

Chapter 1

Adults with chronic kidney disease (CKD) and estimated glomerular filtration rate (eGFR) <30 mL/min/1.73m² in the UK at the end of 2024

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Introduction

This chapter describes data about adult patients with chronic kidney disease (CKD) outside the context of kidney replacement therapy (KRT) or acute kidney injury (AKI) (see table 8.26 in Chapter 8 for data on under 18s with CKD). The primary aim of this chapter is to present the demographic and clinical features of patients receiving treatment for CKD stages G4 and G5 at UK kidney centres at the end of 2024 (figure 1.1). A 2024 prevalent CKD population is described, comprising individuals who:

- were reported by an adult kidney centre as receiving treatment for CKD at the end of 2024, and
- had an estimated glomerular filtration rate (eGFR) of <30 mL/min/1.73m² on their last recorded creatinine measurement.

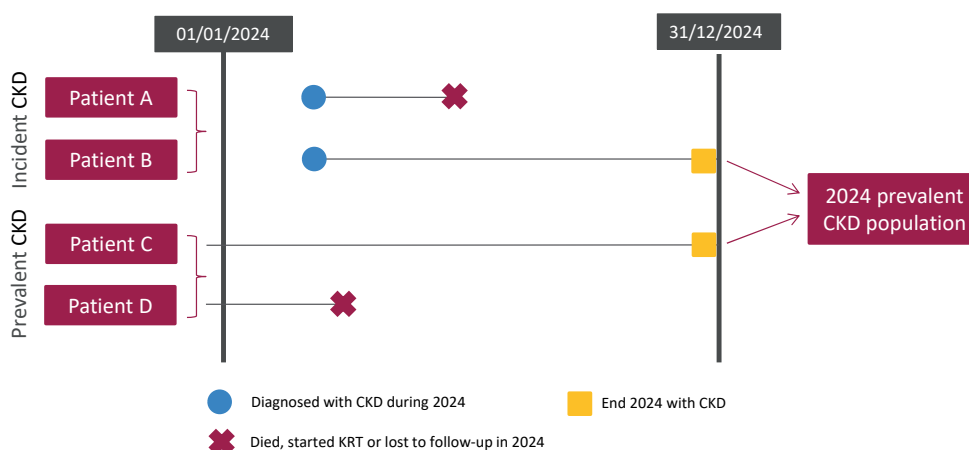


Figure 1.1 Pathways adult patients could follow to be included in the UK 2024 prevalent CKD population

Auditable aspects of care for this population are highlighted and described. For the purpose of this chapter, individuals are categorised as having CKD stage G5 (eGFR <15 mL/min/1.73m²) or CKD stage G4 (eGFR 15–29 mL/min/1.73m²). The eGFR was calculated using the CKD-EPI 2009 equation, without racial adjustment, using their last recorded creatinine from the last two years. Further categorisation, e.g. by eGFR trend or albuminuria is not possible using UKRR data.

Information about completeness of primary renal disease (PRD) data are presented. Whilst PRD data are known to be incomplete, no triangulation was performed using other datasets available to the UKRR, e.g. Hospital Episode Statistics (HES).

It is important to highlight that the individuals described in this chapter represent a sub-population of those with CKD in the UK. Many individuals with diagnosed CKD receive care without referral to a kidney centre, particularly those with earlier stages. Furthermore, not all kidney centres are yet submitting CKD data to the UKRR. For this reason, it is not appropriate to generalise findings from this chapter to the wider CKD population, even to those cared for in kidney centres.

Consequently, this CKD chapter asks simple questions:

- Which individuals with CKD are currently reported to the UKRR?
- What data are captured and which aspects of CKD care can be audited using them?

Rationale for analyses

Since 2016, kidney centres in England and Wales have been asked by the National Clinical Reference Group to report individuals with CKD under their care to the UKRR. In 2024 the UKRR received data from 30 of the 53 adult centres in England and Wales (six more than in 2023).

