

SECTION C SURVIVAL

C1 Survival analyses

C1.1 Proportion of patients starting RRT 1995 - 2014 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 (1995-2014)	n	%	Number starting RRT (1995-2013)	n	%	Number starting RRT (1995-2010)	n	%	Number starting RRT (1995-2005)	n	%
≥75	Unknown	688	438	64	669	296	44	570	90	16	385	7	2
	Diabetic nephropathy	283	182	64	266	125	47	211	26	12	124	1	1
	Multisystem	760	437	58	722	291	40	623	68	11	393	2	1
	Interstitial	278	196	71	264	137	52	233	49	21	150	3	2
	Glomerulonephritis	214	135	63	198	87	44	159	24	15	108	5	5
	All Diagnoses	2223	1388	62	2119	936	44	1796	257	14	1160	18	2
65-74	Unknown	583	427	73	571	338	59	504	153	30	369	25	7
	Diabetic nephropathy	612	447	73	570	308	54	467	86	18	303	7	2
	Multisystem	966	600	62	926	421	45	800	157	20	577	17	3
	Interstitial	439	360	82	414	287	69	348	132	38	240	25	10
	Glomerulonephritis	325	268	82	300	202	67	254	96	38	181	18	10
	All Diagnoses	2925	2102	72	2781	1556	56	2373	624	26	1670	92	6
45-64	Unknown	413	342	83	395	285	72	341	183	54	251	72	29
	Diabetic nephropathy	938	790	84	857	590	69	689	212	31	447	47	11
	Multisystem	690	514	74	649	407	63	567	223	39	403	83	21
	Interstitial	917	850	93	862	750	87	699	504	72	470	229	49
	Glomerulonephritis	572	526	92	547	473	86	449	303	67	297	132	44
	All Diagnoses	3530	3022	86	3310	2505	76	2745	1425	52	1868	563	30
20-44	Unknown	229	216	94	223	200	90	197	162	82	149	107	72
	Diabetic nephropathy	414	377	91	388	316	81	330	205	62	214	91	43
	Multisystem	209	191	91	193	173	90	165	131	79	113	75	66
	Interstitial	553	541	98	520	498	96	453	402	89	307	245	80
	Glomerulonephritis	410	403	98	383	369	96	308	285	93	219	189	86
	All Diagnoses	1815	1728	95	1707	1556	91	1453	1185	82	1002	707	71
<20	Unknown	26	25	96	26	25	96	23	22	96	15	14	93
	Diabetic nephropathy	1	-	-	1	-	-	1	-	-	1	-	-
	Multisystem	33	32	97	33	32	97	30	27	90	20	17	85
	Interstitial	157	153	97	146	142	97	126	118	94	78	69	88
	Glomerulonephritis	34	33	97	32	31	97	29	27	93	21	18	86
	All Diagnoses	251	243	97	238	230	97	209	194	93	135	118	87
All ages	Unknown	1939	1448	75	1884	1144	61	1635	610	37	1169	225	19
	Diabetic nephropathy	2248	1796	80	2082	1339	64	1698	529	31	1089	146	13
	Multisystem	2658	1774	67	2523	1324	52	2185	606	28	1506	194	13
	Interstitial	2344	2100	90	2206	1814	82	1859	1205	65	1245	571	46
	Glomerulonephritis	1555	1365	88	1460	1162	80	1199	735	61	826	362	44
	All Diagnoses	10744	8483	79	10155	6783	67	8576	3685	43	5835	1498	26

C1.2 Life expectancy for the general population of Scotland 2013-2015

Life expectancy in years for the general population of Scotland in 2013-2015 by sex, at the exact age given, is shown in this table. This allows comparison with patients receiving RRT.

