



Scottish Diabetes Survey 2018

Scottish Diabetes Data Group

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Revision information

Version Number	Edited By	Effective Date	Details of Edits Made
1.0	Michael Bluett	18 June 2019	Initial version

Foreword

This survey once again provides a comprehensive view on diabetes care across the whole population of Scotland. The systems in place to record these data are such that we are able to present information about over 99% of the population diagnosed with diabetes. SCI-Diabetes, our clinical management and information system, is world-leading, and continues to enable us to track the effects of health policy on the delivery of care and outcomes for the 304,375 people with diabetes in Scotland.

The comprehensive nature of the Survey, presenting agreed essential core diabetes data is a strength. However, the amount of information presented has resulted in the production of a large document that is not particularly easy to read. The information is summarised at national and NHS Board level.

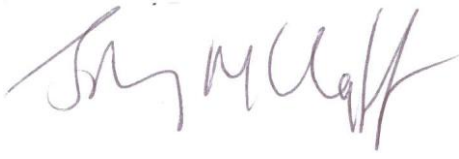
In this year's survey we have described a further improvement in glycaemic control of those with Type 1 diabetes. This is a real step in the right direction and demonstrates the effect of Government policy supporting insulin pump therapy and improved glucose monitoring systems. There remains some way to go to achieve glycaemic control on a par with some of the leading healthcare systems internationally.

Other information relating to Type 1 diabetes is more challenging. Why are only 32% of 12 to 17-year olds recorded as receiving the 6 recognised processes of care, and only 32% of adults with Type 1 diabetes receiving the 9 processes of care? Most of these people attend specialist diabetes centres, and only 2.4% and 10.7% respectively have not had an HbA1c measured, so have had contact with services. Our information system can enable all local services to audit their own information against national guidance. It might be useful to present information from the specialty units in Scotland next year, an approach that has been used successfully in Germany.

Each NHS Board managed clinical network needs also to review the information presented in the survey and decide how best to deliver ongoing improvement. Examples of potential issues include the higher loss to follow-up (disengagement) of 18 to 25-year olds in NHS Lothian, the poor figures for microalbuminuria screening and creatinine testing for both Type 1 and Type 2 patients in NHS Borders and low cholesterol assessment in NHS Western Isles. There is also a wide variation in diabetic retinopathy screen rates in different NHS Boards. It is possible to identify where each network is an outlier using the one-page NHS Board specific spine charts (pages 190 to 203).

In next year's Survey we aim to provide more information relating to the diagnosis of MODY (Maturity Onset Diabetes of the Young) in each NHS Board, as people with this condition, if correctly identified, can have very specific treatment that can be life changing. We will also have a section relating to inpatient diabetes care.

We are fortunate to have such a good understanding of our provision of diabetes care in Scotland and will continue to use this to drive improvements in the service and thus better outcomes for our patients.

A handwritten signature in dark ink, appearing to read 'John A McKnight', is positioned above the printed name.

John A McKnight
Chairman
Scottish Diabetes Data Group

Executive Summary

This report presents the results of the 2018 Scottish Diabetes Survey. The survey collates information submitted by all 14 NHS boards and provides data on the number of people with diabetes, the effects on their health, and the progress being made to improve the delivery and outcomes of care for people with diabetes. Data for this survey were extracted from SCI-Diabetes at the end of 2018 and includes people who were alive (aside from mortality figures), had an appropriate diagnosis of diabetes or a related condition and were registered with a Scottish General Practitioner at the time of data extraction. In this survey, we report separately on those with type 1 and type 2 diabetes.

In this Scottish Diabetes Survey 2018, we report that:

- There were 304,375 people diagnosed with diabetes in Scotland recorded on local diabetes registers at the end of 2018. This represents 5.6% of the population of all ages (Table 1);
- Crude prevalence of diabetes ranged from 4.8% to 6.6% across NHS boards (Table 62);
- 10.8% of all registered people were recorded as having type 1 diabetes. 87.9% of all people registered with diabetes were recorded as having type 2 diabetes (Table 2);
- The number of people registered with type 1 diabetes increased from 27,464 in 2008 to 32,828 in 2018 and the number of people registered with type 2 diabetes increased from 190,772 in 2008 to 267,615 in 2018 (Scottish Diabetes Survey 2008 and Table 2);
- 1.3% (3,932) were recorded as having “other” types of diabetes, including maturity onset diabetes of the young (MODY) and unknown diabetes type (Table 2);
- Of those with a recorded body mass index (BMI), 36.8% with type 1 diabetes and 31.8% with type 2 diabetes were overweight (BMI 25-29.9kg/m²), and a further 27% of those with type 1 diabetes and 55.2% of those with type 2 diabetes were obese (BMI 30kg/m² or above), meaning that a total of 63.8% of those with type 1 diabetes and 87.0% of those with type 2 diabetes were overweight or obese (Table 80 and Table 81);
- 90% of those with type 1 and 91.1% of those with type 2 diabetes had an HbA_{1c} recorded in the previous 15 months (Table 84). Of these, 27.7% and 57.9% respectively had a result < 58mmol/mol (Table 85 and Table 86);
- 83.6% of those with type 1 and 88.6% of those with type 2 diabetes had their blood pressure recorded in the previous 15 months (Table 90). Of these, 42.7% and 31.7% respectively had a systolic blood pressure <130 mmHg and a diastolic blood pressure ≤80 mmHg (Table 93 and Table 95);
- Cholesterol was recorded in 77.9% of people within the previous 15 months, and the target of ≤ 5 mmol/l was achieved in 69.4% of those with type 1 and 78.5% of those with type 2 diabetes (Table 11 and Table 100);
- 19.4% of those with type 1 and 16.0% of those with type 2 diabetes were recorded as being current smokers (Table 103 and Table 104);

- 1,197 (3.6%) of those with type 1 and 25,817 (9.6%) of those with type 2 diabetes had a record of myocardial infarction, and 2.8% and 7.6% respectively had a record of cardiac revascularisation (Table 106 and Table 107);
- 467 (1.4%) of those with type 1 and 1,612 (0.6%) of those with type 2 diabetes have a record of having end stage renal failure (Table 114);
- 84.2% of people with type 1 or type 2 diabetes had a record of eye screening in the previous 15 months (Table 115);
- 55.7% of people with type 1 diabetes and 65.4% of those with type 2 had their foot scores recorded in the previous 15 months (Table 120 and Table 121);
- 251 (0.8%) of those with type 1 and 1,150 (0.4%) of those with type 2 diabetes had a record of having had a major lower limb amputation (Table 125).

Prevalence

At the end of 2018 there were 304,375 people with known diabetes in Scotland recorded on Scottish Care Information-Diabetes (SCI-Diabetes), which represents a crude prevalence of 5.6% of the population of all ages (5,424,800).

In the previous Scottish Diabetes Survey (2017), 298,504 people (5.5%) were reported to have diabetes. The increase in reported prevalence is influenced by numerous factors, including:

- demographic change - diabetes is more prevalent in older people, so the increasing number of older people each year increases the prevalence of diabetes;
- better survival – possibly related to the widespread use of statins or changes to other risk factors;
- changes in the numbers of new cases of diabetes because of changes in disease patterns;
- changes in the proportions of people whose diagnosis of diabetes is based on measurement of glucose or measurement of HbA_{1c}

Figure 1 Number of people recorded with diabetes (all types) by year in Scotland for 2009-2018.

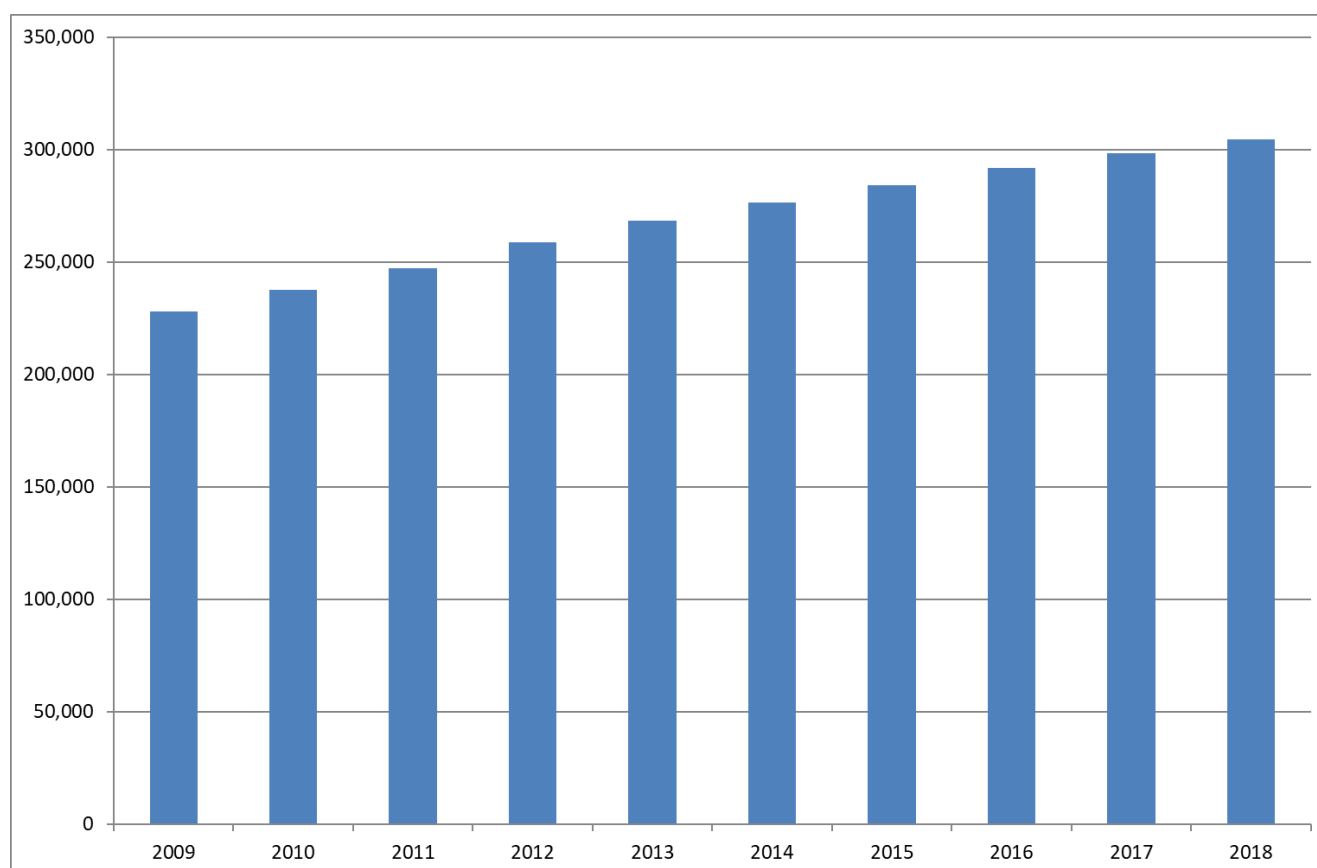


Table 1 Number of people with diabetes, crude prevalence of diabetes and annual changes in numbers/proportions by year for Scotland, 2009-2018.

Survey	Number of people with diabetes (n)	Crude prevalence (%)	Increase (n)	Annual increase in numbers (%)	Absolute increase in prevalence (%)
2018	304,375	5.61	5,871	1.97	0.09
2017	298,504	5.52	6,523	2.23	0.09
2016	291,981	5.43	7,859	2.77	0.12
2015	284,122	5.31	7,692	2.78	0.12
2014	276,430	5.19	8,276	3.09	0.14
2013	268,154	5.05	9,584	3.71	0.13
2012	258,570	4.92	11,292	4.57	0.18
2011	247,278	4.74	9,810	4.13	0.16
2010	237,468	4.57	9,464	4.15	0.16
2009	228,004	4.41	8,041	3.66	0.14

The population figures used are based on the mid-year population estimate published by National Records of Scotland for the previous year as population estimates only become available in April. For example, 2018 data uses numbers of people with diabetes at the end of 2018 but mid-year population data from 2017. This will lead to a very small overestimate of diabetes prevalence in this table because the population size has been increasing slightly each year, for example by 0.37% from 2017 to 2018, meaning the correct estimate of crude prevalence is 5.59% (rather than 5.61%).

Types of Diabetes

The majority of registered people have a record of type 2 diabetes (267,615 or 87.9%). The proportion of people with diabetes who have a record of type 1 diabetes has fallen from 18.2% in 2002 to 10.8% in 2018, probably largely due to more complete recording of data from people with type 1 diabetes than type 2 diabetes in earlier years. However, the absolute number of people with type 1 diabetes continues to increase (29,261 in 2013 to 32,828 in 2018). This reflects the rising incidence of type 1 diabetes in children and better survival over the last 40 years. Other types of diabetes include Maturity Onset Diabetes of the Young (MODY), gestational diabetes and secondary diabetes. See the [Type of Diabetes Regional Detail](#) section for detailed information by NHS board.

Figure 2 Proportions of diabetes population by type, Scotland 2018.

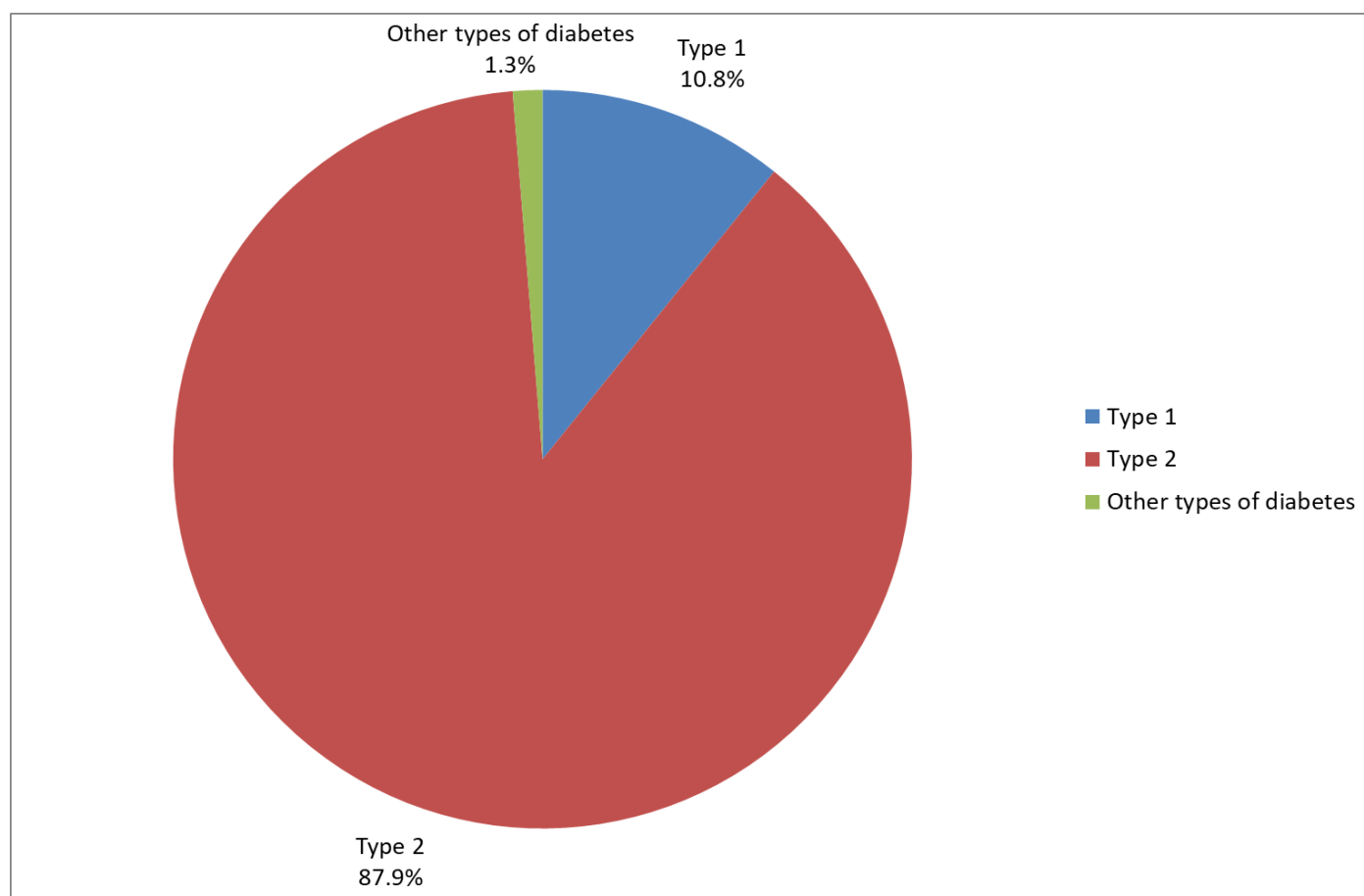


Table 2 Number of people with diabetes by diabetes type, Scotland 2018.

Type 1		Type 2		Other types of diabetes		Total
n	%	n	%	n	%	
32,828	10.8	267,615	87.9	3,932	1.3	304,375

Type 1 Diabetes Data

Incidence (new cases)

Crude incidence figures have been calculated retrospectively using numbers of people with diabetes of duration of less than one year identified from SCI-Diabetes data as the numerator and the non-diabetic population as the denominator. Numerator data may be affected by factors such as post-survey patient migration and subsequent validation of diabetes classification.

For this year (2018) and the previous year's survey (2017), the way in which incidence is calculated was changed and the findings are therefore not directly comparable with those of previous years. In previous surveys, the total population, including both the diabetic and non-diabetic population, was used as the denominator, resulting in incidence being underestimated. As type 2 diabetes is more common, the effect on the incidence of type 2 diabetes is more marked than for type 1 diabetes.

Table 3 Type 1 diabetes: Number of new cases and incidence rate (per 100,000 population per year) by age, Scotland 2011-2018.

Age	2011 (a)		2012 (a)		2013		2014		2015		2016		2017		2018		
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Population	Cases	Rate
0-4	166	29	66	22	51	17	56	19	73	25	64	22	52	18	281,968	60	21
5-9			137	50	88	32	105	37	114	40	117	40	135	45	301,317	117	39
10-14	244	40	152	54	125	45	140	51	120	44	179	66	141	52	278,839	178	64
15-19			110	35	104	33	116	37	98	32	102	34	109	37	288,088	89	31
20-29	205	29	172	24	159	22	159	22	160	22	165	23	178	24	732,681	172	23
30-39	129	20	118	19	111	17	110	17	125	19	107	16	159	24	683,097	137	20
40-49	114	15	96	13	82	11	86	11	95	13	84	12	79	11	684,392	86	13
50-59	63	10	66	10	74	11	58	8	75	11	63	9	70	10	728,497	80	11
60-69	37	7	43	8	36	7	26	5	22	4	44	8	36	6	556,220	40	7
>=70	15	3	18	3	18	3	27	5	16	3	18	3	19	3	591,329	34	6
Total	973	20	978	20	848	17	883	17	898	18	943	19	978	19	5,126,296	993	19

Note: a) In the years prior to 2013, the at-risk population includes those with diagnosed frank diabetes, under-estimating the incidence rate. The Scottish at-risk population figures excludes people with frank diabetes at the end of the previous year whose age is unknown (n = 128).

Table 4 Type 1 diabetes: Incidence rate (per 100,000 population per year) by age and year, Scotland 2010-2018.

Age range	2010 (a)	2011 (a)	2012 (a)	2013	2014	2015	2016	2017	2018
0-9	26	29	36	24	28	32	31	32	30
10-19	43	40	44	39	44	38	49	44	47
20-29	25	29	24	22	22	22	23	24	23
30-39	20	20	19	17	17	19	16	24	20
40-49	12	15	13	11	11	13	12	11	13
50-59	11	10	10	11	8	11	9	10	11
60-69	10	7	8	7	5	4	8	6	7
>=70	5	3	3	3	5	3	3	3	6
Total	19	20	20	17	17	18	19	19	19

Note: a) In the years prior to 2013, the at-risk population includes those with diagnosed frank diabetes, under-estimating the incidence rate. The Scottish at-risk population figures excludes people with frank diabetes at the end of the previous year whose age is unknown (n = 128).

See the [Incidence National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Duration of Diabetes

The date of diagnosis was recorded for 98.9% of people with type 1 diabetes, of whom 3.1% have had diabetes for less than one year and 43.9% have had diabetes for 20 years or more (Table 5). It should be noted that not all dates of diagnosis are accurate, especially for those with long-standing diabetes.

Table 5 Duration of diabetes (years since diagnosis) for people with type 1 diabetes in Scotland 2018.

Duration (Years)	Type 1 diabetes	
	Number	%
<1	988	3.1
1-4	3,860	11.9
5-9	4,657	14.4
10-14	4,295	13.3
15-19	4,361	13.5
20-24	3,419	10.6
25-29	3,016	9.3
30-34	2,344	7.2
34-39	2,029	6.3
40-44	1,439	4.4
45-49	951	2.9
>=50	1,015	3.1
Total	32,374	100.0

Note: Excludes people where date of diagnosis not known (for type 1, n = 454). Since 2017, the Scottish Diabetes Survey has taken a more robust approach to validating date of diagnosis of diabetes than earlier surveys, for example by excluding dates of diagnoses incorrectly recorded as prior to the person's date of birth. As a consequence higher numbers and proportions of people have missing data than for previous Surveys.

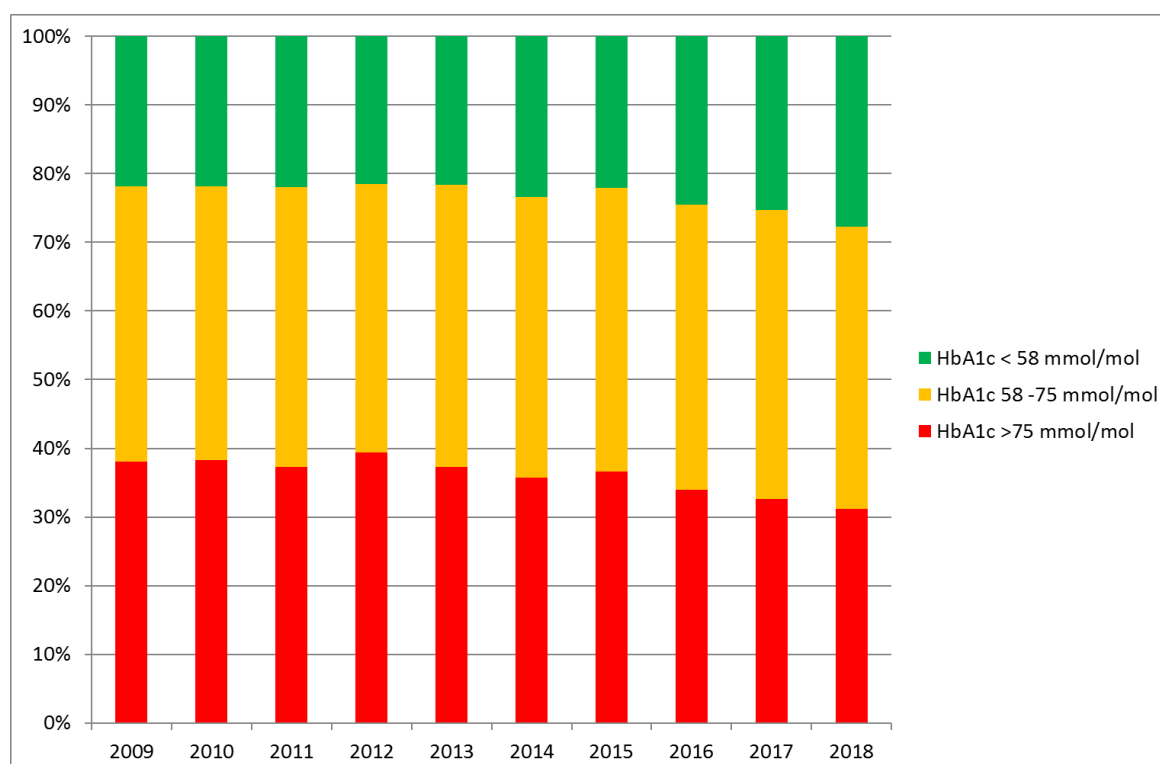
See the [Duration National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Glycaemic Control

Table 6 Type 1 diabetes: Number and percentage of people with a record of HbA_{1c} in each HbA_{1c} category, Scotland 2009-2018.

Year	HbA _{1c} (mmol/mol)						Total recorded	Not recorded
	< 58		58-75		>75			
	n	%	n	%	n	%		
2018	8,191	27.7	12,160	41.1	9,205	31.1	29,556	3,272
2017	7,140	25.3	11,900	42.1	9,218	32.6	28,258	3,189
2016	6,835	24.5	11,609	41.6	9,448	33.9	27,892	3,007
2015	6,099	22.1	11,400	41.3	10,087	36.6	27,586	2,770
2014	6,375	23.4	11,107	40.8	9,714	35.7	27,196	2,606
2013	5,578	21.5	10,595	40.8	9,788	37.1	25,961	3,300
2012	5,407	21.5	9,830	39.1	9,881	39.3	25,118	3,731
2011	5,345	22.0	9,893	40.7	9,071	37.3	24,309	3,963
2010	5,337	21.8	9,754	39.9	9,375	38.3	24,466	3,444
2009	5,194	21.8	9,556	40.1	9,096	38.1	23,846	3,521

Figure 3 Type 1 diabetes: Percentage of people with a record of HbA_{1c} in each HbA_{1c} category, Scotland 2009-2018.



See the [Glycaemic Control National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Insulin Pump Use

The use of Continuous Subcutaneous Insulin Infusion (CSII or insulin pump therapy) as a method to manage type 1 diabetes has increased in many developed countries during the last 20 years. The Scottish Diabetes Group, supported by the Government, have emphasised the importance of ensuring individuals who fulfil the clinical criteria for CSII therapy have access to this technology. The results in Table 7 describe the proportion of people recorded as receiving treatment with insulin pumps in Scotland.

Table 7 Numbers and percentages of people with type 1 diabetes using insulin pumps by age group and year, Scotland 2013-2018.

Year	Aged under 18			Aged 18 or over			All ages		
	People (n)	On pump		People (n)	On pump		People (n)	On pump	
		n	%		n	%		n	%
2018	3,044	1,165	38.3	29,759	3,046	10.2	32,803	4,211	12.8
2017	3,001	1,070	35.7	28,421	2,668	9.4	31,422	3,738	11.9
2016	3,013	1,035	34.4	27,859	2,306	8.3	30,872	3,341	10.8
2015	2,950	919	31.2	27,379	1,948	7.1	30,329	2,867	9.5
2014	2,953	849	28.8	26,748	1,632	6.1	29,701	2,481	8.4
2013	2,917	659	22.6	26,394	1,188	4.5	29,311	1,847	6.3

Note: This table is limited to the years since 2013 due to the absence of data prior to that.

Table 8 Numbers and percentages of people with type 1 diabetes using insulin pumps by age group and NHS board, ranked by descending percentage of people aged under 18 using an insulin pump, Scotland 2018.

NHS board	Aged under 18			Aged 18 or over			All ages		
	People (n)	On pump		People (n)	On pump		People (n)	On pump	
		n	%		n	%		n	%
Orkney	9	7	77.8	115	14	12.2	124	21	16.9
Lothian	393	203	51.7	4,617	527	11.4	5,010	730	14.6
Fife	211	108	51.2	2,031	281	13.8	2,242	389	17.4
Borders	65	30	46.2	652	79	12.1	717	109	15.2
Ayrshire and Arran	243	103	42.4	2,121	165	7.8	2,364	268	11.3
Tayside	199	80	40.2	2,042	248	12.1	2,241	328	14.6
Highland	214	83	38.8	1,954	179	9.2	2,168	262	12.1
Dumfries and Galloway	91	34	37.4	913	142	15.6	1,004	176	17.5
Forth Valley	195	68	34.9	1,738	185	10.6	1,933	253	13.1
Lanarkshire	456	155	34.0	4,020	397	9.9	4,476	552	12.3
Shetland	15	5	33.3	126	8	6.3	141	13	9.2
Greater Glasgow and Clyde	580	188	32.4	6,009	566	9.4	6,589	754	11.4
Grampian	351	96	27.4	3,240	242	7.5	3,591	338	9.4
Western Isles	22	5	22.7	181	13	7.2	203	18	8.9
Scotland	3,044	1,165	38.3	29,759	3,046	10.2	32,803	4,211	12.8

Cardiovascular Risk

Diabetes is associated with an increased risk of cardiovascular disease and it is therefore important to address cardiovascular risk factors such as high blood pressure (BP), raised cholesterol and smoking.

Blood Pressure

83.6% of people with type 1 diabetes had their BP recorded within the previous 15 months (Table 9). Note that data from people of all ages are included in these blood pressure figures, in contrast to the processes of care, where there are restrictions.

Table 9 Number and percentage of people with type 1 diabetes with a recorded BP within the previous 15 months in Scotland 2009-2018.

Year	BP Recorded		Population
	n	%	
2018	27,458	83.6	32,828
2017	26,524	84.3	31,447
2016	26,248	84.9	30,899
2015	26,298	86.6	30,356
2014	26,201	87.9	29,802
2013	25,395	86.8	29,261
2012	24,574	85.2	28,849
2011	24,165	85.5	28,272
2010	23,977	85.9	27,910
2009	23,568	86.1	27,367

See the [Blood Pressure National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Total Cholesterol

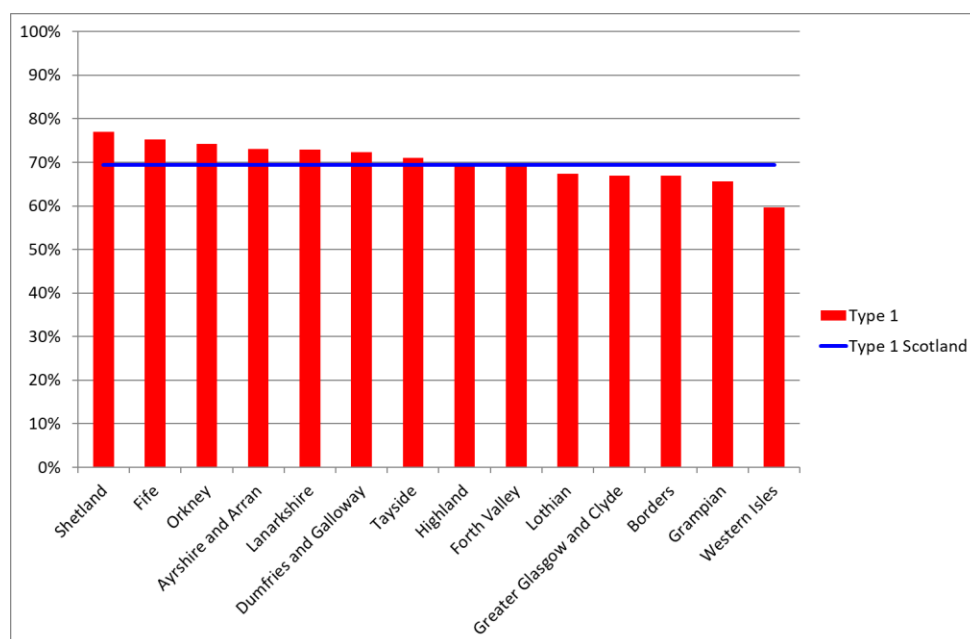
Cholesterol level was recorded in 77.9% of people with type 1 diabetes within the previous 15 months (Table 10).

Table 10 Number and percentage of people with type 1 diabetes with cholesterol < 5mmol/l, by year (denominator those with recording of cholesterol within the previous 15 months), Scotland 2012-2018.

Year	Cholesterol ≤ 5		Cholesterol > 5		Recorded (%)	Not recorded		Total
	Number	%	Number	%		Number	%	
2018	16,094	69.4	7,080	30.6	77.9	6,585	22.1	29,759
2017	14,902	67.5	7,171	32.5	77.7	6,348	22.3	28,421
2016	15,212	69.1	6,792	30.9	79.0	5,855	21.0	27,859
2015	15,489	70.3	6,544	29.7	80.5	5,346	19.5	27,379
2014	15,710	70.9	6,439	29.1	82.6	4,660	17.4	26,809
2013	15,276	71.3	6,153	28.7	81.5	4,865	18.5	26,294
2012	14,622	69.7	6,371	30.3	81.2	4,855	18.8	25,848

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 3069). This table is limited to the years since 2012 due to the absence of data prior to that.

Figure 4 Type 1 diabetes: Percentage of people with cholesterol ≤5mmol/l, by NHS board (denominator those with recording of cholesterol within the previous 15 months), Scotland 2018.



Note: Excludes children under 18 years of age and people whose date of birth has not been recorded (n=3069); horizontal line indicates mean level for Scotland as a whole.

Table 11 Type 1 diabetes: Number and percentage of people with cholesterol $\leq 5\text{mmol/l}$, by NHS board (denominator those with recording of cholesterol within the previous 15 months), ranked by percentage of people with cholesterol $\leq 5\text{mmol/l}$, Scotland 2018.

NHS board	Total cholesterol ≤ 5 (%)	Total recorded	Not recorded (%)
Shetland	76.9	113	10.3
Fife	75.3	1,621	20.2
Orkney	74.2	105	8.7
Ayrshire and Arran	73.1	1,626	23.3
Lanarkshire	72.9	2,989	25.6
Dumfries and Galloway	72.4	796	12.8
Tayside	71.0	1,582	22.5
Highland	69.5	1,393	28.7
Forth Valley	68.9	1,423	18.1
Lothian	67.4	3,601	22.0
Greater Glasgow and Clyde	66.9	4,669	22.3
Borders	66.9	556	14.7
Grampian	65.6	2,593	20.0
Western Isles	59.6	107	40.9
Scotland	69.4	23,174	22.1

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 3069).

See the [Total Cholesterol National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Smoking Status

Smoking status was recorded for 64.1% of those with type 1 diabetes (Table 12). Of those with a record of smoking status, 19.4% had a record of being a current smoker. Note: Data from people of all ages are included in these smoking figures.

Table 12 Percentage of people with type 1 diabetes who were recorded as current, ex- or never-smokers (denominator those with record of smoking status), Scotland 2012-2018.

Year	Current smoker (%)	Ex-smoker (%)	Never smoked (%)	Not recorded (%)
2018	19.4	23.9	56.8	35.9
2017	20.1	23.3	56.6	35.4
2016	22.9	23.4	53.7	37.3
2015	23.9	23.3	52.8	35.8
2014	23.6	23.6	52.8	25.1
2013 (a)	23.5	22.8	53.7	6.4
2012 (a)	23.8	22.9	53.3	9.4

Note: (a) Data for years prior to 2014 are calculated based on whether smoking status has ever been recorded, whereas data from 2014 onwards is calculated based on whether smoking status was recorded in the last 15 months. This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Smoking Status National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Complications of Diabetes

The main complications of diabetes include those due to large vessel (arterial) disease:

- myocardial infarction (MI) – the commonest cause of death in people with diabetes;
- stroke – the risk is increased compared to people without diabetes;
- peripheral vascular disease, which can lead to amputations;

And those due to small vessel disease (microangiopathy);

- renal disease, which can lead to end-stage renal failure requiring dialysis;
- retinopathy – diabetes has been the commonest cause of blindness in people of working age.

Diabetes also leads to poorer outcomes in pregnancy, however, this survey does not include pregnancy outcomes.

The purpose of retinopathy screening is to detect changes early and intervene to prevent further deterioration. In this section, the data presented include both screening performance and recording of prevalent complications. The data sources used are detailed in [Appendix 1: SCI-Diabetes Data Sources](#).

Myocardial Infarction and Cardiac Revascularisation

3.6% of registered people with type 1 diabetes have a record, derived from primary care records, of a previous MI (Table 13). Others will have had an MI but not survived. 2.8% of registered people with type 1 diabetes have a record of having undergone cardiac revascularisation (Table 13); including coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty (PTCA).

Table 13 Percentage of people with type 1 diabetes who are recorded as having had a previous myocardial infarction (MI) or cardiac revascularisation, Scotland 2012-2018.

Year	Myocardial infarction (%)	Cardiac Revascularisation (%)
2018	3.6	2.8
2017	3.5	2.7
2016	3.5	2.6
2015	3.5	2.6
2014	3.5	2.6
2013	3.6	2.6
2012	3.6	2.5

Note: The Myocardial infarction column shows the percentage of people with diabetes who have ever had a primary care record of a heart attack and survived. This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Myocardial Infarction and Cardiac Revascularisation National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Kidney Function and Disease

Serum Creatinine

Serum creatinine was recorded in the previous 15 months for 85.8% (31,604) of people with type 1 diabetes aged 12 years or over (Table 14).

Table 14 Percentage of people with type 1 diabetes who had a record of serum creatinine within the previous 15 months, Scotland 2012-2018.

Year	Recorded within previous 15 months (%)	Total eligible population
2018	85.8	31,604
2017	86.0	30,243
2016	86.5	29,710
2015	87.3	29,227
2014	87.3	28,712
2013	83.8	28,209
2012	83.4	27,775

Note: Excludes children under 12 years of age or people who have no date of birth recorded (n=1224). This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Serum Creatinine National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Urinary Albuminuria

Table 15 shows information on the recording of albuminuria.

Table 15 Number and percentage of people with type 1 diabetes who have a record of estimated urinary albumin value available on SCI-Diabetes within the previous 15 months, Scotland 2012-2018.

