

SECTION C SURVIVAL

C1 Survival analyses

| C1.1 Proportion of patients starting RRT 1994 - 2013 surviving at one, two, five and ten years by age and primary renal diagnosis group | | | | | | | | | | | | | |
|--|----------------------|---------------------------------|-------------|-----------|---------------------------------|-------------|-----------|---------------------------------|-------------|-----------|---------------------------------|-------------|-----------|
| Age group (years) | Diagnosis group | 1 year survival | | | 2 year survival | | | 5 year survival | | | 10 year survival | | |
| | | Number starting RRT (1994-2013) | n | % | Number starting RRT (1994-2012) | n | % | Number starting RRT (1994-2009) | n | % | Number starting RRT (1994-2004) | n | % |
| ≥75 | Unknown | 683 | 433 | 63 | 652 | 289 | 44 | 549 | 81 | 15 | 357 | 7 | 2 |
| | Diabetes | 271 | 170 | 63 | 248 | 113 | 46 | 199 | 25 | 13 | 103 | 1 | 1 |
| | Multisystem | 743 | 429 | 58 | 708 | 293 | 41 | 597 | 79 | 13 | 359 | 7 | 2 |
| | Interstitial | 268 | 189 | 71 | 258 | 131 | 51 | 218 | 44 | 20 | 136 | 4 | 3 |
| | Glomerulonephritis | 207 | 130 | 63 | 193 | 87 | 45 | 155 | 28 | 18 | 99 | 8 | 8 |
| 65-74 | Unknown | 596 | 439 | 74 | 575 | 345 | 60 | 503 | 158 | 31 | 363 | 29 | 8 |
| | Diabetes | 586 | 422 | 72 | 560 | 303 | 54 | 446 | 84 | 19 | 288 | 7 | 2 |
| | Multisystem | 975 | 609 | 62 | 927 | 426 | 46 | 797 | 159 | 20 | 560 | 23 | 4 |
| | Interstitial | 438 | 354 | 81 | 412 | 281 | 68 | 364 | 137 | 38 | 236 | 27 | 11 |
| | Glomerulonephritis | 318 | 265 | 83 | 304 | 209 | 69 | 255 | 99 | 39 | 174 | 19 | 11 |
| 45-64 | Unknown | 426 | 353 | 83 | 412 | 300 | 73 | 359 | 192 | 53 | 260 | 77 | 30 |
| | Diabetes | 891 | 744 | 84 | 836 | 568 | 68 | 678 | 211 | 31 | 413 | 42 | 10 |
| | Multisystem | 701 | 522 | 74 | 679 | 429 | 63 | 583 | 230 | 39 | 402 | 85 | 21 |
| | Interstitial | 888 | 824 | 93 | 837 | 730 | 87 | 692 | 494 | 71 | 448 | 214 | 48 |
| | Glomerulonephritis | 596 | 546 | 92 | 569 | 486 | 85 | 466 | 314 | 67 | 327 | 150 | 46 |
| 20-44 | Unknown | 239 | 226 | 95 | 229 | 205 | 90 | 207 | 170 | 82 | 154 | 107 | 69 |
| | Diabetes | 414 | 376 | 91 | 398 | 324 | 81 | 333 | 208 | 62 | 214 | 92 | 43 |
| | Multisystem | 213 | 197 | 92 | 205 | 184 | 90 | 177 | 143 | 81 | 117 | 80 | 68 |
| | Interstitial | 558 | 546 | 98 | 533 | 511 | 96 | 469 | 416 | 89 | 314 | 245 | 78 |
| | Glomerulonephritis | 410 | 402 | 98 | 380 | 365 | 96 | 317 | 293 | 92 | 225 | 198 | 88 |
| <20 | Unknown | 30 | 29 | 97 | 28 | 27 | 96 | 25 | 24 | 96 | 17 | 16 | 94 |
| | Diabetes | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| | Multisystem | 37 | 36 | 97 | 37 | 36 | 97 | 32 | 29 | 91 | 26 | 23 | 88 |
| | Interstitial | 151 | 147 | 97 | 146 | 141 | 97 | 130 | 121 | 93 | 77 | 68 | 88 |
| | Glomerulonephritis | 31 | 30 | 97 | 29 | 29 | 100 | 27 | 25 | 93 | 19 | 16 | 84 |
| All ages | All diagnoses | 10671 | 8418 | 79 | 10156 | 6812 | 67 | 8579 | 3739 | 44 | 5689 | 1545 | 27 |

7 patients with missing PRD Codes

Information on the inclusions and exclusions that are applied to survival analysis are detailed in the Summary of Data section of the report.

