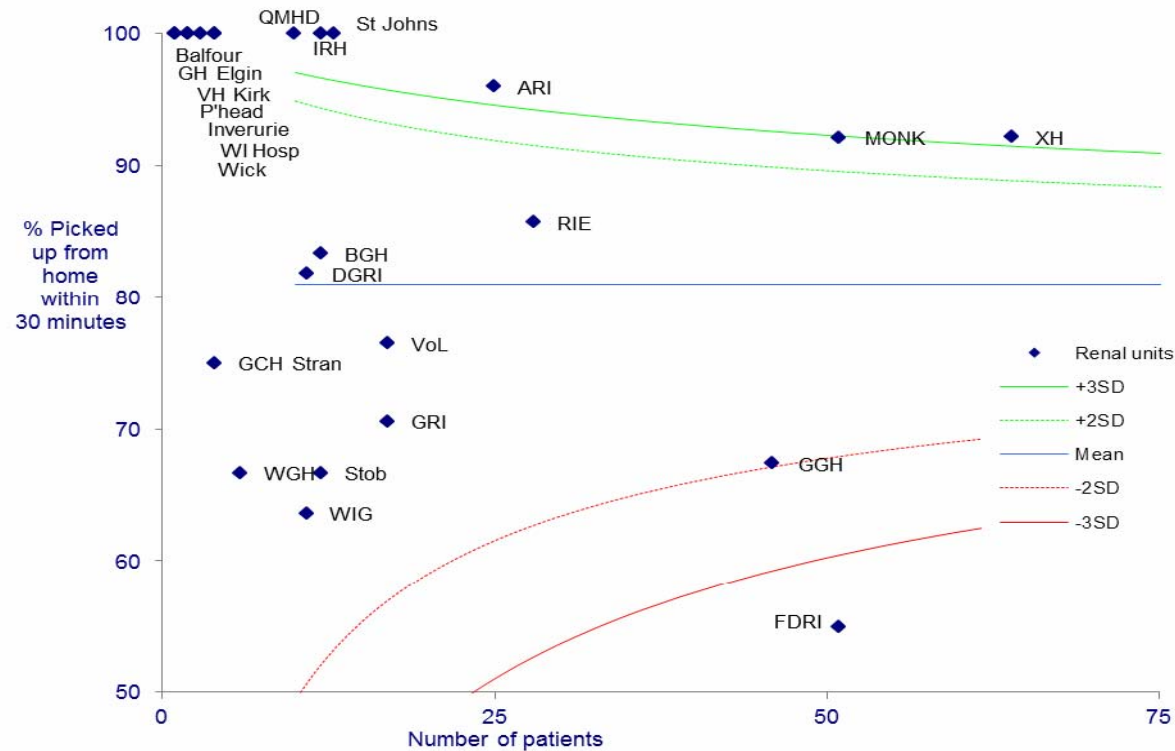
NHS Board	HD Patients	Forms Returned	Response Rate
Ayrshire & Arran	141	132	93.6%
Dumfries & Galloway	48	45	93.8%
Fife	115	106	92.2%
Grampian	198	188	94.9%
(including Orkney and Shetland)			
Greater Glasgow & Clyde	589	516	87.6%
(including Forth Valley)			
Highland	88	82	93.2%
(including Eileanan Siar)			
Lanarkshire	156	121	77.6%
Lothian	272	255	93.8%
(including Borders)			
RHSC	7	6	85.7%
Tayside	162	151	93.2%
SCOTLAND	1776	1602	90.2%