Age	Life expectancy males	Life expectancy females
85	5.5	6.4
75	10.5	12.2
65	17.3	19.7
55	25.3	28.2
45	34.1	37.4

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

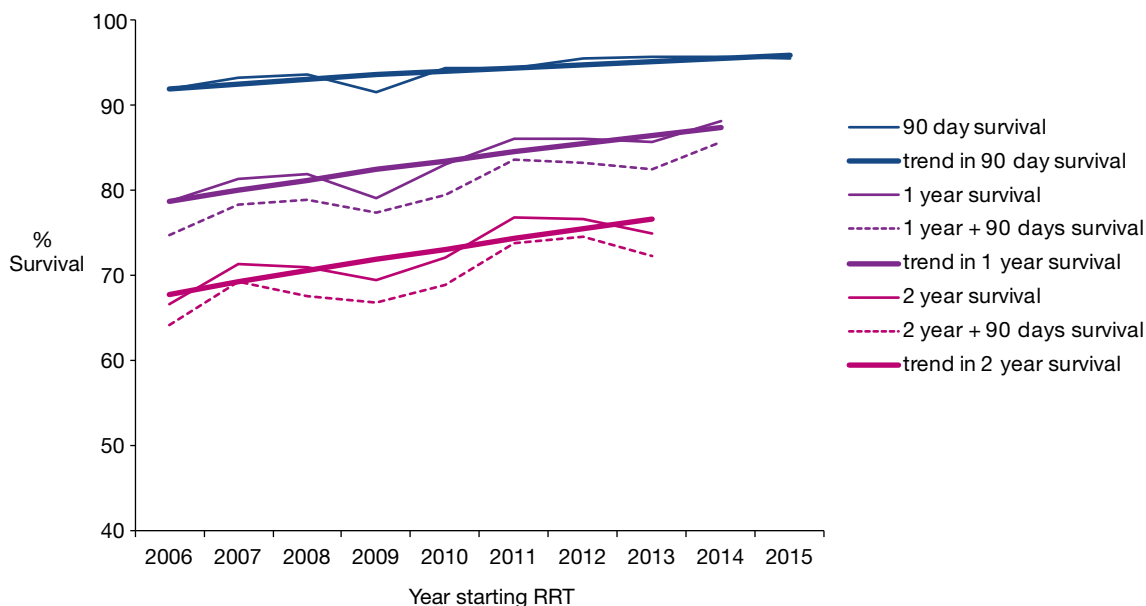
C1.3 Survival of patients by year of start of RRT 2006-2015

Year starting RRT	% surviving 90 days	% surviving 1 year	% surviving 1 year + 90 days	% surviving 2 years	% surviving 2 years + 90 days
2006	91.9	78.7	74.7	66.7	64.1
2007	93.2	81.4	78.2	71.3	69.3
2008	93.6	81.9	78.9	71.0	67.5
2009	91.5	79.0	77.3	69.4	66.7
2010	94.4	83.0	79.4	72.0	68.9
2011	94.5	86.1	83.7	76.9	73.7
2012	95.5	86.0	83.3	76.7	74.5
2013	95.7	85.7	82.5	75.0	72.2
2014	95.7	88.1	85.7	/	/
2015	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 2006-2015



Trend in 90 days survival: year to year OR is 1.08 (95% CI 1.04 -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 1.07 (95% CI is 1.03 -1.10).

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 2005-2014 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	440	409	93	361	82
BORD	111	108	97	105	95
D&G	179	161	90	144	80
FIFE	454	420	93	371	82
FV	322	306	95	268	83
GG&C	1225	1140	93	1008	82
GRAM	546	521	95	465	85
HIGH	291	274	94	241	83
LAN	644	617	96	545	85
LOTH	702	649	92	555	79
ORKN	23	22	96	20	87
SHET	14	13	93	11	79
TAY	495	458	93	395	80
WI	30	29	97	27	90
SCOTLAND	5484	5134	94	4521	82

