SECTION H VASCULAR ACCESS FOR HAEMODIALYSIS

This section's data are available on-line in Tableau format which enables interaction with the data: http://www.srr.scot.nhs.uk/publications/Dashboards/Vascular-Access.html.

Details of vascular access used for haemodialysis for all hospital and home haemodialysis patients were collected during the SRR census week in May 2017. The SRR has collected data about the access used for first haemodialysis for incident patients since the start of 2012.

The Renal Association guideline (2015) suggests that 60% of all incident patients with established end stage kidney disease commencing planned haemodialysis should receive dialysis via a functioning arteriovenous fistula (AVF) or arteriovenous graft (AVG), and that 80% of all prevalent long term dialysis patients should receive dialysis treatment via definitive access: AVF or AVG.

Between 01 January 2016 and 31 December 2016 there were 436 incident adult haemodialysis patients in Scotland. 206 (47.2%) of these commenced dialysis with AV access and 230 (52.8%) with a central venous catheter (CVC). Between the 01 January 2017 and 30 June 2017 there were 231 incident adult haemodialysis patients. 102 (44.2%) patients commenced with AV access and 129 (55.8%) with a CVC. During the same 6-month period, 2 paediatric patients started HD in total at RHC both commenced HD with a CVC.

There are no missing data.

H1 Types of vascular access used for first haemodialysis 2012 to June 2017

Year	No. starting HD	No. with data	Arteriovenous				Central Venous Catheter			
					Total				Total	
			Fistula	Graft	n	%	Tunnelled	Non-tunnelled	n	%
2012	418	418	173	2	**175**	**41.9**	164	79	**243**	**58.1**
2013	397	397	168	7	**175**	**44.1**	146	76	**222**	**55.9**
2014	433	433	183	9	**192**	**44.3**	155	86	**241**	**55.7**
2015	473	473	187	14	**201**	**42.5**	165	107	**272**	**57.5**
2016	436	436	185	21	**206**	**47.2**	139	91	**230**	**52.8**
2017*	231	231	95	7	**102**	**44.2**	80	49	**129**	**55.8**

* 01 January - 30 June 2017.

In the four years 2012-2015 a total of 978 patients started RRT via a central venous catheter. 60.4% were male, the distribution of primary renal diagnoses also reflected the incident RRT population as a whole, 27% had a primary renal diagnosis of diabetic nephropathy.

25 (2.6%) of the individuals starting RRT via a CVC had a live donor transplant within the first year of starting RRT.

30 (3.1%) of the individuals startIng RRT via a CVC died within the first year of starting RRT and had malignancy recorded as primary cause of death.

It is not possible from Registry data to tell if a planned live donated kidney transplant, or knowledge of a life limiting malignancy influenced the decision not to form AV access for haemodialysis for these individuals.