Figure 1 Type of transport used by patients to get to the dialysis unit



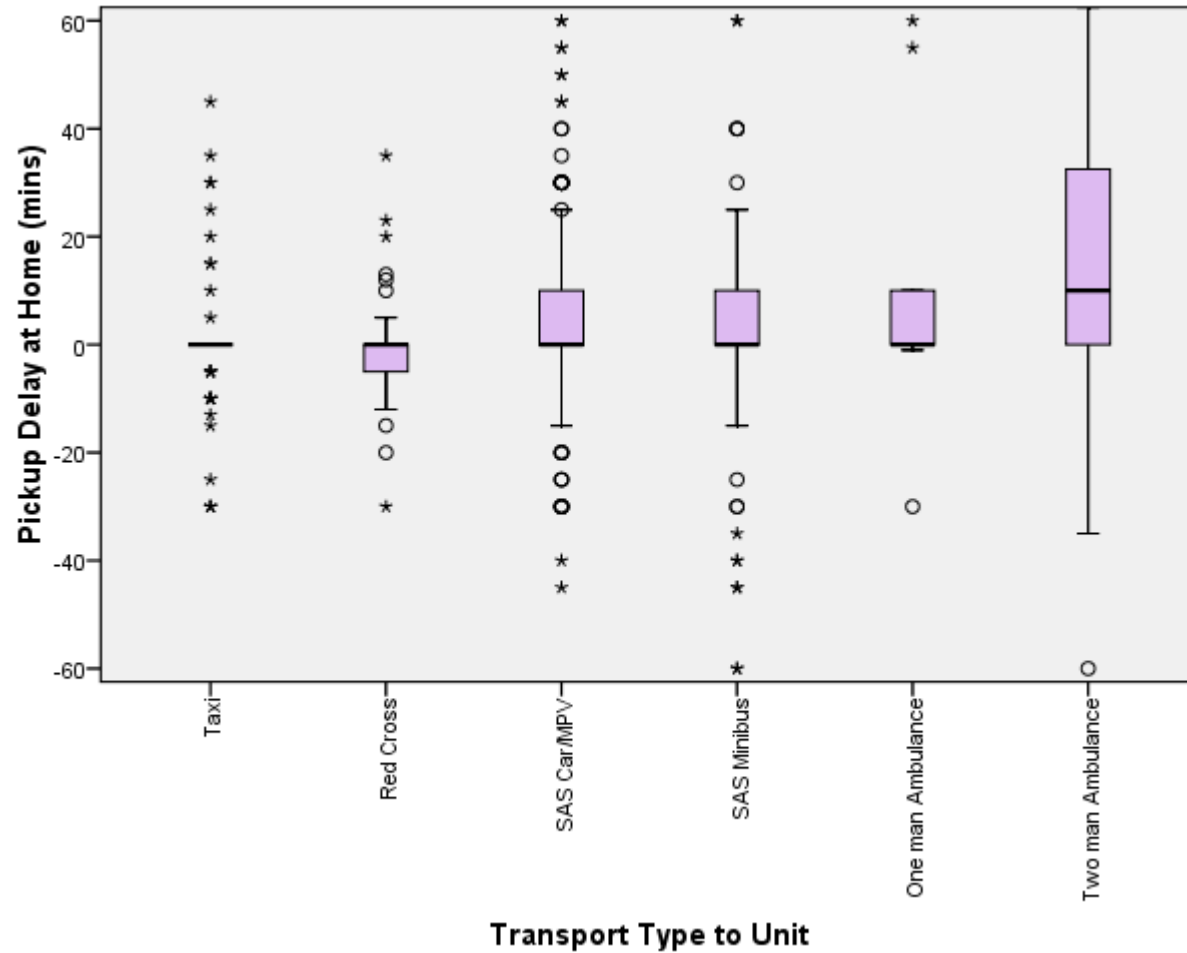
The 962 patients receiving hospital transport waited a median (interquartile range) of 0 (0-10) minutes for pick-up from home, with 10.7% waiting >30 minutes, and 2.7% >60 minutes. There was substantial variation in performance between units. The percentage of patients picked up within 30 minutes of their allotted time in each unit is shown in figure 2.

Figure 2 Percentage of HD patients picked up from home within 30 minutes of allotted time by renal unit



Performance by transport type is shown in figure 3. There is a significant difference between transport types (Kruskal Wallis $p < 0.001$). Two-man ambulances performed notably worse than other types of transport.

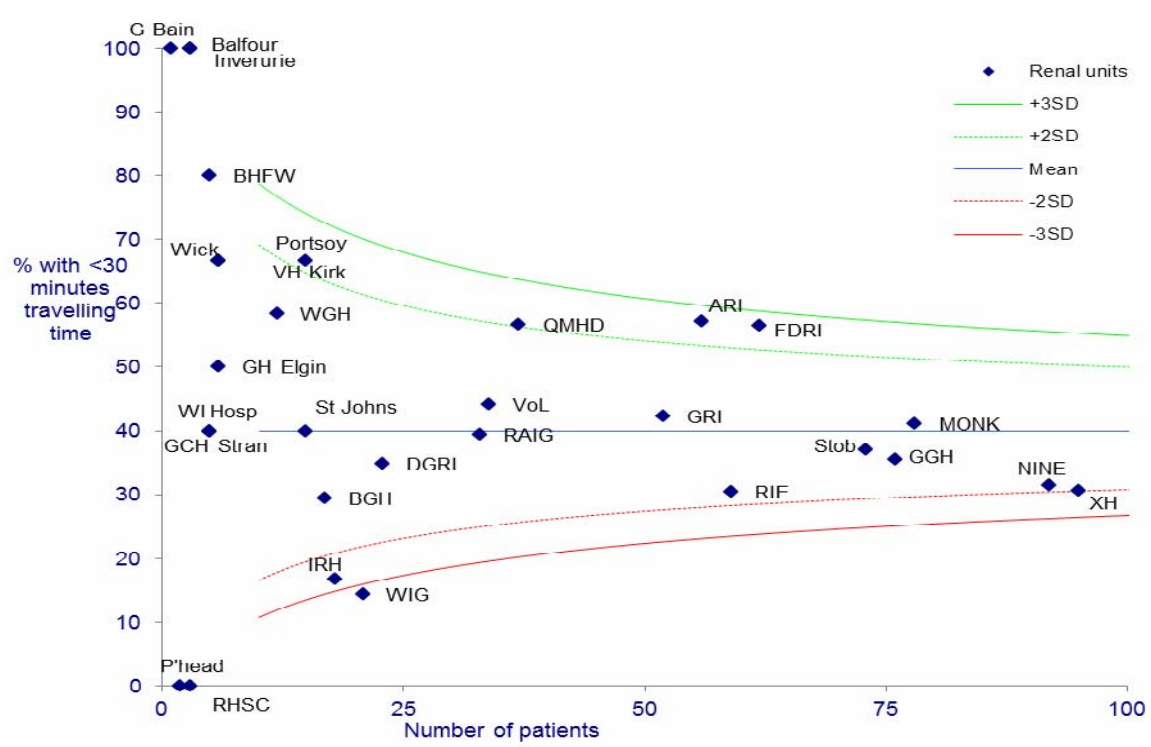
Figure 3 Time spent waiting at home for pick up by hospital transport type



Performance against the travel time criterion was generally poor. Median travel time was 30 (20-45) minutes. 45.8% of patients travelled for >30 minutes to get to the dialysis unit, and 9.0% >60 minutes. There was a wide range of performance between units. It is noticeable that performance did not relate obviously to rurality. Travel time correlated weakly with the number of passengers transported in the vehicle (Spearman's rho 0.132, p=0.000). There was no significant difference in travel time by vehicle type.