Reliable estimates of CKD prevalence in secondary care are required to inform CKD management and policy planning. The presented analyses are performed annually to help clinicians and policy makers in this task and will be expanded as data quality and quantity improve. The UK Kidney Association guidelines ([ukkidney.org/health-professionals/guidelines/guidelines-commentaries](https://www.ukkidney.org/health-professionals/guidelines/guidelines-commentaries)) provide audit measures relevant to the care of patients with CKD, and where data permit, their attainment by UK kidney centres in 2024 is reported in this chapter (table 1.1). Audit measures in guidelines that have been archived are not included. Some audit measures cannot be reported because the completeness of the required data items is too low. However, data completeness is poor even for some of the analyses presented, necessitating caution in interpretation.

Table 1.1 The UK Kidney Association audit measures relevant to CKD that are reported in this chapter

The UK Kidney Association guideline	Audit criteria	Related analysis/analyses
Commentary on the Kidney Disease Improving Global Outcomes (KDIGO) guideline on the diagnosis, evaluation, prevention and treatment of CKD mineral bone disorder (2018)	Percentage of adult CKD G5 patients with serum calcium above the normal reference range 2.2–2.5 mmol/L	Figure 1.3
Cardiovascular disease in CKD (2008)	Blood pressure in CKD stages G1–4 should be managed according to National Institute for Health and Care Excellence (NICE) guidance: <140/90 mmHg in patients without significant proteinuria and <130/80 mmHg in those with proteinuria or with diabetes	Table 1.4 (partly addressed)
Anaemia of CKD (updated 2020)	Proportion of CKD patients with eGFR <30 mL/min/1.73m ² (using CKD-EPI equation) and a 6 monthly haemoglobin level measurement	Figure 1.4 (number next to the centre name in x-axis indicates the % missing)
	Proportion of CKD stage G4–5 patients with haemoglobin 100–120 g/L	Figures 1.5–1.6
Commentary on the National Institute for Health and Care Excellence (NICE) guideline on KRT and conservative management (2020)	The number of patients with stage G5 CKD who were reported as being under conservative care	Table 1.2

For definitions and methods relating to this chapter see appendix A. The number preceding the centre name in each caterpillar plot indicates the percentage of missing data for that centre.

Key findings

- Data about patients with CKD stages G4 and G5 who were not on KRT was reported by 30 of the UK's adult kidney centres compared to 24 centres in the previous year.
- The 2024 prevalent CKD population comprised 34,933 patients, with a median age of 77.1 years, compared to a median age of 60.3 years for those on KRT.
- CKD prevalence was 1,236 per million population (pmp) overall, but ranged from 80 to 2,776 pmp between centres. There were also substantial differences in the median ages and distribution of disease stages between centres. Such large variation suggests differences between centres in the definitions used for processes of care or reporting of people with CKD.
- The data reported in this chapter highlight the need for improved capture and reporting of CKD data to enable national quality assurance. Concordance with audit measures for the CKD not on KRT population cannot be fully addressed until this is achieved.

For information on data quality issues relating to Cambridge and Manchester Royal Infirmary see Appendix A section 2.2.

Analyses

Stage and demographics of adult CKD patients

For the 30 adult kidney centres with CKD data, the number of prevalent patients with CKD and eGFR ≤ 30 mL/min/1.73m² was calculated as a proportion of the estimated centre catchment population (details in appendix A). Only a few centres reported patients with kidney failure as undergoing conservative care (CC). It is not clear whether a CC code means the same thing at all centres and for each patient. In particular, it is unclear which CC codes represent planned KRT for the eventuality of kidney failure, and which represent active treatment for an individual who might otherwise have started KRT. As such, people coded as receiving CC are included throughout this chapter.