Year	Recorded within previous 15 months	
	Number	%
2018	19,844	62.8
2017	18,928	62.6
2016	18,815	63.3
2015	18,180	62.2
2014	18,516	64.5
2013	17,256	61.2
2012	16,851	60.7

Note: Excludes children under 12 years of age or people who have no date of birth recorded (type 1 n = 1224). In some cases, urinary albumin was estimated from albumin/creatinine ratio (ACR). This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Urinary Albuminuria National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Diabetic Eye Screening and Disease

Diabetic Retinal Screening

80.2% of people eligible for screening had a record of diabetic eye screening through the retinal screening service recorded on SCI-Diabetes in the previous 15 months, including those attending ophthalmology services (Table 16).

Table 16 shows the proportion of people of appropriate age (≥ 12 years) who were either screened, were getting eye-care via specialist services or were deliberately (for clinical or social reasons) suspended from screening as a proportion of the total number of people who had a record of date of birth and were over 12 years of age.

Table 16 Percentage of people with type 1 diabetes who were recorded as having had diabetic eye-screening, ophthalmology care or an appropriate suspension from screening (depending on methodology at the time of the report), Scotland 2012-2018.

Year	Recorded within previous 15 months (%)
2018	80.2
2017	78.8
2016	81.5
2015	82.4
2014	82.8
2013	82.8
2012	82.0

Note: Excludes children under 12 years or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98). This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Diabetic Renal Screening National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

Foot Complications

Foot Ulceration

Table 17 Percentage of people with type 1 diabetes who had a record of ever having had a foot ulcer, Scotland 2012-2018.

Year	Recorded as ever having had a foot ulcer (%)
2018	8.4
2017	8.2
2016	8.2
2015	8.4
2014	8.5
2013	8.8
2012	8.5

Note: This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Foot Complications National and Regional Detail](#) section for a summary of people with either type 1 and 2 diabetes and detailed information by NHS board.

This marks the end of the section solely focused on type 1 diabetes.

Paediatric Supplement

This supplement provides an opportunity to more closely review statistics, processes and outcomes of care in the paediatric population. Although representing a small number relative to the total with diabetes in Scotland, this clearly defined patient group has some significant differences from the adult population.

Introduction

Some variations between children and adults with diabetes are presented in the Survey. Age banding from 0-17 years has been included, as have on some measures the more narrowly defined age groups of 0-5, 6-11 and 12-17 years. Further, the aetiological differentiation between those with type 1 and type 2 diabetes gives some insight into results and outcomes for the paediatric population, who most typically have the type 1 form of the condition.

Compared to the adult population, where both type 1 and type 2 disease are well represented, autoimmune type 1 diabetes is the predominant form in the young.

Autoimmunity is the major cause for the development of diabetes in the young. It is also associated with the possible onset of other conditions, such as thyroid or adrenal disease. Screening for these conditions, as well as for glycaemia-related complications, is an essential process of care in the paediatric diabetes population.

While an adult may be expected to deliver their own care, this may not be appropriate in the young. The child may not be capable or simply not understand why care is necessary.

For school-age children with diabetes, family members (parents, siblings, grandparents, etc.) and carers (nursery staff, teachers, sports club staff, etc.) will all require diabetes education. Self-motivation and acceptance of personal responsibility may develop much later, and while completion of a structured education programme will likely be needed for all senior family members, a young person will only take advantage of this information once sufficiently mature.

Although issues such as driving, work, smoking, alcohol consumption and pregnancy are relevant to adults with diabetes, these will have variable importance for adolescents. Developing autonomy, schoolwork and study, peer and societal pressures are factors more likely to concern both adolescents and younger children. Further, morbidity and mortality in the young nearly always result from acute metabolic disturbance, rather than from chronic complications.

For those diagnosed with diabetes at a young age, the personal and societal burdens of diabetes are more likely to arise at an earlier age and, ultimately, risk being more severe. Although the overt development of such complications in the young is rare, optimising

glycaemic control during this time of growth and psychological development is very important.

Commentary on Scottish Paediatric Diabetes Data

This second paediatric subsection of the Scottish Diabetes Survey contains data available from the SCI Diabetes clinical system, which itself integrates information from sources listed in Appendix 1: SCI-Diabetes Data Sources. The factors analysed in the Paediatric supplement below include the following items, listed according to Health Board:

- Prevalence
- Incidence
- Insulin pump use
- Retinopathy screening completion
- Blood pressure recording completion
- Albumin/creatinine ratio collection
- Thyroid screening (TSH) collection
- Coeliac disease screening (antibodies) collection
- HbA_{1c} collection

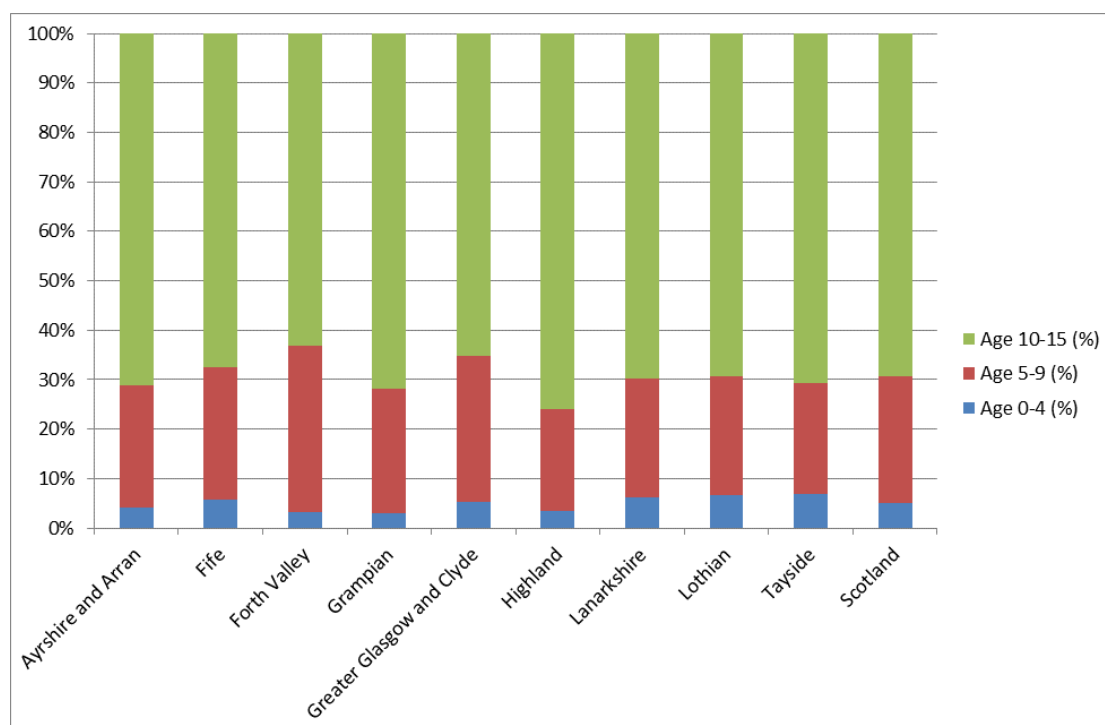
In order to protect individual confidentiality, we do not report data when the number of patients is small.

Concealment of data is intended to maintain subject anonymity. However, it can also hinder analysis and interpretation. Data may not be readily available from smaller centres, and although numbers for review may be increased by aggregating data by age, region or even nationally, this may hinder the presentation of information for smaller centres.

The survey presents data to measure adherence to agreed clinical standards. NICE guidelines recommend annual retinopathy and microalbuminuria screening from the age of 12 years. People 12 years and older are registered in the national Retinal Screening Programme and are invited to participate annually. Screening for microalbuminuria using albumin/creatinine ratio (ACR), and regular measurement of blood pressure are similarly recommended from the age of 12 years. Measurement of thyroid function and coeliac disease antibodies are also recommended.

The survey has identified some differences in care delivery compared to the recognised standards.

The publication of this Paediatric Supplement enables the diabetes community to be better placed to understand what is required to improve care and this should result in better outcomes for people with diabetes.

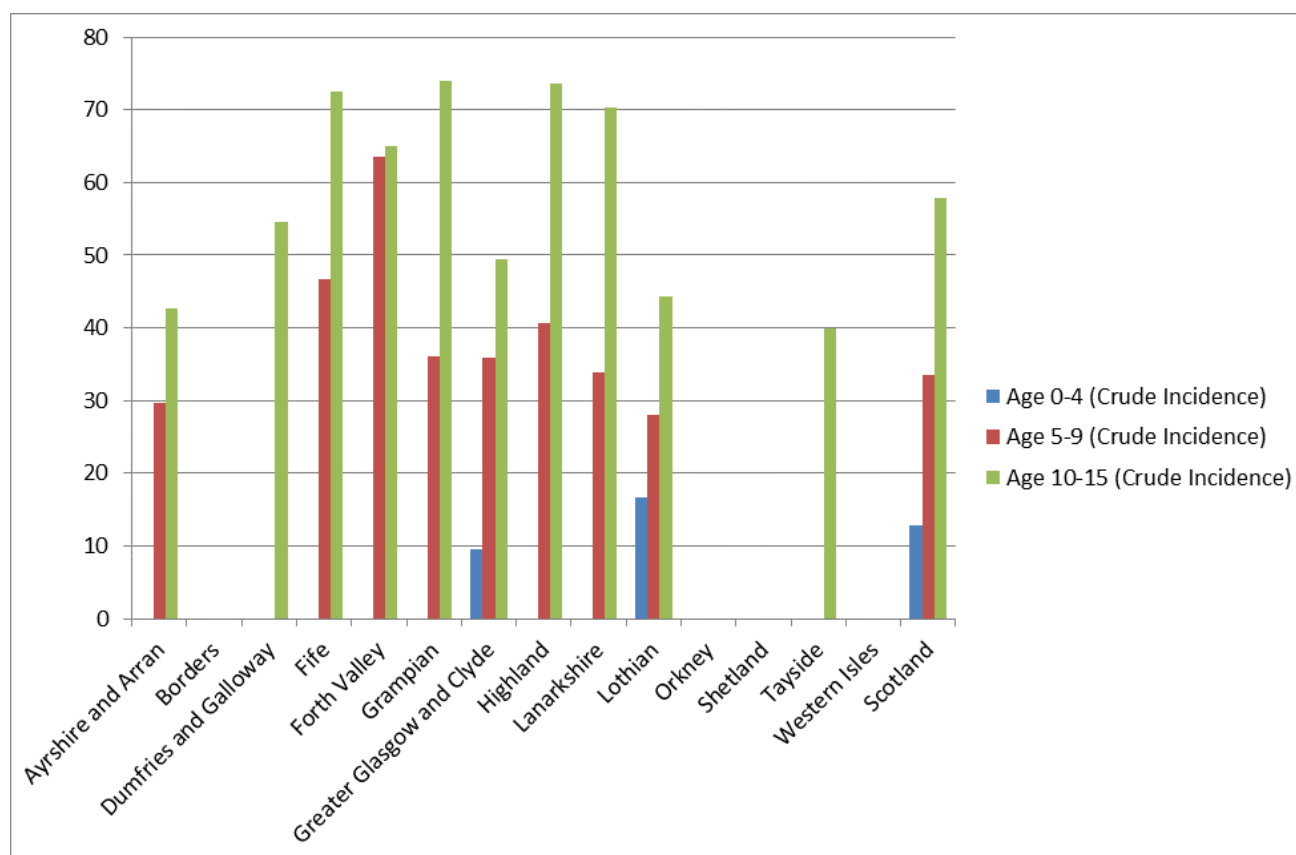
Figure 5 Proportions of all people with diabetes under 16 years of age by age band and health board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown. The collation of data in a 0-4 year age group was to allow comparison of local data with those of international studies suggesting an increased prevalence and incidence in those under 5 years of age.

Table 18 Proportions of all people with diabetes under 16 years of age by age band and health board, Scotland 2018.

NHS board	Age 0-4		Age 5-9		Age 10-15	
	n	%	n	%	n	%
Ayrshire and Arran	8	4.1	48	24.7	138	71.1
Borders	*	*	*	*	*	*
Dumfries and Galloway	*	*	*	*	*	*
Fife	10	5.7	47	26.9	118	67.4
Forth Valley	5	3.2	53	33.8	99	63.1
Grampian	8	3.0	67	25.2	191	71.8
Greater Glasgow and Clyde	23	5.4	126	29.5	278	65.1
Highland	6	3.5	35	20.6	129	75.9
Lanarkshire	22	6.2	86	24.1	249	69.7
Lothian	21	6.6	76	24.0	220	69.4
Orkney	*	*	*	*	*	*
Shetland	*	*	*	*	*	*
Tayside	10	6.8	33	22.4	104	70.7
Western Isles	*	*	*	*	*	*
Scotland	120	5.1	604	25.6	1,636	69.3

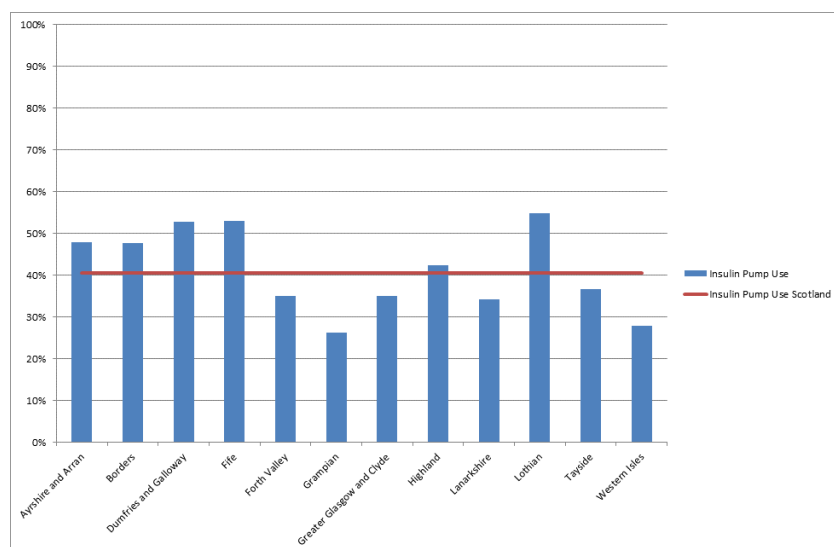
Note: There is a risk of identifying individuals when small numbers of events are presented in health statistics ("NHS National Services Scotland: Statistical Disclosure Control Protocol." from http://www.isdscotland.org/About-isd/Confidentiality/disclosure_protocol_v3.pdf). * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 6 Incidence rate (per 100,000 population per year) for people under 16 years of age by age band and health board, Scotland 2018.**Table 19 Number of new cases and incidence rate (per 100,000 population per year) for people under 16 years of age by age band and health board, Scotland 2018.**

NHS board	Age 0-4			Age 5-9			Age 10-15		
	n	In.	Pop.	n	In.	Pop.	n	In.	Pop.
Ayrshire and Arran	*	*	18,171	6	30	20,222	10	43	23,388
Borders	0	0	5,646	*	*	6,118	*	*	7,262
Dumfries and Galloway	*	*	6,640	*	*	7,690	5	55	9,157
Fife	*	*	19,405	10	47	21,454	17	72	23,474
Forth Valley	*	*	15,499	11	64	17,303	13	65	19,972
Grampian	*	*	31,372	12	36	33,252	26	74	35,121
Greater Glasgow and Clyde	6	10	62,851	23	36	64,094	34	49	68,812
Highland	*	*	15,068	7	41	17,246	15	74	20,404
Lanarkshire	*	*	35,600	13	34	38,457	31	70	44,105
Lothian	8	17	47,818	14	28	50,067	23	44	51,890
Orkney	*	*	982	*	*	1,179	*	*	1,384
Shetland	0	0	1,279	0	0	1,349	*	*	1,605
Tayside	*	*	20,528	*	*	22,139	10	40	25,072
Western Isles	0	0	1,247	0	0	1,381	*	*	1,739
Scotland	36	13	282,106	101	33	301,951	193	58	333,385

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. The calculation of crude incidence is a slight underestimate, as the at-risk population includes small numbers of people with frank diabetes.

Figure 7 Percentage of people with diabetes under 16 years of age recorded as using an insulin pump by NHS board, Scotland 2018.



Note: Percentage of all people with diabetes under 16 years of age using an insulin pump by Health Board. Bars for boards with hidden data aren't shown.

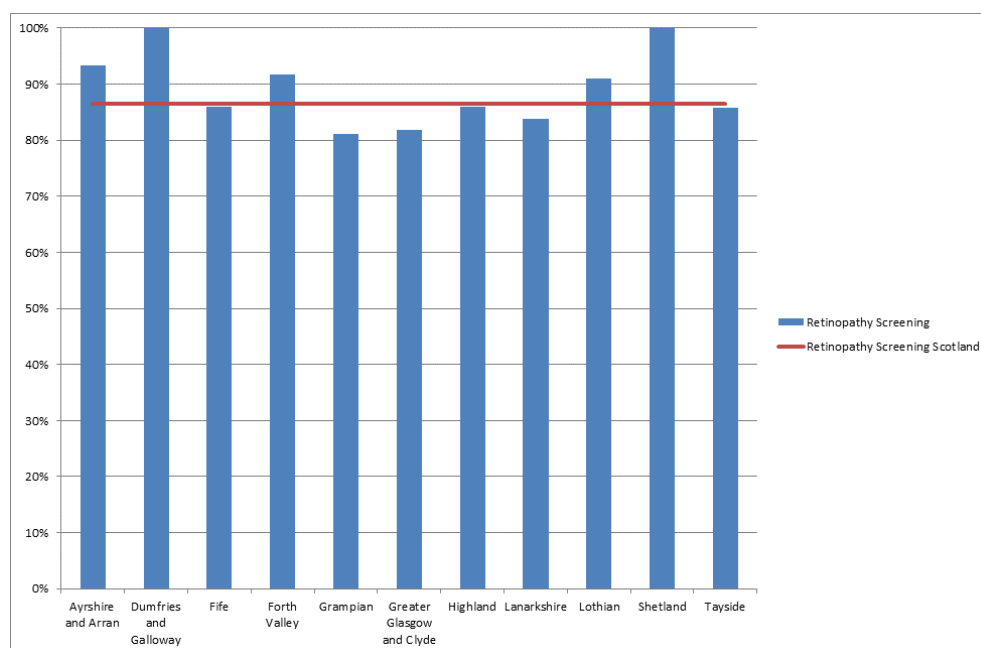
In 2011 a national target was set that, by March 2013, 25% of all those in Scotland under 18 years of age with diabetes should have access to an insulin pump. The figures show that this initial target has been met and, in most centres, exceeded by a reasonable margin. However, a clear majority remain on injection therapy. In future, the reasons for this, along with other aspects of medical technology applied to diabetes care, such as Continuous Glucose Monitoring (CGM) and Flash Glucose Monitoring (FGM), may be reviewed.

Table 20 Number and percentage of people with diabetes under 16 years of age recorded as using an insulin pump by NHS board, Scotland 2018.

NHS board	Pump		No pump	
	n	%	n	%
Ayrshire and Arran	93	47.9	101	52.1
Borders	20	47.6	22	52.4
Dumfries and Galloway	37	52.9	33	47.1
Fife	93	53.1	82	46.9
Forth Valley	55	35.0	102	65.0
Grampian	70	26.3	196	73.7
Greater Glasgow and Clyde	150	35.1	277	64.9
Highland	72	42.4	98	57.6
Lanarkshire	122	34.2	235	65.8
Lothian	174	54.9	143	45.1
Orkney	*	*	*	*
Shetland	*	*	*	*
Tayside	54	36.7	93	63.3
Western Isles	5	27.8	13	72.2
Scotland	955	40.5	1,405	59.5

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 8 Percentage of people with diabetes under 16 years of age eligible for diabetic retinopathy screening (DRS) who were screened within the last 15 months by NHS board, Scotland 2018.

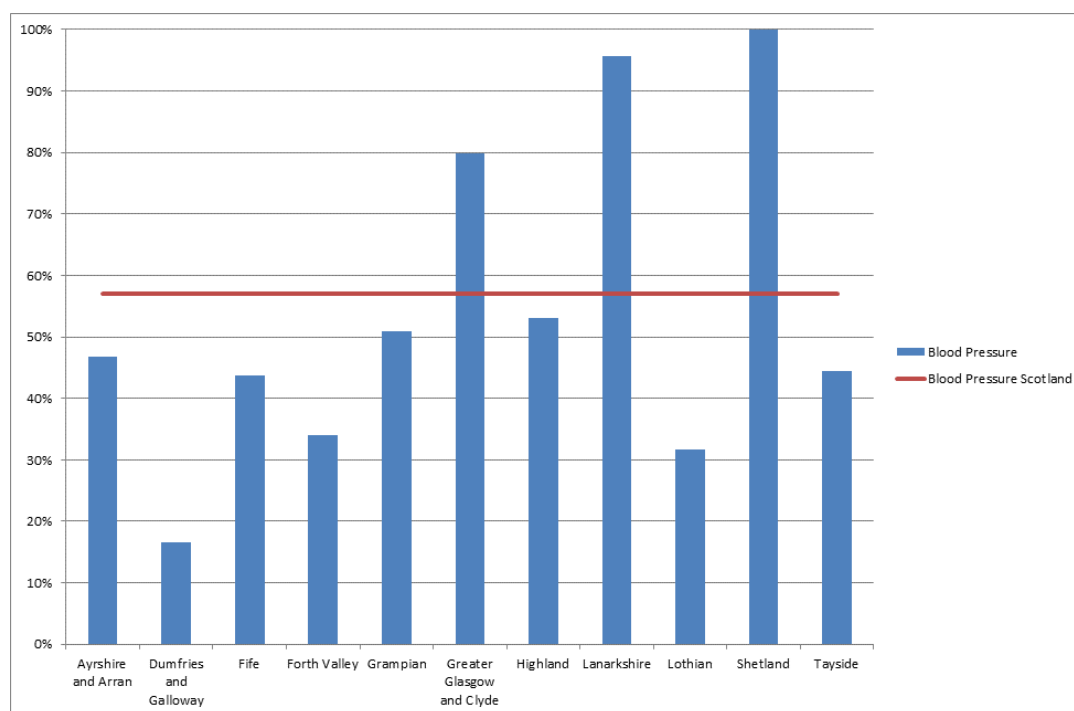


Note: Bars for boards with hidden data aren't shown. Variations in local centre practice may result in different age-range exclusions, or screening tests being carried out at different intervals. Annual data may therefore not reflect actual numbers appropriately screened. Agreement of, and adherence to, national standards will improve the percentage attaining a particular measure of care.

Table 21 Number and percentage of people with diabetes under 16 years of age eligible for diabetic retinopathy screening (DRS) who were screened within the last 15 months by NHS board, Scotland 2018.

NHS board	Screened		Not screened	
	n	%	n	%
Ayrshire and Arran	84	93.3	6	6.7
Borders	*	*	*	*
Dumfries and Galloway	37	100.0	0	0.0
Fife	67	85.9	11	14.1
Forth Valley	66	91.7	6	8.3
Grampian	103	81.1	24	18.9
Greater Glasgow and Clyde	158	81.9	35	18.1
Highland	86	86.0	14	14.0
Lanarkshire	155	83.8	30	16.2
Lothian	151	91.0	15	9.0
Orkney	*	*	*	*
Shetland	9	100.0	0	0.0
Tayside	60	85.7	10	14.3
Western Isles	*	*	*	*
Scotland	1,002	86.5	156	13.5

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. Only eligible patients, from their 12th birthday until the day before their 16th birthday, are included in these figures.

Figure 9 Percentage of people with diabetes under 16 years of age with a recorded blood pressure within the previous 15 months by NHS board, Scotland 2018.

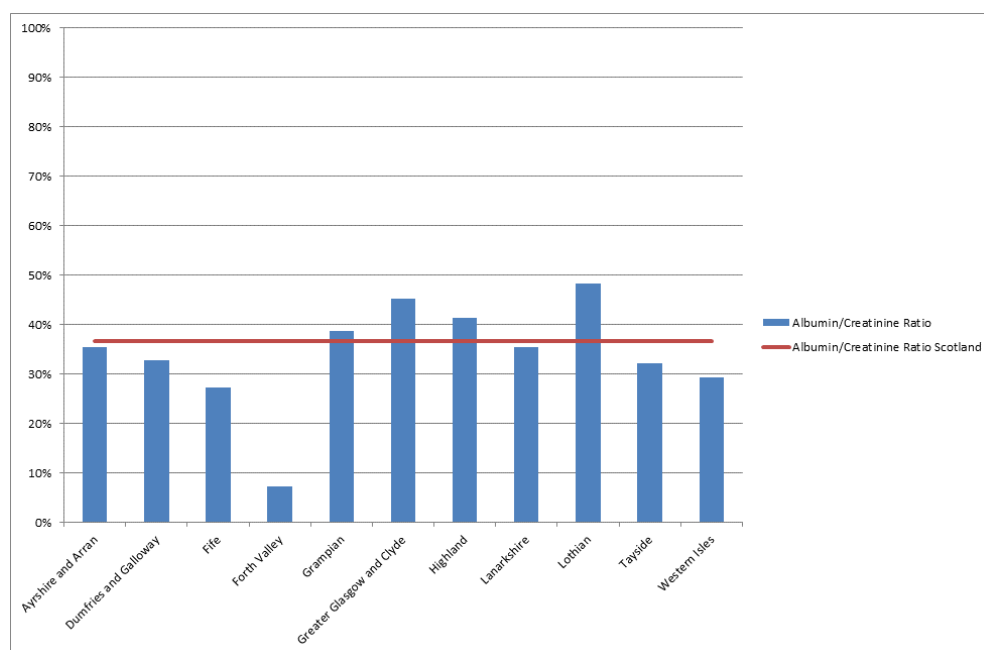
Note: Bars for boards with hidden data aren't shown. Variations in local centre practice may result in different age-range exclusions, or screening tests being carried out at different intervals. Annual data may therefore not reflect actual numbers appropriately screened. Agreement of, and adherence to, national standards will improve the percentage attaining a particular measure of care.

Table 22 Number and Percentage of people with diabetes under 16 years of age with a recorded blood pressure within the previous 15 months by NHS board, Scotland 2018.

NHS board	Measured		Not measured	
	n	%	n	%
Ayrshire and Arran	87	46.8	99	53.2
Borders	*	*	*	*
Dumfries and Galloway	11	16.7	55	83.3
Fife	72	43.6	93	56.4
Forth Valley	52	34.0	101	66.0
Grampian	133	51.0	128	49.0
Greater Glasgow and Clyde	323	79.8	82	20.2
Highland	87	53.0	77	47.0
Lanarkshire	334	95.7	15	4.3
Lothian	94	31.8	202	68.2
Orkney	*	*	*	*
Shetland	13	100.0	0	0.0
Tayside	61	44.5	76	55.5
Western Isles	*	*	*	*
Scotland	1,289	57.0	972	43.0

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. Only eligible people, from their 5th birthday until the day before their 16th birthday, are included.

Figure 10 Percentage of people with diabetes under 16 years of age with a recorded albumin / creatinine ratio within the previous 15 months by NHS board, Scotland 2018.



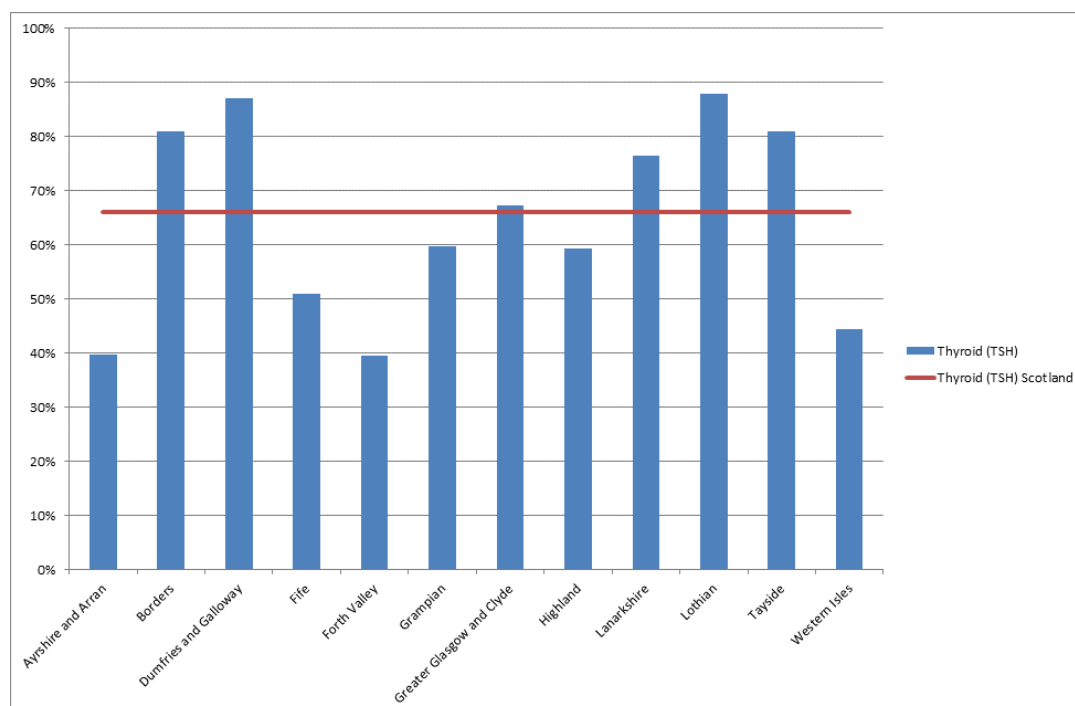
Note: Bars for boards with hidden data aren't shown. Variations in local centre practice may result in different age-range exclusions, or screening tests being carried out at different intervals. Annual data may therefore not reflect actual numbers appropriately screened. Agreement of, and adherence to, national standards will improve the percentage attaining a particular measure of care.

Table 23 Number and percentage of people with diabetes under 16 years of age with a recorded albumin / creatinine ratio within the previous 15 months by NHS board, Scotland 2018.

NHS board	Measured		Not measured	
	n	%	n	%
Ayrshire and Arran	66	35.5	120	64.5
Borders	*	*	*	*
Dumfries and Galloway	22	32.8	45	67.2
Fife	45	27.3	120	72.7
Forth Valley	11	7.2	141	92.8
Grampian	100	38.8	158	61.2
Greater Glasgow and Clyde	185	45.2	224	54.8
Highland	68	41.5	96	58.5
Lanarkshire	120	35.4	219	64.6
Lothian	143	48.3	153	51.7
Orkney	*	*	*	*
Shetland	*	*	*	*
Tayside	44	32.1	93	67.9
Western Isles	5	29.4	12	70.6
Scotland	824	36.6	1,426	63.4

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. Only eligible patients, from their 5th birthday until the day before their 16th birthday, are included.

Figure 11 Percentage of people with diabetes under 16 years of age recorded as having had thyroid screening (TSH) within the previous 15 months by NHS board, Scotland 2018.



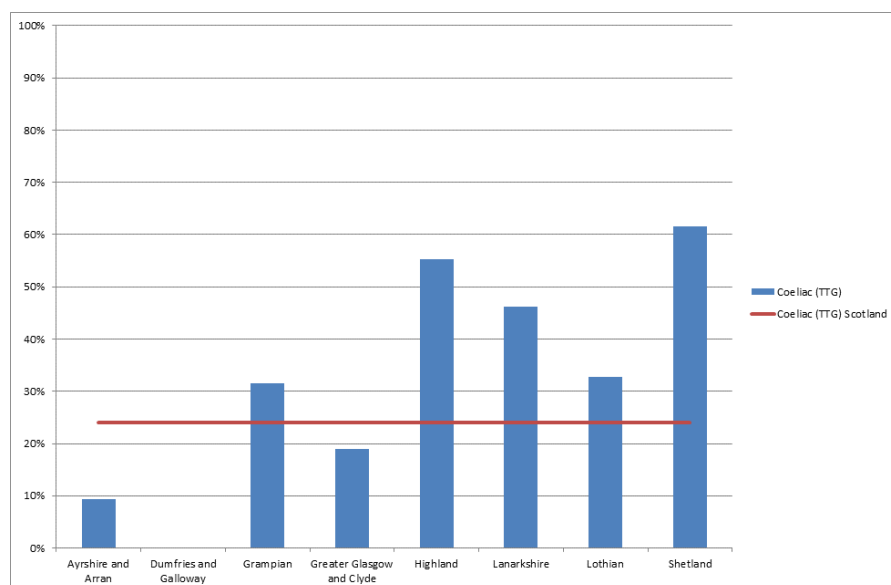
Note: Bars for boards with hidden data aren't shown. Variations in local centre practice may result in different age-range exclusions, or screening tests being carried out at different intervals. Annual data may therefore not reflect actual numbers appropriately screened. Agreement of, and adherence to, national standards will improve the percentage attaining a particular measure of care.

Table 24 Number and percentage of people with diabetes under 16 years of age recorded as having had thyroid screening (TSH) within the previous 15 months by NHS board, Scotland 2018.

NHS board	Measured		Not measured	
	n	%	n	%
Ayrshire and Arran	77	39.7	117	60.3
Borders	34	81.0	8	19.0
Dumfries and Galloway	61	87.1	9	12.9
Fife	89	50.9	86	49.1
Forth Valley	62	39.5	95	60.5
Grampian	159	59.8	107	40.2
Greater Glasgow and Clyde	287	67.2	140	32.8
Highland	101	59.4	69	40.6
Lanarkshire	273	76.5	84	23.5
Lothian	279	88.0	38	12.0
Orkney	*	*	*	*
Shetland	*	*	*	*
Tayside	119	81.0	28	19.0
Western Isles	8	44.4	10	55.6
Scotland	1,561	66.1	799	33.9

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 12 Percentage of people with diabetes under 16 years of age recorded as having had coeliac screening (TTG) within the previous 15 months by NHS board, Scotland 2018.



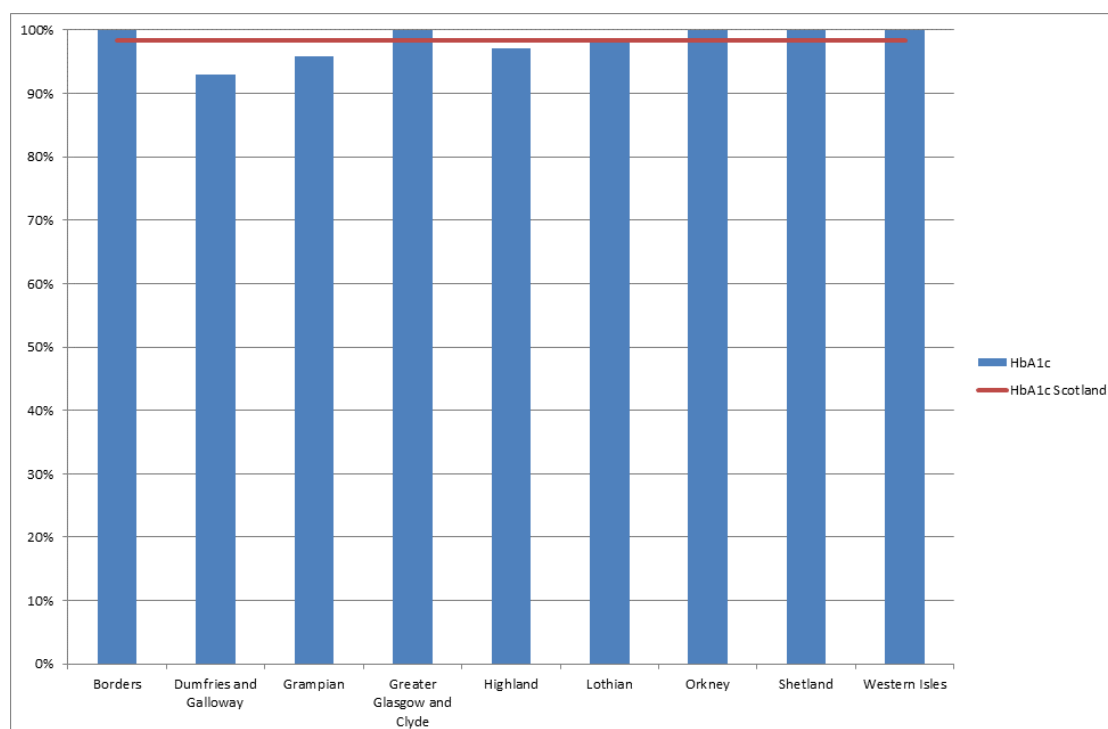
Note: Bars for boards with hidden data aren't shown. Variations in local centre practice may result in different age-range exclusions, or screening tests being carried out at different intervals. Some centres choose only to test TTG results at the time diabetes is first diagnosed, and subsequently every 2 years (rather than annually), while others may only test for positive TTG results when coeliac disease symptoms are present, and not as a screening test. Annual data may not therefore reflect actual numbers appropriately screened. This may be reflected in the apparently large number of centres with few patients having been successfully screened.

Table 25 Number and percentage of people with diabetes under 16 years of age recorded as having had coeliac screening (TTG) within the previous 15 months by NHS board, Scotland 2018.

NHS board	Measured		Not measured	
	n	%	n	%
Ayrshire and Arran	18	9.3	176	90.7
Borders	*	*	*	*
Dumfries and Galloway	0	0.0	70	100.0
Fife	*	*	*	*
Forth Valley	*	*	*	*
Grampian	84	31.6	182	68.4
Greater Glasgow and Clyde	81	19.0	346	81.0
Highland	94	55.3	76	44.7
Lanarkshire	165	46.2	192	53.8
Lothian	104	32.8	213	67.2
Orkney	*	*	*	*
Shetland	8	61.5	5	38.5
Tayside	*	*	*	*
Western Isles	*	*	*	*
Scotland	566	24.0	1,794	76.0

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 13 Percentage of people with diabetes under 16 years of age with a recorded HbA_{1c} within the previous 15 months by NHS board, Scotland 2018.