The percentage of haemodialysis patients using hospital transport who travelled for less than 30 minutes to reach each unit is shown in figure 4.

Figure 4 Percentage of HD patients with <30 minutes travelling time to the dialysis unit



Compared to scheduled dialysis start time, patients (including those arriving by their own transport) waited a median of 15 (0-30) minutes to start dialysis. 21.3% waited >30 minutes, and 5.1% >60 minutes. However, if one examined time from arrival in the dialysis unit until starting dialysis patients had to wait 25 (15-40) minutes, with 39.2% waiting >30 minutes and 9.4% >60 minutes. There was significant variation between dialysis units. The percentage of patients starting dialysis within 30 minutes of their scheduled time is shown in figure 5 and those starting within 30 minutes of arrival at the renal unit in figure 6.

Figure 5 Percentage of HD patients who started dialysis within 30 minutes of scheduled time by renal unit

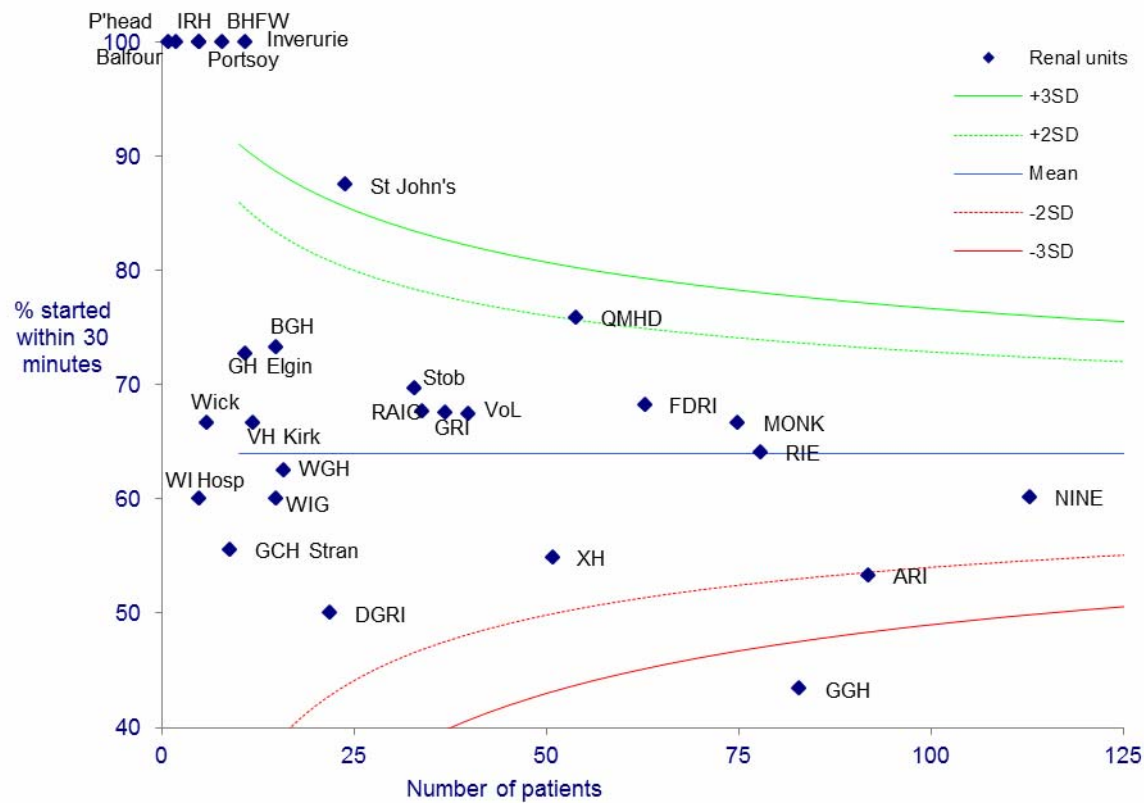
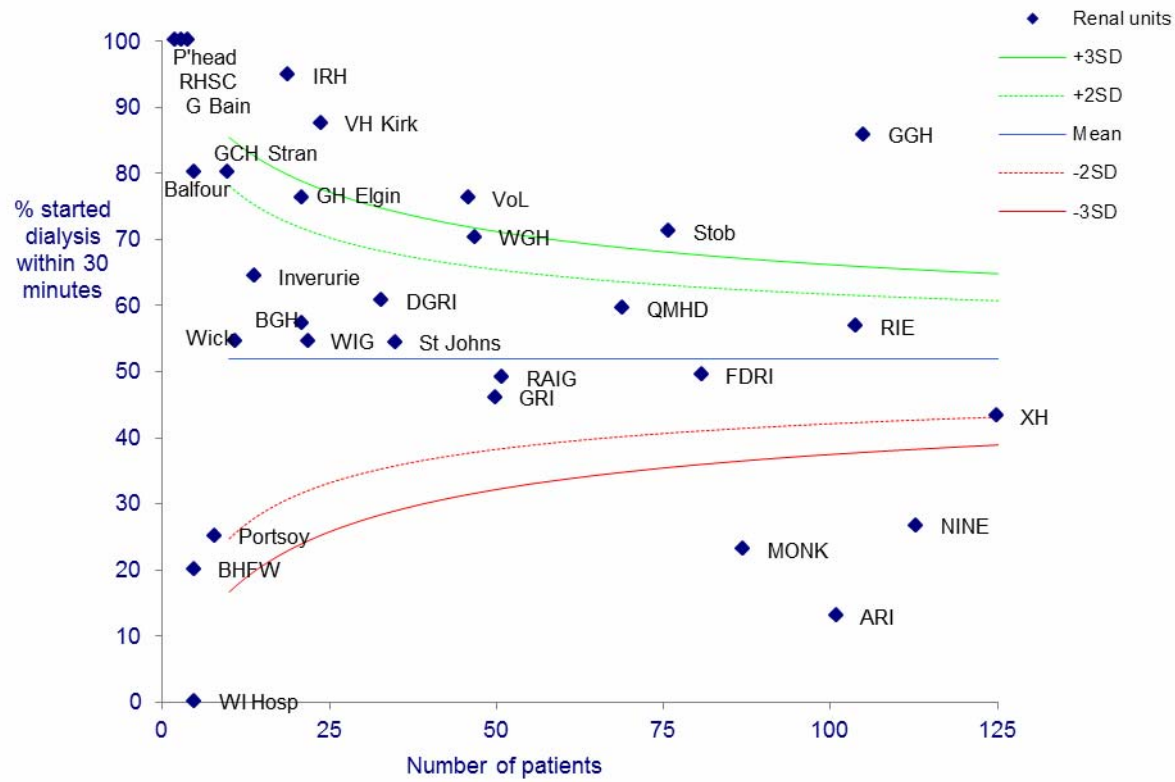