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

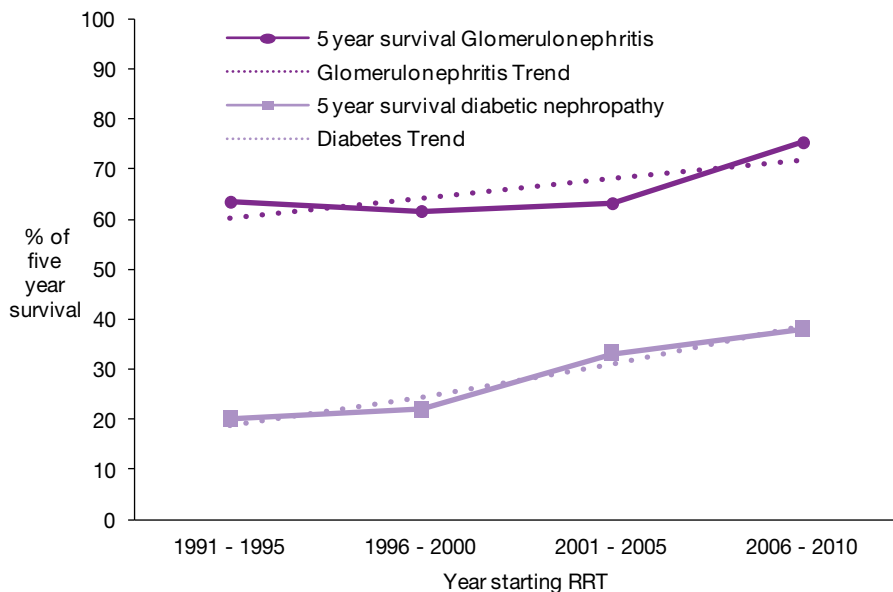
The trend of survival was calculated to investigate whether survival has improved over time for patients in two diagnosis groups, glomerulonephritis and diabetic nephropathy, and in a single age group, 45-64 years.

Data relating to patients starting RRT after 2013 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 1991-2013 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	%
1991 - 1995	Glomerulonephritis	145	128	88	118	81	92	63	54	37
	Diabetic nephropathy	129	95	74	70	54	26	20	9	7
1996 - 2000	Glomerulonephritis	151	135	89	121	80	93	62	65	43
	Diabetic nephropathy	214	166	78	126	59	47	22	15	7
2001 - 2005	Glomerulonephritis	114	101	89	94	82	72	63	54	47
	Diabetic nephropathy	205	167	81	135	66	68	33	28	14
2006 - 2010	Glomerulonephritis	150	142	95	137	91	113	75	/	/
	Diabetic nephropathy	242	213	88	185	76	92	38	/	/
2011 - 2013	Glomerulonephritis	95	93	98	88	93	/	/	/	/
	Diabetic nephropathy	166	146	88	125	75	/	/	/	/

C2.2 Trend in 5 year survival from starting RRT 1991-2010 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 1.19, 95% CI 1.02 to 1.39, p = 0.028).

Diabetic nephropathy - there is an increasing trend in survival which is statistically significant (OR 1.40, 95% CI 1.20 to 1.62, p < 0.001).

C3 Survival by NHS Board area of residence

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.

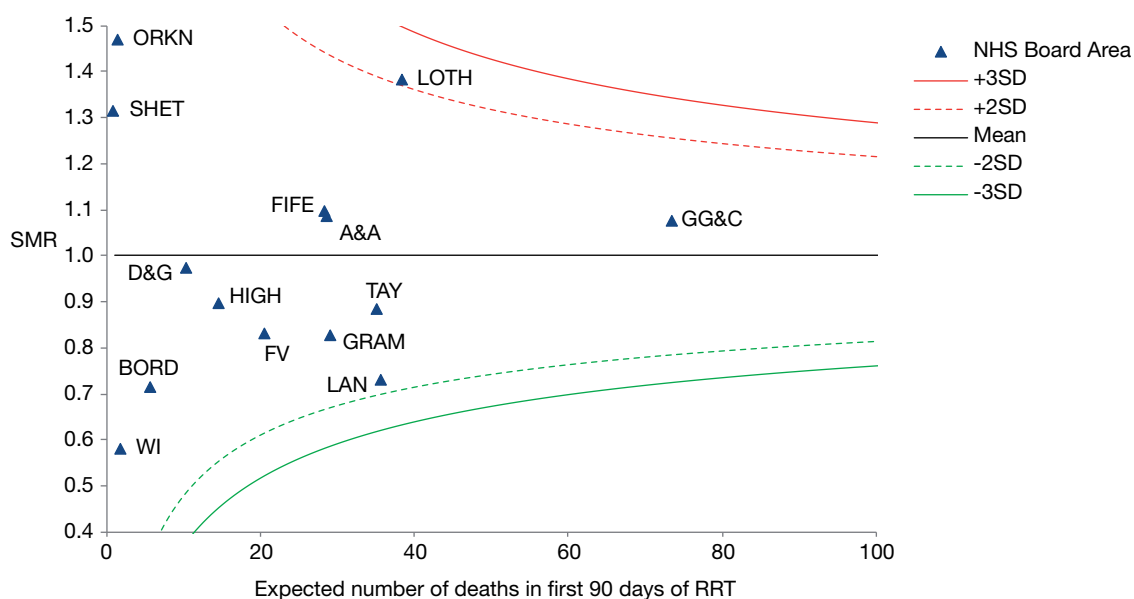
A SMR close to one means that the observed number of deaths is close to the expected number.