Note: Bars for boards with hidden data aren't shown. These data include HbA_{1c} taken at time of diagnosis, as well as those collected at clinic attendances, subsequent hospital admissions (for any reason), and in primary care. It may be of benefit to analyse separately those who have HbA_{1c} reported at diagnosis from those in whom the test is performed at a later date.

Table 26 Number and percentage of people with diabetes under 16 years of age with a recorded HbA_{1c} within the previous 15 months by NHS board, Scotland 2018.

NHS board	Measured		Not measured	
	n	%	n	%
Ayrshire and Arran	*	*	*	*
Borders	42	100.0	0	0.0
Dumfries and Galloway	65	92.9	5	7.1
Fife	*	*	*	*
Forth Valley	*	*	*	*
Grampian	255	95.9	11	4.1
Greater Glasgow and Clyde	427	100.0	0	0.0
Highland	165	97.1	5	2.9
Lanarkshire	*	*	*	*
Lothian	312	98.4	5	1.6
Orkney	7	100.0	0	0.0
Shetland	13	100.0	0	0.0
Tayside	*	*	*	*
Western Isles	18	100.0	0	0.0
Scotland	2,320	98.3	40	1.7

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. For this measure, all boards with hidden results have $\geq 95\%$ attainment of the stipulated measure.

Care Processes

Quarterly reports of 9 processes and outcomes of care are now being reported back to each NHS board. There are 12 measures within this. The report at the end of 2017 is described below.

The processes and outcomes described in this report represent work in progress and need to be considered as such.

Table 27 Applicability of Care Processes by Age Category.

Diagnosis and age category	Care processes applicable
Type 1 and other age 0-11	Processes 1 and 2
Type 1 and other age 12-17	Processes 1 to 6
Type 1, type 2 and other age 18+	All 9 processes

Other = any other frank diabetes type not included elsewhere.

Measure 1: Receiving All Processes of Care

Percentage of people with diabetes who received all recommended (up to 9) processes of care measurements for diabetes in the prior 15 months – adjusted for and presented in defined age ranges.

Methodology

Included population = all people of any age with diabetes are included.

List of Care processes

1. HbA_{1c}
2. Weight (BMI)
3. Blood pressure
4. Smoking status
5. Retinopathy screening*
6. Urinary albumin test**
7. Creatinine
8. Total cholesterol
9. Foot risk

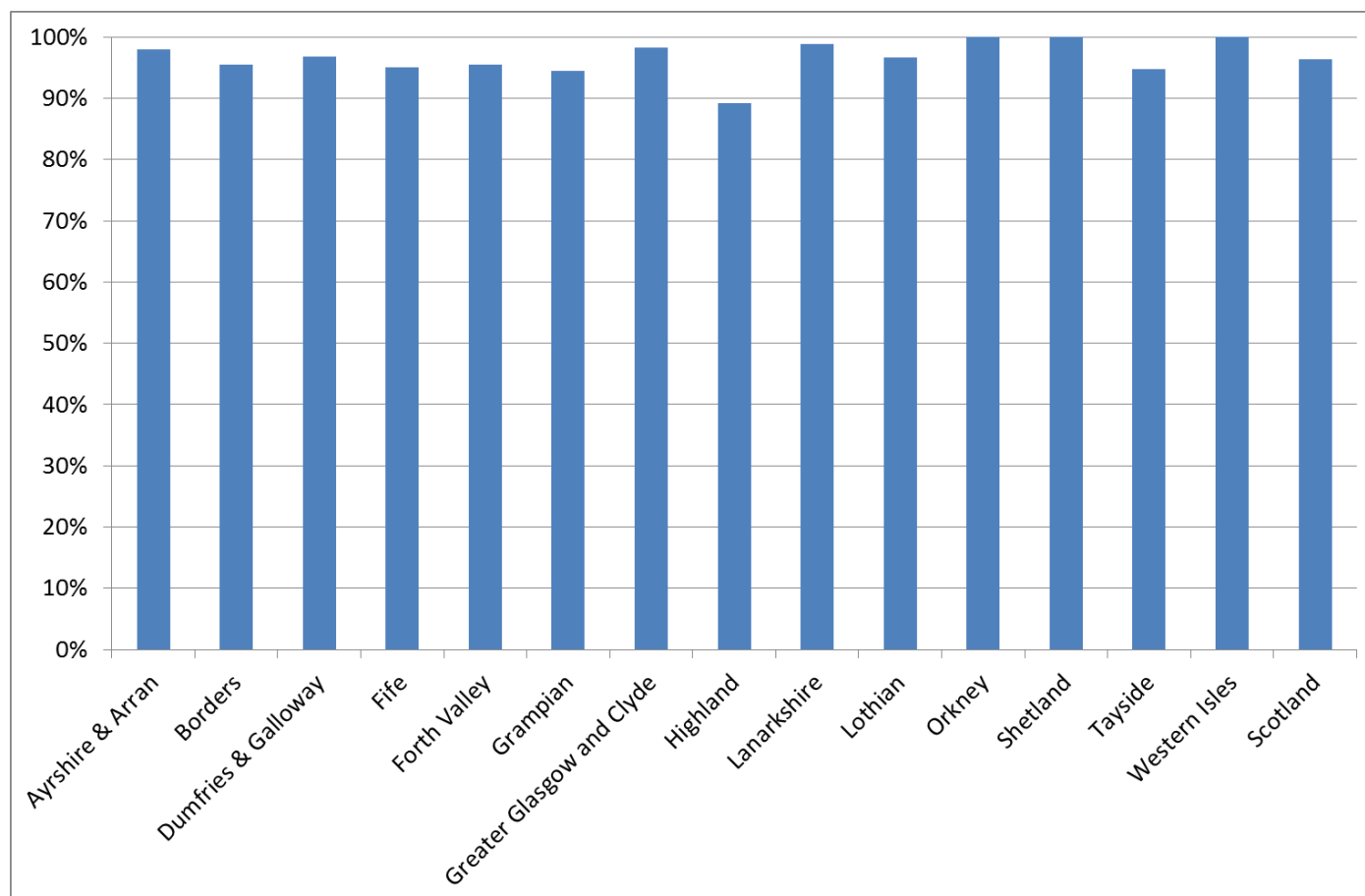
*Retinopathy screening = Latest DRS Screening Status is "Attended - Successfully Screened" or "Attended - Unsuccessfully Screened". Note – if the patient has been suspended from eye screening this is counted as having received this "process of care".

**Urinary Albumin test = any of the following: albumin / creatinine ratio (ACR), microalbumin concentration, protein / creatinine ratio (PCR) or total urinary protein, Timed overnight albumin excretion rate, or 24hr albumin excretion rate.

Notes

Where no data is shown in the bar-chart, this could indicate that no people were found that met the inclusion criteria or it could indicate that of those that did meet the criteria, none had the required number of processes.

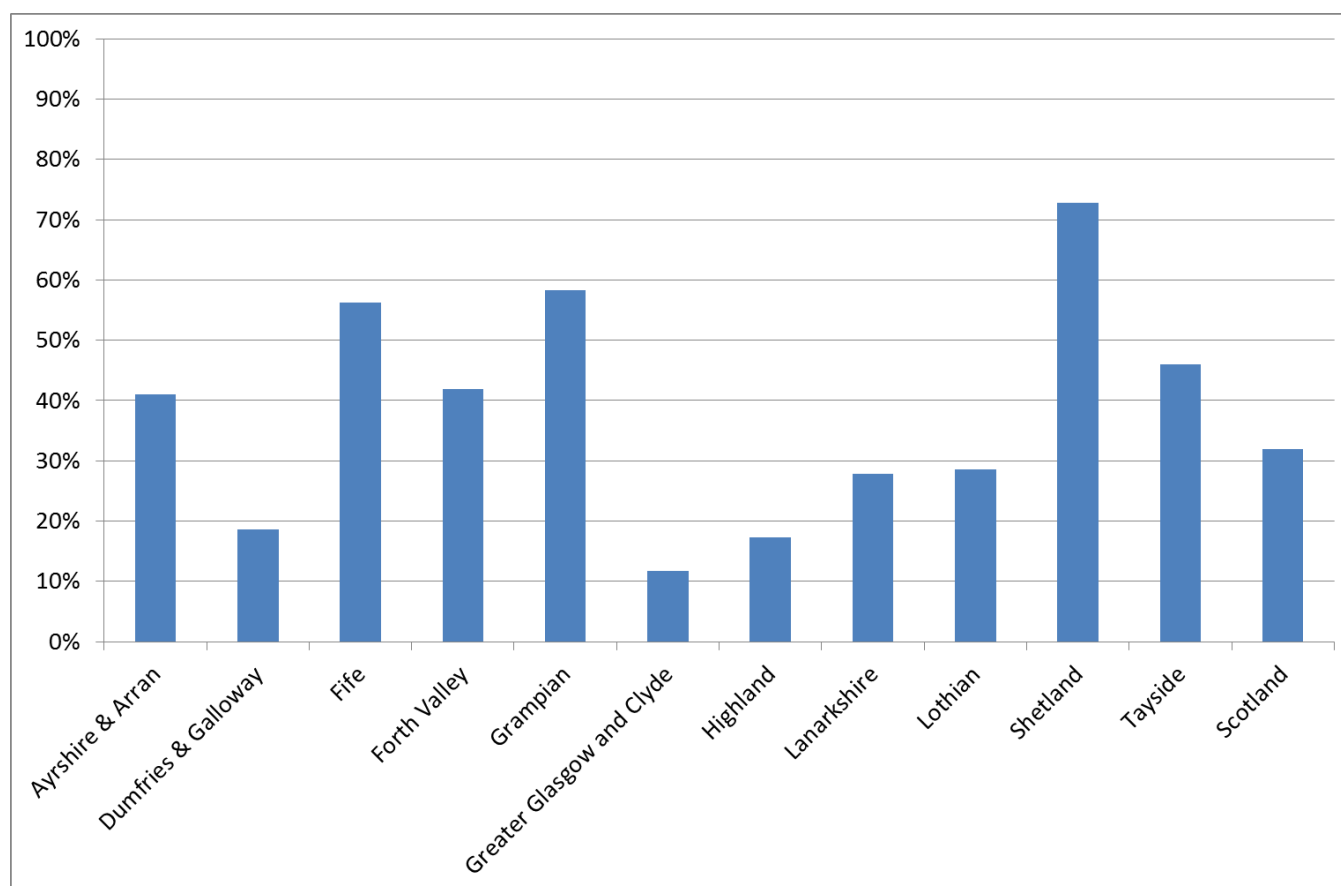
In the bar-charts of those under 18 years of age, obfuscation for the purposes of maintaining anonymity has meant that data from some boards are not presented in the accompanying chart or table. A large proportion of those under 12 years of age receive the two processes of care required in this age range (recording of HbA_{1c} and weight at least once annually), while those from 12 to 18 years of age have a much poorer attainment of their increased number of processes (six).

Figure 14 Measure 1: Receiving all applicable processes of care - Type 1 and other age 0-11 by NHS board, Scotland 2018.**Table 28 Measure 1: Receiving all applicable processes of care - Type 1 and other age 0-11 by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 0-11 (n)
	n	%	
Ayrshire & Arran	101	98.1	103
Borders	21	95.5	22
Dumfries & Galloway	31	96.9	32
Fife	96	95.0	101
Forth Valley	86	95.6	90
Grampian	135	94.4	143
Greater Glasgow and Clyde	238	98.3	242
Highland	66	89.2	74
Lanarkshire	167	98.8	169
Lothian	148	96.7	153
Orkney	*	100.0	*
Shetland	*	100.0	*
Tayside	73	94.8	77
Western Isles	11	100.0	11
Scotland	1,180	96.4	1,224

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 15 Measure 1: Receiving all applicable processes of care - Type 1 and other age 12-17 by NHS board, Scotland 2018.

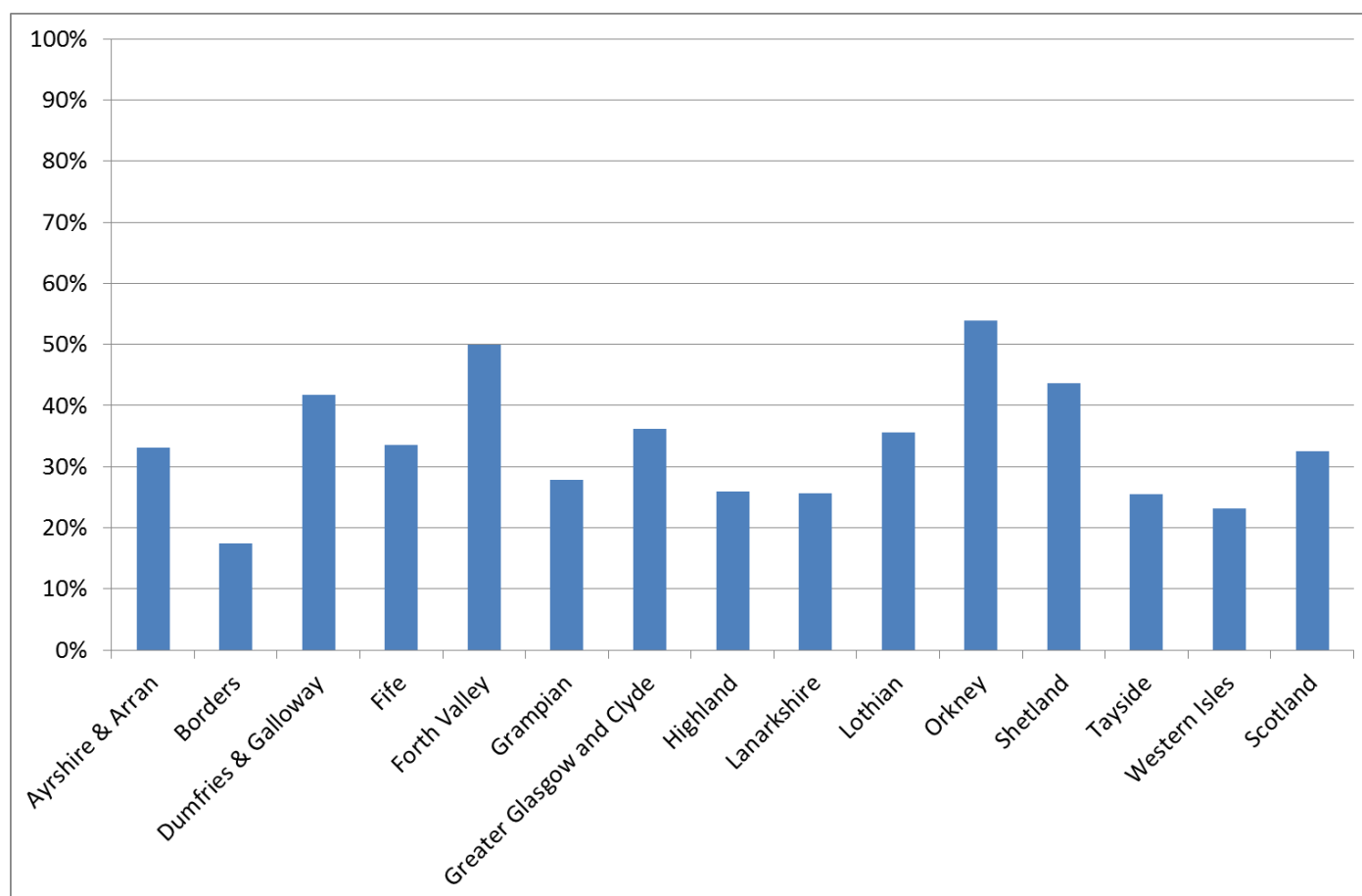


Note: Bars for boards with hidden data aren't shown.

Table 29 Measure 1: Receiving all applicable processes of care - Type 1 and other age 12-17 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 12-17 (n)
	n	%	
Ayrshire & Arran	59	41.0	144
Borders	*	*	44
Dumfries & Galloway	11	18.6	59
Fife	68	56.2	121
Forth Valley	47	42.0	112
Grampian	127	58.3	218
Greater Glasgow and Clyde	42	11.7	360
Highland	25	17.2	145
Lanarkshire	84	27.8	302
Lothian	72	28.6	252
Orkney	*	*	6
Shetland	8	72.7	11
Tayside	58	46.0	126
Western Isles	*	*	11
Scotland	610	31.9	1,911

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 16 Measure 1: Receiving all applicable processes of care - Type 1 Age 18+ by NHS board, Scotland 2018.**Table 30 Measure 1: Receiving all applicable processes of care - Type 1 Age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	n	%	
Ayrshire & Arran	701	33.1	2,121
Borders	114	17.5	652
Dumfries & Galloway	381	41.7	913
Fife	680	33.5	2,031
Forth Valley	867	49.9	1,738
Grampian	901	27.8	3,240
Greater Glasgow and Clyde	2,176	36.2	6,009
Highland	507	25.9	1,954
Lanarkshire	1,029	25.6	4,020
Lothian	1,645	35.6	4,617
Orkney	62	53.9	115
Shetland	55	43.7	126
Tayside	520	25.5	2,042
Western Isles	42	23.2	181
Scotland	9,680	32.5	29,759

Figure 17 Measure 1: Receiving all applicable processes of care - Type 2 and other age 18+ by NHS board, Scotland 2018.

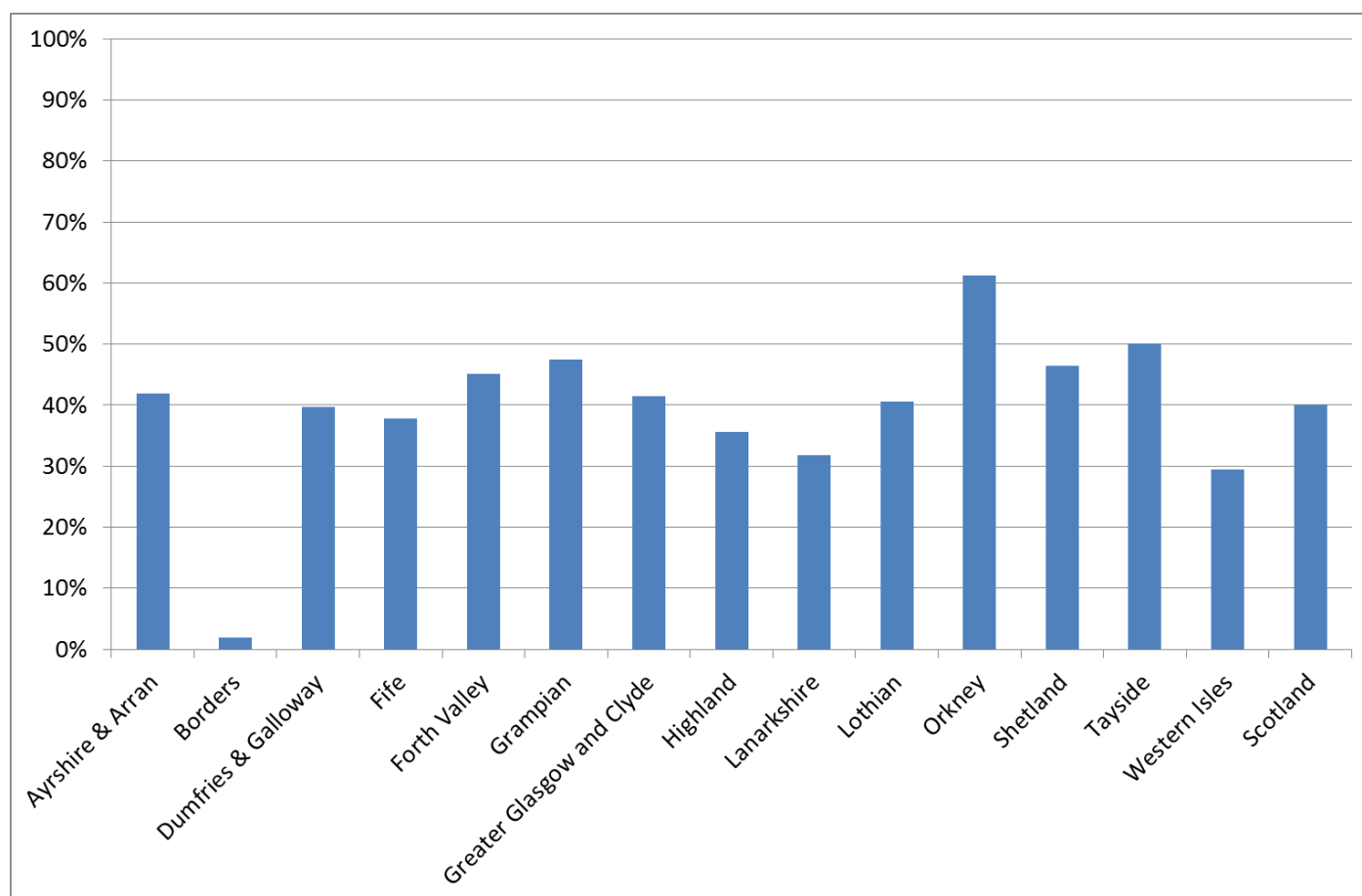


Table 31 Measure 1: Receiving all applicable processes of care - Type 2 and other age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	n	%	
Ayrshire & Arran	9,255	41.9	22,107
Borders	116	1.9	6,174
Dumfries & Galloway	3,441	39.8	8,655
Fife	7,517	37.8	19,868
Forth Valley	7,061	45.1	15,644
Grampian	12,345	47.5	25,989
Greater Glasgow and Clyde	24,261	41.4	58,546
Highland	5,666	35.6	15,905
Lanarkshire	11,342	31.8	35,682
Lothian	15,288	40.6	37,619
Orkney	677	61.2	1,106
Shetland	465	46.5	1,000
Tayside	10,885	50.1	21,739
Western Isles	385	29.5	1,306
Scotland	108,704	40.1	271,340

Measure 2: HbA_{1c} in Target Range After 1 Year

Percentage of people with diabetes with an HbA_{1c} <58 mmol/mol at 1 year post diagnosis - presented in defined age ranges.

Methodology

Included population = people with diabetes of any age with a duration of diabetes between 1 and 2 years on the date of the quarterly report, and a recording of HbA_{1c} within (+/-) 90 days of their 1st anniversary of diagnosis.

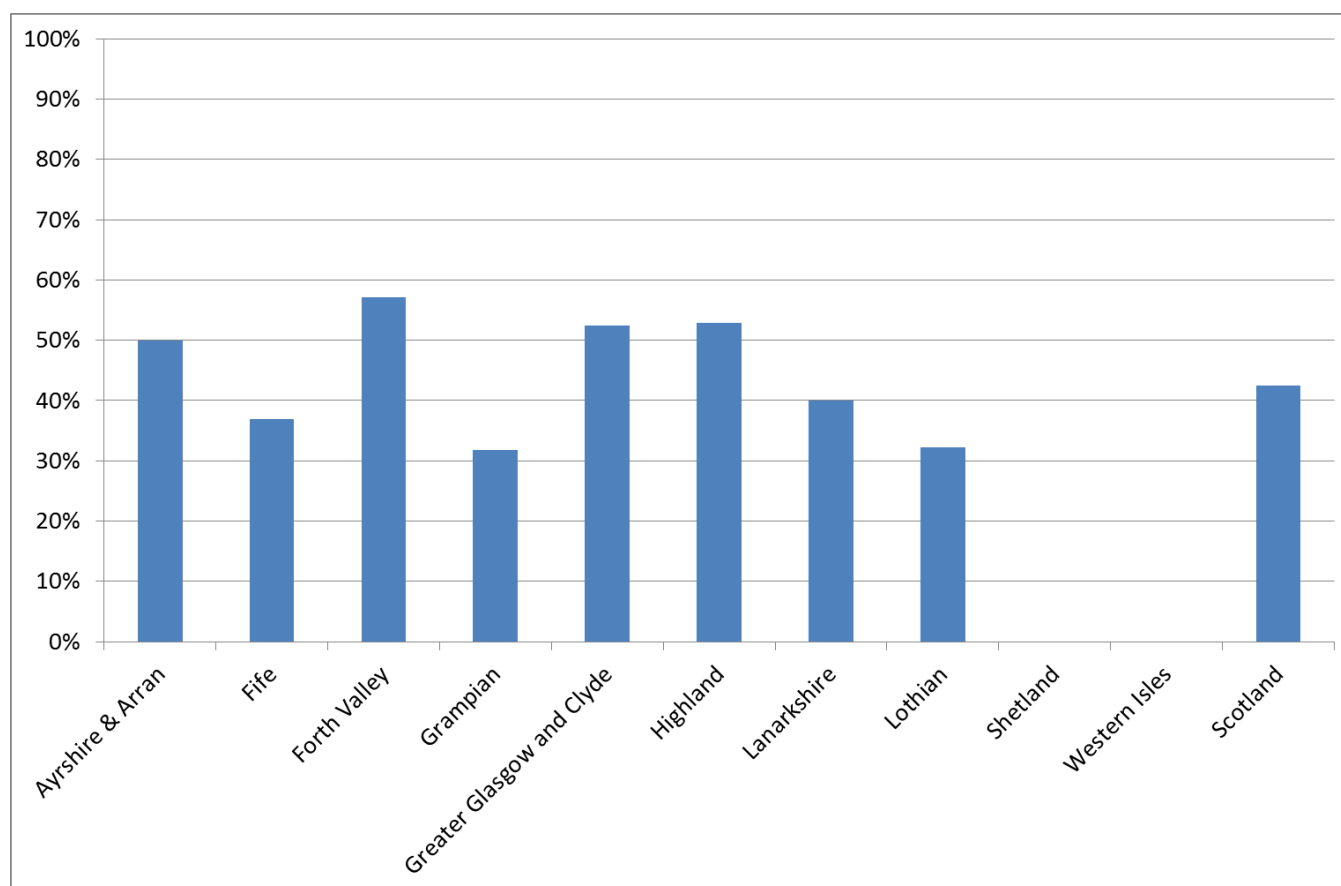
Numerator = number of people in each age/type cohort whose latest HbA_{1c} was <58 mmol/mol.

Denominator = the total number of people (who had an anniversary HbA_{1c}) in each age/type cohort.

Notes

Where no data is shown in the bar-chart, this could indicate that no people were found that met the inclusion criteria or that none of those who did meet the inclusion criteria had an anniversary HbA_{1c} <58 mmol/mol.

Small numbers of patients in some Paediatric age banding (especially the 0-5 years age group) have resulted in too few data points to allow meaningful analysis. Generally these data have been aggregated with those of the 6-11 years age group. However, where this has not been possible, the data have been still been displayed for completeness, even though graphically little information is available. It is therefore important to refer to the tabulated data, rather than relying solely on the display of data within charts, as the reasons for omitting the data from the chart (e.g. in order to preserve patient anonymity) will be indicated here.

Figure 18 Measure 2: HbA_{1c} in target range after 1 year - Type 1 and other age 0-11 by NHS board, Scotland 2018.

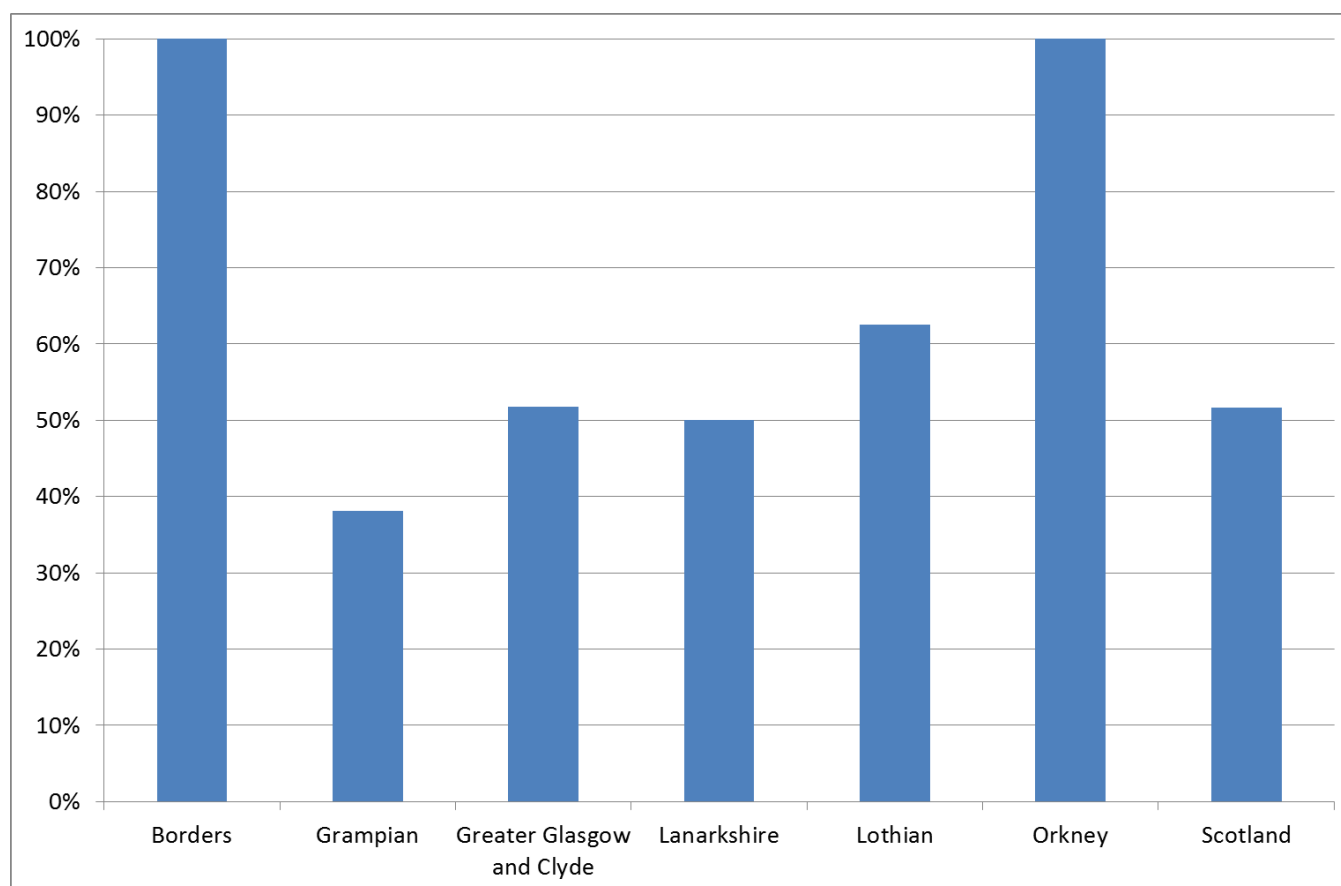
Note: Bars for boards with hidden data aren't shown.

Table 32 Measure 2: HbA_{1c} in target range after 1 year - Type 1 and other age 0-11 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 0-11 (n)
	n	%	
Ayrshire & Arran	8	50.0	16
Borders	*	*	*
Dumfries & Galloway	*	*	*
Fife	7	36.8	19
Forth Valley	8	57.1	14
Grampian	7	31.8	22
Greater Glasgow and Clyde	22	52.4	42
Highland	9	52.9	17
Lanarkshire	10	40.0	25
Lothian	10	32.3	31
Orkney	*	*	*
Shetland	0	0.0	0
Tayside	*	*	10
Western Isles	0	0.0	*
Scotland	87	42.4	205

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 19 Measure 2: HbA_{1c} in target range after 1 year - Type 1 and other age 12-17 by NHS board, Scotland 2018.

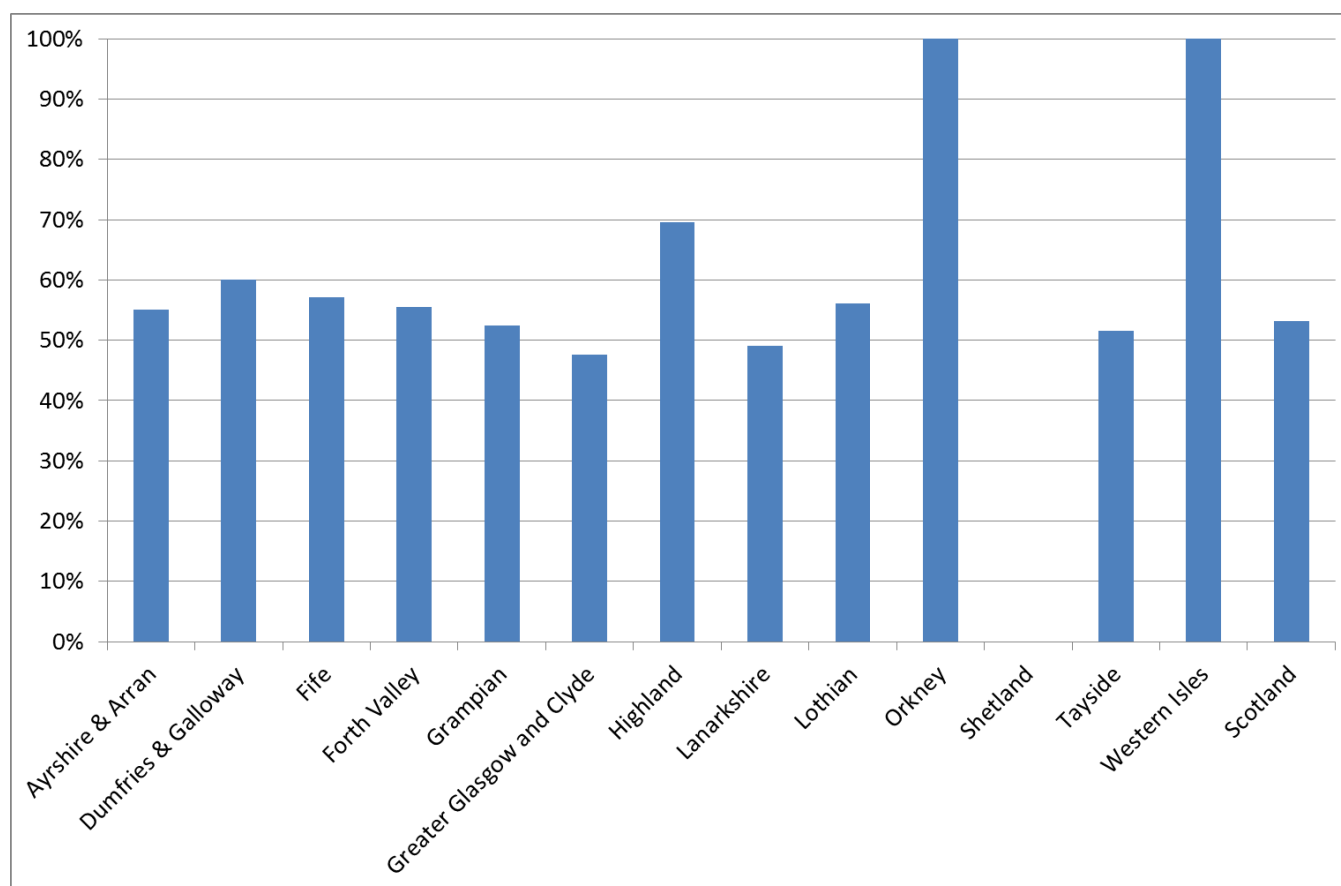


Note: Bars for boards with hidden data aren't shown.