C1.2 Life expectancy for the general population of Scotland 2012-2014

| Age | Life expectancy males | Life expectancy females |
|-----|-----------------------|-------------------------|
| 85 | 5.53 | 6.38 |
| 75 | 10.54 | 12.11 |
| 65 | 17.29 | 19.61 |
| 55 | 25.32 | 28.13 |
| 45 | 34.14 | 37.29 |

Source: National Records of Scotland (NRS) life expectancy tables

Life expectancy in years for the general population of Scotland in 2012-2014 by sex, at the exact age given, is shown in this table. This allows comparison with patients receiving RRT.

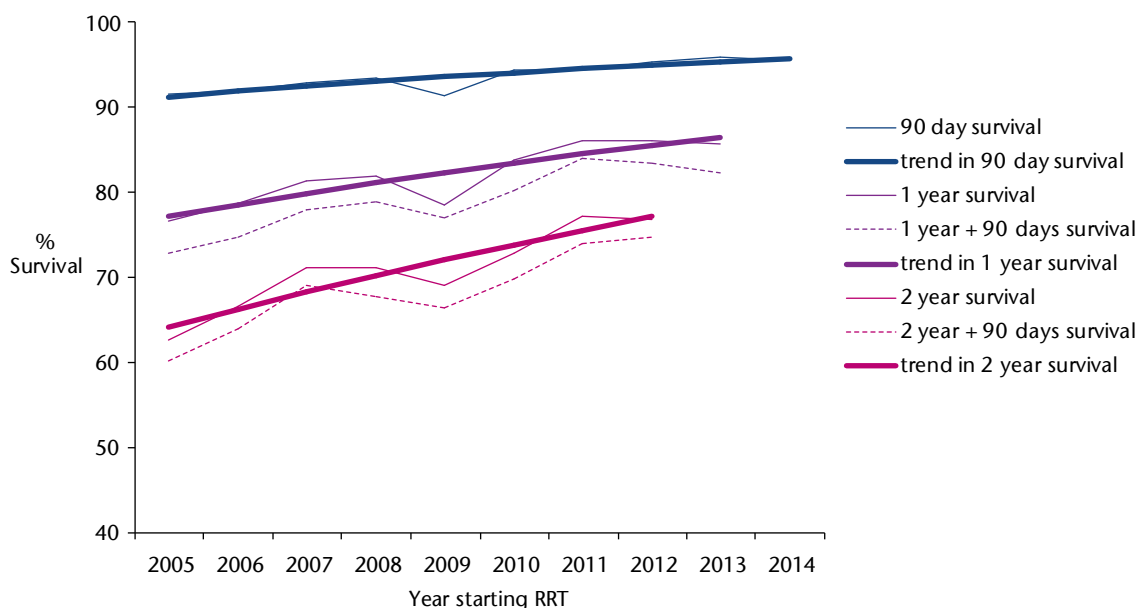
C1.3 Survival of patients by year of start of RRT 2005-2014

| Date starting RRT | % surviving 90 days | % surviving 1 year | % surviving 1 year + 90 days | % surviving 2 years | % surviving 2 years + 90 days |
|-------------------|---------------------|--------------------|------------------------------|---------------------|-------------------------------|
| 2005 | 91.5 | 76.7 | 72.8 | 62.6 | 60.2 |
| 2006 | 91.9 | 78.7 | 74.7 | 66.6 | 63.9 |
| 2007 | 93.0 | 81.4 | 78.0 | 71.1 | 69.1 |
| 2008 | 93.5 | 81.9 | 78.9 | 71.2 | 67.7 |
| 2009 | 91.3 | 78.4 | 76.9 | 69.0 | 66.4 |
| 2010 | 94.5 | 83.8 | 80.2 | 72.9 | 69.9 |
| 2011 | 94.4 | 86.2 | 84.0 | 77.2 | 73.9 |
| 2012 | 95.4 | 86.1 | 83.4 | 76.9 | 74.8 |
| 2013 | 96.0 | 85.7 | 82.3 | / | / |
| 2014 | 95.5 | / | / | / | / |

Note: Censored patients are excluded from this table.