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.

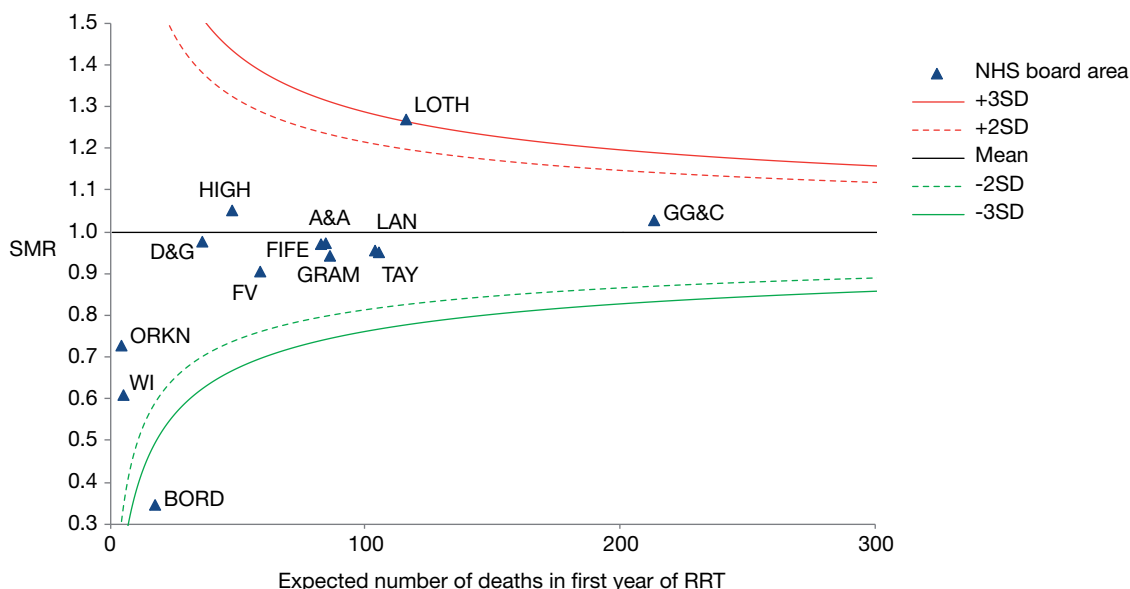
C3.1 90 day standardised mortality ratio for patients starting RRT 2006-2015 by NHS Board area of residence