Table 33 Measure 2: HbA_{1c} in target range after 1 year - Type 1 and other age 12-17 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 12-17 (n)
	n	%	
Ayrshire & Arran	*	*	9
Borders	*	100.0	*
Dumfries & Galloway	*	*	*
Fife	*	*	12
Forth Valley	*	*	10
Grampian	8	38.1	21
Greater Glasgow and Clyde	15	51.7	29
Highland	*	*	7
Lanarkshire	13	50.0	26
Lothian	10	62.5	16
Orkney	*	100.0	*
Shetland	*	*	*
Tayside	*	*	9
Western Isles	0	0.0	*
Scotland	77	51.7	149

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

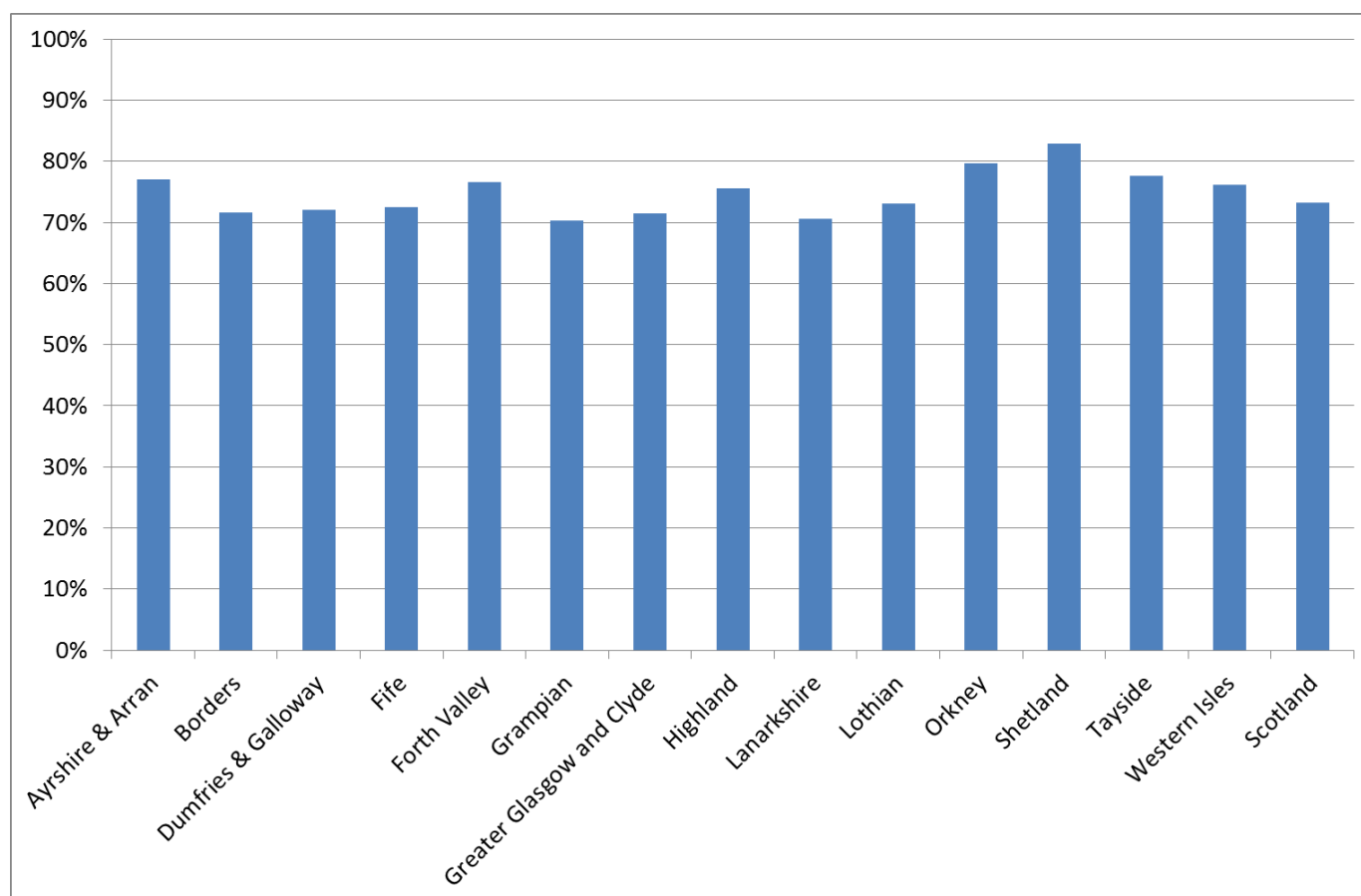
Figure 20 Measure 2: HbA_{1c} in target range after 1 year - Type 1 age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 34 Measure 2: HbA_{1c} in target range after 1 year - Type 1 age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	n	%	
Ayrshire & Arran	11	55.0	20
Borders	*	*	10
Dumfries & Galloway	9	60.0	15
Fife	16	57.1	28
Forth Valley	15	55.6	27
Grampian	32	52.5	61
Greater Glasgow and Clyde	50	47.6	105
Highland	16	69.6	23
Lanarkshire	28	49.1	57
Lothian	37	56.1	66
Orkney	*	100.0	*
Shetland	0	0.0	*
Tayside	17	51.5	33
Western Isles	*	100.0	*
Scotland	239	53.1	450

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 21 Measure 2: HbA_{1c} in target range after 1 year - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 35 Measure 2: HbA_{1c} in target range after 1 year - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+
	n	%	
Ayrshire & Arran	569	77.0	739
Borders	172	71.7	240
Dumfries & Galloway	240	72.1	333
Fife	521	72.5	719
Forth Valley	473	76.5	618
Grampian	731	70.4	1,039
Greater Glasgow and Clyde	1,616	71.4	2,262
Highland	589	75.5	780
Lanarkshire	873	70.6	1,237
Lothian	1,173	73.0	1,606
Orkney	43	79.6	54
Shetland	34	82.9	41
Tayside	696	77.7	896
Western Isles	51	76.1	67
Scotland	7,781	73.2	10,631

Measure 3: HbA_{1c} Control

Percentage of people with diabetes with good and poor control (HbA_{1c} <58 mmol/mol and >75 mmol/mol) - presented in defined age ranges.

Methodology

Included population = all people of any age with diabetes are included.

Numerator 1 = people in each age/type cohort whose latest HbA_{1c} in the prior 15 months was <58 mmol/mol or >75 mmol/mol

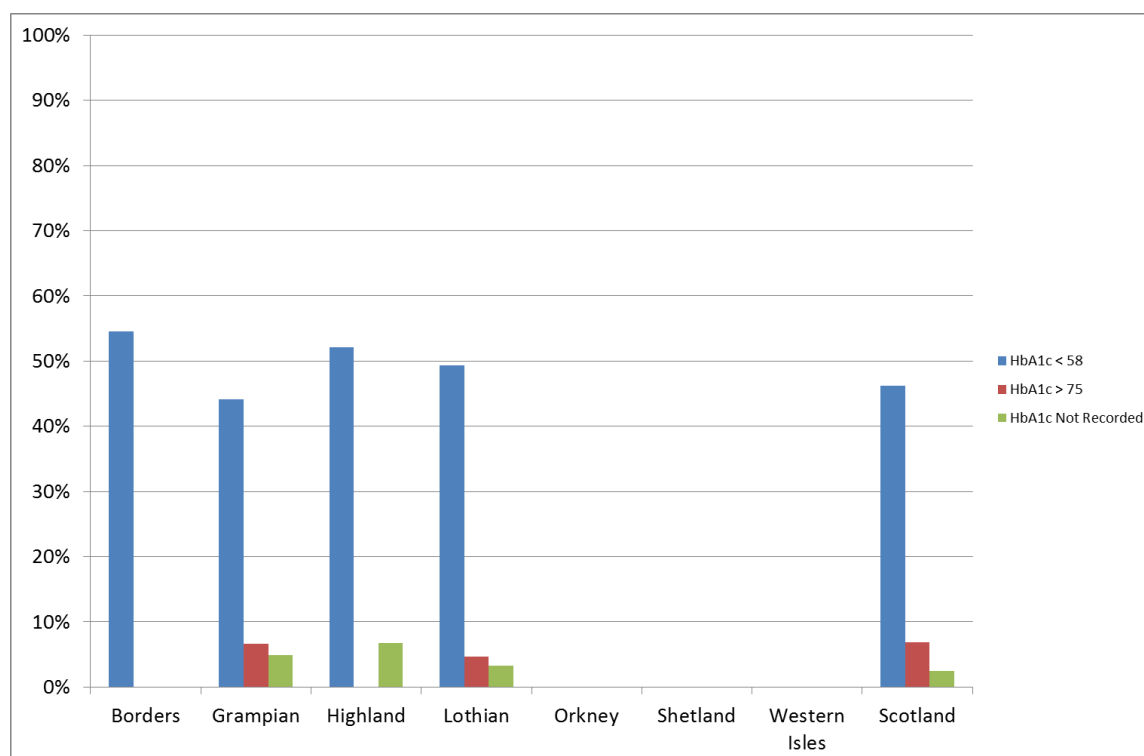
Denominator 1 = the number of tested people in each age/type cohort – those with an HbA_{1c} result in the prior 15 months.

Numerator 2 = “Not Recorded” people – those who have no HbA_{1c} recorded in the prior 15 months

Denominator 2 = the total number of people in each age/type cohort (both tested and untested).

Notes

Where no data is shown in the bar-chart, this could indicate that no people were found in that age-range or that the latest HbA_{1c} of those who were found was neither <58 nor >75 (i.e. was in the 58-75 range).

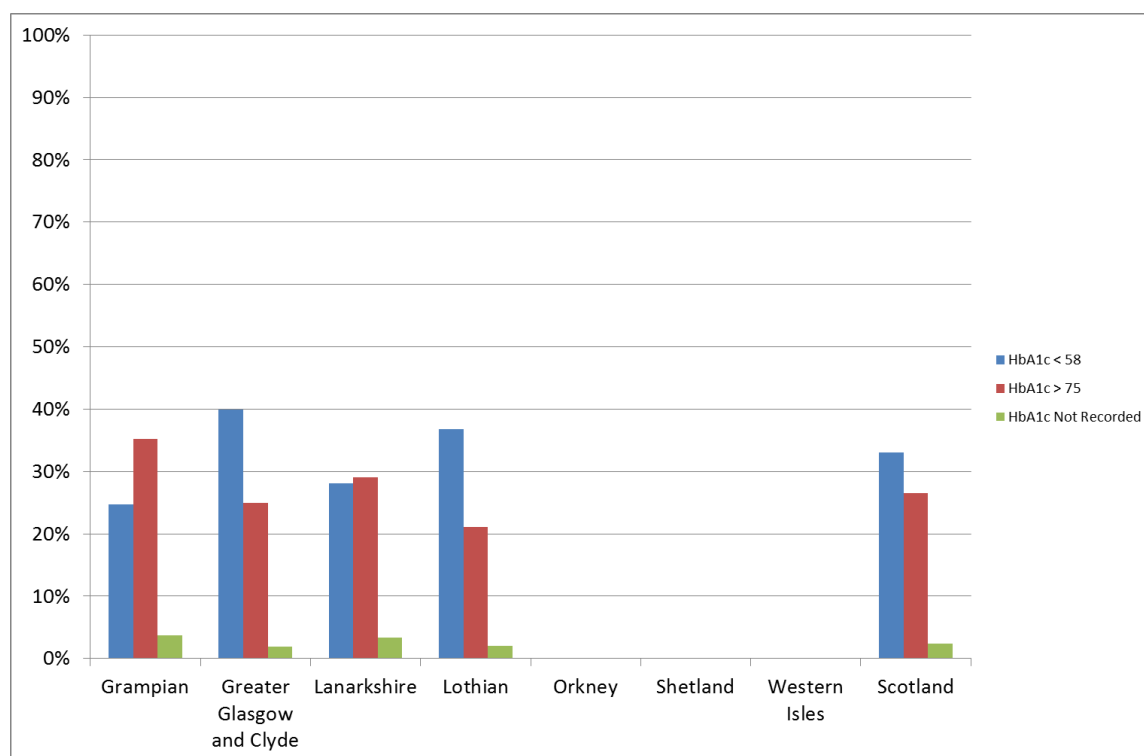
Figure 22 Measure 3: HbA_{1c} control - Type 1 and other age 0-11 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown, additionally, some bars are zero.

Table 36 Measure 3: HbA_{1c} control - Type 1 and other age 0-11 by NHS board, Scotland 2018.

NHS board	HbA _{1c} < 58 mmol/mol		HbA _{1c} > 75 mmol/mol		Recorded people (n)	HbA _{1c} Not Recorded		All aged 0-11 (n)
	People (n)	%	People (n)	%		People (n)	%	
Ayrshire & Arran	*	*	*	*	*	*	*	103
Borders	12	54.5	0	0.0	22	0	0.0	22
Dumfries & Galloway	*	*	*	*	*	*	*	32
Fife	*	*	*	*	*	*	*	101
Forth Valley	*	*	*	*	*	*	*	90
Grampian	60	44.1	9	6.6	136	7	4.9	143
Greater Glasgow and Clyde	*	*	*	*	*	*	*	242
Highland	36	52.2	*	*	69	5	6.8	74
Lanarkshire	*	*	*	*	*	*	*	169
Lothian	73	49.3	7	4.7	148	5	3.3	153
Orkney	0	0.0	0	0.0	*	0	0.0	*
Shetland	*	*	0	0.0	*	0	0.0	*
Tayside	*	*	*	*	*	*	*	77
Western Isles	0	0.0	*	*	11	0	0.0	11
Scotland	552	46.3	82	6.9	1,193	31	2.5	1,224

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. In a number of cases, low (but non-zero) numbers of not recorded people caused figures to be concealed.

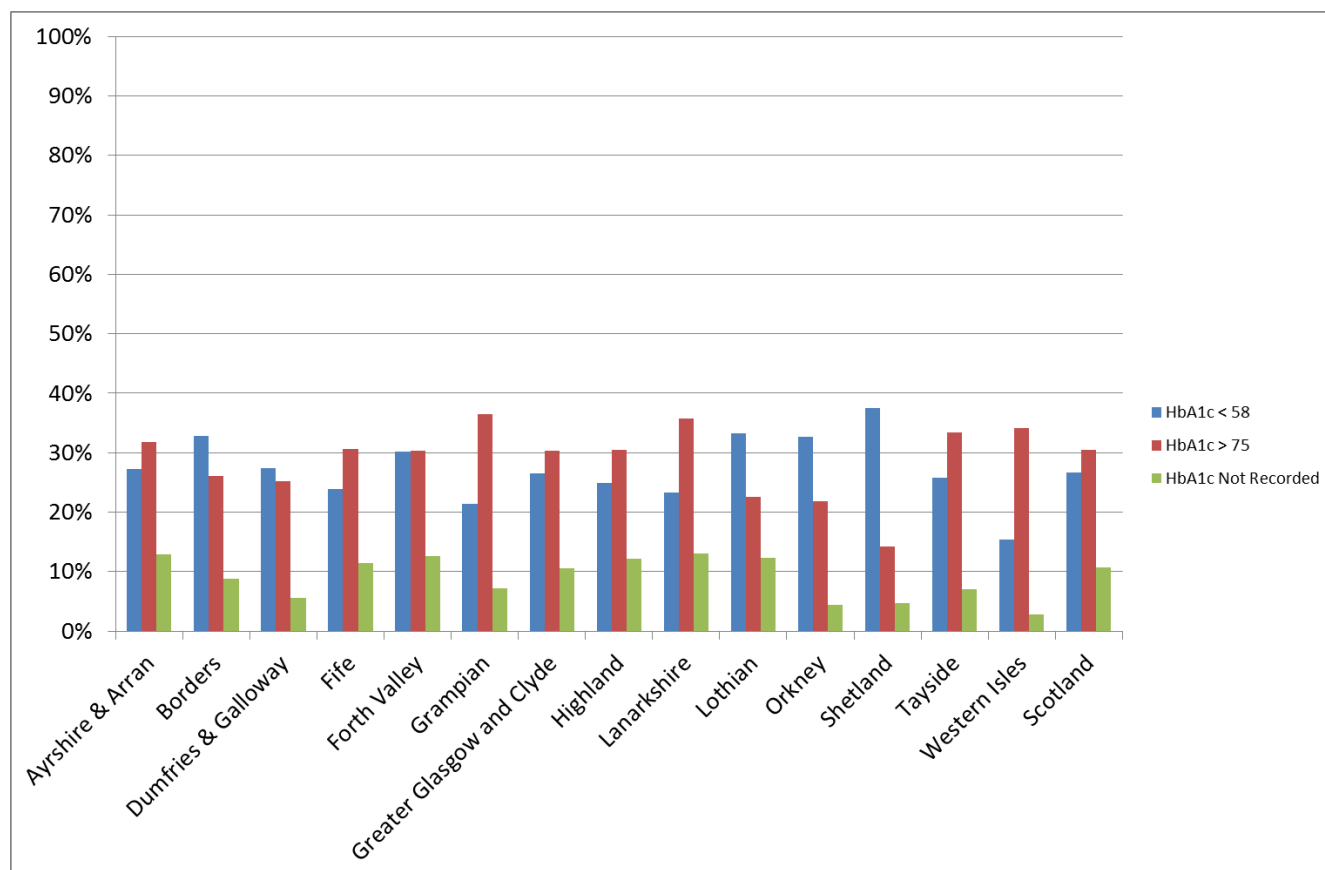
Figure 23 Measure 3: HbA_{1c} control - Type 1 and other age 12-17 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 37 Measure 3: HbA_{1c} control - Type 1 and other age 12-17 by NHS board, Scotland 2018.

NHS board	HbA _{1c} < 58 mmol/mol		HbA _{1c} > 75 mmol/mol		Recorded people (n)	HbA _{1c} Not Recorded		All aged 12-17 (n)
	People (n)	%	People (n)	%		People (n)	%	
Ayrshire & Arran	*	*	*	*	*	*	*	144
Borders	*	*	*	*	*	*	*	44
Dumfries & Galloway	*	*	*	*	*	*	*	59
Fife	*	*	*	*	*	*	*	121
Forth Valley	*	*	*	*	*	*	*	112
Grampian	52	24.8	74	35.2	210	8	3.7	218
Greater Glasgow and Clyde	141	39.9	88	24.9	353	7	1.9	360
Highland	*	*	*	*	*	*	*	145
Lanarkshire	82	28.1	85	29.1	292	10	3.3	302
Lothian	91	36.8	52	21.1	247	5	2.0	252
Orkney	*	*	0	0.0	6	0	0.0	6
Shetland	*	*	*	*	11	0	0.0	11
Tayside	*	*	*	*	*	*	*	126
Western Isles	*	*	*	*	11	0	0.0	11
Scotland	616	33.0	495	26.5	1,865	46	2.4	1,911

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. In a number of cases, low (but non-zero) numbers of not recorded people caused figures to be concealed.

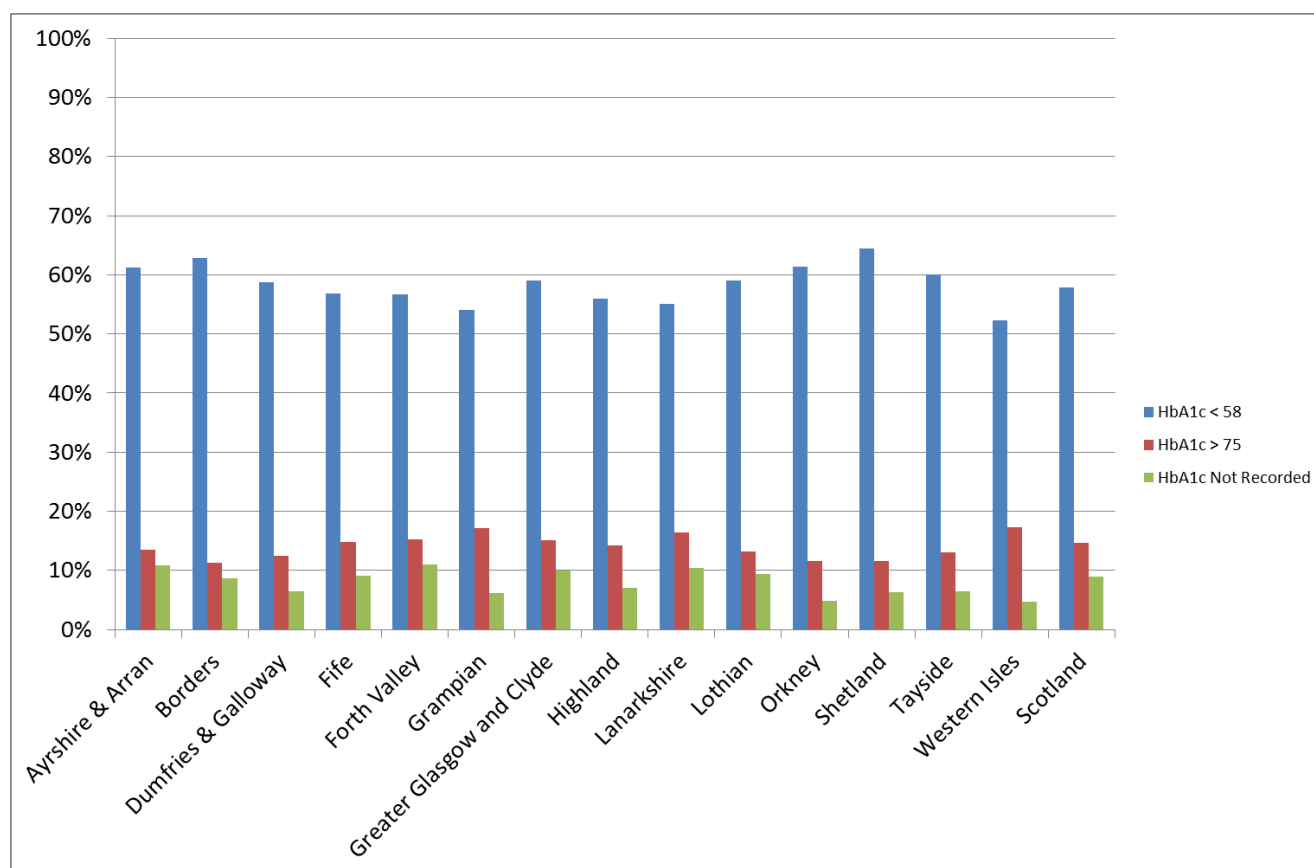
Figure 24 Measure 3: HbA_{1c} control - Type 1 age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 38 Measure 3: HbA_{1c} control - Type 1 age 18+ by NHS board, Scotland 2018.

NHS board	HbA _{1c} < 58 mmol/mol		HbA _{1c} > 75 mmol/mol		Recorded people (n)	HbA _{1c} Not Recorded		All aged 18+ (n)
	People (n)	%	People (n)	%		People (n)	%	
Ayrshire & Arran	503	27.2	588	31.8	1,849	272	12.8	2,121
Borders	195	32.8	155	26.1	595	57	8.7	652
Dumfries & Galloway	236	27.4	217	25.2	862	51	5.6	913
Fife	431	24.0	551	30.6	1,799	232	11.4	2,031
Forth Valley	459	30.2	460	30.3	1,519	219	12.6	1,738
Grampian	643	21.4	1,095	36.4	3,006	234	7.2	3,240
Greater Glasgow and Clyde	1,422	26.5	1,628	30.3	5,371	638	10.6	6,009
Highland	428	24.9	523	30.5	1,717	237	12.1	1,954
Lanarkshire	816	23.3	1,249	35.7	3,498	522	13.0	4,020
Lothian	1,344	33.2	912	22.5	4,045	572	12.4	4,617
Orkney	36	32.7	24	21.8	110	5	4.3	115
Shetland	45	37.5	17	14.2	120	6	4.8	126
Tayside	489	25.8	634	33.4	1,899	143	7.0	2,042
Western Isles	27	15.3	60	34.1	176	5	2.8	181
Scotland	7,074	26.6	8,113	30.5	26,566	3193	10.7	29,759

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 25 Measure 3: HbA_{1c} control - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 39 Measure 3: HbA_{1c} control - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	HbA _{1c} < 58 mmol/mol		HbA _{1c} > 75 mmol/mol		Recorded people (n)	HbA _{1c} Not Recorded		All aged 18+ (n)
	People (n)	%	People (n)	%		People (n)	%	
Ayrshire & Arran	12,083	61.3	2,660	13.5	19,726	2381	10.8	22,107
Borders	3,540	62.8	639	11.3	5,637	537	8.7	6,174
Dumfries & Galloway	4,757	58.8	1,010	12.5	8,094	561	6.5	8,655
Fife	10,270	56.8	2,666	14.8	18,072	1796	9.0	19,868
Forth Valley	7,897	56.7	2,118	15.2	13,924	1720	11.0	15,644
Grampian	13,172	54.0	4,177	17.1	24,386	1603	6.2	25,989
Greater Glasgow and Clyde	31,129	59.1	7,925	15.0	52,715	5831	10.0	58,546
Highland	8,267	55.9	2,105	14.2	14,779	1126	7.1	15,905
Lanarkshire	17,612	55.1	5,229	16.4	31,949	3733	10.5	35,682
Lothian	20,125	59.0	4,497	13.2	34,093	3526	9.4	37,619
Orkney	646	61.3	122	11.6	1,053	53	4.8	1,106
Shetland	604	64.5	109	11.6	937	63	6.3	1,000
Tayside	12,220	60.1	2,661	13.1	20,345	1394	6.4	21,739
Western Isles	650	52.3	215	17.3	1,244	62	4.7	1,306
Scotland	142,972	57.9	36,133	14.6	246,954	24386	9.0	271,340

Measure 4: Current Smokers

Percentage of people with diabetes who have a smoking status of “Current Smoker” recorded in the prior 15 months - presented in defined age ranges.

Methodology

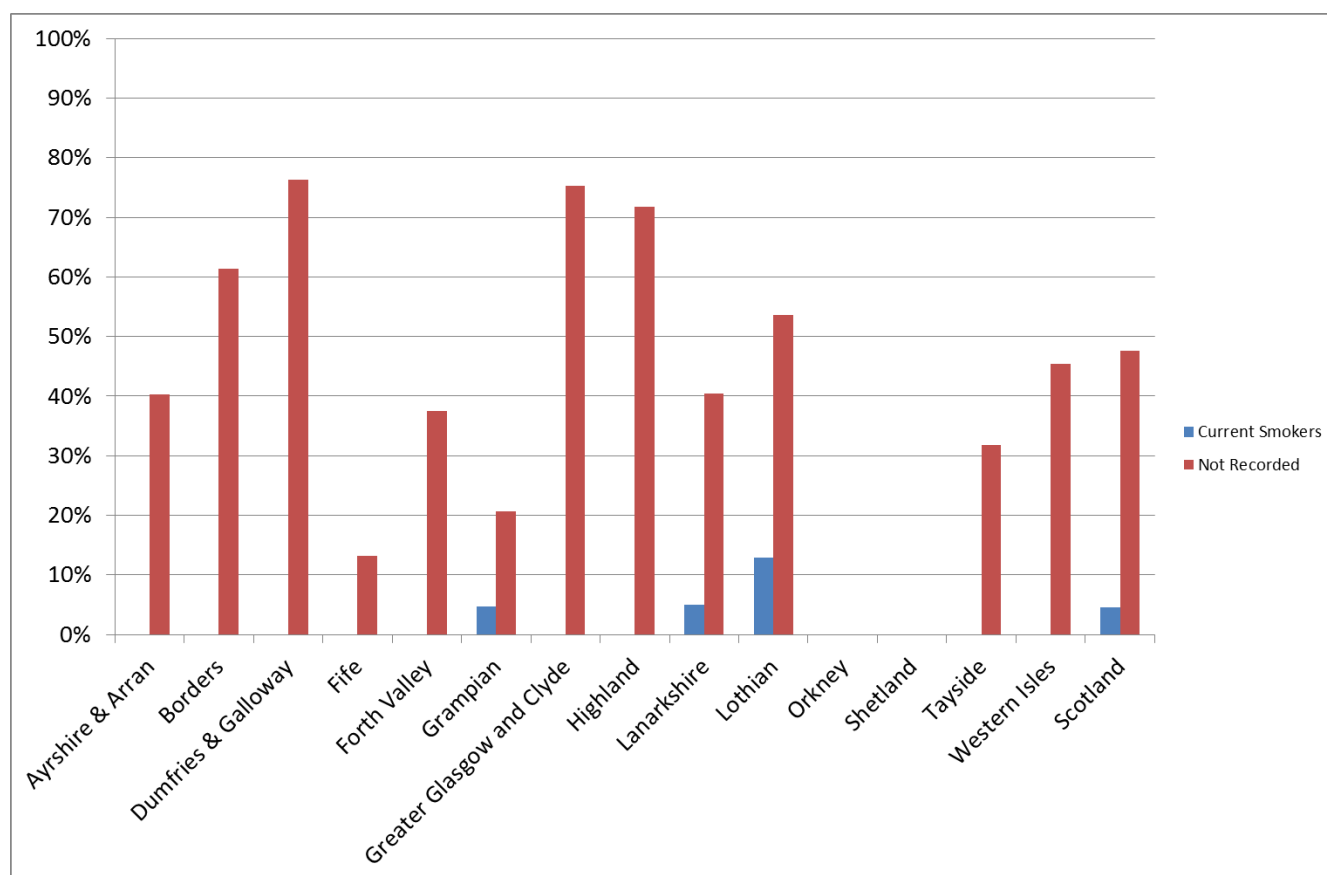
Included population = people aged 12 or over with diabetes are included.

Numerator = people in each age/type cohort whose latest smoking status in the prior 15 months was “Current Smoker”

Denominator = the total number of people in each age/type cohort who had a smoking status recorded in the prior 15 months.

Notes

Where no data is shown in the bar-chart, this could indicate that no people were found in that age-range or that no people in that age-range were recorded as “Current Smokers” in the prior 15 months.

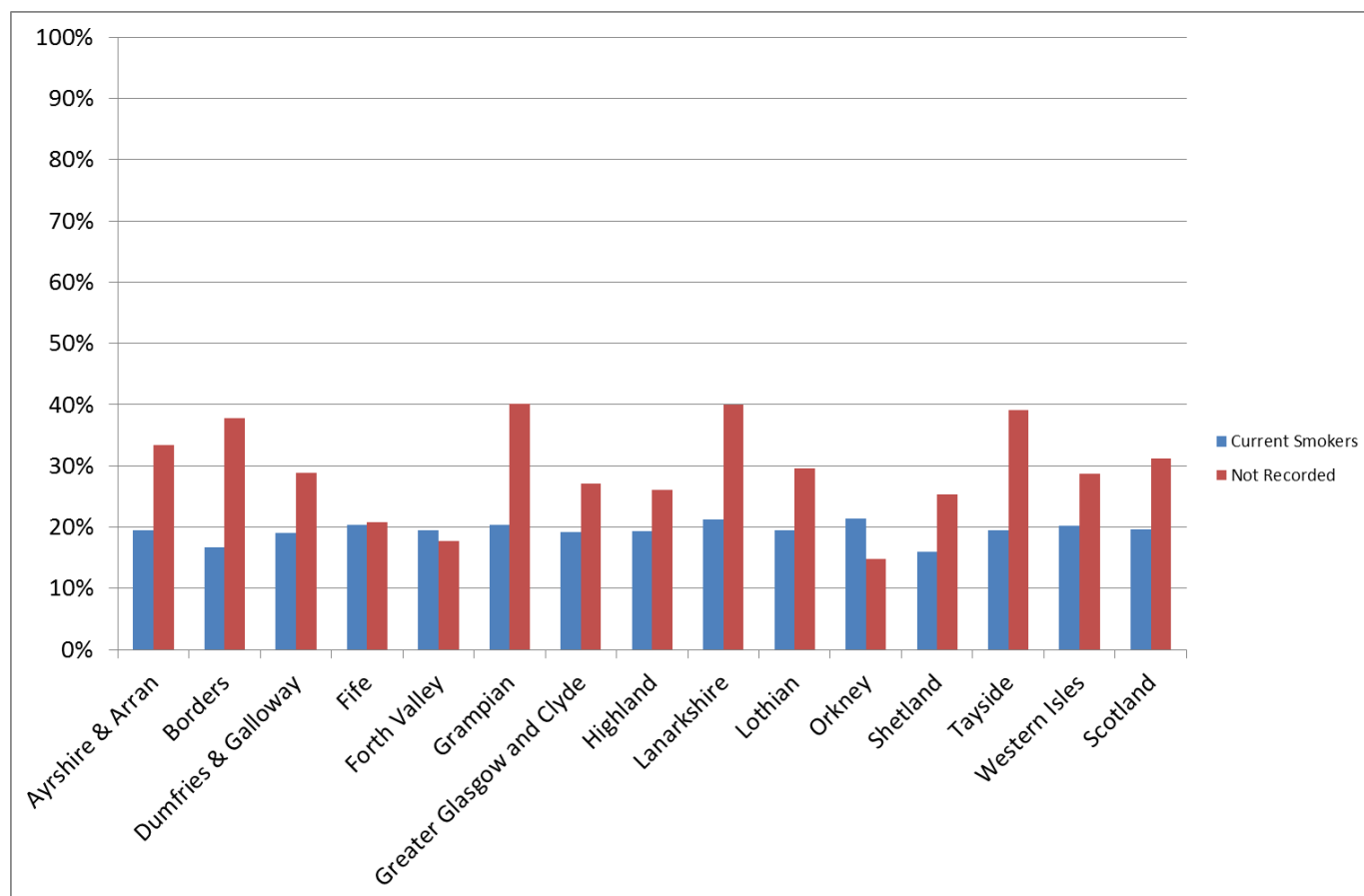
Figure 26 Measure 4: Current smokers - Type 1 and other age 12-17 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown, additionally some bars are zero.

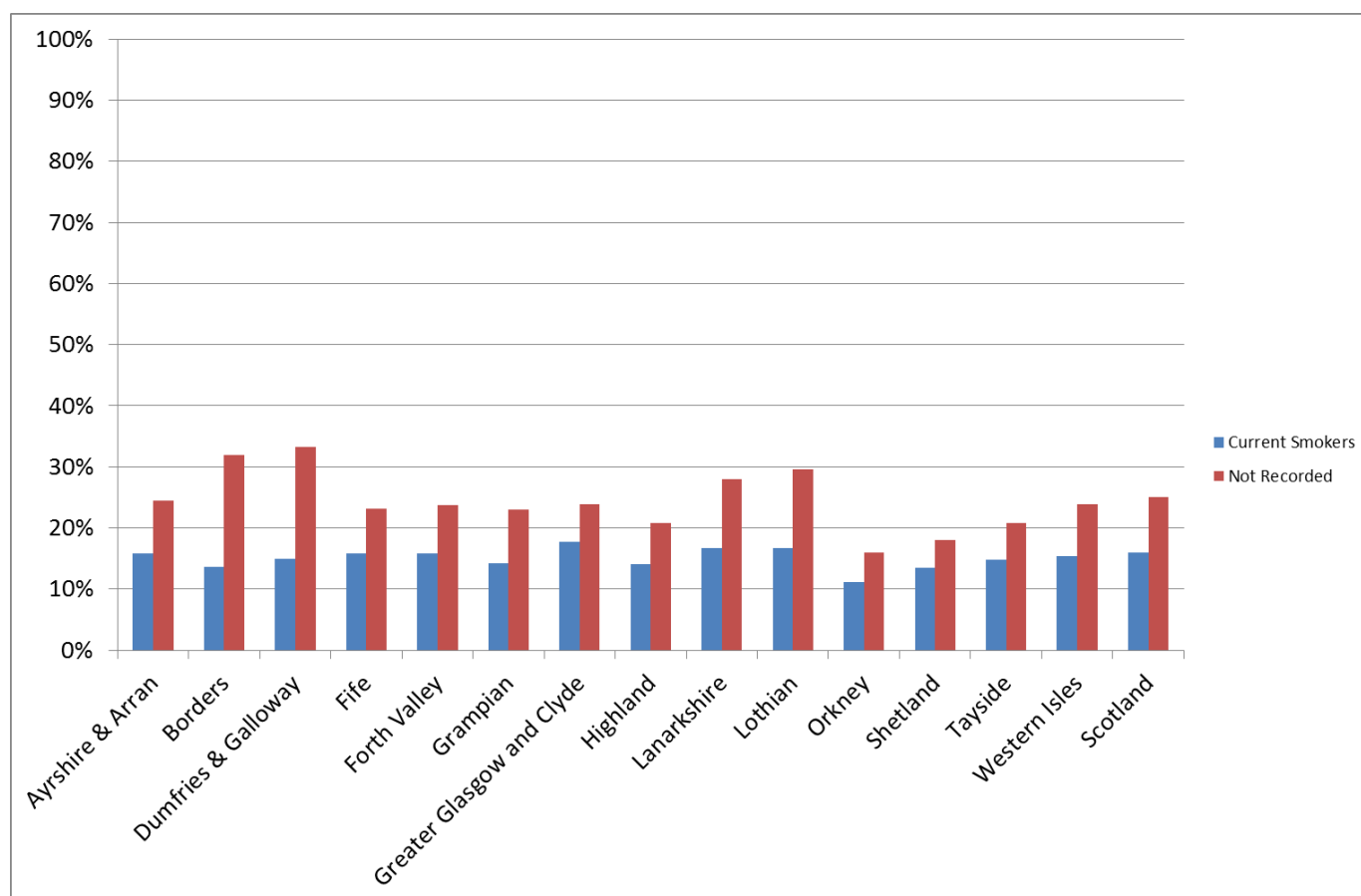
Table 40 Measure 4: Current smokers - Type 1 and other age 12-17 by NHS board, Scotland 2018.