Table 1.2 Number of adult patients prevalent to CKD stages G4 and G5 on 31/12/2024, including those on conservative care (CC), by stage and centre; completeness of proteinuria, number of CKD and KRT patients as a proportion of the adult catchment population

Centre	N with CKD	N on CC	Total	% stage G4	% stage G5	% with proteinuria data (either PCR or ACR)	Estimated catchment population (millions)	CKD 2024 crude rate (pmp)	KRT 2024 crude rate (pmp)
Bangor	18	13	31	48.4	51.6	16.1	0.16	193	1,414
Bham ¹	1,738	2	1,740	75.5	24.5	0.1	2.13	817	1,629
Bradfd	800	0	800	76.5	23.5	66.9	0.52	1,551	1,631
Camb	80	0	80	66.3	33.8	2.5	1.00	80	1,704
Cardff	1,682	29	1,711	81.0	19.1	49.4	1.18	1,455	1,566
Carlisle	493	58	551	80.0	20.0	73.7	0.26	2,094	1,262
Clwyd	15	1	16	37.5	62.5	87.5	0.18	87	1,202
Derby	577	0	577	81.3	18.7	0.0	0.59	986	1,324
Exeter	859	0	859	84.1	16.0	0.0	1.00	856	1,180
Glouc	1,192	1	1,193	86.8	13.2	0.2	0.53	2,231	1,079
Hull	583	0	583	68.4	31.6	46.7	0.82	707	1,178
L Rfree	2,532	382	2,914	75.3	24.7	61.0	1.29	2,251	1,956
Leeds	2,291	0	2,291	78.1	21.9	83.2	1.43	1,606	1,393
Leic	4,603	0	4,603	84.0	16.0	64.5	2.21	2,079	1,319
M RI	1,218	0	1,218	70.9	29.1	0.0	1.39	878	1,535
Middlbr	648	0	648	65.9	34.1	0.0	0.83	778	1,204
Nottm	627	4	631	46.8	53.3	56.9	0.95	666	1,309
Oxford	1,431	0	1,431	77.9	22.1	63.7	1.56	915	1,387
Plymth	948	0	948	86.9	13.1	51.0	0.42	2,256	1,285
Ports	2,009	1	2,010	75.4	24.6	46.9	1.81	1,107	1,141
Prestn	3,145	25	3,170	82.5	17.5	63.4	1.29	2,455	1,171
Redng	577	1	578	62.3	37.7	58.5	0.75	766	1,382
Salford	876	33	909	84.5	15.5	65.1	1.21	753	1,167
Sheff	311	37	348	53.7	46.3	61.5	1.14	305	1,317
Stevng	949	93	1,042	69.3	30.7	65.8	1.17	889	976
Swanse	2,048	74	2,122	86.2	13.9	56.3	0.76	2,776	1,251
Truro	845	55	900	84.4	15.6	64.9	0.37	2,426	1,227
Wolve	72	42	114	55.3	44.7	31.6	0.56	203	1,477
Wrexm	159	19	178	73.6	26.4	33.7	0.21	838	1,582
York	737	0	737	73.5	26.5	65.4	0.50	1,474	1,226
Total	34,063	870	34,933	78.2	21.8	50.5	28.26	1,236	1,364

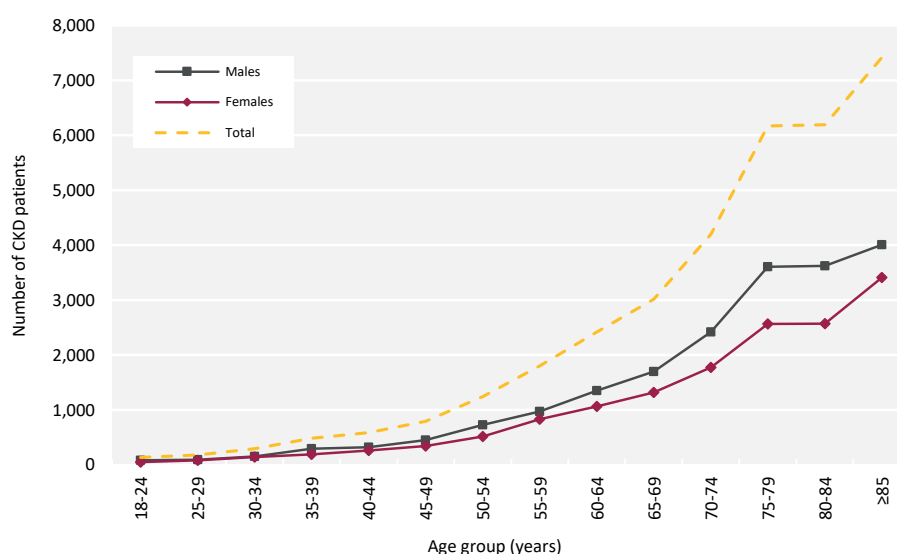
¹The catchment population and 2024 crude rate for KRT reflect the combined Bham population (QEH and Heartlands kidney centres), but CKD patients were only reported from QEH (although the extracts include some Heartlands patients)