Figure 6 Percentage of HD patients who started dialysis within 30 minutes of arrival at the renal unit



After receiving dialysis, patients receiving hospital transport waited a median (interquartile range – IQR) of 15 (5-30) minutes for pick-up, with 21.9% waiting >30 minutes, and 6.4% >60 minutes. Performance against the standard of being picked up within 30 minutes is shown by unit in figure 7. Performance by transport type is shown in figure 8. There was a weak correlation with the number of passengers transported in the vehicle (Spearman’s rho 0.121, p=0.001).

Figure 7 Percentage of HD patients receiving hospital transport who were picked up from dialysis within 30 minutes of being fit to go home

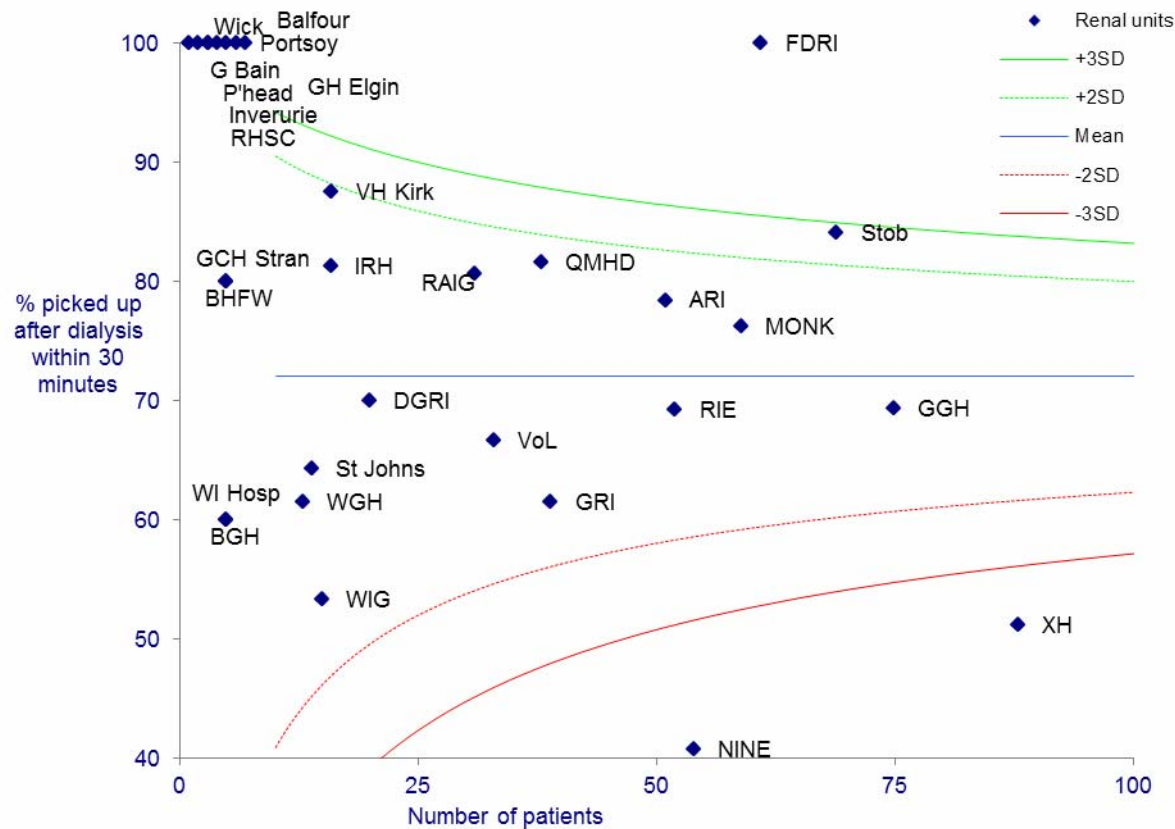
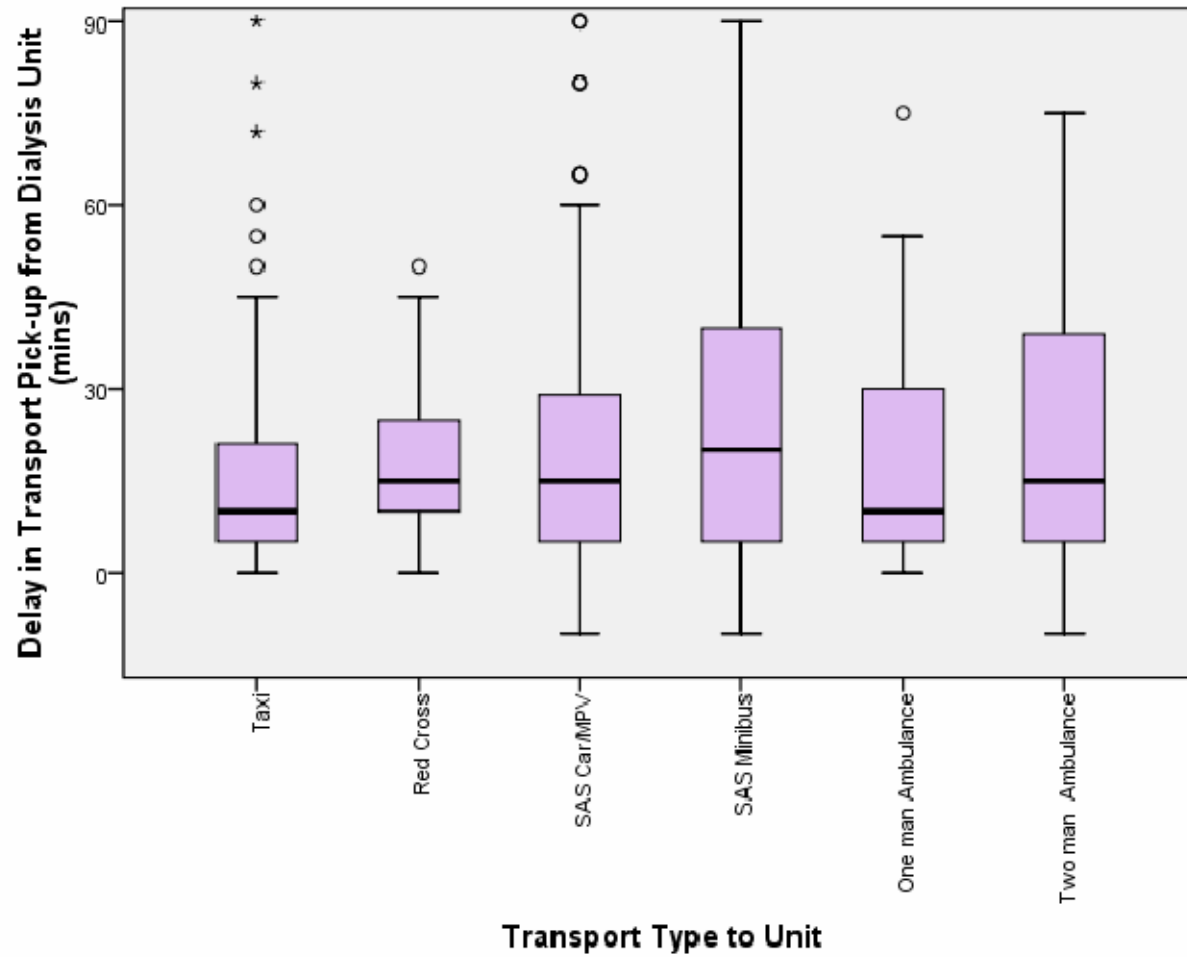


Figure 8 Time spent waiting in the dialysis unit for pick up after treatment by hospital transport type



Patients receiving hospital transport were asked for a global satisfaction score with their transport using a scale from 1-10, and these were generally high with a median of 8 (IQR 6-10). There was significant variation by dialysis unit shown in figure 9 (units with less than 5 respondents are omitted from the graph), and by transport type figure 10.

We also asked patients who transported themselves about the quality of patient parking and again scores were relatively high at 8 (4-10), but with marked variation between dialysis units. Units with less than 5 respondents are omitted from figure 11.