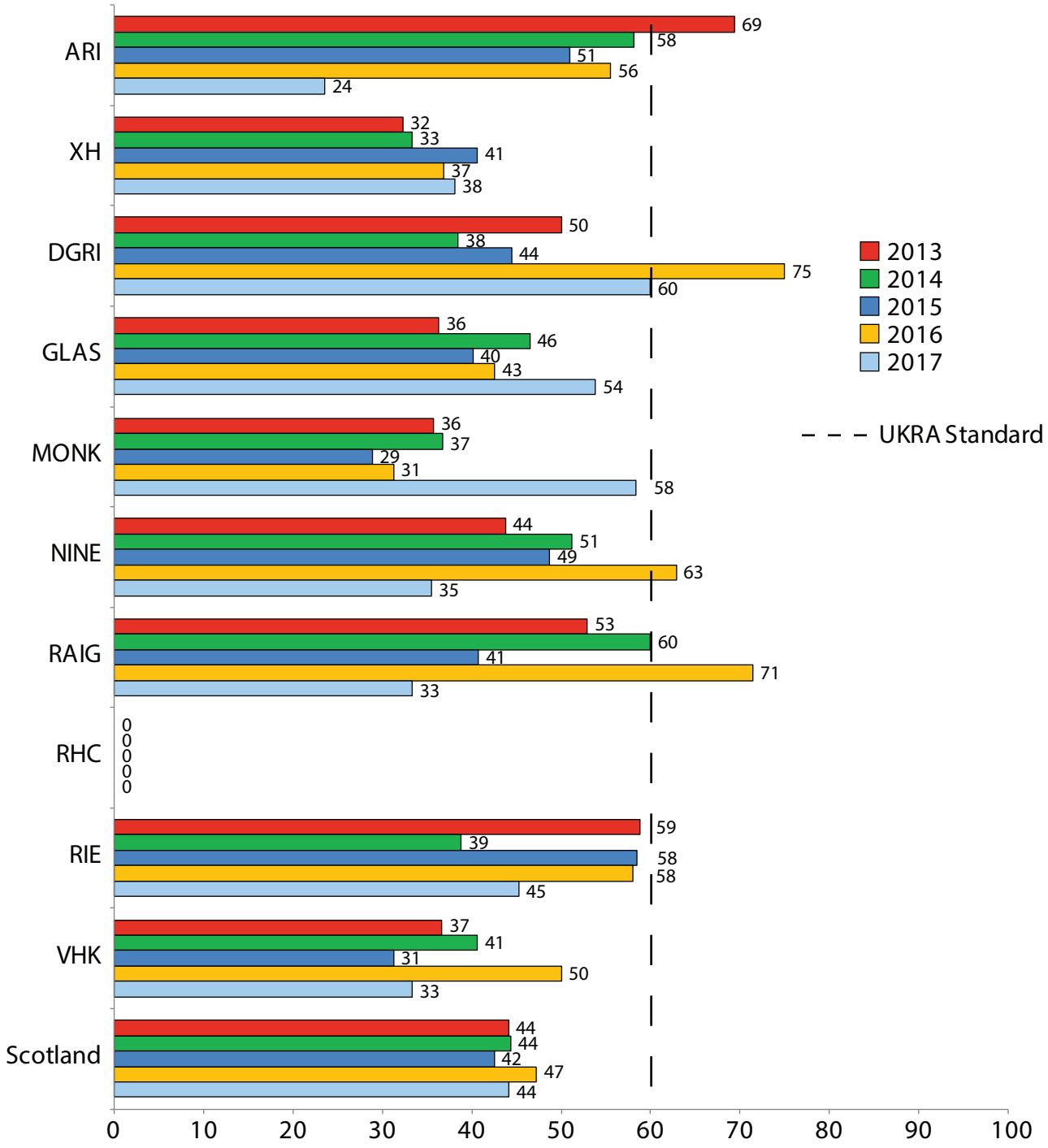
H2 Relationship between time of first referral to nephrology and access used for first HD 01 January 2012 - 30 June 2017

Type of Access	Total on HD	No. with data	Early referral		Late referral		Median time between referral and RRT	
			n	%	n	%	Months	IQR
AV	1051	1017	993	51.3	20	5.3	60.5	31 - 113
Line	1337	1309	944	48.7	354	94.7	22.7	2.1 - 70.1
Total	**2388**	**2326**	**1937**	**-**	**374**	**-**	**40.9**	**9.8 - 92.4**

Date of referral to renal services was available for 2326 (97.4%) of the incident haemodilaysis patients. Late referral was defined as less then 3 months between referral and first haemodialysis session.

Of patients referred within six months of starting haemodialysis 42 (9%) started haemodialysis using AV access and 97 (15%) of those referred within 12 months.

H3 Percentage of patients with AV access for first haemodialysis by renal unit 01 January 2013 - 30 June 2017