CC - conservative care; PCR - protein creatinine ratio; ACR - albumin creatinine ratio; QEH - Queen Elizabeth Hospital

The percentage of patients with missing ethnicity data is shown. For those with data, the percentage who are in each ethnic group is shown. The completeness of PRD data varies greatly between centres, making interpretation difficult. PRD completeness is shown overall and by CKD stage.

Table 1.3 Demographics and completeness of primary renal disease (PRD) data of adult patients prevalent to CKD stages G4 and G5 on 31/12/2024 by centre

Centre	N with CKD	Median age (yrs)	% male	Ethnicity					PRD completeness		
				% White	% Asian	% Black	% Other	% missing	% all stages	% stage G4	% stage G5
Bangor	31	79.8	58.1	100.0	0.0	0.0	0.0	80.7	22.6	20.0	25.0
Bham	1,740	72.0	55.1	58.3	27.4	11.5	2.9	12.4	13.2	7.2	31.6
Bradfd	800	74.6	58.6	60.1	35.8	1.9	2.1	28.5	26.9	17.7	56.9
Camb	80	77.3	60.0	92.2	2.6	3.9	1.3	3.8	51.3	41.5	70.4
Cardff	1,711	75.2	57.3	94.4	3.4	1.7	0.5	34.1	65.3	62.6	76.7
Carlisle	551	79.5	57.4	99.7	0.3	0.0	0.0	45.9	14.2	10.4	29.1
Clwyd	16	78.0	62.5	100.0	0.0	0.0	0.0	43.8	37.5	50.0	30.0
Derby	577	78.3	52.5	91.1	5.5	2.8	0.6	12.1	96.7	96.6	97.2
Exeter	859	78.7	59.1	98.2	1.2	0.1	0.5	2.6	16.7	16.2	19.0
Glouc	1,193	79.1	58.6	94.7	2.0	1.8	1.5	7.4	52.7	51.4	61.4
Hull	583	75.3	51.6	93.7	1.8	0.9	3.6	81.0	23.2	19.8	30.4
L Rfree	2,914	77.2	58.1	55.1	17.3	13.4	14.3	12.2	35.9	32.5	46.2
Leeds	2,291	75.8	56.0	82.5	11.7	4.6	1.2	12.0	9.2	6.5	18.6
Leic	4,603	78.1	54.5	78.5	16.7	3.0	1.8	25.1	52.6	50.9	61.4
M RI	1,218	74.0	54.8	70.0	16.5	9.8	3.7	6.5	9.4	7.4	14.1
Middlbr	648	73.4	58.3	93.9	3.0	1.1	2.0	17.0	27.8	18.5	45.7
Nottm	631	73.7	57.5	83.2	6.5	5.3	5.0	4.9	84.8	83.7	85.7
Oxford	1,431	76.0	60.5	86.5	7.5	3.6	2.4	16.6	21.5	16.9	38.0
Plymth	948	79.3	53.5	97.9	0.3	0.6	1.2	4.1	13.4	11.2	28.2
Ports	2,010	76.6	60.1	97.3	1.4	0.6	0.8	41.2	24.5	21.7	32.9
Prestn	3,170	78.5	54.8	91.0	6.4	1.4	1.2	50.7	3.1	2.7	5.2
Redng	578	76.3	64.9	69.2	12.2	5.1	13.5	46.0	67.0	51.1	93.1
Salford	909	75.6	57.2	83.9	9.6	4.1	2.4	54.2	8.1	6.5	17.0
Sheff	348	70.3	55.8	87.2	6.9	3.3	2.7	3.7	99.4	99.5	99.4
Stevng	1,042	75.3	60.5	77.1	11.0	7.5	4.5	35.6	26.8	22.0	37.5
Swanse	2,122	79.7	54.2	98.5	0.6	0.5	0.4	40.7	34.0	31.6	48.6
Truro	900	80.0	56.2	98.9	0.8	0.1	0.2	0.6	22.8	16.8	55.0
Wolve	114	79.6	57.0	80.6	9.2	2.0	8.2	14.0	47.4	46.0	49.0
Wrexm	178	77.3	62.9	98.5	1.5	0.0	0.0	62.4	24.2	18.3	40.4
York	737	77.2	58.9	98.0	0.4	0.7	0.9	25.0	13.3	7.0	30.8
Total	34,933	77.1	56.7	82.4	10.2	4.3	3.1	25.8	31.2	27.7	43.7