Figure 9 Patients' mean scores for satisfaction with hospital transport by renal unit

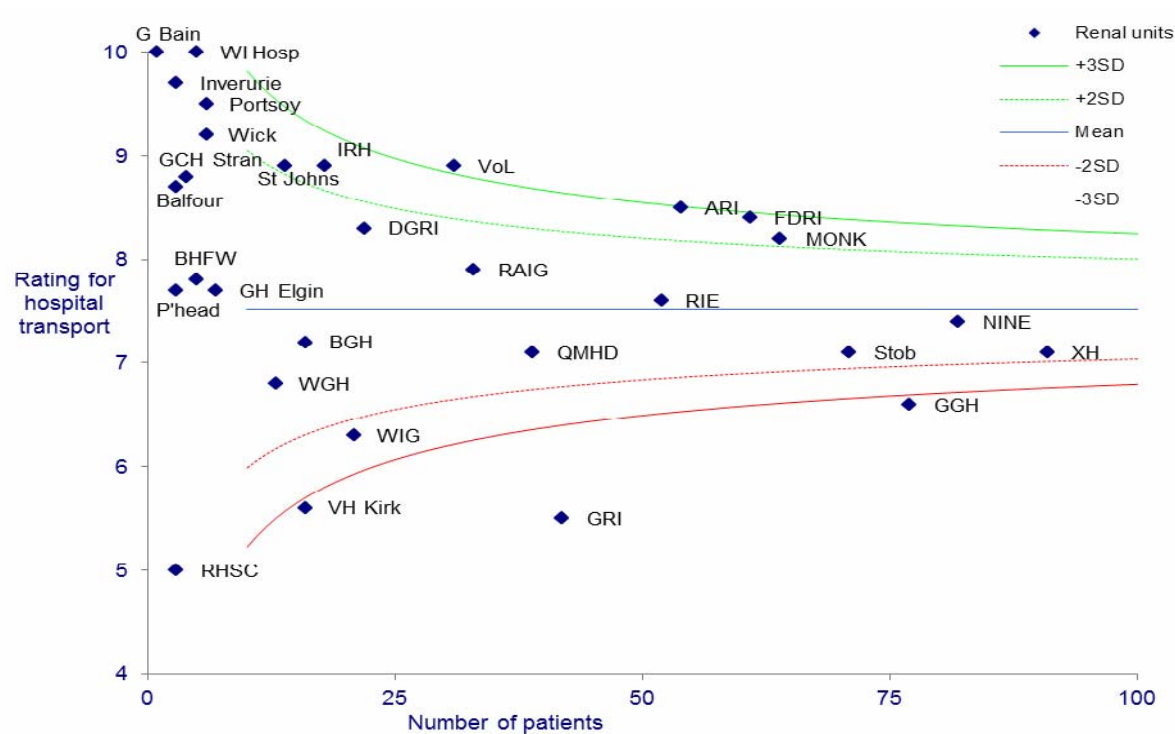