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

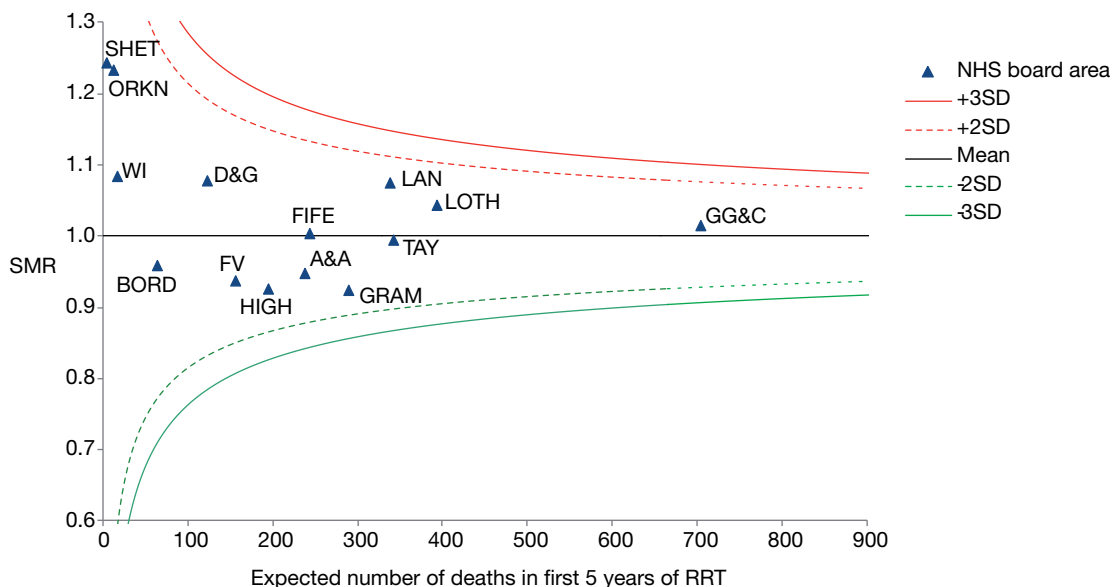
The mortality in the first 90 days of RRT for patients starting RRT in the ten years 2006-2015 was 5.9%.

C3.2 One year standardised mortality ratio for patients starting RRT 2005-2014 by NHS Board area of residence



The mortality in first year of RRT for patients starting RRT in the ten years 2005-2014 was 17.4%.

C3.3 Five year standardised mortality ratio for patients starting RRT 2001-2010 by NHS Board area of residence

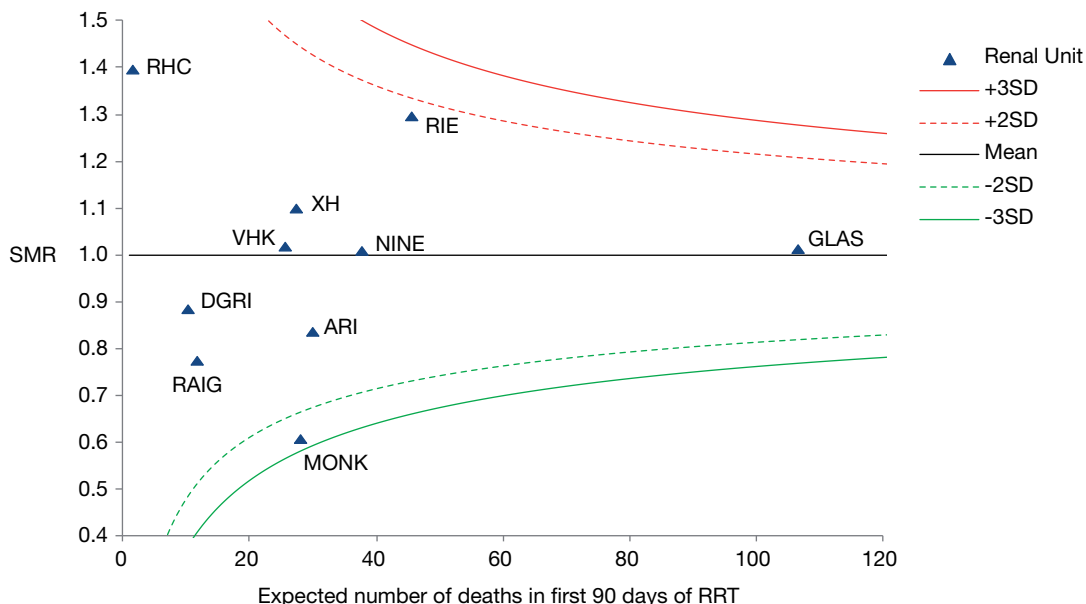


All NHS Board areas fall within 3 standard deviations of the mean.