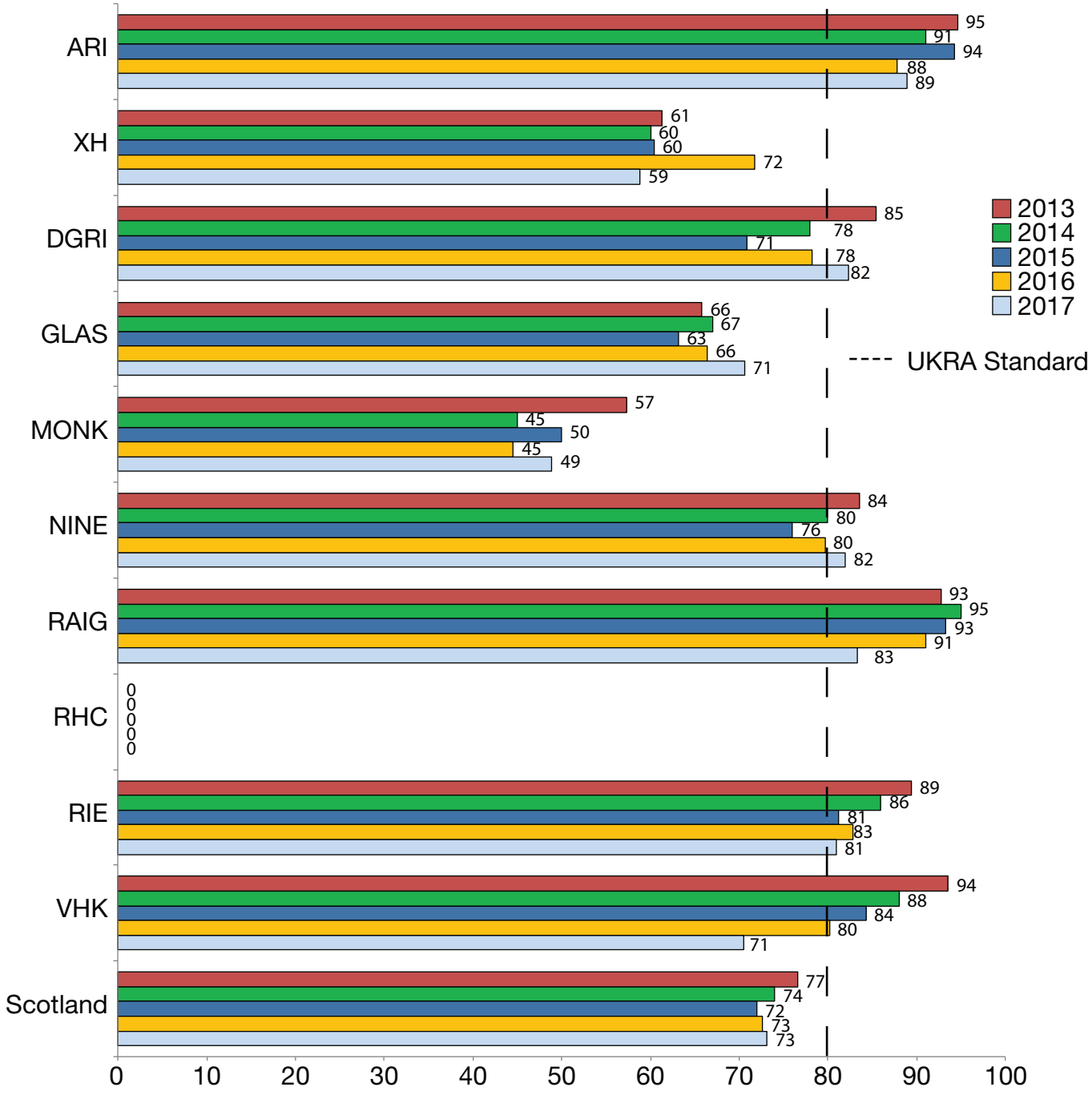


H4	Types of vascular access for haemodialysis patients each May 2009-2017											
Year	No. on HD	No. with data		Arteriovenous					Central Venous Catheter			
							Total				Total	
		n	%	Fistula	Graft	Un-known	n	%	Tun-nelled	Non-tun-nelled	n	%
2009	1848	1699	91.9	1206	58	16	**1280**	**75.3**	385	34	**419**	**24.7**
2010	1868	1748	93.6	1262	51	2	**1315**	**75.2**	400	33	**433**	**24.8**
2011	1877	1810	96.4	1275	54	40	**1369**	**75.6**	405	36	**441**	**24.4**
2012	1873	1769	94.4	1284	72	10	**1366**	**77.2**	379	24	**403**	**22.8**
2013	1885	1680	89.1	1217	69	0	**1286**	**76.5**	343	51	**394**	**23.5**
2014	1853	1803	97.3	1256	76	4	**1336**	**74.1**	437	30	**467**	**25.9**
2015	1906	1831	96.1	1236	79	0	**1315**	**71.8**	482	34	**516**	**28.2**
2016	1878	1817	96.8	1207	114	1	**1322**	**72.8**	470	25	**495**	**27.2**
2017	1954	1874	95.9	1221	145	0	**1366**	**72.9**	491	17	**508**	**27.1**