Figure 10 Global satisfaction score with hospital transport, by transport type

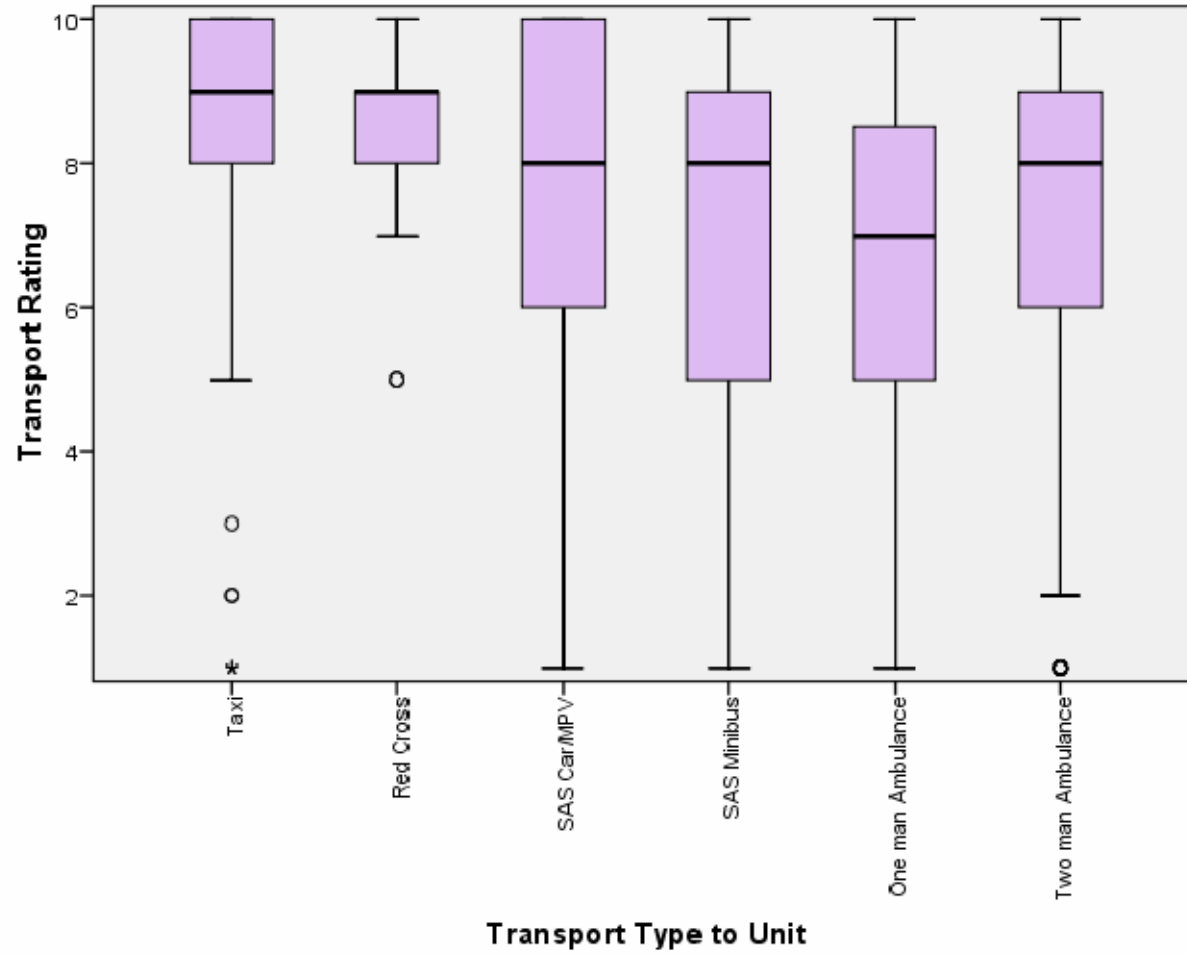
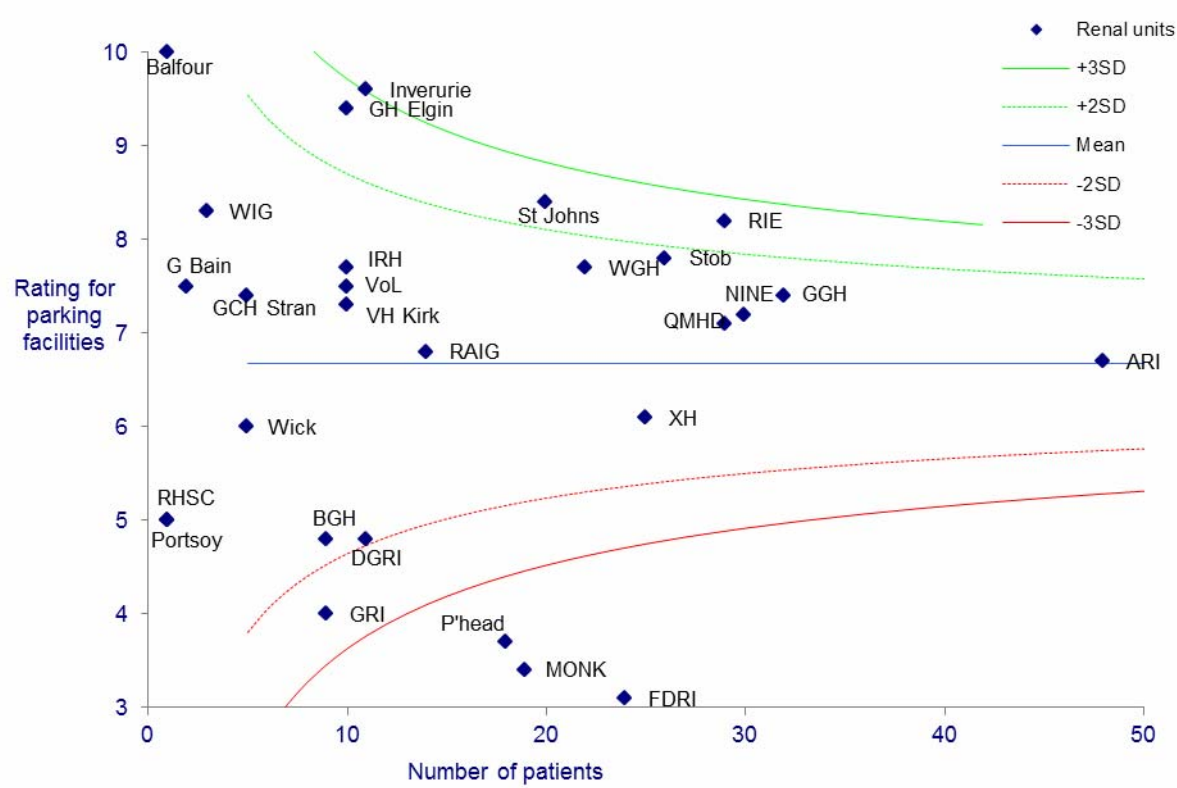
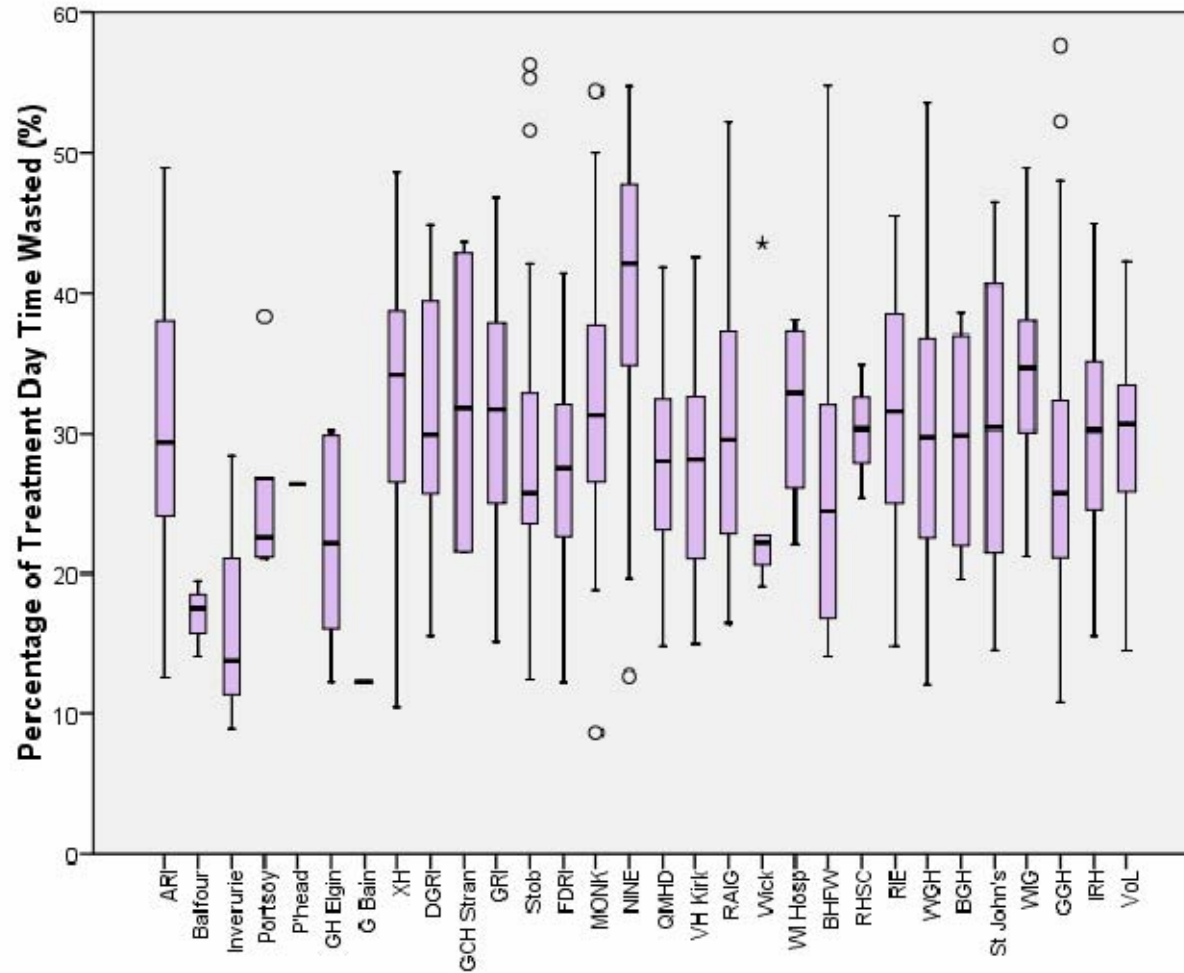