The mortality in first five years of RRT for patients starting RRT in the ten years 2001 - 2010 was 56.1%.

C4 Survival by renal unit providing first RRT

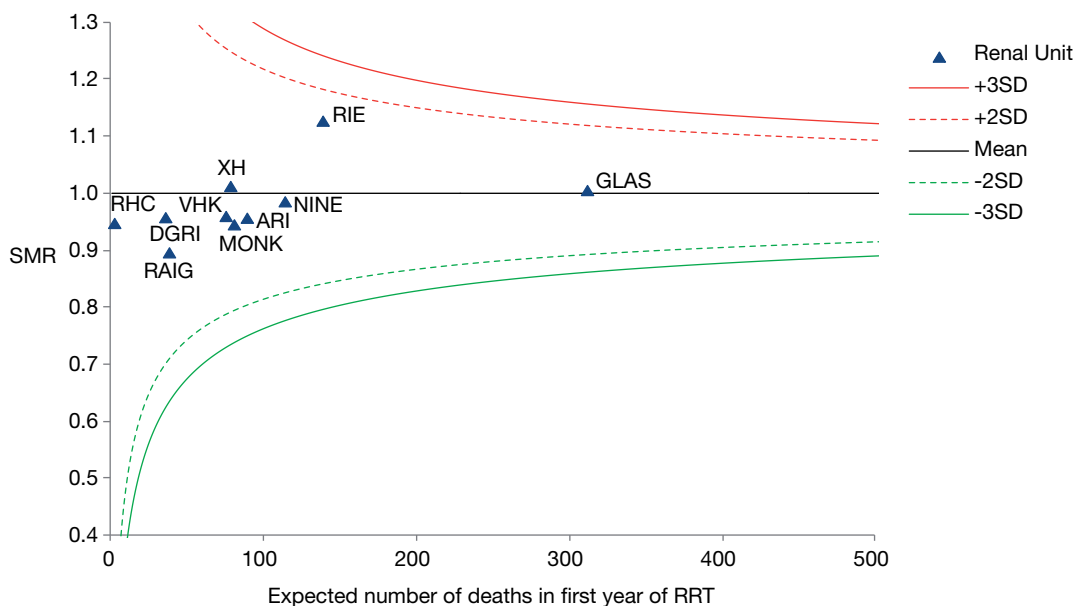
C4.1 90 day standardised mortality ratio by renal unit providing first RRT for patients starting RRT 2006-2015



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 90 days of RRT for patients starting RRT in the ten years 2006-2015 was 5.9%.

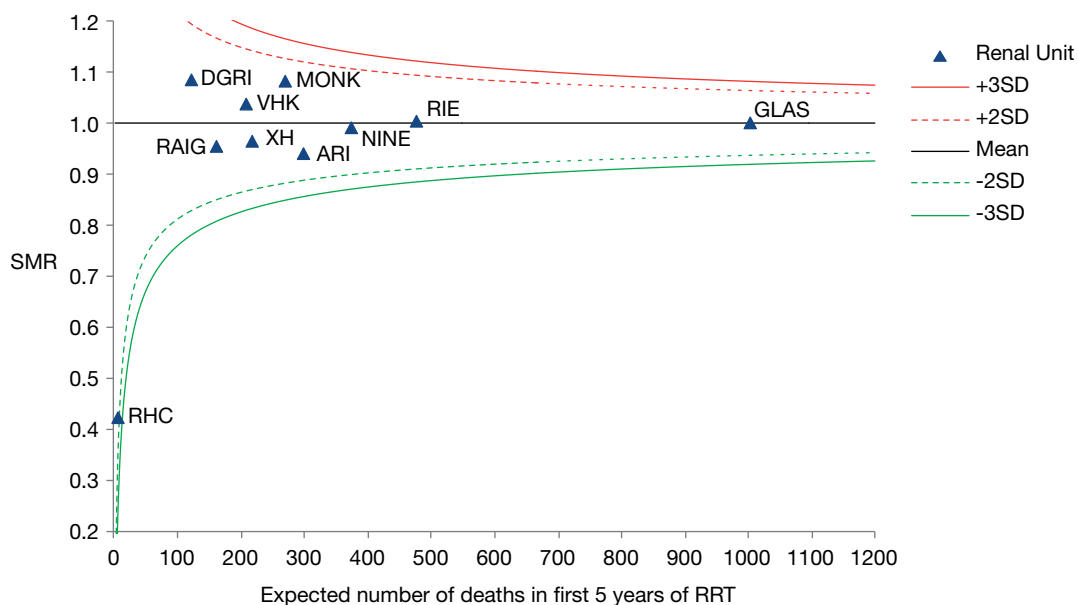
C4.2 One year standardised mortality ratio by renal unit providing first RRT for patients starting RRT 2005-2014