1954 patients with established renal failure were being treated by haemodialysis in May 2017, details of vascular access were available for 1874 (95.9%).

There were large, significant differences between renal units. Figure H5 shows the percentage of AV access in each unit for 2013-2017.

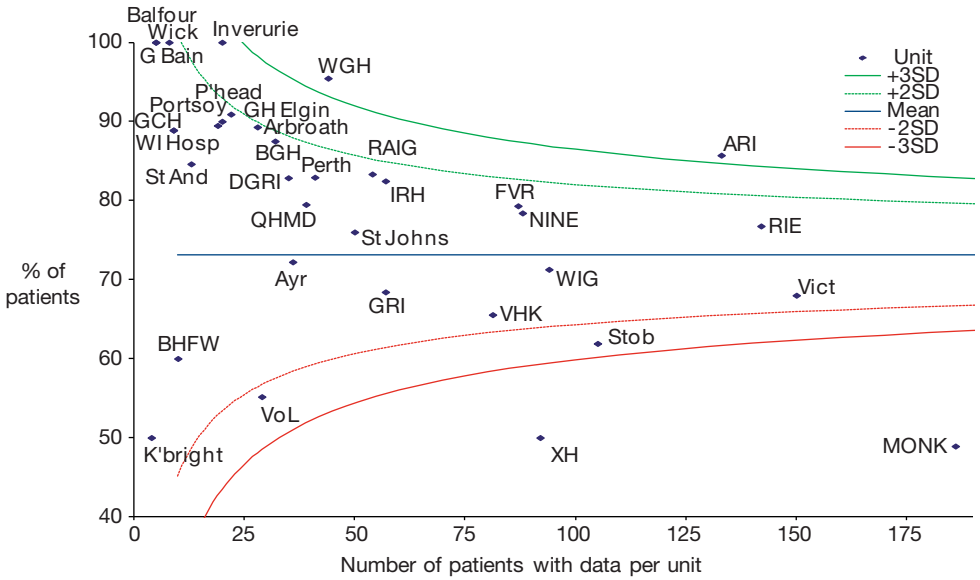
H5 Percentage of haemodialysis patients with AV access by renal unit: Census results 2013 - 2017



Rates of AV access (for patients with data submitted) in the adult units in May 2017 ranged from 49% to 89%.

The Renal Association guideline (2015) suggests that 80% of all prevalent adult patients on haemodialysis should receive dialysis via a functioning arteriovenous access.

H6 Percentage of patients on hospital haemodialysis with AV access by satellite unit May 2017



Balfour and Wick share the same point on the funnel plot.

RHC had no patients with AV access and is not shown on the funnel plot.

Of the 56 patients receiving home haemodialysis during the census, information on vascular access was available for 51 (91.1%).

Of those with data, 47 patients were receiving dialysis via AV fistula or graft (92.2%) and 4 via a central venous catheter (7.8%).

H7 Number of patients confirmed as using buttonhole cannulation technique by renal unit May 2017

	ARI	XH	DGRI	GLAS	MONK	NINE	RAIG	RHC	RIE	VHK	Scotland
Total on HD	240	144	54	609	187	181	89	10	299	141	1954
Total with AV access	208	80	42	423	91	132	70	0	226	94	1366
Sufficient data	192	80	41	388	86	129	65	0	222	88	1291
Buttonhole yes	144	63	2	11	65	88	45	0	107	5	530
Buttonhole no	48	17	39	377	21	41	20	0	115	83	761

1291 (94.5%) of the 1366 prevalent haemodialysis patients with AV access had their AV access cannulation technique recorded in the May 2017 census.