Patients with insufficient follow-up and those who recovered within 90 days or who were lost to follow-up within the relevant period have been excluded.

C1.4 Trends in survival of patients starting RRT 2005-2014



Trend in 90 days survival: year to year OR is 1.09 (95% CI 1.05 -1.13).

Trend in 1 year survival: year to year OR is 1.08 (95% CI is 1.05 - 1.11).

Trend in 2 years survival: year to year OR is 1.10 (95% CI is 1.06 -1.13).

There is a statistically significant trend of improving survival at 90 days, 1 year and 2 years after starting RRT.

C1.5 Proportion of patients starting RRT 2004-2013 surviving at 90 days and 1 year, by NHS Board area of residence

| NHS Board | Number of patients | 90 day survival | | 1 year survival | |
|-----------------|--------------------|-----------------|-----------|-----------------|-----------|
| | | n | % | n | % |
| A&A | 435 | 406 | 93 | 355 | 82 |
| BORD | 120 | 115 | 96 | 109 | 91 |
| D&G | 174 | 156 | 90 | 138 | 79 |
| FIFE | 455 | 422 | 93 | 368 | 81 |
| FV | 308 | 293 | 95 | 257 | 83 |
| GG&C | 1242 | 1144 | 92 | 1000 | 81 |
| GRAM | 570 | 543 | 95 | 487 | 85 |
| HIGH | 323 | 304 | 94 | 269 | 83 |
| LAN | 635 | 605 | 95 | 536 | 84 |
| LOTH | 721 | 666 | 92 | 565 | 78 |
| ORKN | 23 | 22 | 96 | 20 | 87 |
| SHET | 16 | 14 | 88 | 12 | 75 |
| TAY | 512 | 468 | 91 | 396 | 77 |
| WI | 27 | 26 | 96 | 22 | 81 |
| SCOTLAND | 5561 | 5184 | 93 | 4534 | 82 |

C2 Survival of patients aged 45-64 when starting RRT over time

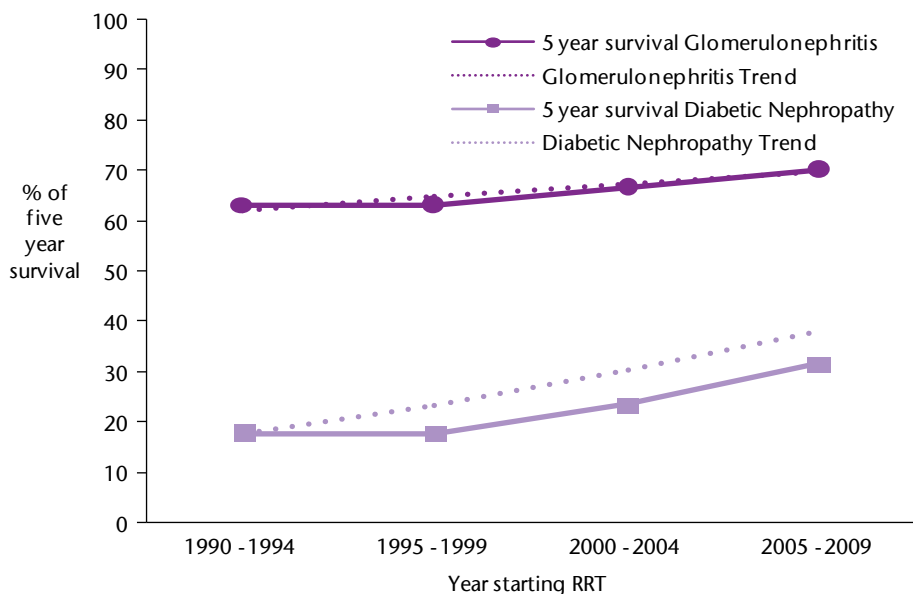
The trend of survival was calculated to investigate whether survival has improved over time for patients in two diagnosis groups, glomerulonephritis and diabetic nephropathy, and in a single age group, 45-64 years.