**Figure 1.2** Number of adult patients prevalent to CKD stages G4 and G5 on 31/12/2024 by age group and sex

Blood pressure in adult CKD patients

Only five centres submitted blood pressure data for over 70% of people. A further five centres had completeness between 50% and 70%, seven between 20% and 50%, seven above 0% but less than 20% and six submitted no data. All of the available data has been used in the table below.

Table 1.4 Blood pressures in adult patients prevalent to CKD stages G4 and G5 on 31/12/2024 by stage

	All stages				Stage G4				Stage G5			
	N (%) with data	Median SBP	Median DBP	N (%) <140/90 ¹	N (%) with data	Median SBP	Median DBP	N (%) <140/90 ¹	N (%) with data	Median SBP	Median DBP	N (%) <140/90 ¹
All	10,287 (29.4)	141	75	4,643 (45.1)	7,021 (25.7)	140	75	3,363 (47.9)	3,266 (42.9)	145	76	1,280 (39.2)
Age group (yrs)												
18-29	142 (45.1)	132	82	89 (62.7)	101 (45.1)	127	81	71 (70.3)	41 (45.1)	142	85	18 (43.9)
30-39	304 (39.0)	137	85	152 (50.0)	198 (34.6)	134	84	114 (57.6)	106 (51.5)	142	86	38 (35.8)
40-49	555 (40.2)	138	84	261 (47.0)	327 (33.6)	135	85	166 (50.8)	228 (56.0)	143	84	95 (41.7)
50-59	1,090 (35.8)	138	81	541 (49.6)	701 (31.4)	136	81	375 (53.5)	389 (47.7)	142	81	166 (42.7)
60-64	867 (35.9)	142	78	393 (45.3)	561 (31.4)	139	78	275 (49.0)	306 (48.4)	145	78	118 (38.6)
65-69	976 (32.3)	141	77	440 (45.1)	675 (28.6)	140	77	312 (46.2)	301 (46.0)	142	75	128 (42.5)
70-74	1,294 (30.8)	142	74	563 (43.5)	894 (26.9)	140	74	421 (47.1)	400 (45.7)	146	75	142 (35.5)
75-79	1,784 (28.9)	143	73	779 (43.7)	1,271 (25.7)	140	73	599 (47.1)	513 (41.9)	147	74	180 (35.1)
80-84	1,649 (26.6)	142	71	737 (44.7)	1,192 (23.9)	142	71	546 (45.8)	457 (38.1)	144	71	191 (41.8)
≥85	1,626 (21.9)	144	70	688 (42.3)	1,101 (18.7)	143	70	484 (44.0)	525 (34.7)	146	70	204 (38.9)
Sex												
Male	5,945 (30.0)	141	75	2,706 (45.5)	4,000 (26.1)	139	75	1,955 (48.9)	1,945 (43.7)	145	76	751 (38.6)
Female	4,342 (28.7)	142	75	1,937 (44.6)	3,021 (25.3)	140	75	1,408 (46.6)	1,321 (41.7)	144	76	529 (40.0)

¹N, % <140/90 mmHg of patients with complete blood pressure data

DBP - diastolic blood pressure; SBP - systolic blood pressure (both measured in mmHg)

Biochemistry parameters in adult CKD patients

The UK Kidney Association guideline on CKD mineral bone disease contains only one audit measure, which is the percentage of patients with adjusted calcium above the target range.