Figure 11 Patients' mean scores for satisfaction with parking by renal unit



As a summary measure of quality, we examined the actual treatment time (from start of dialysis until fit to go home) and expressed that as a percentage of the total day from pick up to time of arrival home. By this measure 31% (SD 9%) of the treatment day is waste with considerable variation between dialysis units (figure 12). A median of 24% (IQR 14-38%) of the wasted time is due to waiting to commence dialysis within the dialysis unit.

Figure 12 Percentage of patient's time away from home which is non-treatment time



Conclusions

The average dialysis patient spends 6.5 hours away from home on the day that s/he receives dialysis. Nearly one third of this time is wasted: waiting for transport both at home and then again in the dialysis unit, travel time to and from the dialysis unit, and waiting to be put on dialysis once in the unit. The wasted time represents a substantial proportion of dialysis patients' free waking hours.

The availability of dialysis units has improved substantially since our last report, rising from 21 to 30 dialysis units. A significant minority of patients do not, however, dialyse at their closest unit, suggesting additional capacity is required in some units. This audit confirmed patients' reported experiences that actual travel time was considerably poorer than is achievable judging from GIS analysis. This difference will partly be due to the realities of traffic speeds, and to a lesser degree due to multiple occupancy vehicles. Planning of dialysis units will need to take actual travel times into account in the future, rather than the GIS predictions, if patients are to meet the CSBS standard, and this may be particularly relevant for dialysis units in urban areas. Better quality transport services are also required, given the impact on quality of life. Some units clearly need to improve parking facilities for patients – if more patients can transport themselves, this will reduce the pressure on hospital transport services. Further expansion of home dialysis would of course reduce travelling time to zero for those patients.

This audit also highlighted the amount of time that patients wait to actually start dialysis once in the unit. This represented nearly one quarter of the wasted time, and affects patients whether they arrive by hospital transport or by their own transport. This waiting time varies substantially by unit, suggesting that there is opportunity for dialysis units to reduce this time by better organisation.

Acknowledgements

We are grateful to all the patients who contributed by completing their forms and to the many nursing staff without whose assistance the audit would not have taken place. We are also grateful to NHS QIS for assistance with planning, delivering and data entry.

Footnote

Since this audit was performed the following dialysis units have opened or closed:

- Perth opened
- Arbroath opened
- St Andrew's opened
- Victoria Infirmary, Glasgow opened
- Gartnavel General Hospital, Glasgow closed
- Plans for satellite dialysis unit in Ayr cancelled

References

1. Clinical Standards Board for Scotland. Clinical standards: adult renal services. Edinburgh: Clinical Standards Board for Scotland, 2002.
2. Scottish Renal Registry. Report 2002-2004. Edinburgh: National Services Scotland, 2007.