Data relating to patients starting RRT 2012 onwards are excluded to ensure a minimum available follow up period of 2 years.

| C2.1 Proportion of patients surviving at 1, 2, 5 and 10 years from starting RRT 1990-2012 when aged 45-64 in the glomerulonephritis and diabetic nephropathy PRD groups | | | | | | | | | | |
|---|----------------------|--------------------|-----------------|----|-----------------|----|-----------------|----|------------------|----|
| Year starting RRT | PRD Group | Number of Patients | 1 year survival | | 2 year survival | | 5 year survival | | 10 year survival | |
| | | | n | % | n | % | n | % | n | % |
| 1990-1994 | Glomerulonephritis | 136 | 122 | 90 | 112 | 82 | 86 | 63 | 51 | 38 |
| | Diabetic Nephropathy | 118 | 88 | 75 | 64 | 54 | 21 | 18 | 1 | 1 |
| 1995-1999 | Glomerulonephritis | 149 | 134 | 90 | 122 | 82 | 94 | 63 | 61 | 41 |
| | Diabetic Nephropathy | 202 | 155 | 77 | 120 | 59 | 36 | 18 | 7 | 3 |
| 2000-2004 | Glomerulonephritis | 135 | 121 | 90 | 111 | 82 | 90 | 67 | 67 | 50 |
| | Diabetic Nephropathy | 186 | 151 | 81 | 120 | 65 | 44 | 24 | 13 | 7 |
| 2005-2009 | Glomerulonephritis | 134 | 124 | 93 | 120 | 90 | 94 | 70 | / | / |
| | Diabetic Nephropathy | 256 | 226 | 88 | 195 | 76 | 81 | 32 | / | / |
| 2010-2012 | Glomerulonephritis | 100 | 97 | 97 | 92 | 92 | / | / | / | / |
| | Diabetic Nephropathy | 153 | 132 | 86 | 109 | 71 | / | / | / | / |

For those aged 45-64 who started RRT between 1990-2009, 34% (190/554) in the glomerulonephritis group died within 5 years of beginning RRT compared with 76% (580/762) in the diabetic nephropathy group.

C2.2 Trend in 5 year survival from starting RRT 1990-2009 for patients aged 45-64 in the glomerulonephritis and diabetic nephropathy PRD groups



Glomerulonephritis - there is an increasing trend in survival which is statistically significant (OR 1.12, 95% CI 1.04 to 1.21, p= 0.03).

Diabetic Nephropathy - there is an increasing trend in survival which is statistically significant (OR 1.42, 95% CI 1.22 to 1.65, p<0.001).

C3 Comparison of survival by NHS Board area of residence providing first RRT using Cox regression

The standardised mortality ratio (SMR) is the number of deaths in every health board or unit divided by the number of expected deaths in that health board or unit.

This makes the SMR a measure of case-mix adjusted mortality (hence the label 'standardised').

The expected number of deaths is based on a logistic regression comprising patient's age, sex, SIMD and primary renal diagnosis group.

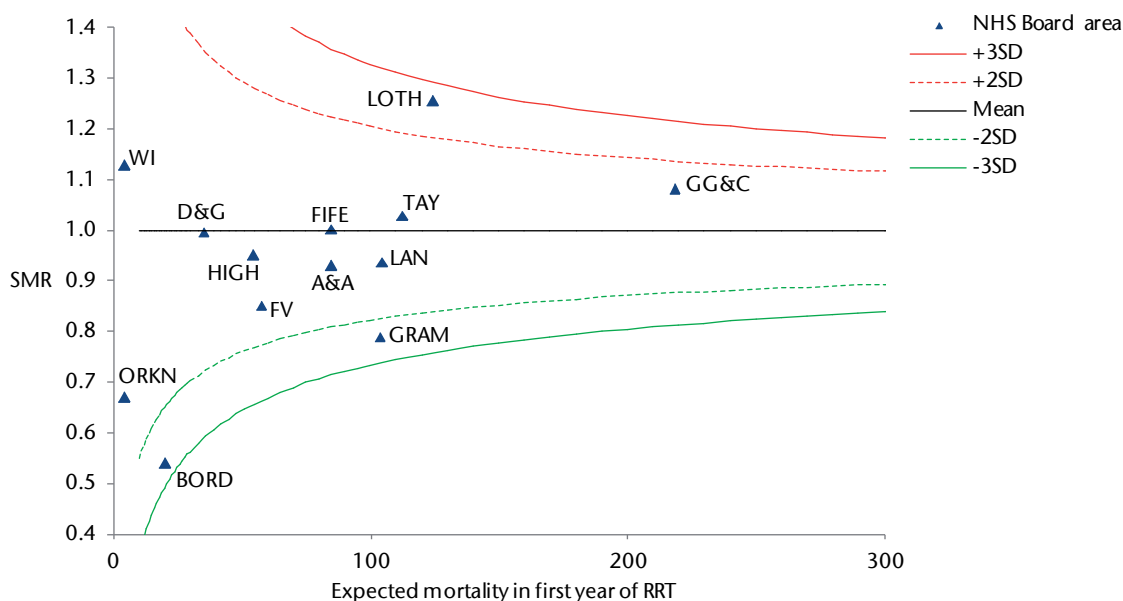
A SMR close to one means that the observed number of deaths is close to the expected number.