NHS board	Current Smoker		Recorded people (n)	Not Recorded		All aged 12-17 (n)
	People (n)	%		People (n)	%	
Ayrshire & Arran	*	*	86	58	40.3	144
Borders	0	0.0	17	27	61.4	44
Dumfries & Galloway	*	*	14	45	76.3	59
Fife	*	*	105	16	13.2	121
Forth Valley	*	*	70	42	37.5	112
Grampian	8	4.6	173	45	20.6	218
Greater Glasgow and Clyde	*	*	89	271	75.3	360
Highland	0	0.0	41	104	71.7	145
Lanarkshire	9	5.0	180	122	40.4	302
Lothian	15	12.8	117	135	53.6	252
Orkney	*	*	6	0	0.0	6
Shetland	0	0.0	11	0	0.0	11
Tayside	*	*	86	40	31.7	126
Western Isles	0	0.0	6	5	45.5	11
Scotland	45	4.5	1,001	910	47.6	1,911

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 27 Measure 4: Current smokers - Type 1 age 18+ by NHS board, Scotland 2018.**Table 41 Measure 4: Current smokers - Type 1 age 18+ by NHS board, Scotland 2018.**

NHS board	Current Smoker		Recorded people (n)	Not Recorded		All aged 18+ (n)
	People (n)	%		People (n)	%	
Ayrshire & Arran	275	19.5	1,412	709	33.4	2,121
Borders	68	16.7	406	246	37.7	652
Dumfries & Galloway	124	19.1	649	264	28.9	913
Fife	328	20.4	1,609	422	20.8	2,031
Forth Valley	278	19.4	1,430	308	17.7	1,738
Grampian	395	20.4	1,939	1,301	40.2	3,240
Greater Glasgow and Clyde	840	19.2	4,380	1,629	27.1	6,009
Highland	279	19.3	1,445	509	26.0	1,954
Lanarkshire	512	21.2	2,410	1,610	40.0	4,020
Lothian	634	19.5	3,248	1,369	29.7	4,617
Orkney	21	21.4	98	17	14.8	115
Shetland	15	16.0	94	32	25.4	126
Tayside	243	19.5	1,243	799	39.1	2,042
Western Isles	26	20.2	129	52	28.7	181
Scotland	4,038	19.7	20,492	9,267	31.1	29,759

Figure 28 Measure 4: Current smokers - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 42 Measure 4: Current smokers - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	Current Smoker		Recorded people (n)	Not Recorded		All aged 18+ (n)
	People (n)	%		People (n)	%	
Ayrshire & Arran	2,631	15.8	16,704	5,403	24.4	22,107
Borders	572	13.6	4,206	1,968	31.9	6,174
Dumfries & Galloway	862	14.9	5,774	2,881	33.3	8,655
Fife	2,419	15.8	15,272	4,596	23.1	19,868
Forth Valley	1,881	15.8	11,939	3,705	23.7	15,644
Grampian	2,843	14.2	20,026	5,963	22.9	25,989
Greater Glasgow and Clyde	7,875	17.7	44,564	13,982	23.9	58,546
Highland	1,768	14.0	12,600	3,305	20.8	15,905
Lanarkshire	4,286	16.7	25,680	10,002	28.0	35,682
Lothian	4,423	16.7	26,475	11,144	29.6	37,619
Orkney	104	11.2	929	177	16.0	1,106
Shetland	111	13.5	820	180	18.0	1,000
Tayside	2,560	14.9	17,216	4,523	20.8	21,739
Western Isles	153	15.4	994	312	23.9	1,306
Scotland	32,488	16.0	203,199	68,141	25.1	271,340

Measure 5: Cholesterol and Blood Pressure

Percentage of people with diabetes aged 50 to 69 with a total cholesterol <5mmol/l AND a systolic blood pressure <140 mmHg in the prior 15 months

Methodology

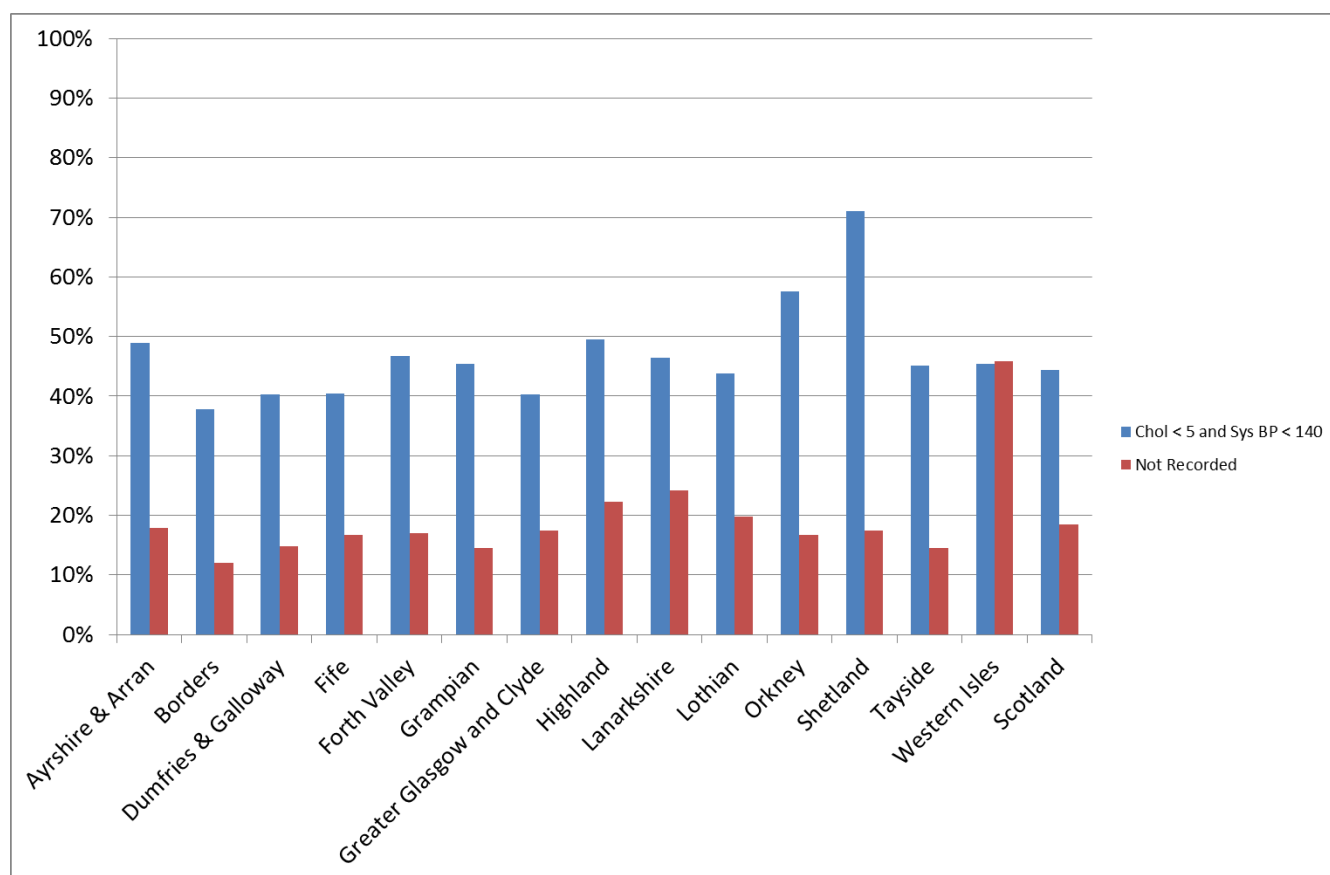
Included population = all people with diabetes aged ≥ 50 and < 70 years are included.

Numerator 1 = the number of people with diabetes aged 50-69 years whose latest cholesterol was <5mmol/L AND whose latest SBP was <140 mmHg.

Denominator 1 = the total number of people with diabetes aged 50-69 years who had both a cholesterol value and a SBP result recorded in the prior 15 months.

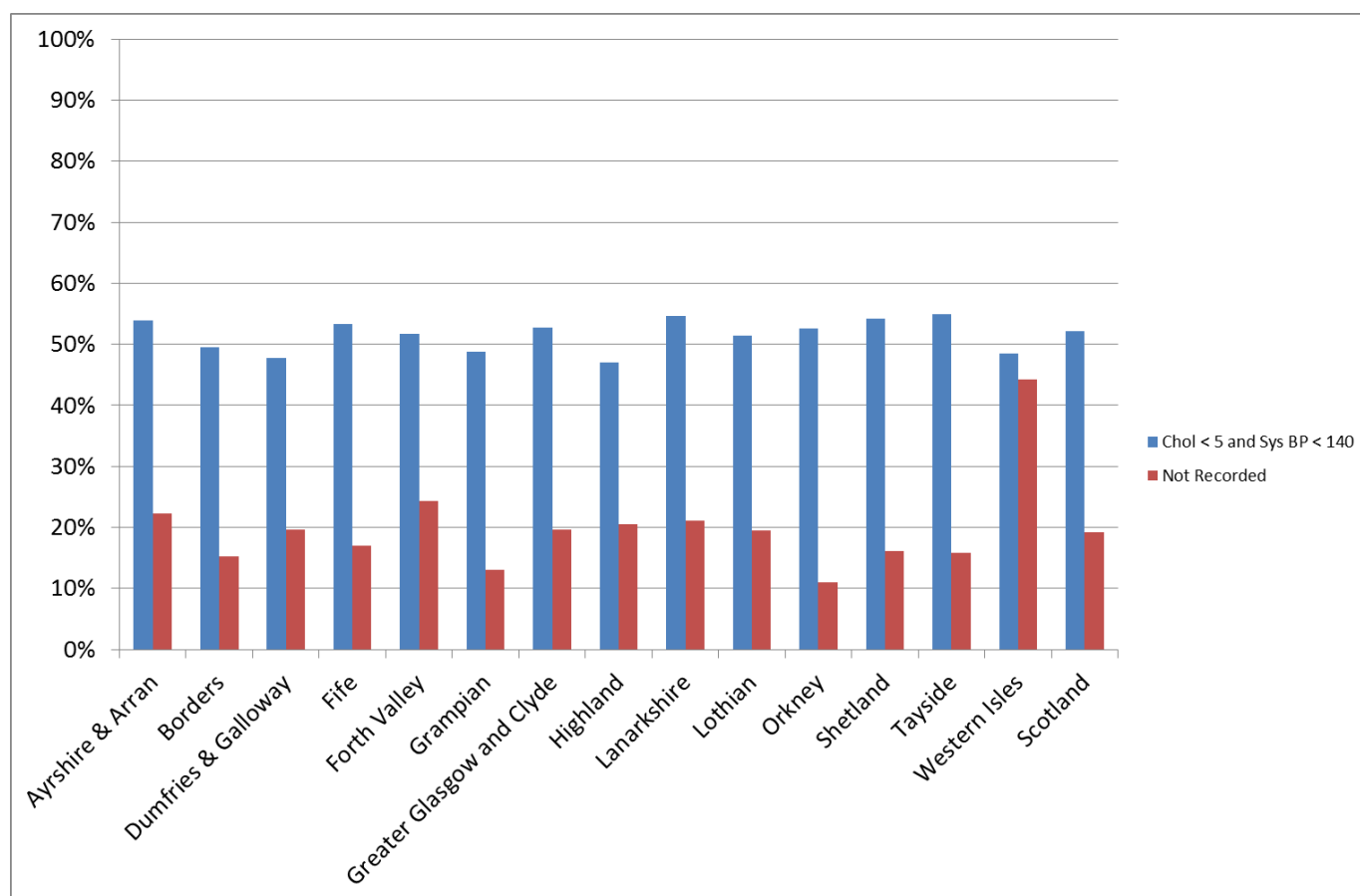
Numerator 2 = "Not Recorded" - the number of people with diabetes aged 50-69 years who did NOT have both a cholesterol AND a SBP result recorded in the prior 15 months.

Denominator 2 = the total cohort of people with diabetes aged 50-69 years.

Figure 29 Measure 5: Cholesterol and blood pressure - Type 1 age 50-69 by NHS board, Scotland 2018.**Table 43 Measure 5: Cholesterol and blood pressure - Type 1 age 50-69 by NHS board, Scotland 2018.**

NHS board	Cholesterol < 5 mmol / L and Systolic BP < 140 mmHg		Recorded people (n)	Not Recorded		All aged 50-69 (n)
	People (n)	%		People (n)	%	
Ayrshire & Arran	307	49.0	627	136	17.8	763
Borders	91	37.8	241	33	12.0	274
Dumfries & Galloway	132	40.2	328	57	14.8	385
Fife	243	40.4	602	121	16.7	723
Forth Valley	218	46.8	466	95	16.9	561
Grampian	438	45.3	966	164	14.5	1,130
Greater Glasgow and Clyde	617	40.3	1,532	324	17.5	1,856
Highland	281	49.6	567	163	22.3	730
Lanarkshire	491	46.4	1,059	339	24.2	1,398
Lothian	544	43.8	1,242	306	19.8	1,548
Orkney	23	57.5	40	8	16.7	48
Shetland	27	71.1	38	8	17.4	46
Tayside	288	45.1	639	109	14.6	748
Western Isles	15	45.5	33	28	45.9	61
Scotland	3,715	44.3	8,380	1,891	18.4	10,271

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 30 Measure 5: Cholesterol and blood pressure - Type 2 and other age 50-69 by NHS board, Scotland 2018.**Table 44 Measure 5: Cholesterol and blood pressure - Type 2 and other age 50-69 by NHS board, Scotland 2018.**

NHS board	Cholesterol < 5 mmol / L and Systolic BP < 140 mmHg		Recorded people (n)	Not Recorded		All aged 50-69 (n)
	People (n)	%		People (n)	%	
Ayrshire & Arran	4,365	53.9	8,098	2,319	22.3	10,417
Borders	1,114	49.6	2,248	404	15.2	2,652
Dumfries & Galloway	1,472	47.8	3,080	751	19.6	3,831
Fife	4,032	53.3	7,566	1,551	17.0	9,117
Forth Valley	2,878	51.7	5,565	1,793	24.4	7,358
Grampian	4,981	48.8	10,210	1,528	13.0	11,738
Greater Glasgow and Clyde	12,260	52.8	23,235	5,672	19.6	28,907
Highland	2,672	47.0	5,686	1,465	20.5	7,151
Lanarkshire	7,496	54.7	13,713	3,672	21.1	17,385
Lothian	7,238	51.4	14,094	3,406	19.5	17,500
Orkney	224	52.6	426	53	11.1	479
Shetland	216	54.1	399	77	16.2	476
Tayside	4,434	54.9	8,078	1,513	15.8	9,591
Western Isles	154	48.4	318	253	44.3	571
Scotland	53,536	52.1	102,716	24,457	19.2	127,173

Measure 6: Foot Ulcers

Percentage of people with diabetes with prevalent (recorded at any time) and incident (recorded in the prior year) foot ulcers - presented in defined age ranges.

Foot Risk is not one of the applicable Processes of Care for those under 18 years of age, and consequently the associated table and figure for those with type 1 diabetes have been omitted.

Methodology

Included population = all people of any age with diabetes are included.

Numerator 1 (Prevalent ulcers) = number of patients in each age/type cohort whose latest foot status records one or more active foot ulcer/s.

Numerator 2 (Incident ulcers) = number of patients in each age/type cohort who have had a new ulcer recorded in the last 12 months via any source

Denominator = the total number of people with diabetes in each age/type cohort.

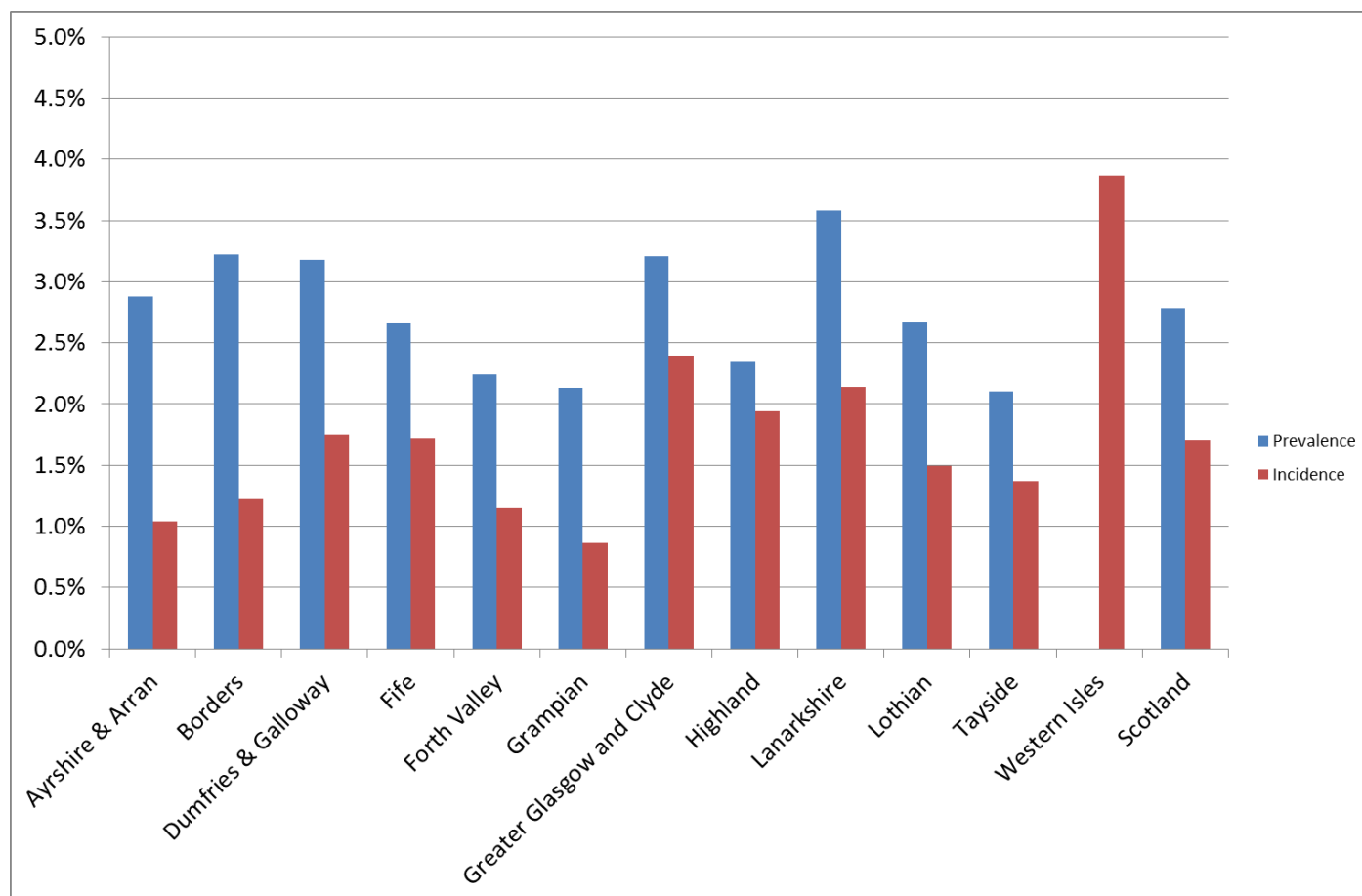
Notes:

Incident ulcers in this report are all new ulcers that occurred in the prior 12 months even in patients with a previous history of foot ulceration. It is not where a person with totally "clean" feet develops a first ever foot ulcer.

Incident ulcers are determined by either of the following methods:

A sequence where an "Active Ulceration" record changes from "No" or "Not recorded" to "Yes" or "Yes Side Unspecified" at any time in the preceding 12 months.

A foot ulcer is recorded via the Ulcer Management screens with a Start Date at any time in the preceding 12 months..

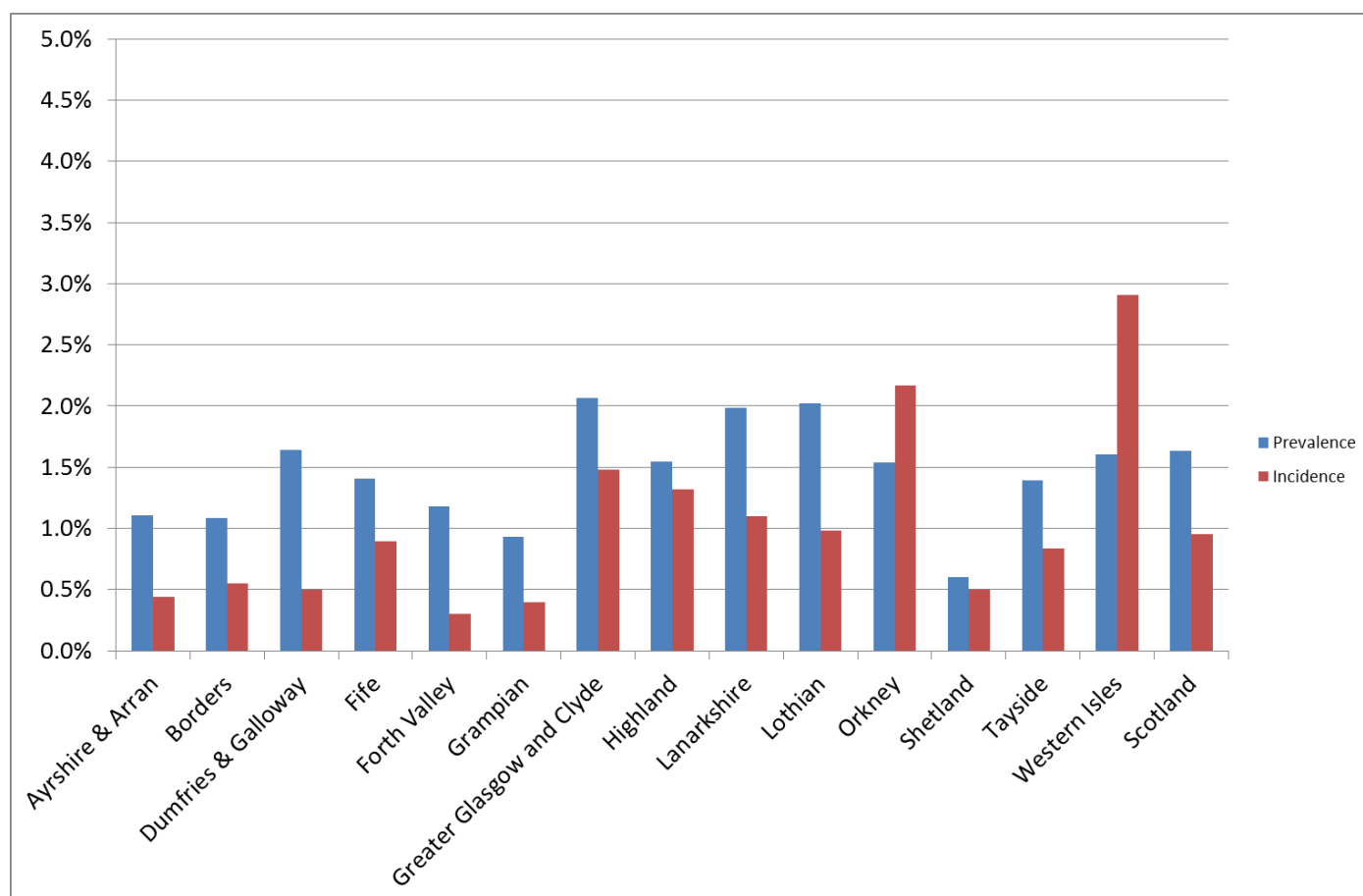
Figure 31 Measure 6: Foot ulcers - Type 1 age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 45 Measure 6: Foot ulcers - Type 1 age 18+ by NHS board, Scotland 2018.

NHS board	Prevalence		Incidence		All aged 18+ (n)
	People (n)	%	People (n)	%	
Ayrshire & Arran	61	2.9	22	1.0	2,121
Borders	21	3.2	8	1.2	652
Dumfries & Galloway	29	3.2	16	1.8	913
Fife	54	2.7	35	1.7	2,031
Forth Valley	39	2.2	20	1.2	1,738
Grampian	69	2.1	28	0.9	3,240
Greater Glasgow and Clyde	193	3.2	144	2.4	6,009
Highland	46	2.4	38	1.9	1,954
Lanarkshire	144	3.6	86	2.1	4,020
Lothian	123	2.7	69	1.5	4,617
Orkney	*	*	*	*	115
Shetland	*	*	*	*	126
Tayside	43	2.1	28	1.4	2,042
Western Isles	*	*	7	3.9	181
Scotland	828	2.8	507	1.7	29,759

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 32 Measure 6: Foot ulcers - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 46 Measure 6: Foot ulcers - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	Prevalence		Incidence		All aged 18+ (n)
	People (n)	%	People (n)	%	
Ayrshire & Arran	245	1.1	98	0.4	22,107
Borders	67	1.1	34	0.6	6,174
Dumfries & Galloway	142	1.6	43	0.5	8,655
Fife	280	1.4	178	0.9	19,868
Forth Valley	184	1.2	47	0.3	15,644
Grampian	242	0.9	103	0.4	25,989
Greater Glasgow and Clyde	1,211	2.1	866	1.5	58,546
Highland	246	1.5	210	1.3	15,905
Lanarkshire	708	2.0	391	1.1	35,682
Lothian	760	2.0	368	1.0	37,619
Orkney	17	1.5	24	2.2	1,106
Shetland	6	0.6	5	0.5	1,000
Tayside	303	1.4	182	0.8	21,739
Western Isles	21	1.6	38	2.9	1,306
Scotland	4,432	1.6	2,587	1.0	271,340

Measure 7: Retinopathy Screening

Percentage of people with diabetes eligible for diabetic retinopathy screening (DRS) who were screened within last 15 months - presented in defined age ranges.

Methodology

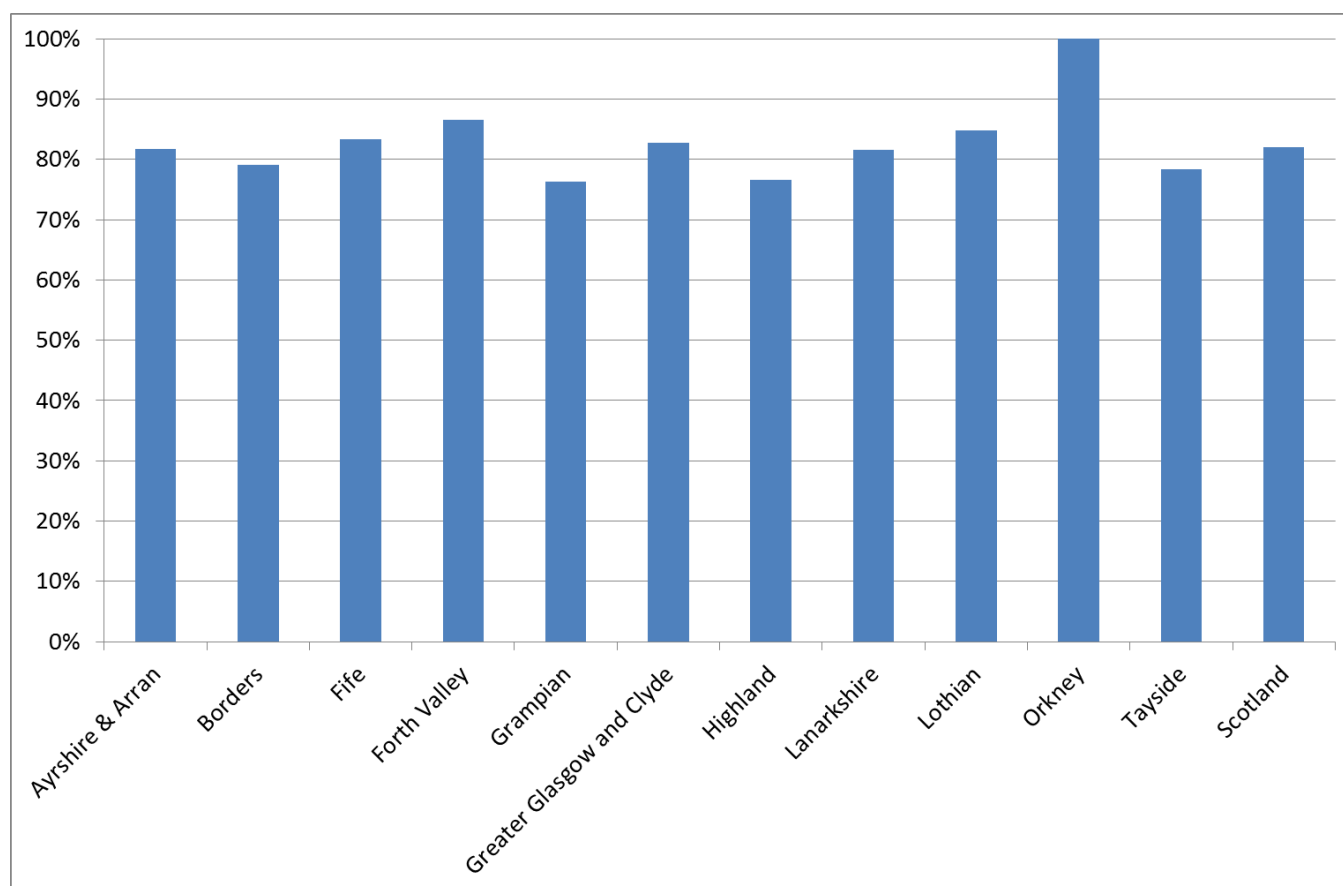
Included population = all people with diabetes aged 12 or over who have not been suspended from eye-screening. Those flagged as "Temporarily Unavailable" are still considered eligible and included in denominator.

Numerator = number of eligible people with diabetes in each age/type cohort who had a DRS screening attendance recorded in the prior 15 months

Denominator = the total number of DRS eligible people with diabetes in each age/type cohort

Notes

DRS attendance = "Attended - Successfully Screened" or "Attended - Unsuccessfully Screened". Both are considered actual screenings.

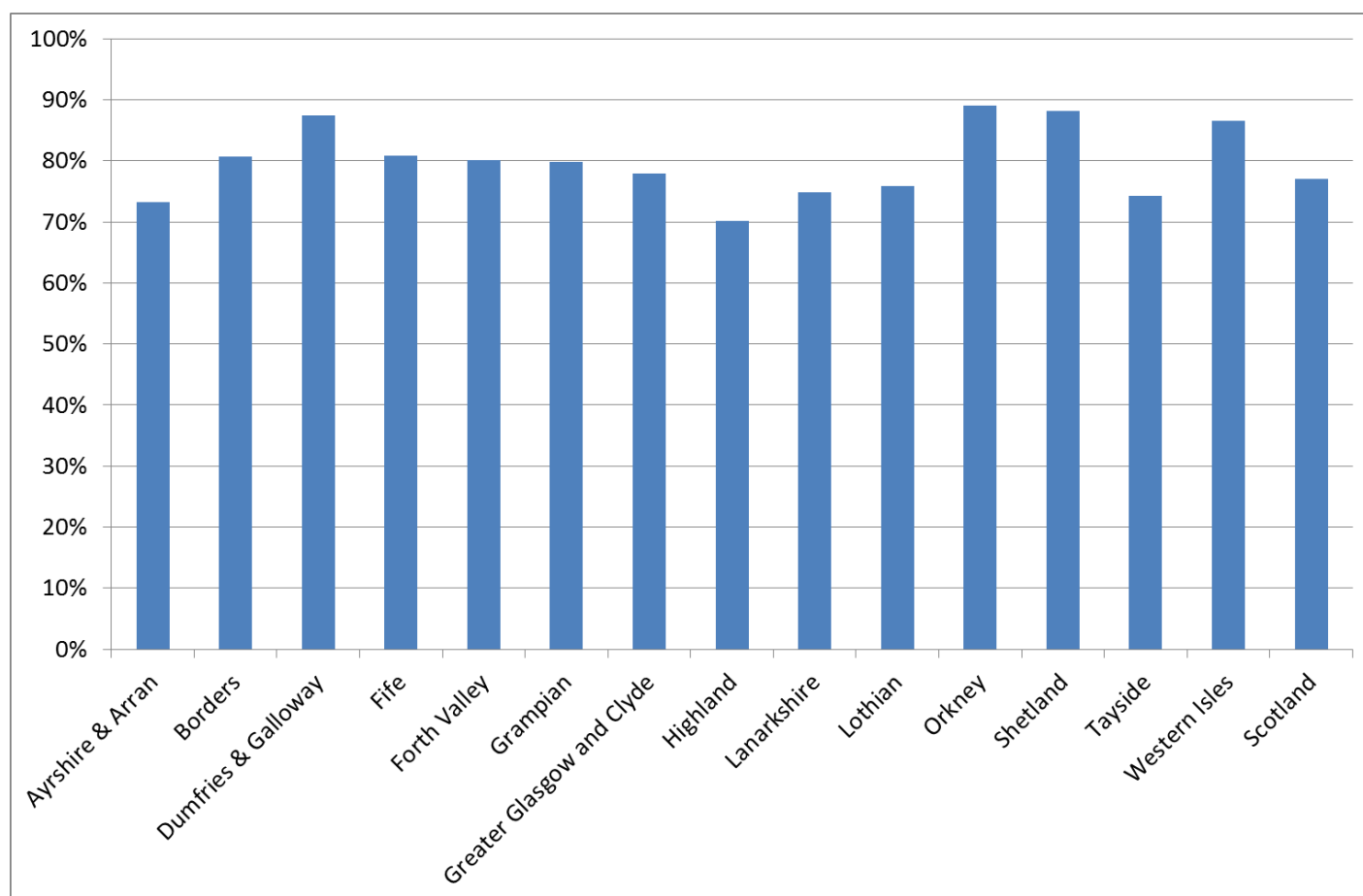
Figure 33 Measure 7: Retinopathy screening - Type 1 and other age 12-17 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

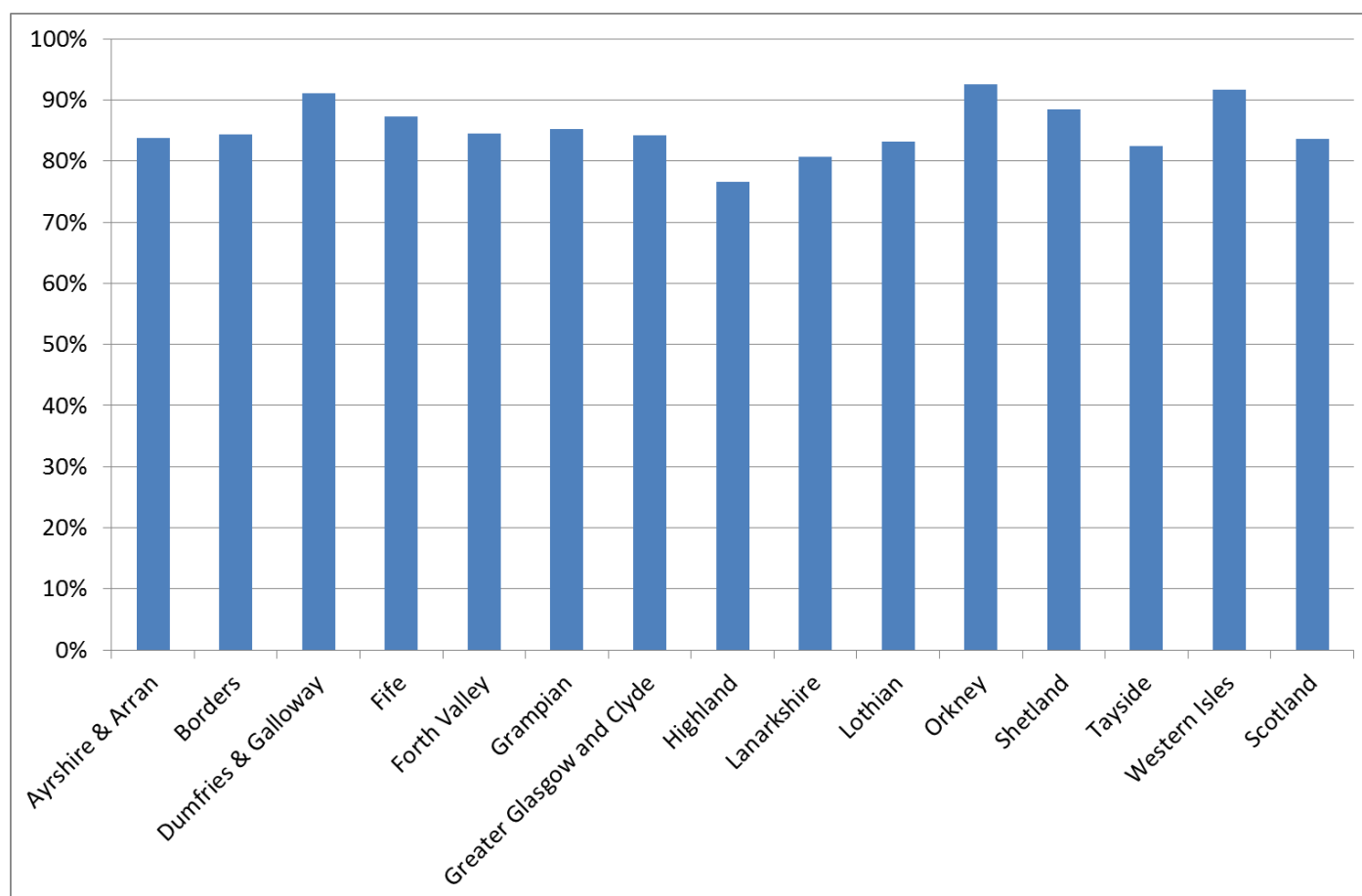
Table 47 Measure 7: Retinopathy screening – Type 1 and other age 12-17 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 12-17 (n)
	People (n)	%	
Ayrshire & Arran	116	81.7	142
Borders	34	79.1	43
Dumfries & Galloway	*	*	58
Fife	100	83.3	120
Forth Valley	97	86.6	112
Grampian	164	76.3	215
Greater Glasgow and Clyde	298	82.8	360
Highland	111	76.6	145
Lanarkshire	244	81.6	299
Lothian	213	84.9	251
Orkney	6	100.0	6
Shetland	*	*	11
Tayside	98	78.4	125
Western Isles	*	*	11
Scotland	1,557	82.0	1,898

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 34 Measure 7: Retinopathy screening - Type 1 age 18+ by NHS board, Scotland 2018.**Table 48 Measure 7: Retinopathy screening - Type 1 age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	1,334	73.2	1,823
Borders	416	80.8	515
Dumfries & Galloway	640	87.4	732
Fife	1,450	80.8	1,794
Forth Valley	1,255	80.1	1,566
Grampian	2,281	79.8	2,859
Greater Glasgow and Clyde	4,078	77.9	5,232
Highland	1,271	70.2	1,810
Lanarkshire	2,692	74.8	3,597
Lothian	3,028	75.9	3,987
Orkney	89	89.0	100
Shetland	105	88.2	119
Tayside	1,193	74.2	1,607
Western Isles	136	86.6	157
Scotland	19,968	77.1	25,898

Figure 35 Measure 7: Retinopathy screening - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 49 Measure 7: Retinopathy screening - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	17,498	83.8	20,873
Borders	4,797	84.3	5,690
Dumfries & Galloway	7,278	91.1	7,986
Fife	16,563	87.3	18,963
Forth Valley	12,808	84.5	15,155
Grampian	21,104	85.2	24,762
Greater Glasgow and Clyde	47,038	84.3	55,830
Highland	11,685	76.7	15,244
Lanarkshire	27,207	80.7	33,721
Lothian	29,511	83.2	35,481
Orkney	969	92.6	1,046
Shetland	842	88.4	952
Tayside	16,720	82.5	20,257
Western Isles	1,138	91.6	1,242
Scotland	215,158	83.7	257,202

Measure 8: End Stage Renal Disease

Percentage of people with diabetes who have end stage renal disease (ESRD) or requiring renal replacement therapy (RRT) – presented in defined age ranges.