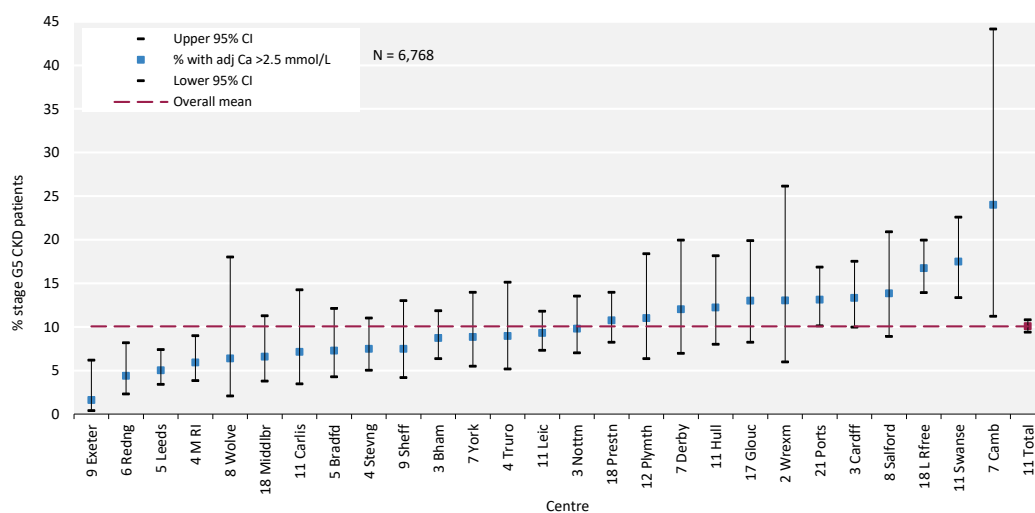


Figure 1.3 Percentage of adult patients prevalent to CKD stage G5 on 31/12/2024 with adjusted calcium (Ca) >2.5 mmol/L by centre

CI - confidence interval

Anaemia in adult CKD patients

The percentage of patients with haemoglobin (Hb) 100–120 g/L is presented overall and by CKD stage.

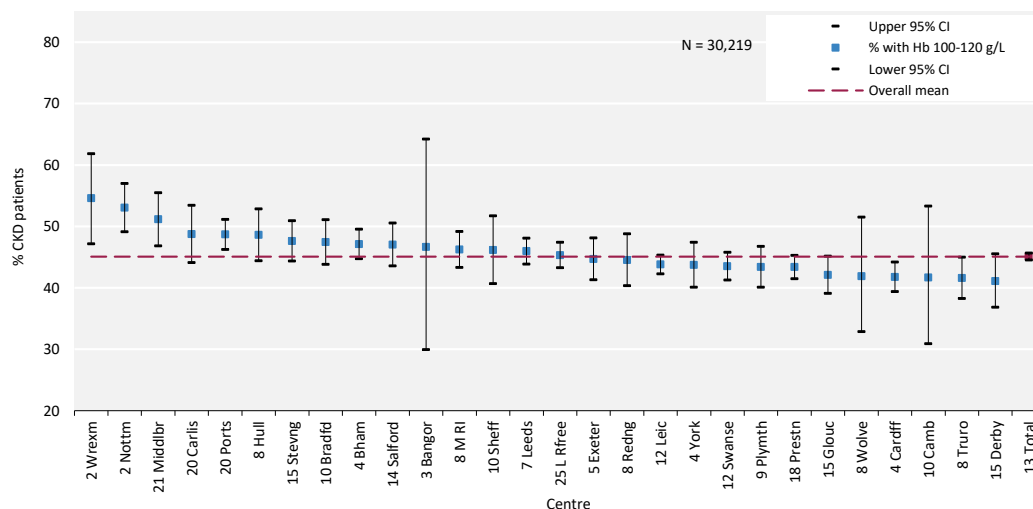


Figure 1.4 Percentage of adult patients prevalent to CKD stages G4 and 5 on 31/12/2024 with haemoglobin (Hb) 100–120 g/L by centre