A SMR higher than one means that the observed number of deaths is higher than the expected number.

The units within the outer control limits (-3SD, +3SD) are considered equivalent and different only by chance.

The control limits are calculated via the Poisson probability distribution.

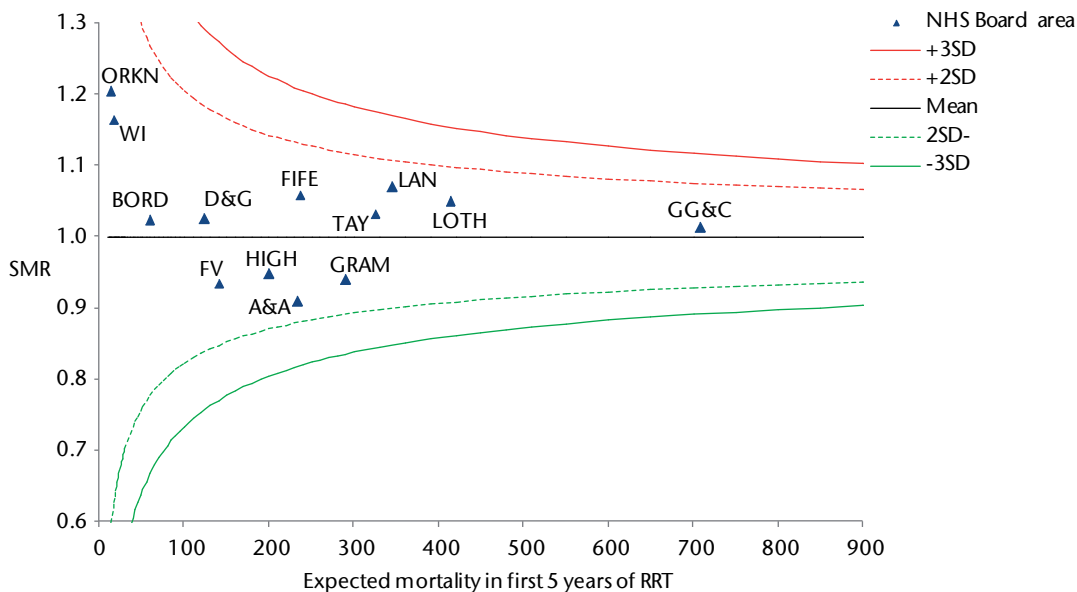
C3.1 One year standardised mortality ratio at 1 year for patients starting RRT 2004-2013 by NHS Board area of residence



All NHS Board areas fall within 3 standard deviations of the mean.

The mortality in first year of RRT for patients starting RRT in the ten years 2004-2013 was 18.5%.

C3.2 Five year standardised mortality ratio for patients starting RRT 2000-2009 by NHS Board area of residence