End Stage Renal Disease is not one of the applicable Processes of Care for those under 18 years of age, and consequently the associated table and figure for those with type 1 diabetes have been omitted.

Methodology

Included population = all people of any age with diabetes are included.

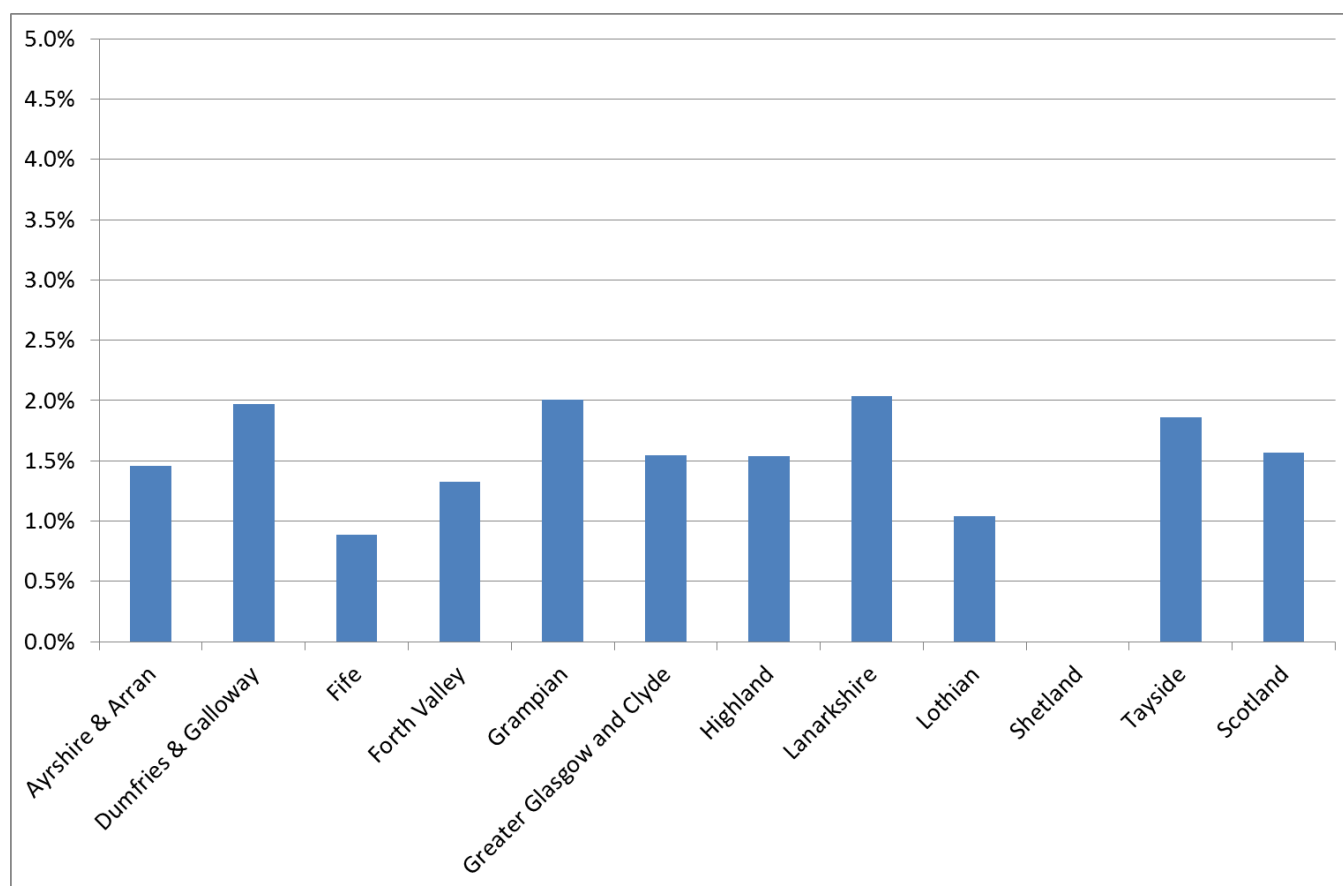
Numerator = number of people with diabetes in each age/type cohort identified as having ESRD or requiring RRT

Denominator = the total number of people with diabetes in each age/type cohort.

Notes

ESRD/RRT is where any of the following is true:

- Data item "End Stage Renal Failure Date" is populated with any value
- Data item "Renal Replacement Therapy" is populated with any value
- Either serum creatinine was chronically greater than 500 $\mu\text{mol/l}$ or eGFR was less than 15 (stage 5 chronic kidney disease) on two occasions at least three months (93 days) apart within the previous 15 months (method from Scottish Diabetes Survey).

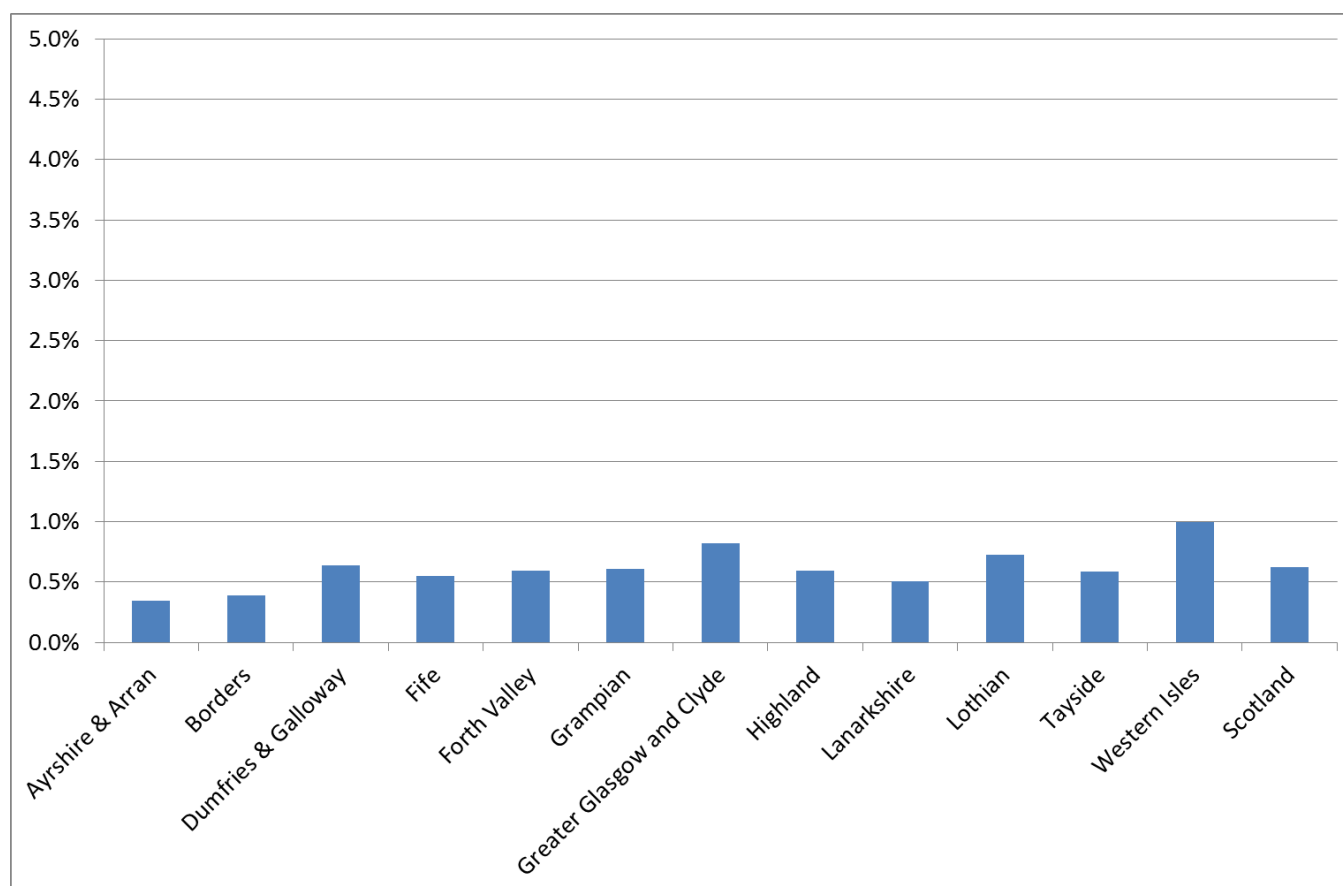
Figure 36 Measure 8: End Stage Renal Disease - Type 1 age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 50 Measure 8: End Stage Renal Disease - Type 1 age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	31	1.5	2,121
Borders	*	*	652
Dumfries & Galloway	18	2.0	913
Fife	18	0.9	2,031
Forth Valley	23	1.3	1,738
Grampian	65	2.0	3,240
Greater Glasgow and Clyde	93	1.5	6,009
Highland	30	1.5	1,954
Lanarkshire	82	2.0	4,020
Lothian	48	1.0	4,617
Orkney	*	*	115
Shetland	0	0.0	126
Tayside	38	1.9	2,042
Western Isles	*	*	181
Scotland	467	1.6	29,759

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 37 Measure 8: End Stage Renal Disease - Type 2 and other age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 51 Measure 8: End Stage Renal Disease - Type 2 and other age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	77	0.3	22,107
Borders	24	0.4	6,174
Dumfries & Galloway	55	0.6	8,655
Fife	110	0.6	19,868
Forth Valley	93	0.6	15,644
Grampian	158	0.6	25,989
Greater Glasgow and Clyde	481	0.8	58,546
Highland	95	0.6	15,905
Lanarkshire	180	0.5	35,682
Lothian	272	0.7	37,619
Orkney	*	*	1,106
Shetland	*	*	1,000
Tayside	127	0.6	21,739
Western Isles	13	1.0	1,306
Scotland	1,692	0.6	271,340

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Measure 9: Insulin Pump Therapy

Percentage of people with diabetes using CSII (Insulin Pump) therapy - presented in defined age ranges.

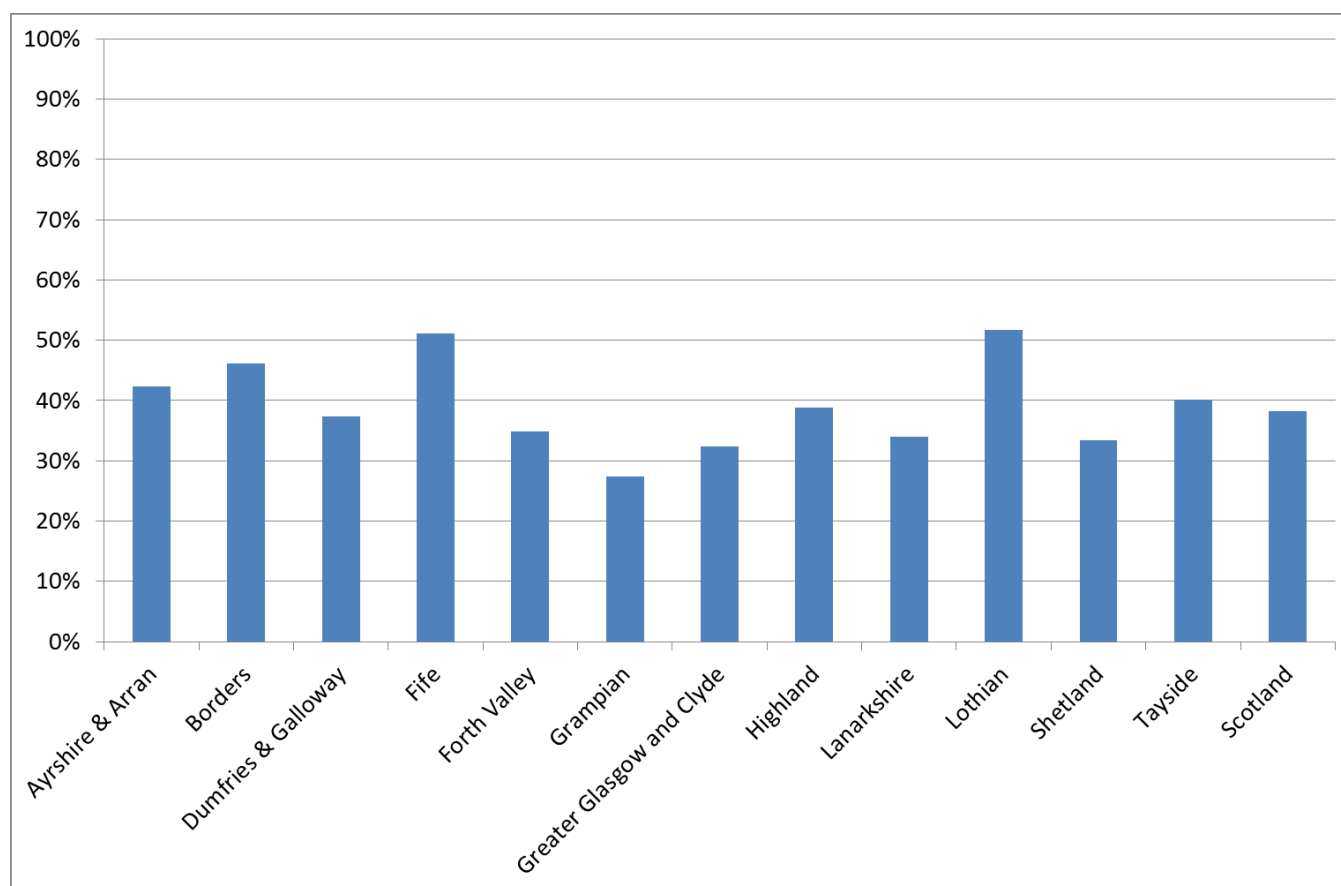
A national target was set in 2011 that 25% of all those in Scotland under 18 years of age with diabetes should have access to an insulin pump by March 2013. The figures show that this initial target has been met and, in most centres, exceeded. However, a clear majority remain using injection therapy.

Methodology

Included population = all people of any age with type 1 diabetes are included.

Numerator = number of people with type 1 diabetes in each age cohort identified as “Using an Insulin Pump Therapy Device”

Denominator = the total number of people with type 1 diabetes in each age cohort.

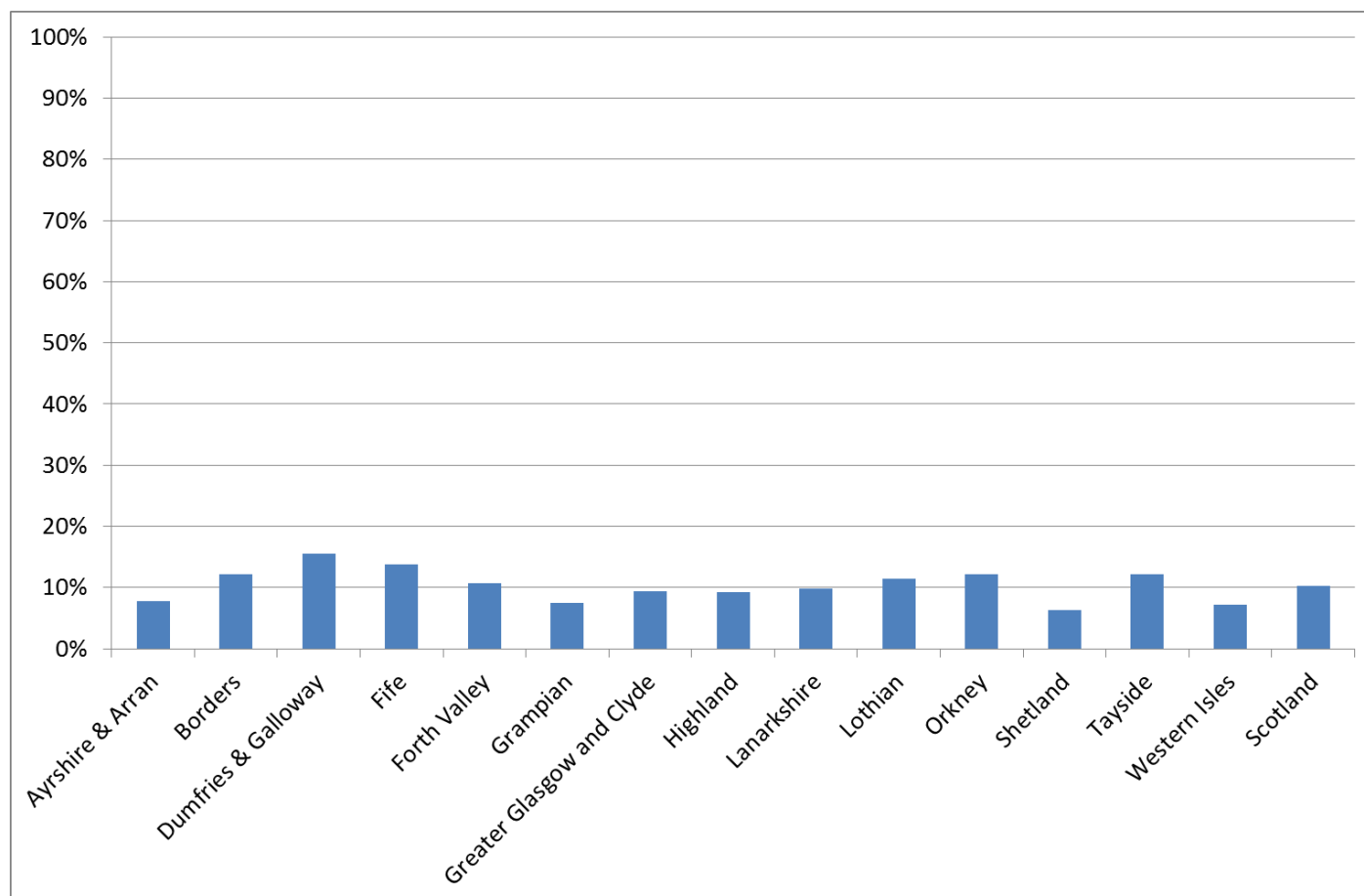
Figure 38 Measure 9: Insulin pump therapy - Type 1 age 0-17 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 52 Measure 9: Insulin pump therapy - Type 1 age 0-17 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 0-17 (n)
	People (n)	%	
Ayrshire & Arran	103	42.4	243
Borders	30	46.2	65
Dumfries & Galloway	34	37.4	91
ife	108	51.2	211
Forth Valley	68	34.9	195
Grampian	96	27.4	351
Greater Glasgow and Clyde	188	32.4	580
Highland	83	38.8	214
Lanarkshire	155	34.0	456
Lothian	203	51.7	393
Orkney	*	*	9
Shetland	5	33.3	15
Tayside	80	40.2	199
Western Isles	*	*	22
Scotland	1,165	38.3	3,044

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 39 Measure 9: Insulin pump therapy - Type 1 age 18+ by NHS board, Scotland 2018.**Table 53 Measure 9: Insulin pump therapy - Type 1 age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	165	7.8	2,121
Borders	79	12.1	652
Dumfries & Galloway	142	15.6	913
Fife	281	13.8	2,031
Forth Valley	185	10.6	1,738
Grampian	242	7.5	3,240
Greater Glasgow and Clyde	566	9.4	6,009
Highland	179	9.2	1,954
Lanarkshire	397	9.9	4,020
Lothian	527	11.4	4,617
Orkney	14	12.2	115
Shetland	8	6.3	126
Tayside	248	12.1	2,042
Western Isles	13	7.2	181
Scotland	3,046	10.2	29,759

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Measure 10: Significant Weight Loss

Percentage of people with diabetes with a BMI ≥ 30 who have lost $\geq 5\%$ body weight in the last year - presented in defined age ranges (detailed description below).

Significant Weight Loss is not one of the applicable Processes of Care for those under 18 years of age, and consequently the associated table and figure for those with type 1 diabetes have been omitted.

Methodology

Included population = people with diabetes who had a BMI ≥ 30 recorded any time in the prior 15 months who also have a weight that precedes their latest weight (which must be recorded in the prior year) by 12 months (± 90 days) are included.

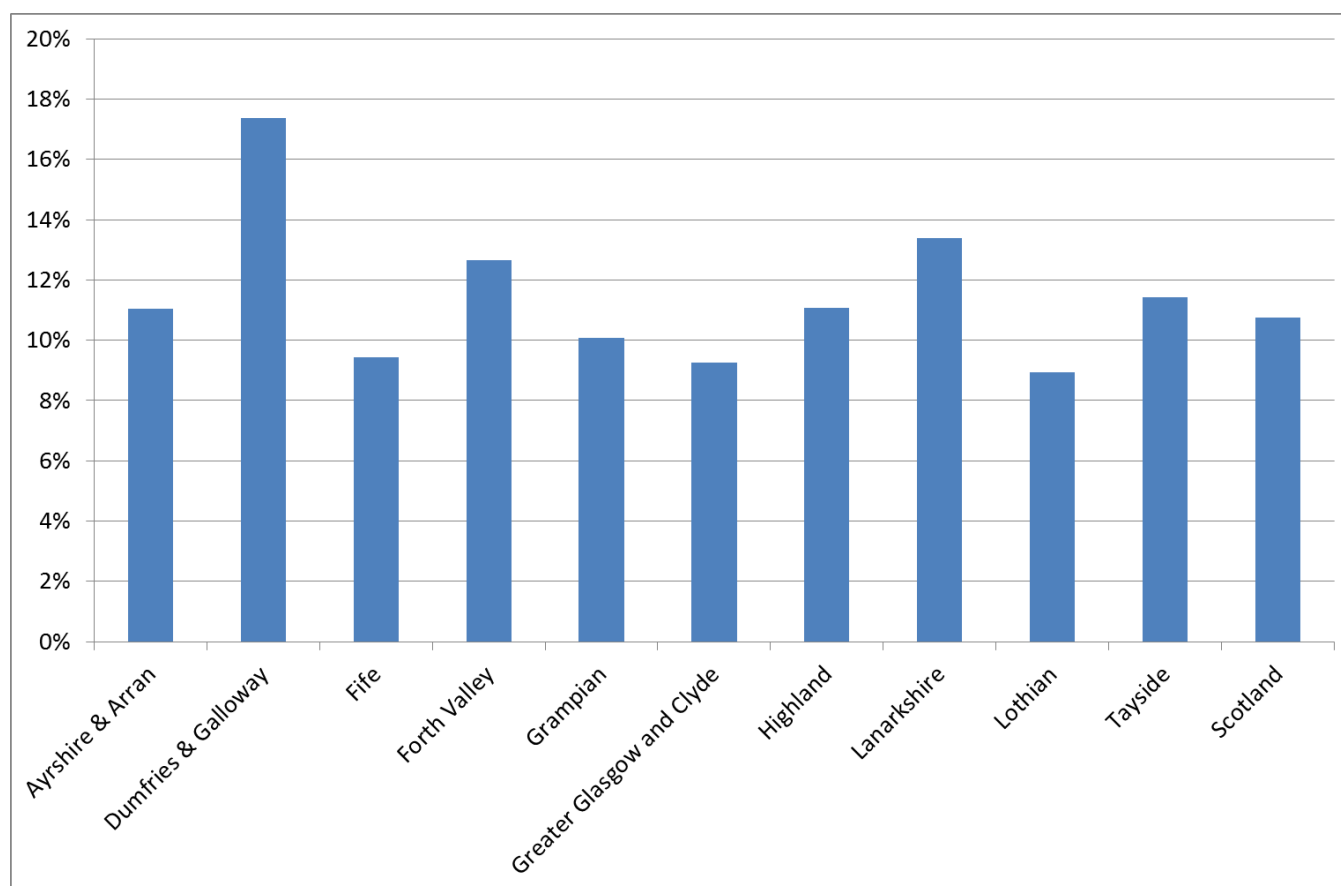
Numerator = number of people with diabetes in each age/type cohort whose latest weight shows a $\geq 5\%$ reduction since their weight a year ago.

Denominator = the total number of people with diabetes in each age/type cohort who meet the required inclusion criteria (see above).

Notes

People where their weight has reduced by 5% or more in the last year as determined by:

- Weight "now" is current weight recorded any time within the last year.
- Weight "one year ago" is the weight record closest to Weight "now" - 12 months within the time window of ± 90 days (3 months).
- Patient meets the criteria if Weight "now" \leq (Weight "one year ago" - 5%).
- Only if both values can be determined will the calculation take place.

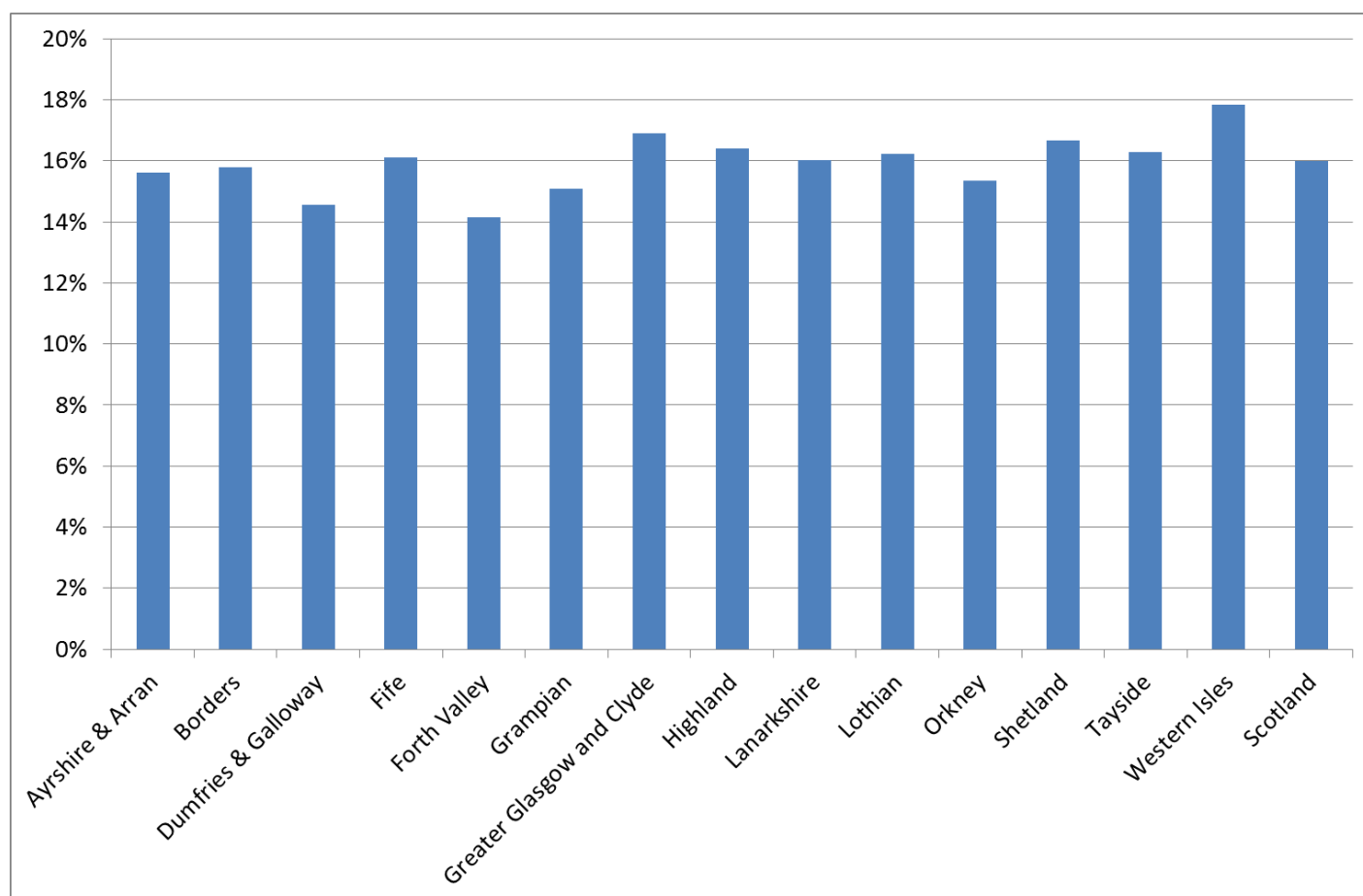
Figure 40 Measure 10: Significant weight loss - Type 1 age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 54 Measure 10: Significant weight loss - Type 1 age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	33	11.0	299
Borders	*	*	114
Dumfries & Galloway	25	17.4	144
Fife	34	9.4	360
Forth Valley	33	12.6	261
Grampian	65	10.1	644
Greater Glasgow and Clyde	76	9.3	820
Highland	30	11.1	271
Lanarkshire	83	13.4	619
Lothian	59	8.9	661
Orkney	*	*	16
Shetland	*	*	15
Tayside	42	11.4	368
Western Isles	*	*	15
Scotland	496	10.8	4,607

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 41 Measure 10: Significant weight loss - Type 2 and other age 18+ by NHS board, Scotland 2018.**Table 55 Measure 10: Significant weight loss - Type 2 and other age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	867	15.6	5,555
Borders	276	15.8	1,746
Dumfries & Galloway	352	14.6	2,419
Fife	981	16.1	6,082
Forth Valley	618	14.2	4,362
Grampian	1,401	15.1	9,285
Greater Glasgow and Clyde	2,657	16.9	15,718
Highland	872	16.4	5,313
Lanarkshire	1,506	16.0	9,394
Lothian	1,623	16.2	9,989
Orkney	63	15.4	410
Shetland	58	16.7	348
Tayside	1,208	16.3	7,411
Western Isles	73	17.8	409
Scotland	12,555	16.0	78,441

Measure 11: Attended Structured Education

Percentage of people with diabetes who have ever attended Level 3 structured education - presented in defined age ranges.

Attended structured education is not one of the applicable Processes of Care for those under 18 years of age, and consequently the associated table and figure for those with type 1 diabetes have been omitted.

Methodology

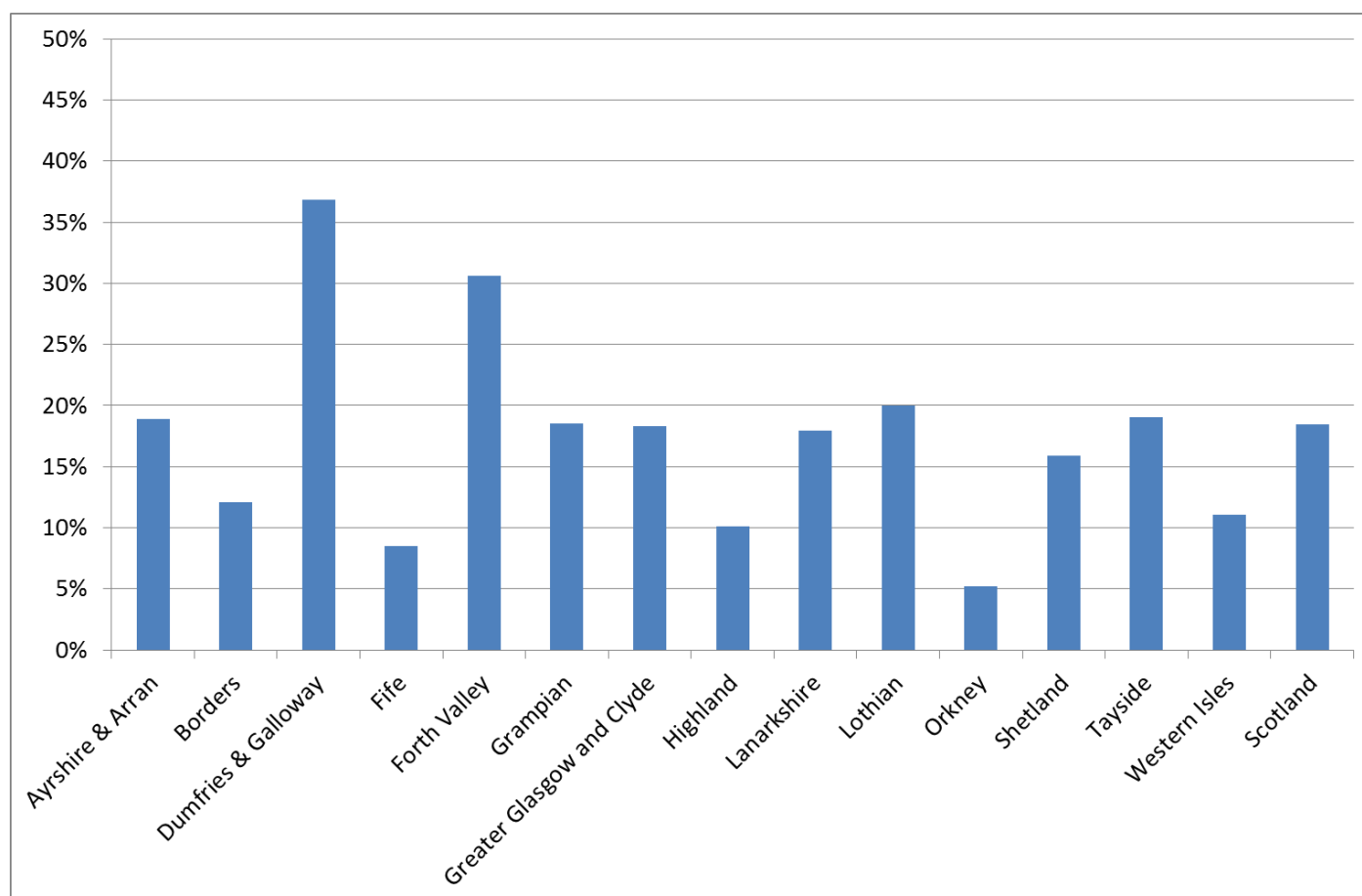
Included population = all people of any age with diabetes are included.

Numerator = number of people with diabetes in each age/type cohort who have at least one "Level 3" education record with "Education Status" = "Participated". The record may have been recorded at any time.

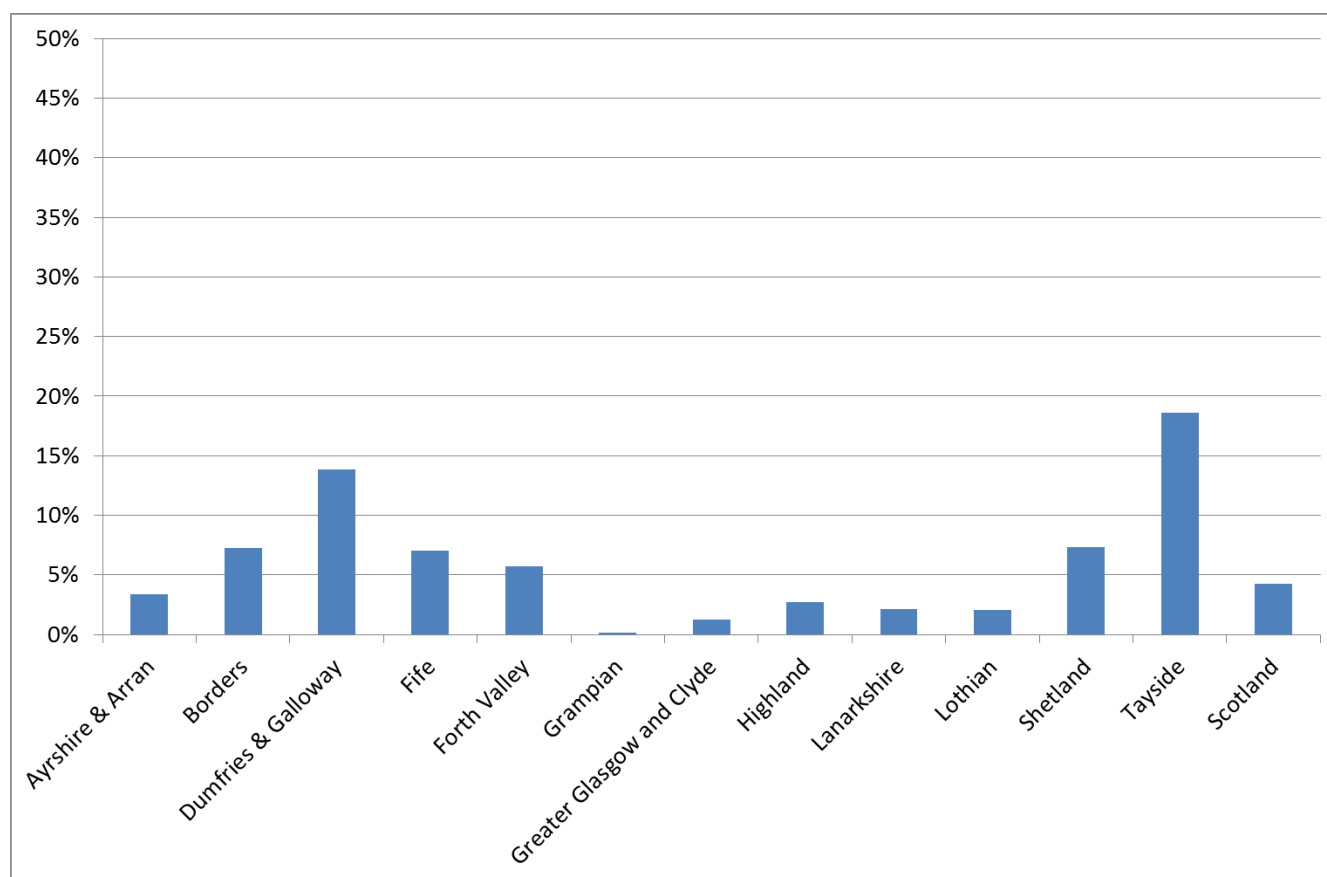
Denominator = the total number of people with diabetes in each age/type cohort.

