

## Chapter 7 Haemodialysis standards

### 7:1 Frequency of haemodialysis

The Renal standards document recommends *the adoption of thrice weekly dialysis sessions as a minimum in the majority of patients.*

Four centres were unable to supply data on the frequency of dialysis. Of those centres that sent this data, after excluding the 23% of patients with missing data, 92% of patients were dialysing three times a week. The 1995 Renal survey recorded 82% of patients in England on three times a week dialysis.

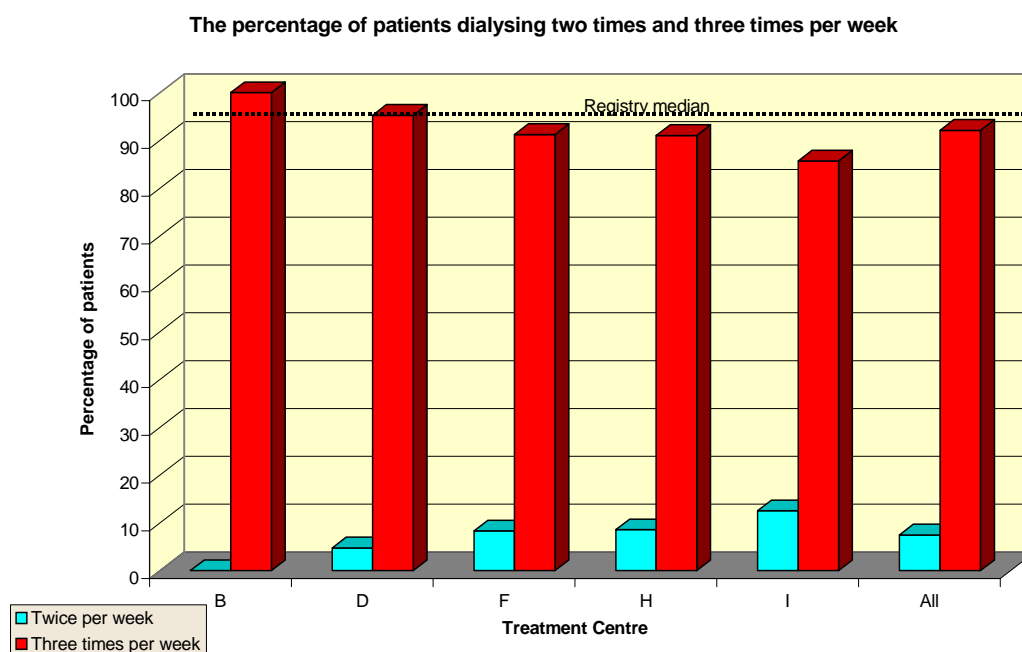


Figure 7.1 Percentage on twice and thrice weekly haemodialysis.

### 7:2 Bicarbonate dialysis

The Renal Standards document recommends that *renal units should move towards universal availability of bicarbonate and phasing out of acetate as the routine buffer base in haemodialysis fluid.*

Only three centres were able to send this data. Two centres used only bicarbonate dialysis, while the third had 82% of patients on bicarbonate dialysis. This centre aims to convert all patients to bicarbonate dialysis in the near future (personal communication). In the survey of renal services in England in 1995 over 90% of patients received bicarbonate dialysis, around 80% in Wales.

### **7:3 Adequacy of dialysis**

The Renal Standards document recommends *that all patients stable on three times a week dialysis should show:*

*a urea reduction ratio  $\geq 65\%$ .*

*or  $Kt/V > 1.2$  (dialysis and residual renal function)*

The has been increased from the previous Standards document which recommended urea reduction ratio  $> 55\%$ .

#### **7:3.1 Methodology**

Many centres calculate a  $Kt/V$  urea but use different methods of calculation, and thereby produce widely varying values, which do not permit comparability across centres. The Registry in future plans to calculate its own  $Kt/V$ , but as the raw data for this calculation has not been available from all sites, the urea reduction ratio has been used for this report as a marker of dialysis adequacy.

Home haemodialysis patients have been excluded from the analysis for direct comparability between units.