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 2005-2014 was 17.4%.

C4.3 Five year standardised mortality ratio by renal unit providing first RRT for patients starting RRT 2001-2010



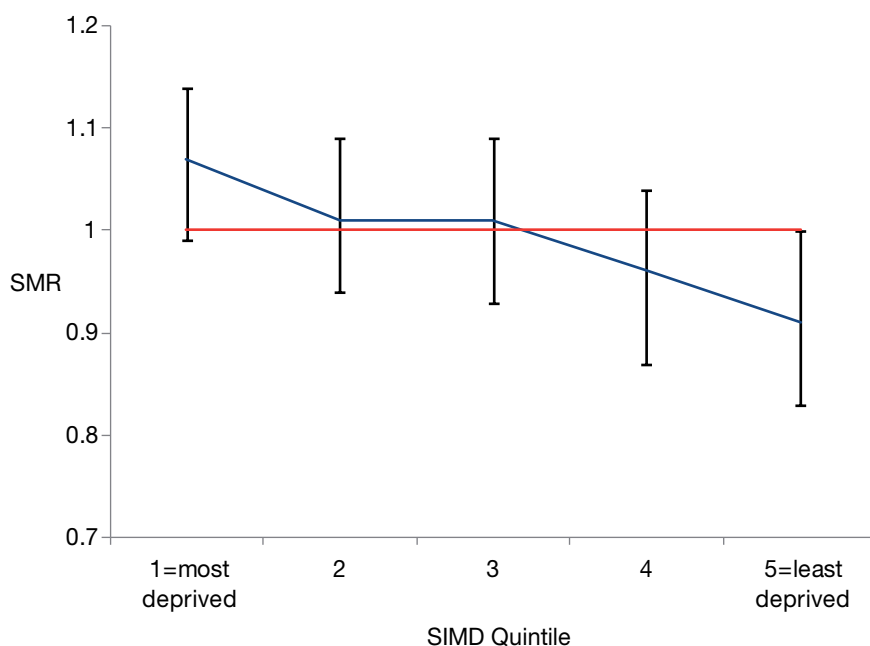
All units fall within 3 standard deviations of the mean.
 Expected mortality is based on sex, age group, SIMD and primary renal diagnosis group.

The mortality in first five years of RRT for patients starting RRT in the ten years 2001 - 2010 was 56.1%.

C5 Survival by SIMD Quintile

The expected number of deaths in the SMR calculation is based on a logistic regression comprising patient’s age, sex and primary renal diagnosis group.

C5.1 Five year standardised mortality ratio by SIMD quintile for patients starting RRT 2001-2010



The error bars in the charts show the 95% confidence limits for the SMR.

C5.2 Five year standardised mortality ratio (SMR) by SIMD quintile for patients starting RRT 2001-2010

SIMD Quintile	Observed Mortality	Expected Mortality	SMR	95% CI
1 (Most deprived)	822	771	1.07	0.99 - 1.14
2	708	701	1.01	0.94 - 1.09
3	660	654	1.01	0.93 - 1.09
4	503	526	0.96	0.87 - 1.04
5 (Least deprived)	421	464	0.91	0.82 - 1.00

The expected number of deaths in each SIMD category is different due to differences in RRT incidence rate within each group.

Deprivation may have contributed to up to 51 excess deaths in the most deprived category although other confounders such as co-morbidity must be considered.