Notes

An "Education Status" of "Participated" can only be recorded manually in SCI-Diabetes.

Figure 42 Measure 11: Attended structured education - Type 1 age 18+ by NHS board, Scotland 2018.**Table 56 Measure 11: Attended structured education - Type 1 age 18+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	401	18.9	2,121
Borders	79	12.1	652
Dumfries & Galloway	336	36.8	913
Fife	172	8.5	2,031
Forth Valley	532	30.6	1,738
Grampian	601	18.5	3,240
Greater Glasgow and Clyde	1,100	18.3	6,009
Highland	198	10.1	1,954
Lanarkshire	722	18.0	4,020
Lothian	922	20.0	4,617
Orkney	6	5.2	115
Shetland	20	15.9	126
Tayside	389	19.0	2,042
Western Isles	20	11.0	181
Scotland	5,498	18.5	29,759

Figure 43 Measure 11: Attended structured education - Type 2 and other age 18+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 57 Measure 11: Attended structured education - Type 2 and other age 18+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18+ (n)
	People (n)	%	
Ayrshire & Arran	751	3.4	22,107
Borders	448	7.3	6,174
Dumfries & Galloway	1,200	13.9	8,655
Fife	1,399	7.0	19,868
Forth Valley	898	5.7	15,644
Grampian	32	0.1	25,989
Greater Glasgow and Clyde	748	1.3	58,546
Highland	427	2.7	15,905
Lanarkshire	747	2.1	35,682
Lothian	775	2.1	37,619
Orkney	*	*	1,106
Shetland	73	7.3	1,000
Tayside	4,043	18.6	21,739
Western Isles	*	*	1,306
Scotland	11,547	4.3	271,340

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Measure 12: Disengaged from Diabetes Care

Percentage of people with diabetes who are disengaged from diabetes care, i.e. no HbA_{1c} and no retinal screening in the preceding 15 months - presented in defined age ranges.

Disengaged from Diabetes Care is not one of the applicable Processes of Care for those under 18 years of age, and consequently the associated table and figure for those with type 1 diabetes have been omitted.

Methodology

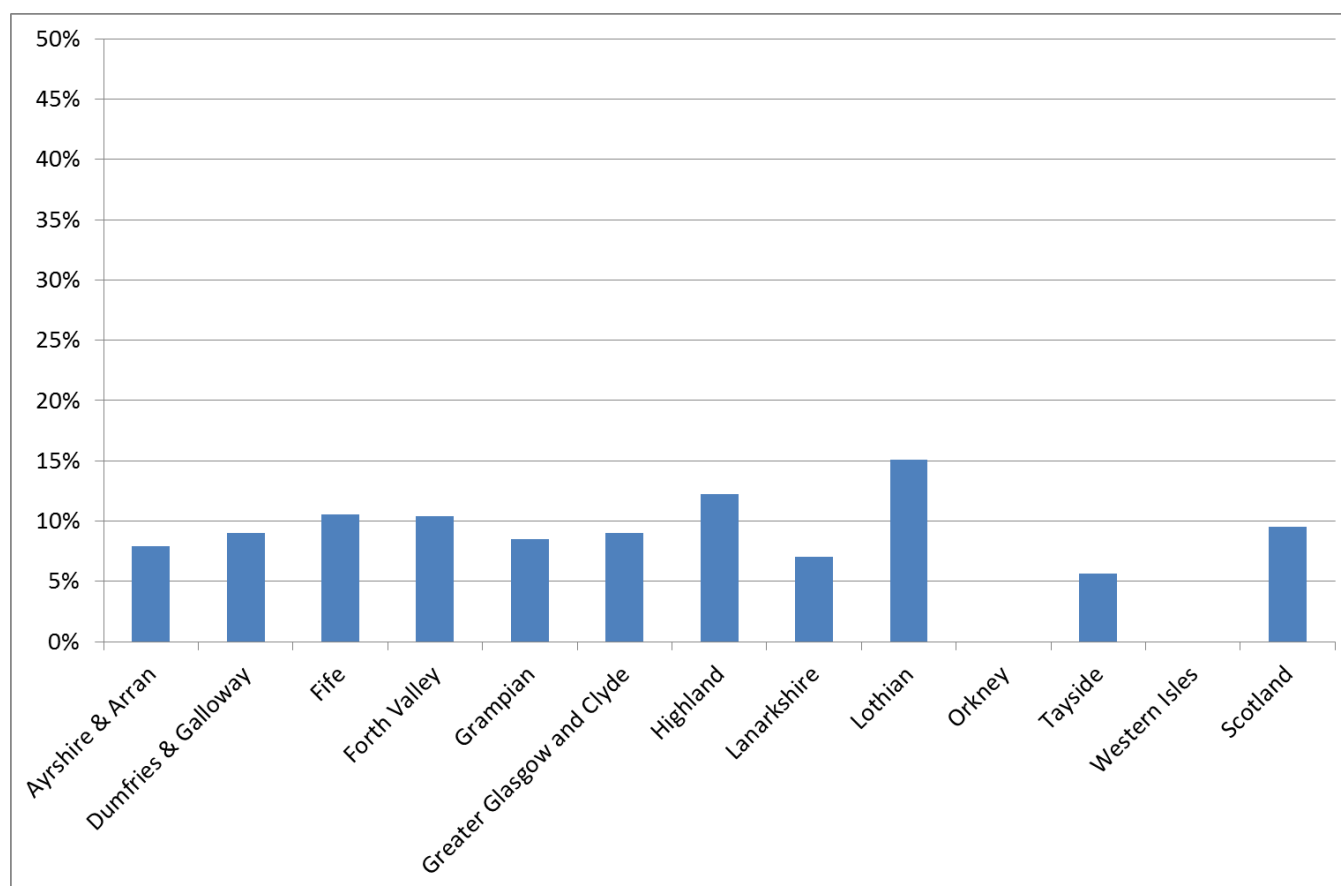
Included population = people with diabetes aged 12 or over who have a duration of diabetes ≥ 1 year are included.

Numerator = the total number of people in each age/type cohort who have no record of HbA_{1c} and no record of retinal screening in the prior 15 months.

Denominator = the total number of people in each age/type cohort who have a duration of diabetes ≥ 1 year

Notes

People currently suspended from eye-screening or who are under the care of Ophthalmology are considered to be "engaged" with service (in addition to those with a recorded HbA_{1c} or retinal screening).

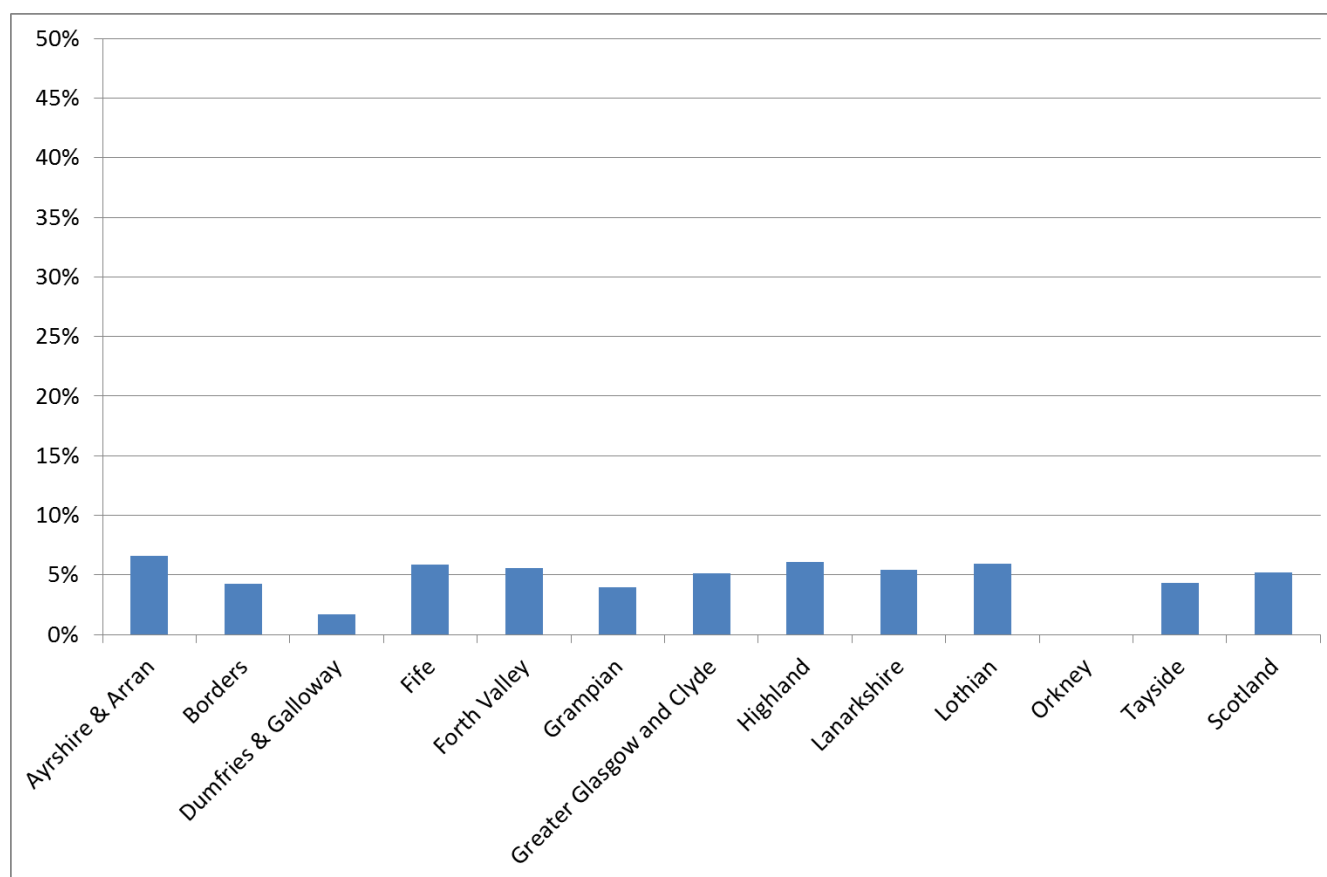
Figure 44 Measure 12: Disengaged from diabetes care - Type 1 age 18-25 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 58 Measure 12: Disengaged from diabetes care - Type 1 age 18-25 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18-25 (n)
	People (n)	%	
Ayrshire & Arran	22	7.9	279
Borders	*	*	59
Dumfries & Galloway	7	9.0	78
Fife	24	10.6	227
Forth Valley	22	10.4	212
Grampian	32	8.5	376
Greater Glasgow and Clyde	71	9.0	785
Highland	25	12.3	204
Lanarkshire	33	7.0	470
Lothian	87	15.1	577
Orkney	0	0.0	17
Shetland	*	*	11
Tayside	15	5.6	267
Western Isles	0	0.0	18
Scotland	341	9.5	3,580

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

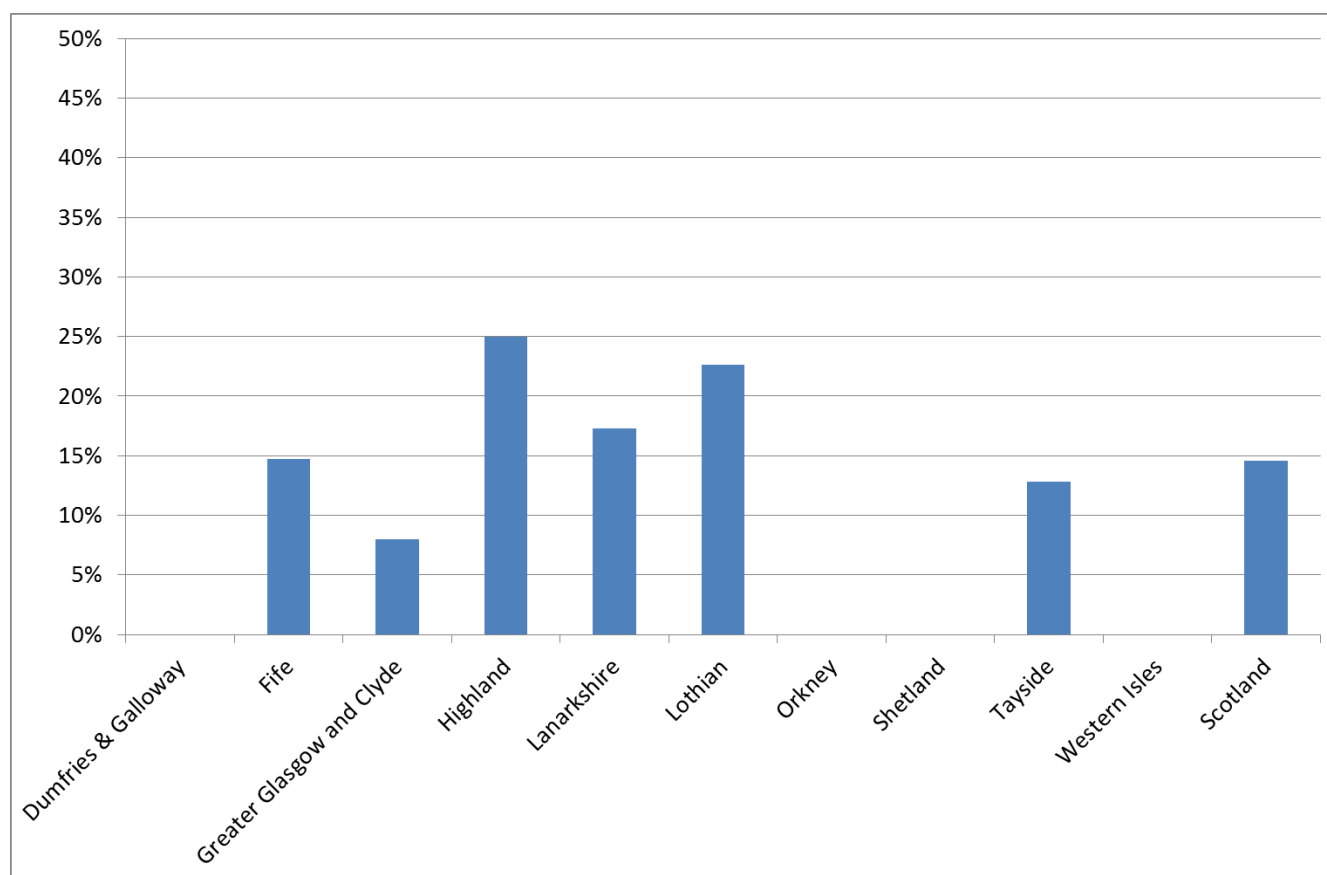
Figure 45 Measure 12: Disengaged from diabetes care - Type 1 age 26+ by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 59 Measure 12: Disengaged from diabetes care – Type 1 Age 26+ by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 26+ (n)
	People (n)	%	
Ayrshire & Arran	119	6.6	1,812
Borders	25	4.3	584
Dumfries & Galloway	14	1.7	816
Fife	103	5.8	1,767
Forth Valley	83	5.6	1,486
Grampian	112	4.0	2,806
Greater Glasgow and Clyde	263	5.2	5,091
Highland	104	6.1	1,709
Lanarkshire	190	5.5	3,484
Lothian	235	6.0	3,936
Orkney	0	0.0	94
Shetland	*	*	112
Tayside	75	4.3	1,737
Western Isles	*	*	161
Scotland	1,330	5.2	25,595

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

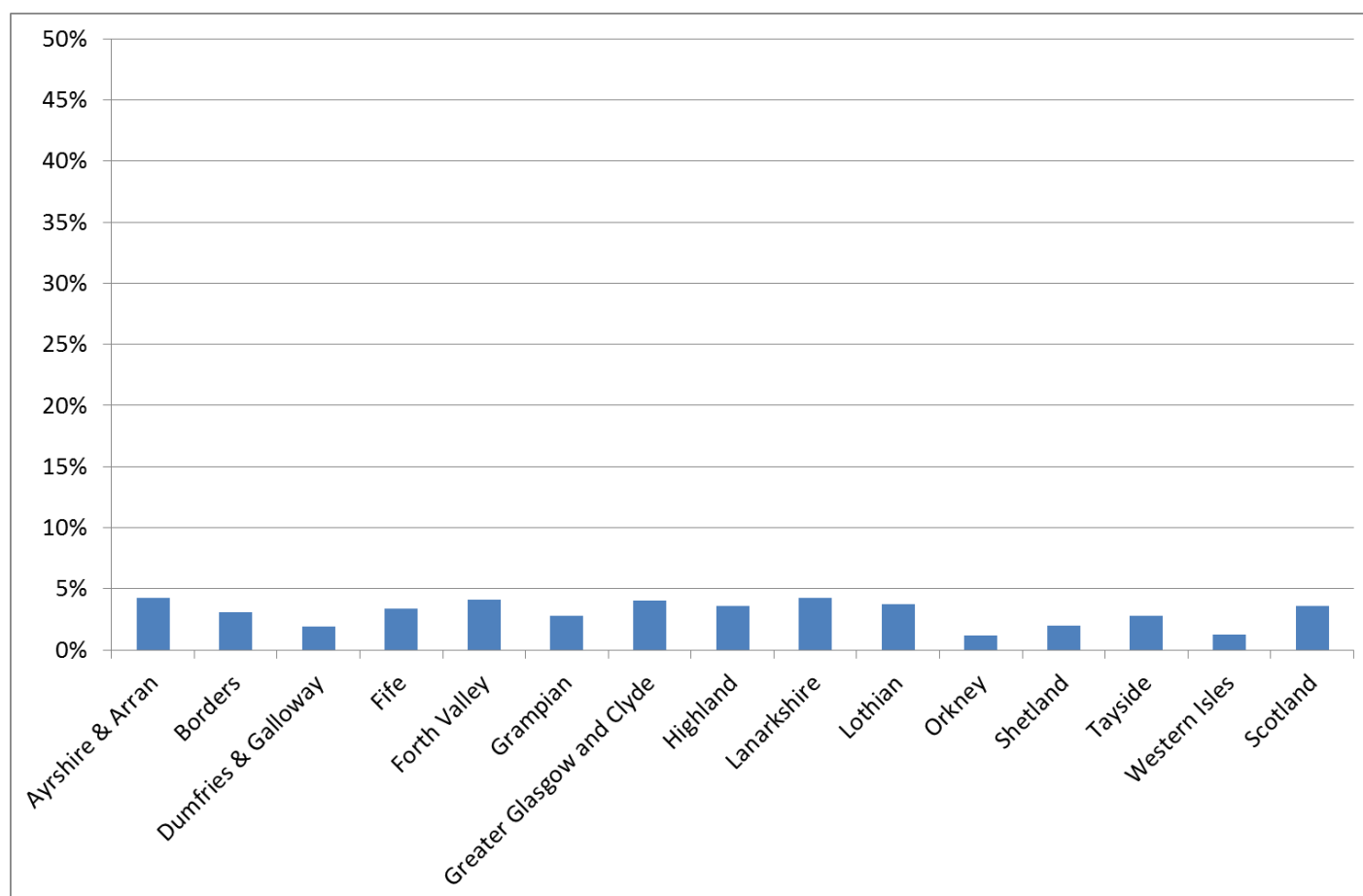
Figure 46 Measure 12: Disengaged from diabetes care - Type 2 and other age 18-25 by NHS board, Scotland 2018.

Note: Bars for boards with hidden data aren't shown.

Table 60 Measure 12: Disengaged from diabetes care - Type 2 and other age 18-25 by NHS board, Scotland 2018.

NHS board	Achieving measure		All aged 18-25 (n)
	People (n)	%	
Ayrshire & Arran	*	*	24
Borders	*	*	8
Dumfries & Galloway	0	0.0	14
Fife	5	14.7	34
Forth Valley	*	*	21
Grampian	*	*	33
Greater Glasgow and Clyde	7	8.0	88
Highland	5	25.0	20
Lanarkshire	9	17.3	52
Lothian	17	22.7	75
Orkney	0	0.0	*
Shetland	0	0.0	*
Tayside	5	12.8	39
Western Isles	0	0.0	0
Scotland	60	14.6	411

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Figure 47 Measure 12: Disengaged from diabetes care - Type 2 and other age 26+ by NHS board, Scotland 2018.**Table 61 Measure 12: Disengaged from diabetes care - Type 2 and other age 26+ by NHS board, Scotland 2018.**

NHS board	Achieving measure		All aged 26+ (n)
	People (n)	%	
Ayrshire & Arran	881	4.2	20,778
Borders	180	3.1	5,789
Dumfries & Galloway	154	1.9	8,184
Fife	637	3.4	18,702
Forth Valley	601	4.1	14,680
Grampian	675	2.8	24,309
Greater Glasgow and Clyde	2,209	4.0	54,825
Highland	529	3.6	14,755
Lanarkshire	1,427	4.3	33,445
Lothian	1,307	3.7	35,039
Orkney	12	1.1	1,047
Shetland	19	2.0	947
Tayside	568	2.8	20,477
Western Isles	15	1.2	1,210
Scotland	9,214	3.6	254,187

National and Regional Detail

This section includes additional national and regional (by NHS board) detail.

Prevalence Regional Detail

Table 62 Crude and age-adjusted prevalence of diabetes (all types), by NHS board, ranked by age-adjusted prevalence, Scotland 2018.

NHS board	Population (n)	Number on the diabetes register at the end of the year (n)	Crude prevalence (%)	Age-adjusted prevalence (%)
Western Isles	26,950	1,510	5.6	4.7
Shetland	23,080	1,141	4.9	4.8
Orkney	22,000	1,230	5.6	4.9
Highland	321,990	18,083	5.6	5.0
Borders	115,020	6,895	6.0	5.1
Grampian	586,380	29,590	5.0	5.2
Lothian	889,450	42,650	4.8	5.3
Dumfries and Galloway	149,200	9,664	6.5	5.4
Tayside	416,090	23,985	5.8	5.4
Forth Valley	305,580	17,587	5.8	5.7
Fife	371,410	22,132	6.0	5.7
Ayrshire and Arran	370,410	24,475	6.6	6.0
Greater Glasgow and Clyde	1,169,110	65,174	5.6	6.0
Lanarkshire	658,130	40,259	6.1	6.1
Scotland	5,424,800	304,375	5.6	5.6

Variation between NHS boards also depends on deprivation, the age and the ethnic distribution of the population of each Board. Age-adjusted prevalence is based on direct age/sex standardisation using the Scottish population as the reference population structure.

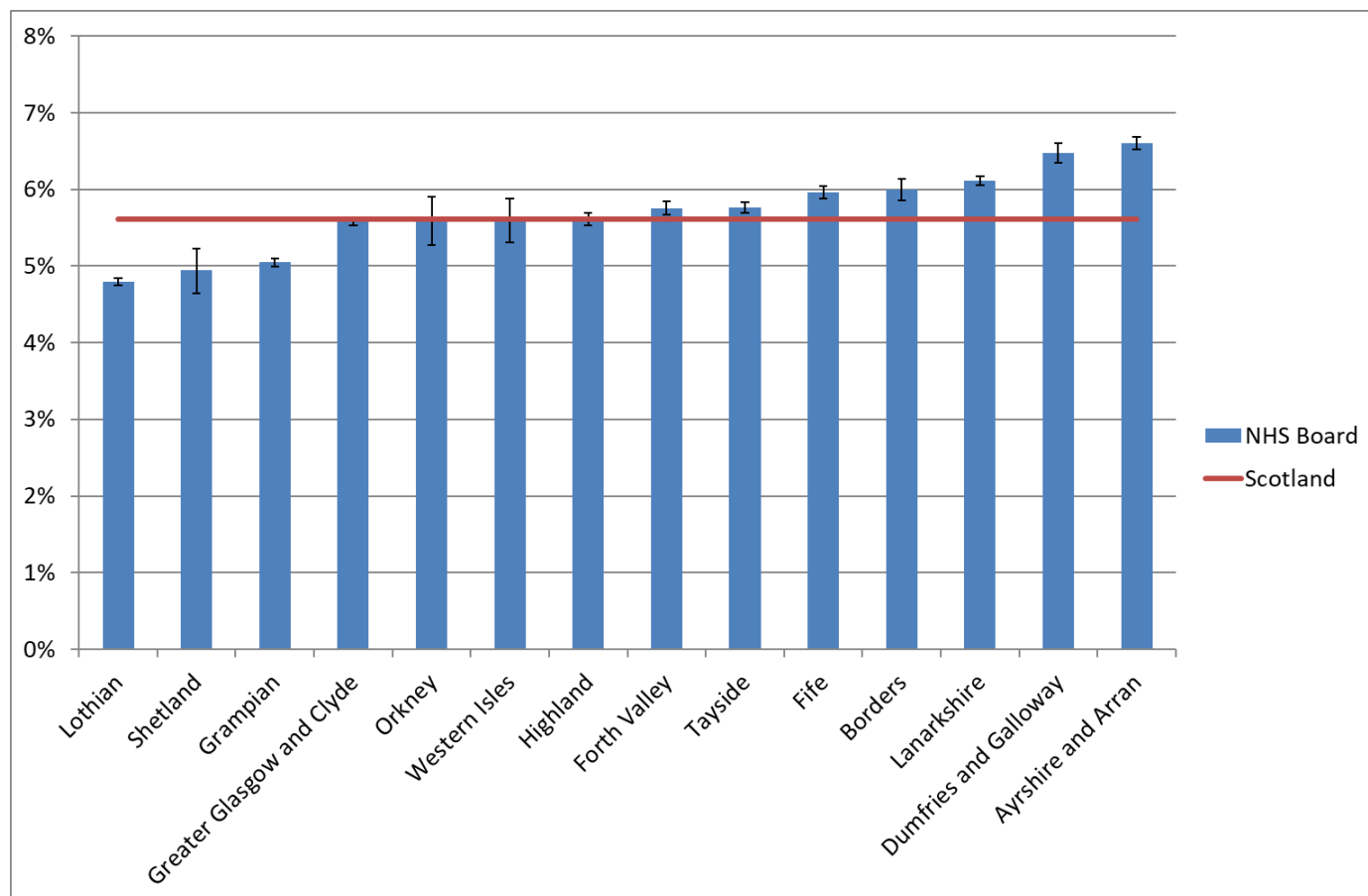
Table 63 Crude prevalence of diabetes for people aged 65 and over (all types), by NHS board, ranked by prevalence, Scotland 2018.

NHS board	Age >= 65 (n)	Age >= 65 with Diabetes (n)	Prevalence in those aged >= 65 (%)
Western Isles	6,756	864	12.8
Shetland	4,482	610	13.6
Orkney	5,073	695	13.7
Highland	72,876	10,262	14.1
Borders	27,699	4,129	14.9
Dumfries and Galloway	37,409	5,630	15.0
Lothian	143,828	21,837	15.2
Grampian	104,152	15,992	15.4
Tayside	87,262	13,744	15.8
Fife	74,592	11,986	16.1
Forth Valley	57,317	9,270	16.2
Ayrshire and Arran	81,687	13,240	16.2
Greater Glasgow and Clyde	191,923	31,702	16.5
Lanarkshire	117,511	20,316	17.3
Scotland	1,012,567	160,277	15.8

Age-adjusted prevalence is based on direct age/sex standardisation using the Scottish population as the reference population structure. Population figures are based on mid-year population estimates published by National Records of Scotland. Because of publication dates, surveys have in each case used population figures for the previous year - so that the 2018 survey uses diabetes data from 2018 but mid-year population estimates from 2017. This will lead to a very small overestimate of diabetes prevalence.

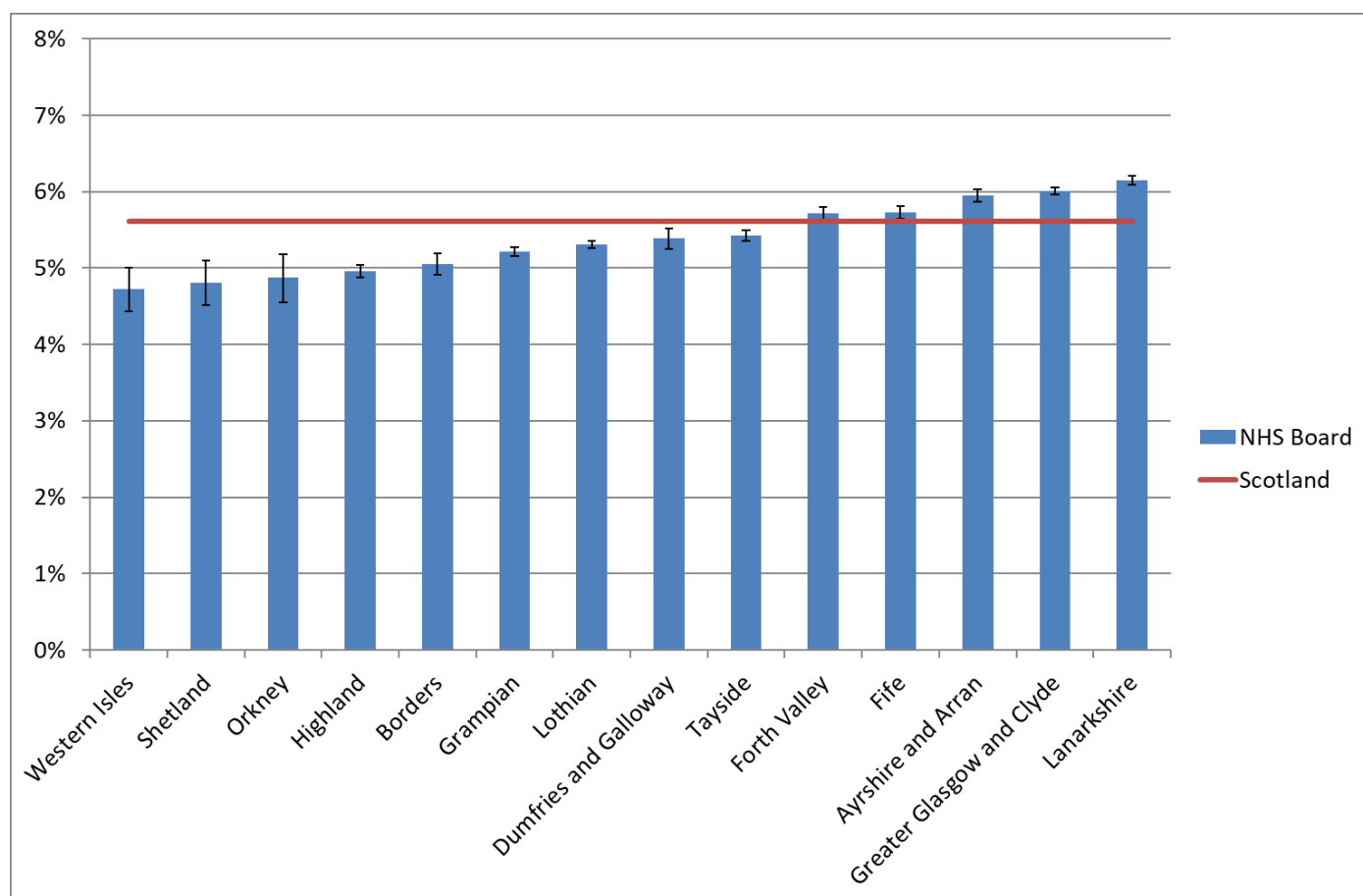
Differences in prevalence are due to a number of factors. One is age - type 2 diabetes is more common in older age groups so the age structure of an area will affect the crude prevalence. A health board area with an older population will have a higher crude prevalence; e.g. the crude (unadjusted) prevalence of diabetes in Dumfries & Galloway is above the Scottish average; however when the figure is adjusted for the age of the population, the Dumfries & Galloway prevalence is actually lower than the Scottish average. Other reasons for differences in observed prevalence are given at the start of this section.

Figure 48 Crude diabetes prevalence (all types) by NHS Health Board, ranked by prevalence, Scotland 2018.



Note: Vertical capped lines show 95% confidence intervals.

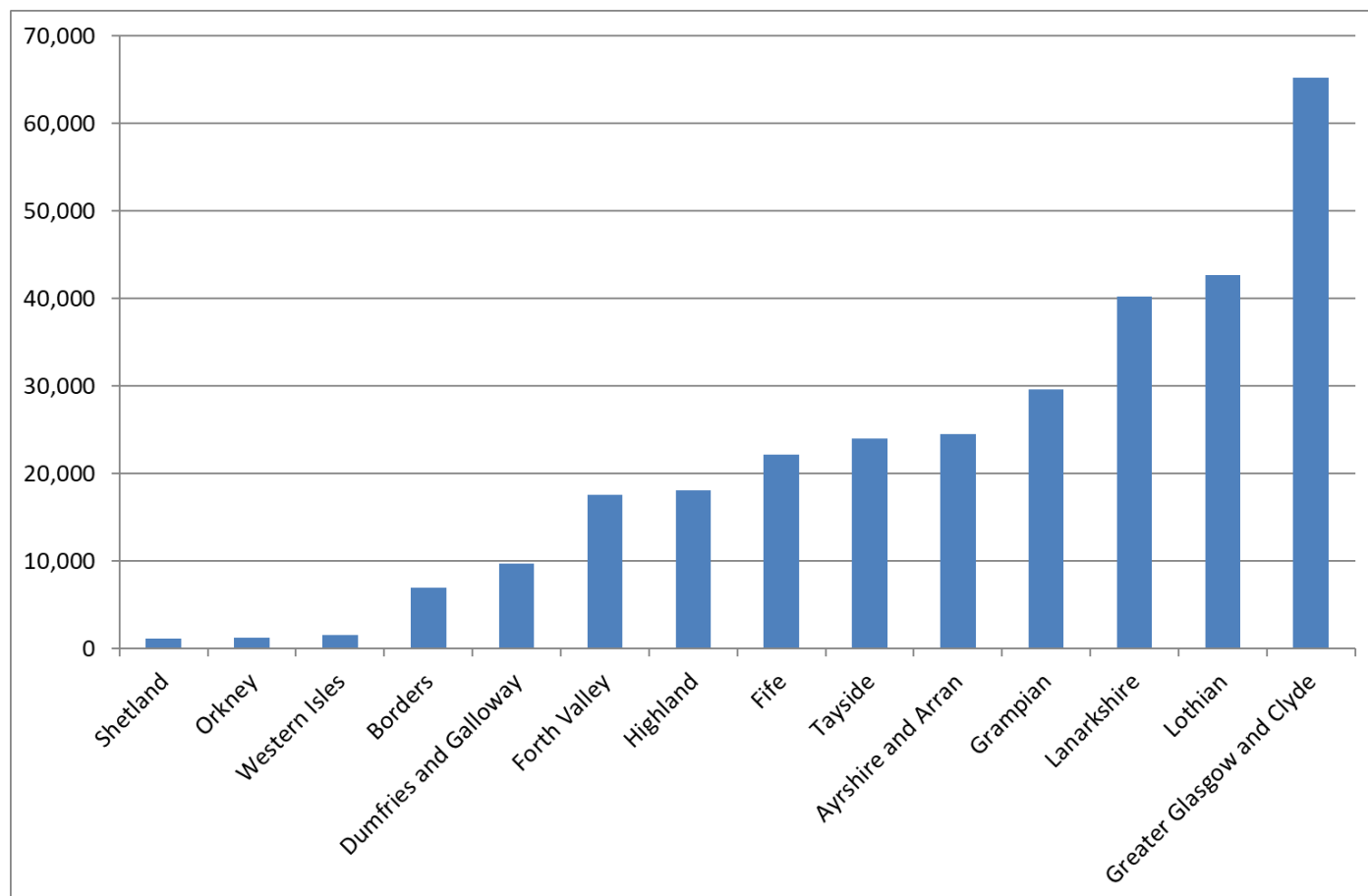
Figure 49 Age-adjusted diabetes prevalence (all types) by NHS Health Board, ranked by prevalence, Scotland 2018.



Note: Vertical lines show 95% confidence intervals.

Table 62 and Figure 48 and Figure 49 show both crude and age-adjusted figures for the prevalence of diabetes of all types in 2017. The age-adjusted figures take account of the fact that the average age differs between boards and that older populations have higher diabetes prevalence. Table 63 shows that the prevalence of diabetes is particularly high among those aged 65 and over.

Figure 50 Number of people with diabetes (all types) in each NHS Health Board, Scotland 2018.



Note: The remainder of this report focuses on type 1 and type 2 diabetes and excludes other types.

Incidence of Type 2 Diabetes

The methodology used in calculating the incidence figures below were updated in 2017, see the [Type 1 Diabetes Incidence](#) section for more details.

Table 64 Type 2 diabetes: Number of new cases and incidence rate (per 100,000 population per year) by age, Scotland 2011-2018.