CI - confidence interval

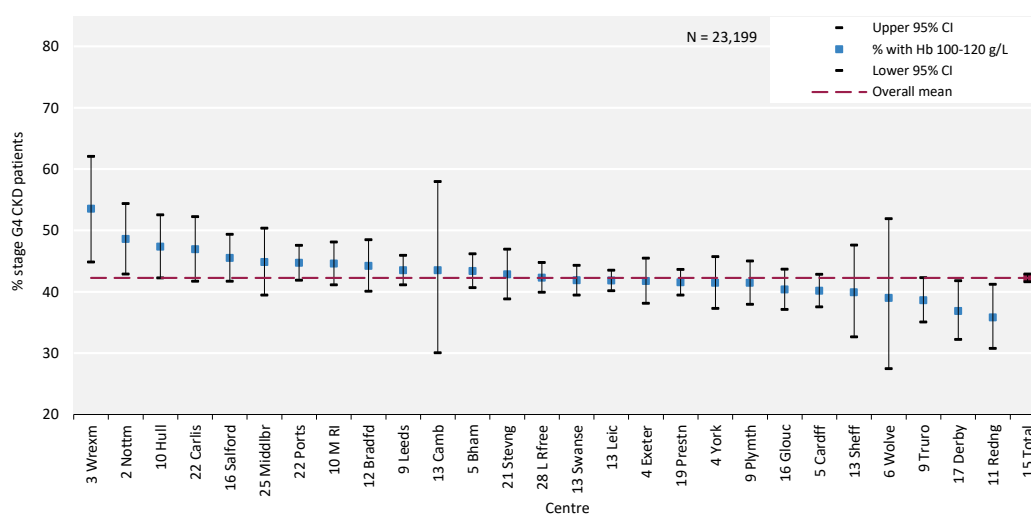


Figure 1.5 Percentage of adult patients prevalent to CKD stage G4 on 31/12/2024 with haemoglobin (Hb) 100–120 g/L by centre

CI - confidence interval

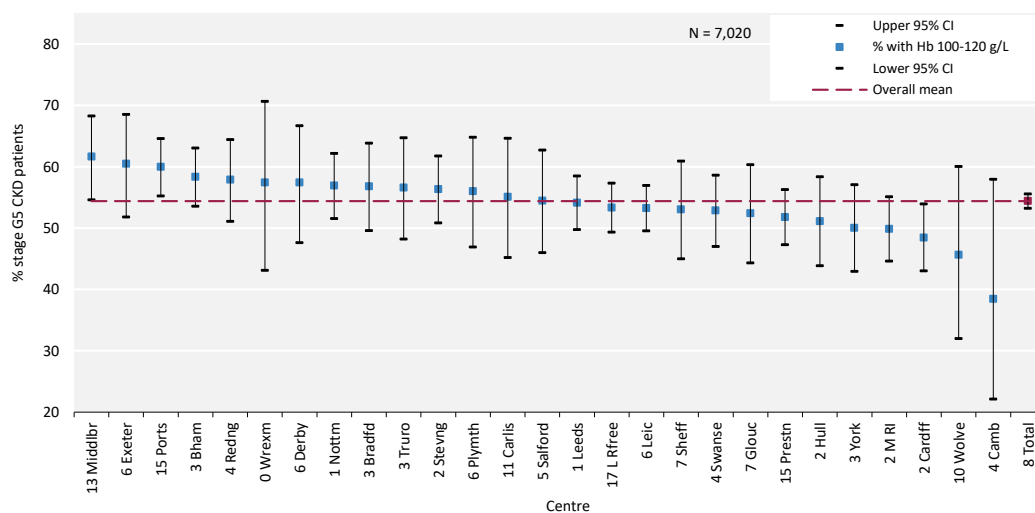


Figure 1.6 Percentage of adult patients prevalent to CKD stage G5 on 31/12/2024 with haemoglobin (Hb) 100-120 g/L by centre

CI - confidence interval