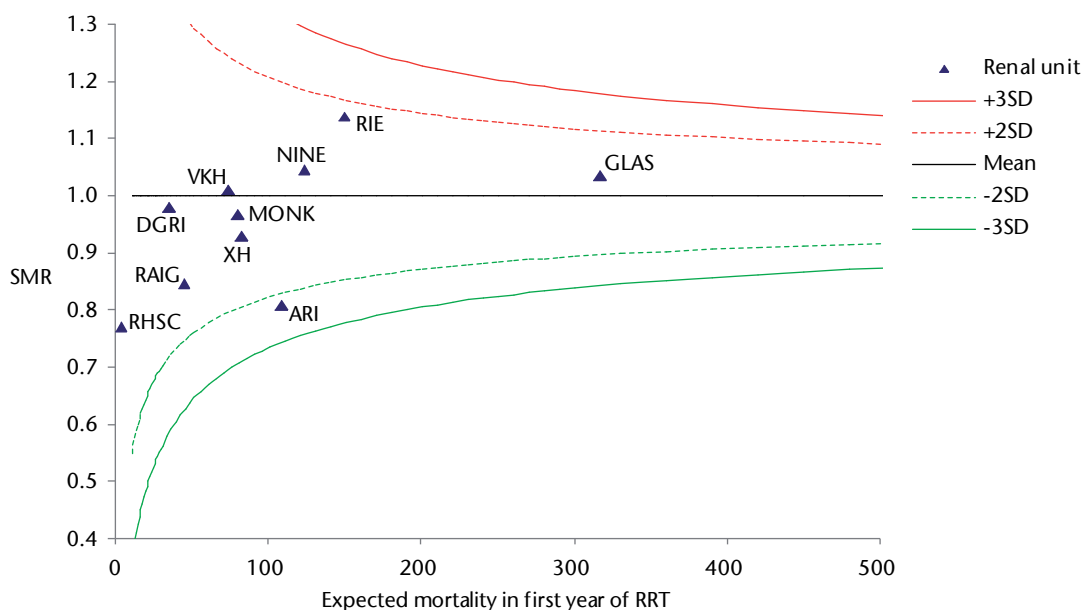


All NHS Board areas fall within 3 standard deviations of the mean.

The mortality in first five years of RRT for patients starting RRT in the ten years 2000 - 2009 was 57%.

C4 Survival by renal unit providing first RRT

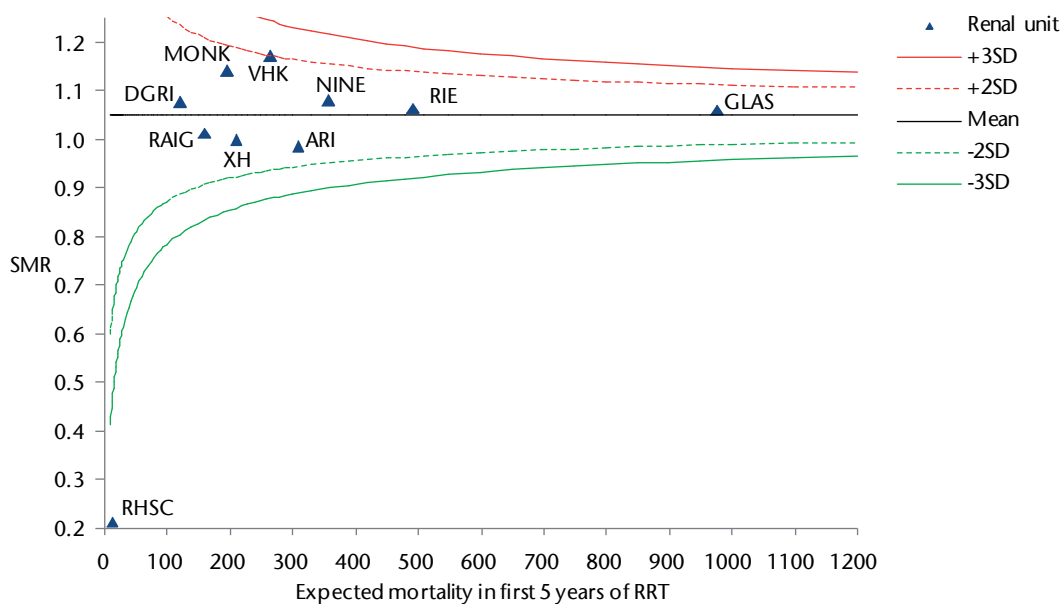
C4.1 One year standardised mortality ratio by renal unit providing first RRT for patients starting RRT 2004-2013



All units fall within three standard deviations of the mean.
 Expected mortality is based on sex, age group, SIMD and primary renal diagnosis group.

The mortality in first year of RRT for patients starting RRT in the ten years 2004-2013 was 18.5%.

C4.2 Five year standardised mortality ratio by renal unit providing first RRT for patients starting RRT 2000-2009



All units fall within 3 standard deviations of the mean.
 Expected mortality is based on sex, age group, SIMD and primary renal diagnosis group.

The mortality in the first five years of RRT for patients starting RRT in the ten years 2000 - 2009 was 57%.