#### **7:3.2 Urea reduction ratio (URR)**

Urea reduction ratios were extracted from centre databases when stored. In other centres pre- and post- dialysis blood urea results were identified and extracted, and the Registry calculated the URR.

The Registry has not been able to standardise the timing and technique of the post dialysis urea sample.

The quoted targets for URR are for patients dialysing thrice weekly. Centres A, C, and E could not return this information to the Registry. For the other centres, exclusion or inclusion of the patients dialysing twice weekly did not alter the proportion of patients achieving the threshold for URR. This indicates that those dialysing twice weekly do not receive more vigorous dialysis at each session. For the following analysis those known to be dialysing once or twice a week have been excluded.

The results are shown in tables 7.1, 7.2 and figure 7.2. For comparison, the Scottish Registry data (1996) is included in table 7.1. Centre B has achieved the highest percentage of patients dialysing to the recommended standard of a URR  $> 65\%$ . with 90% reaching this value. It is one of the smaller centres, but clearly other centres may be able to learn from its practice.

Centre	Percentage achieving URR $\geq$ 65%	Percentage achieving URR $\geq$ 60%
A	58	80
B	90	95
C	43	72
D	52	76
E	70	85
F	61	84
G	53	78
H	53	76
I	N/A	N/A
<b>All</b>	<b>58</b>	<b>79</b>
Scotland	52	74

N/A - not available

Table 7.1 Urea reduction ratio achievement by centre

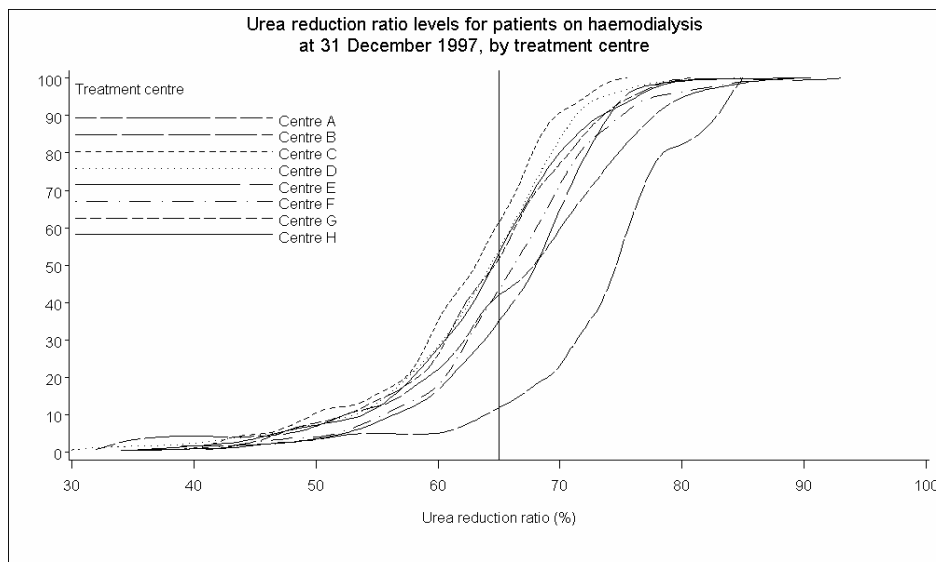


Figure 7.2 Cumulative distribution plot of urea reduction ratio.

Centre	Median URR	Lower quartile	Completeness of data in quarter
A	68	62	98
B	75	71	94
C	64	59	99
D	65	60	99
E	69	63	100
F	67	62	98
G	65	60.5	99
H	65	60	98
I			20
<b>All</b>	<b>66</b>	<b>61</b>	

### Table 7.2 Urea reduction ratio distribution

It is apparent from table 7.2 that the distributions are uniform, The Registry extraction software installed on systems will only return a URR if the value is greater than 30%. If the software calculates a value from two urea pairs (samples taken on the same date) that is less than this, it will look for another set of urea values.

To achieve a URR  $\geq 65\%$  for the large majority of patients within a unit would require a median URR value of 75% for the whole population. At this level 10% would remain below the minimum, as shown by the data from centre B. The "aim" for unit URR will need to be 75% if compliance with the standard is to be achieved.