Age	2011 (a)		2012 (a)		2013		2014		2015		2016		2017		2018		
	Cases	Rate	Cases	Rate	Cases	Rate	Cases (n)	Rate	Cases (n)	Rate	Cases (n)	Rate	Cases (n)	Rate	Population	Cases (n)	Rate
0-9	0	0	0	0	*	*	0	0	0	0	0	0	*	0	583,285	0	0
10-19	10	2	21	4	*	*	19	3	20	3	17	3	*	4	566,927	17	3
20-29	163	23	208	29	178	25	197	28	165	23	228	31	205	28	732,681	188	26
30-39	730	115	939	148	810	125	756	117	834	129	869	132	898	134	683,097	884	129
40-49	2,552	333	2,733	359	2,570	333	2,467	326	2,432	329	2,364	328	2,225	316	684,392	2,169	317
50-59	4,106	638	4,567	699	4,387	650	4,210	612	4,451	636	4,417	619	4,266	591	728,497	4,252	584
60-69	4,741	916	4,943	940	5,023	930	4,513	830	4,677	853	4,570	825	4,331	771	556,220	4,268	767
>=70	4,667	877	4,596	861	4,876	898	4,217	769	4,472	801	4,508	801	4,269	749	591,329	4,202	711
Total	16,969	341	18,007	360	17,853	353	16,379	324	17,051	336	16,973	334	16,216	317	5,126,296	15,980	312

Note: a) In the years prior to 2013, the at-risk population includes those with diagnosed frank diabetes, under-estimating the incidence rate. * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. The Scottish at-risk population figures excludes people with frank diabetes at the end of the previous year whose age is unknown (n = 128).

Table 65 Type 2 diabetes: Incidence rate (per 100,000 population per year) by age, Scotland 2010-2018.

Age range	2010 (a)	2011 (a)	2012 (a)	2013	2014	2015	2016	2017	2018
0-9	0	0	0	0	0	0	0	0	0
10-19	3	2	4	1	3	3	3	4	3
20-29	24	23	29	25	28	23	31	28	26
30-39	118	115	148	125	117	129	132	134	129
40-49	331	333	359	333	326	329	328	316	317
50-59	672	638	699	650	612	636	619	591	584
60-69	954	916	940	930	830	853	825	771	767
>=70	933	877	861	898	769	801	801	749	711
Total	355	341	360	353	324	336	334	317	312

Note: a) In the years prior to 2013, the at-risk population includes those with diagnosed frank diabetes, under-estimating the incidence rate.

See the [Type 1 Diabetes Incidence](#) section for information on people with type 1 diabetes

Incidence Regional Detail

Table 66 Type 1 diabetes: Number of new cases and crude incidence rate for all ages (cases per 100,000 population per year) by NHS board, ranked by rate in 2018, Scotland 2012-2018.

NHS board	2012		2013		2014		2015		2016		2017		2018		
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Mid 2018 Population without diabetes	Cases	Rate
Borders	20	19	16	15	12	11	19	18	26	24	15	14	108,198	16	15
Tayside	73	19	65	17	59	15	67	17	76	19	62	16	392,365	69	18
Ayrshire and Arran	79	23	64	18	73	21	67	19	51	15	60	17	346,389	63	18
Lothian	153	19	152	19	147	18	136	17	163	20	145	17	847,889	155	18
Grampian	90	17	88	16	111	20	111	20	108	19	125	22	557,384	105	19
Greater Glasgow and Clyde	228	20	187	16	193	18	194	18	202	19	225	20	1,105,020	210	19
Fife	63	18	47	14	52	15	50	14	74	21	67	19	349,660	67	19
Orkney	*	*	0	0	0	0	*	*	*	*	*	*	20,797	*	*
Lanarkshire	110	21	88	16	93	15	110	18	113	18	117	19	618,784	125	20
Dumfries and Galloway	20	14	21	15	20	14	23	16	25	18	27	19	139,639	30	21
Highland	49	16	62	20	54	18	50	16	50	16	59	19	304,423	68	22
Shetland	*	*	*	*	5	23	7	32	*	*	7	32	21,948	*	*
Western Isles	9	36	*	*	8	31	*	*	8	31	*	*	25,467	6	24
Forth Valley	70	25	52	18	56	20	55	19	43	15	59	21	288,333	70	24
Scotland	978	20	848	17	883	17	898	18	943	19	978	19	5,126,296	993	19

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. This table displays only 7 years of information due to limited space on the page.

Table 67 Type 1 diabetes: Crude incidence rate of new cases for all ages (cases per 100,000 population per year) by NHS board, ranked by rate in 2018, Scotland 2010-2018.

NHS board	2010	2011	2012	2013	2014	2015	2016	2017	2018
Borders	19	16	19	15	11	18	24	14	15
Tayside	19	15	19	17	15	17	19	16	18
Ayrshire and Arran	20	20	23	18	21	19	15	17	18
Lothian	20	17	19	19	18	17	20	17	18
Grampian	24	22	17	16	20	20	19	22	19
Greater Glasgow and Clyde	18	19	20	16	18	18	19	20	19
Fife	15	23	18	14	15	14	21	19	19
Orkney	21	26	*	0	0	*	*	*	*
Lanarkshire	19	21	21	16	15	18	18	19	20
Dumfries and Galloway	18	14	14	15	14	16	18	19	21
Highland	18	25	16	20	18	16	16	19	22
Shetland	28	*	*	*	23	32	*	32	*
Western Isles	24	*	36	*	31	*	31	*	24
Forth Valley	23	22	25	18	20	19	15	21	24
Scotland	19	20	20	17	17	18	19	19	19

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures. This table displays only 9 years of information due to limited space on the page.

Table 68 Type 2 diabetes: Number of new cases and crude incidence rate for all ages (cases per 100,000 population per year) by NHS board, ranked by rate in 2018, Scotland 2012-2018.

NHS board	2012		2013		2014		2015		2016		2017		2018		
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Mid 2017 Population without diabetes	Cases	Rate
Shetland	51	237	51	230	76	343	77	348	59	267	55	249	21,948	47	214
Lothian	2,271	279	2,303	285	2,096	258	2,067	252	2,445	295	2,436	290	847,889	2,339	276
Orkney	61	318	91	443	67	326	70	341	71	346	89	430	20,797	59	284
Grampian	1,866	351	1,995	364	1,710	309	1,706	306	1,551	277	1,530	273	557,384	1,601	287
Tayside	1,440	373	1,352	346	1,314	336	1,411	360	1,437	366	1,224	312	392,365	1,190	303
Dumfries and Galloway	563	402	514	361	482	341	506	359	533	379	492	351	139,639	429	307
Borders	448	416	385	357	382	354	397	368	358	333	350	325	108,198	338	312
Forth Valley	1,051	373	981	345	844	297	986	346	1,017	355	1,051	365	288,333	911	316
Greater Glasgow and Clyde	4,131	358	4,159	359	3,807	354	4,022	372	3,604	331	3,453	314	1,105,020	3,497	316
Fife	1,363	390	1,397	402	1,367	394	1,074	310	1,125	324	1,172	336	349,660	1,115	319
Lanarkshire	2,083	390	2,197	405	2,041	329	2,379	384	2,269	368	1,965	318	618,784	2,037	329
Highland	1,035	348	1,023	336	826	271	908	298	1,039	341	1,040	341	304,423	1,045	343
Western Isles	75	302	90	342	80	307	91	351	94	366	105	412	25,467	92	361
Ayrshire and Arran	1,570	453	1,315	373	1,287	367	1,357	389	1,371	394	1,254	361	346,389	1,280	370
Scotland	18,008	360	17,853	353	16,379	324	17,051	336	16,973	334	16,216	317	5,126,296	15,980	312

Note: This table displays only 7 years of information due to limited space on the page.

Table 69 Type 2 diabetes: Crude incidence rate for all ages (cases per 100,000 population per year) by NHS board, ranked by rate in 2018, Scotland 2010-2018.

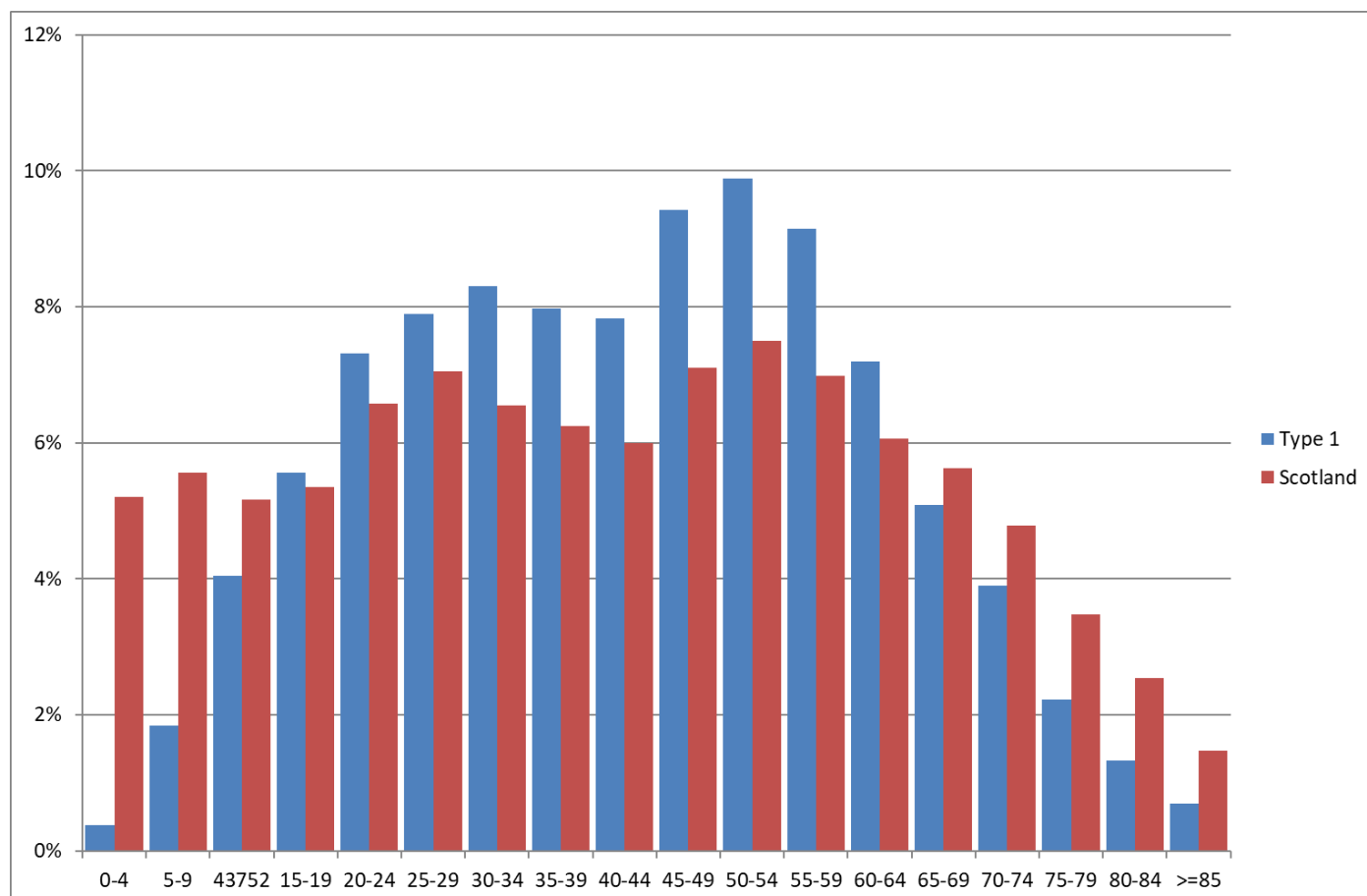
NHS board	2010	2011	2012	2013	2014	2015	2016	2017	2018
Shetland	352	382	237	230	343	348	267	249	214
Lothian	250	272	279	285	258	252	295	290	276
Orkney	309	443	318	443	326	341	346	430	284
Grampian	329	303	351	364	309	306	277	273	287
Tayside	438	403	373	346	336	360	366	312	303
Dumfries and Galloway	417	408	402	361	341	359	379	351	307
Borders	398	357	416	357	354	368	333	325	312
Forth Valley	350	313	373	345	297	346	355	365	316
Greater Glasgow and Clyde	345	331	358	359	354	372	331	314	316
Fife	374	355	390	402	394	310	324	336	319
Lanarkshire	388	369	390	405	329	384	368	318	329
Highland	377	340	348	336	271	298	341	341	343
Western Isles	403	284	302	342	307	351	366	412	361
Ayrshire and Arran	436	444	453	373	367	389	394	361	370
Scotland	354	340	360	353	324	336	334	317	312

Note: This table displays only 9 years of information due to limited space on the page.

Age and Sex

Type 2 diabetes is more common in older people; 52.7% (160,277) of all people with diabetes recorded in the survey are aged 65 years or older (Table 63). Figure 51 and Figure 52 show the age distribution of people with type 1 and type 2 diabetes compared with that of the general population.

Figure 51 Type 1 diabetes: Age distribution of people recorded as having diabetes compared with age distribution of general population, Scotland 2018.



The difference between the age distributions is likely to relate to two factors. The first is the increasing incidence of type 1 diabetes in young people and the second is the recognised decrease of life expectancy of those with type 1 diabetes. A recent study of the Scottish type 1 diabetes population (<http://dx.doi.org/10.1001/jama.2014.16425>) has shown that life expectancy, while reduced, is improved compared to older studies.

Figure 52 Type 2 diabetes: Age distribution of people recorded as having diabetes compared with age distribution of general population, Scotland 2018.

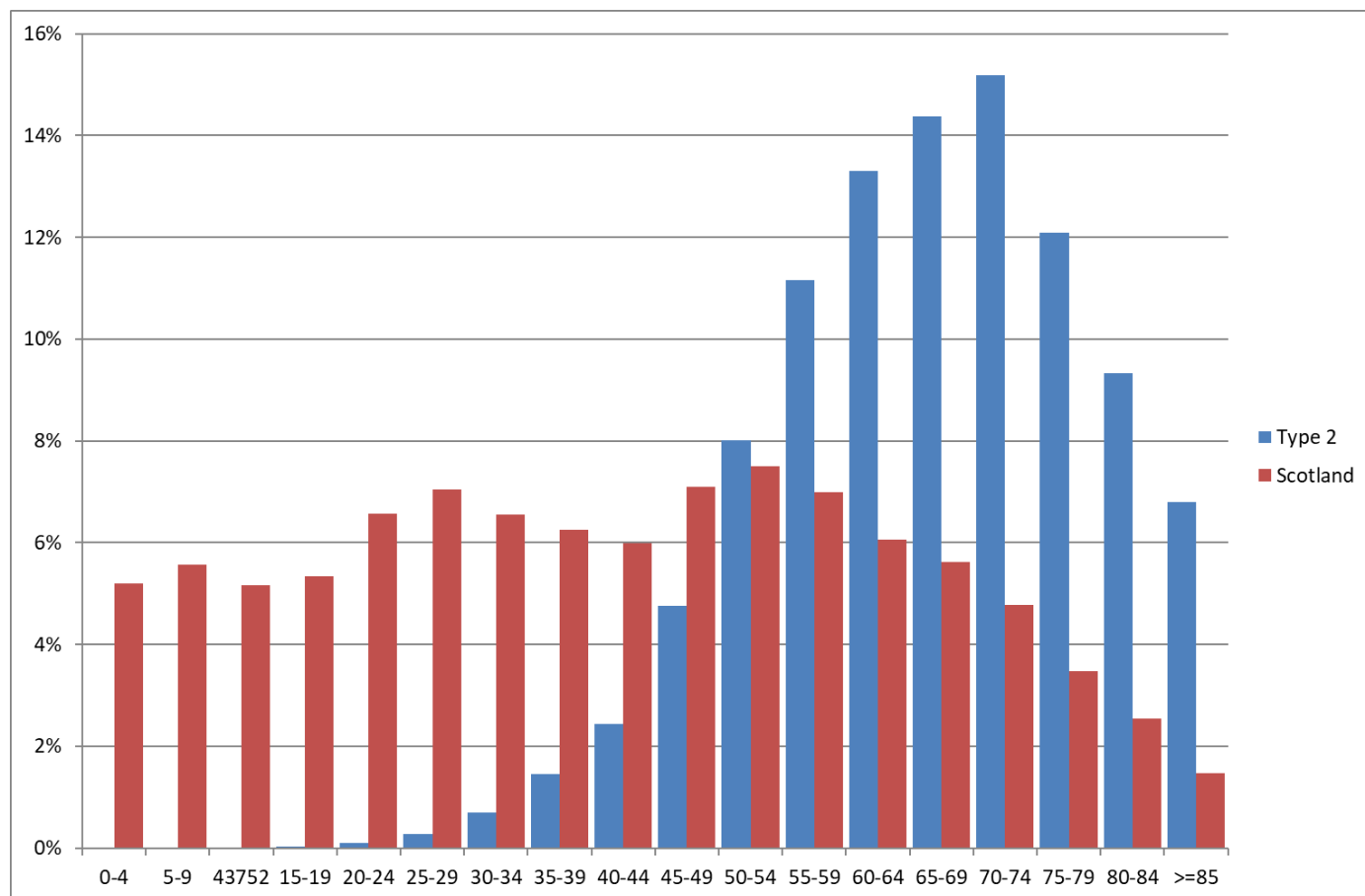


Table 70 Age group of people recorded as having type 1 or type 2 diabetes, percentage in each age group and cumulative percentage in each age group, by diabetes type, Scotland 2018.

Age	Type 1 diabetes			Type 2 diabetes		
	People (n)	%	Cumulative Percentage (%)	People (n)	%	Cumulative Percentage (%)
0-4	123	0.4	0.4	0	0.0	0.0
5-9	606	1.8	2.2	0	0.0	0.0
10-14	1,325	4.0	6.3	6	0.0	0.0
15-19	1,823	5.6	11.8	61	0.0	0.0
20-24	2,399	7.3	19.1	251	0.1	0.1
25-29	2,591	7.9	27.0	712	0.3	0.4
30-34	2,724	8.3	35.3	1,845	0.7	1.1
35-39	2,615	8.0	43.3	3,899	1.5	2.5
40-44	2,568	7.8	51.1	6,530	2.4	5.0
45-49	3,090	9.4	60.6	12,718	4.8	9.7
50-54	3,244	9.9	70.4	21,432	8.0	17.7
55-59	3,000	9.1	79.6	29,842	11.2	28.9
60-64	2,361	7.2	86.8	35,612	13.3	42.2
65-69	1,666	5.1	91.9	38,478	14.4	56.6
70-74	1,278	3.9	95.8	40,619	15.2	71.8
75-79	729	2.2	98.0	32,357	12.1	83.9
80-84	434	1.3	99.3	24,967	9.3	93.2
>=85	227	0.7	100.0	18,189	6.8	100.0
Scotland	32,803	100.0	100.0	267,518	100.0	100.0

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

A greater proportion of those with diagnosed diabetes are male; 55.7% (18,271) of those with type 1 diabetes and 56.4% (150,751) of those with type 2 diabetes. This proportion has remained relatively stable since the survey started in 2001.

Mortality

Table 71 The number and crude percentage of the diabetic population (all diabetes types) who have died within the last year, by NHS board, ranked by mortality, Scotland 2018.

NHS board	Deaths	
	n	% of population
Shetland	38	3.2
Lanarkshire	1,416	3.4
Lothian	1,531	3.5
Forth Valley	657	3.6
Grampian	1,111	3.6
Fife	832	3.6
Highland	684	3.6
Greater Glasgow and Clyde	2,505	3.7
Dumfries and Galloway	380	3.8
Tayside	958	3.8
Ayrshire and Arran	992	3.9
Orkney	51	4.0
Borders	301	4.2
Western Isles	75	4.7
Scotland	11,531	3.7

Note: These data were calculated from all people with diabetes who died in the prior year expressed as a percentage of all people with diabetes still alive at the end of the year plus those who died during the year. This does not take account of the fact that as people die during the year the size of the population that remains and is still at risk of death becomes very slightly smaller. As a result these figures slightly underestimate the true mortality risk. Also, note that comparisons between NHS boards do not take into account important differences in age structure which result in higher mortality in boards with older populations.

Type of Diabetes Regional Detail

Table 72 Number of people with diabetes and the distribution of diabetes type, by NHS board, ranked by the percentage with type 2 diabetes, Scotland 2018.

NHS board	Type 1		Type 2		Other types of diabetes	Total
	n	%	n	%		
Highland	2,169	12.0	15,525	85.9	389	18,083
Western Isles	203	13.4	1,297	85.9	10	1,510
Lothian	5,010	11.7	36,775	86.2	865	42,650
Shetland	141	12.4	989	86.7	11	1,141
Grampian	3,591	12.1	25,762	87.1	237	29,590
Lanarkshire	4,495	11.2	35,176	87.4	588	40,259
Borders	719	10.4	6,037	87.6	139	6,895
Forth Valley	1,933	11.0	15,480	88.0	174	17,587
Greater Glasgow and Clyde	6,592	10.1	57,713	88.6	869	65,174
Dumfries and Galloway	1,004	10.4	8,571	88.7	89	9,664
Fife	2,242	10.1	19,727	89.1	163	22,132
Orkney	124	10.1	1,101	89.5	5	1,230
Tayside	2,241	9.3	21,475	89.5	269	23,985
Ayrshire and Arran	2,364	9.7	21,987	89.8	124	24,475
Scotland	32,828	10.8	267,615	87.9	3,932	304,375

Note: Percentages (of the total diabetes population) have been calculated for type 1 and type 2 diabetes only.

Ethnicity

Information on ethnic group was available for 82.2% of the registered population with type 1 and type 2 diabetes (Table 75). The completeness of this information has increased from 56% in 2009. Type 2 diabetes is much more common, and tends to present at an earlier age in South Asian than White ethnic groups.

Table 73 Type 1 diabetes: Completeness of recording of ethnic group by NHS board, ranked by decreasing completeness, Scotland 2018.

NHS board	Ethnic group identified	
	People (n)	Percentage (%)
Shetland	138	97.9
Dumfries and Galloway	979	97.5
Borders	685	95.3
Forth Valley	1,820	94.2
Greater Glasgow and Clyde	6,188	93.9
Lothian	4,646	92.7
Fife	2,054	91.6
Lanarkshire	3,912	87.0
Highland	1,793	82.7
Orkney	99	79.8
Tayside	1,742	77.7
Western Isles	152	74.9
Grampian	2,576	71.7
Ayrshire and Arran	1,629	68.9
Scotland	28,413	86.6

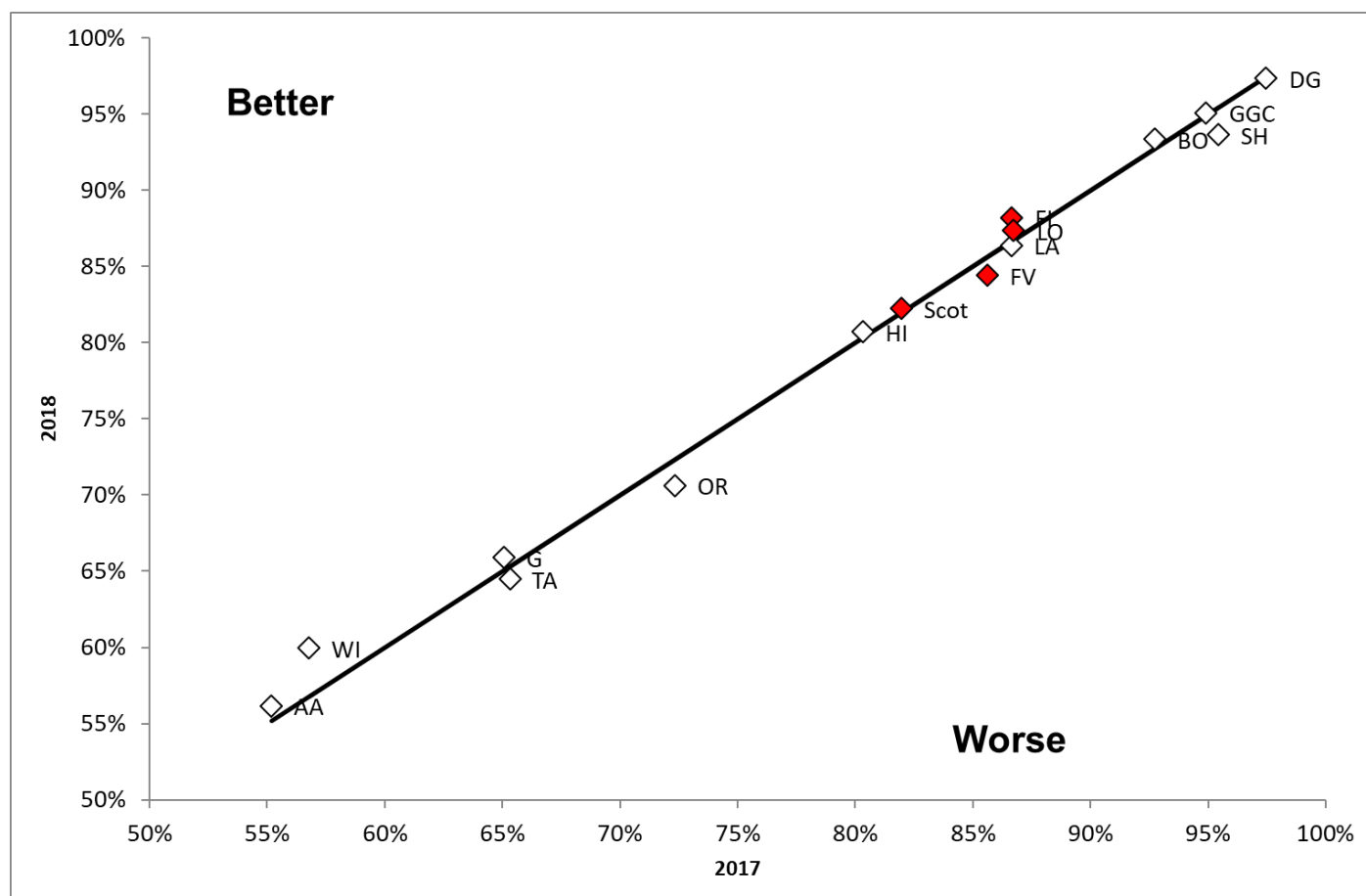
Table 74 Type 2 diabetes: Completeness of recording of ethnic group by NHS board, ranked by decreasing completeness, Scotland 2018.

NHS board	Ethnic group identified	
	People (n)	Percentage (%)
Dumfries and Galloway	8,342	97.3
Greater Glasgow and Clyde	54,940	95.2
Borders	5,621	93.1
Shetland	920	93.0
Fife	17,321	87.8
Lothian	31,850	86.6
Lanarkshire	30,350	86.3
Forth Valley	12,877	83.2
Highland	12,481	80.4
Orkney	766	69.6
Grampian	16,755	65.0
Tayside	13,544	63.1
Western Isles	747	57.6
Ayrshire and Arran	12,042	54.8
Scotland	218,556	81.7

Table 75 Completeness of recording of ethnic group for people with diabetes (type 1 and type 2 combined) by year, Scotland 2009-2018.

Year	Identified	
	People (n)	%
2018	246,969	82.2
2017	241,576	82.0
2016	235,741	81.7
2015	228,993	81.4
2014	222,041	81.1
2013	210,682	79.2
2012	199,587	77.7
2011	190,397	77.5
2010	164,370	69.6
2009	126,997	56.0

Figure 53 Completeness of recording of ethnic group for people recorded as having type 1 or type 2 diabetes (combined), Scotland, from 2017 to 2018.



Note: Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018. If any board has changed by more than 4% between 2017 and 2018, arrows showing the direction of change have been added.

Table 76 Recorded ethnic group for type 1, type 2 and combined type 1 and type 2 diabetes, Scotland 2018.

Ethnic group	Type 1 diabetes		Type 2 diabetes		Type 1 and 2	
	People (n)	%	People (n)	%	People (n)	%
A – White	27,059	82.4	199,600	74.6	226,659	75.4
B - Mixed or multiple ethnic groups	648	2.0	6,371	2.4	7,019	2.3
C - Asian, Asian Scottish or Asian British	393	1.2	9,791	3.7	10,184	3.4
D - African, Caribbean or Black	139	0.4	1,214	0.5	1,353	0.5
E - Other ethnic group	174	0.5	1,580	0.6	1,754	0.6
Not recorded	4,415	13.4	49,059	18.3	53,474	17.8

Duration of Type 2 Diabetes

The date of diagnosis was recorded for 98.9% of people with either type 1 or type 2 diabetes, of whom 5.6% have had diabetes for less than one year and 11.9% have had diabetes for 20 years or more (Table 77). It should be noted that not all dates of diagnosis are accurate, especially for those with long-standing diabetes.

Table 77 Duration of diabetes (years since diagnosis) by type of diabetes for people with type 1 or type 2 diabetes, Scotland 2018.

Duration (Years)	Type 1 diabetes		Type 2 diabetes		Type 1 and Type 2	
	People (n)	%	People (n)	%	People (n)	Total %
<1	988	3.1	15,801	6.0	16,789	5.6
1-4	3,860	11.9	64,059	24.2	67,919	22.8
5-9	4,657	14.4	73,946	27.9	78,603	26.4
10-14	4,295	13.3	55,120	20.8	59,415	20.0
15-19	4,361	13.5	34,834	13.1	39,195	13.2
20-24	3,419	10.6	12,923	4.9	16,342	5.5
25-29	3,016	9.3	5,167	2.0	8,183	2.8
30-34	2,344	7.2	1,912	0.7	4,256	1.4
34-39	2,029	6.3	616	0.2	2,645	0.9
40-44	1,439	4.4	220	0.1	1,659	0.6
45-49	951	2.9	135	0.1	1,086	0.4
>=50	1,015	3.1	171	0.1	1,186	0.4
Total	32,374	100.0	264,904	100.0	297,278	100.0

Note: Excludes people where date of diagnosis not known (type 1 = 454; type 2 = 2711). Since 2017, the Scottish Diabetes Survey has taken a more robust approach to validating date of diagnosis of diabetes than earlier surveys, for example by excluding dates of diagnoses incorrectly recorded as prior to the person's date of birth. As a consequence higher numbers and proportions of people have missing data than for previous Surveys.

See the [Duration of Type 1 Diabetes](#) section for information on people with type 1 diabetes.

Body Mass Index

Body Mass Index (BMI) was recorded for 81.8% of people with type 1 or type 2 diabetes in the previous 15 months (Table 78). This is a decrease from 89.2% recorded in 2012.

Table 78 Proportion of people with type 1 or type 2 diabetes (combined) with a record of BMI in the previous 15 months, Scotland 2018.

Year	BMI recorded (%)
2018	81.8
2017	82.8
2016	84.6
2015	86.5
2014	87.7
2013	88.7
2012	89.2
2011	88.7
2010	82.0
2009	89.7

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 3200).

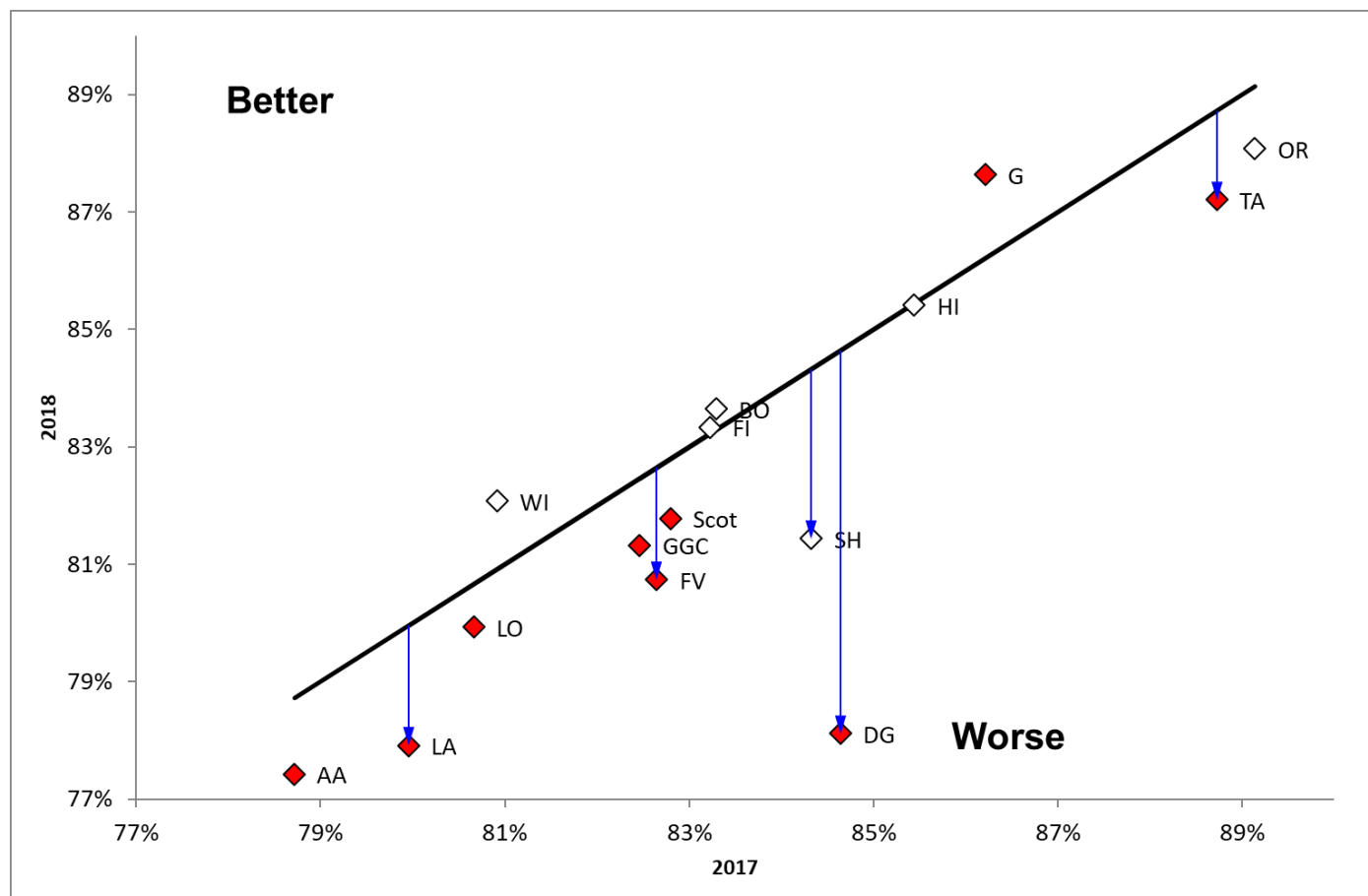
Body Mass Index Regional Detail

Table 79 Proportion of people recorded as having type 1 or type 2 diabetes with a record of BMI within the previous 15 months, by NHS board and diabetes type, ranked by decreasing completeness for type 2 diabetes, Scotland 2018.

NHS board	BMI recorded (%)		Total recorded	Total not recorded
	Type 1 diabetes	Type 2 diabetes		
Orkney	82.6	88.6	1,071	145
Grampian	88.7	87.5	25,411	3,587
Tayside	87.2	87.2	20,505	3,009
Highland	78.8	86.2	14,924	2,550
Borders	83.6	83.6	5,593	1,094
Fife	84.1	83.2	18,123	3,626
Western Isles	78.5	82.6	1,213	265
Shetland	74.6	82.3	908	207
Greater Glasgow and Clyde	82.7	81.2	51,804	11,899
Forth Valley	83.4	80.4	13,899	3,317
Lothian	82.4	79.6	33,071	8,309
Lanarkshire	79.1	77.8	30,482	8,644
Ayrshire and Arran	76.9	77.5	18,664	5,443
Dumfries and Galloway	84.6	77.4	7,405	2,075
Scotland	82.6	81.7	243,073	54,170

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (type 1 n = 3069, type 2 n = 131)

Figure 54 Proportion of people recorded as having type 1 or type 2 diabetes (combined) who had a record of BMI, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for all boards with more than 1.5% change between 2017 and 2018. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Table 80 Type 1 diabetes: Percentage of people with a record of BMI in the last 15 months grouped by BMI category, NHS board and ranked from low to high by percentage with BMI $\geq 40\text{kg/m}^2$, Scotland 2018.

NHS board	BMI (kg/m2,%)						Total recorded (n)	Not recorded (n)
	Under-weight	Normal	Over-weight	Obese				
	<18.5	18.5-24.9	25-29.9	30-34.9	35-39.9	≥40		
Western Isles	1.4	38.7	38.0	15.5	4.9	1.4	142	39
Shetland	0.0	37.2	31.9	19.1	9.6	2.1	94	32
Greater Glasgow and Clyde	2.1	36.8	36.2	17.1	5.6	2.2	4,969	1,040
Forth Valley	0.8	36.0	36.4	19.4	5.3	2.2	1,449	289
Lothian	1.8	36.7	37.1	16.9	5.3	2.2	3,805	812
Highland	1.8	32.4	38.8	18.3	6.2	2.5	1,539	415
Tayside	1.5	34.6	36.4	19.7	5.3	2.6	1,780	262
Ayrshire and Arran	2.0	33.6	36.5	18.2	7.0	2.8	1,632	489
Lanarkshire	2.0	32.6	35.2	20.6	6.7	3.0	3,179	841
Dumfries and Galloway	2.2	33.7	37.2	17.6	6.2	3.1	772	141
Borders	1.1	31.4	35.8	21.7	7.0	3.1	545	107
Orkney	0.0	35.8	38.9	12.6	9.5	3.2	95	20
Grampian	1.3	33.5	38.1	18.1	5.8	3.2	2,875	365
Fife	1.6	30.1	38.6	20.4	5.7	3.6	1,708	323
Scotland	1.7	34.5	36.8	18.4	5.9	2.7	24,584	5,175

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 3069).

Of people with type 1 or type 2 diabetes and a record of BMI (Table 80 and Table 81), 32.2% were overweight (BMI 25-29.9kg/m²) and 52.3% were obese (BMI 30kg/m² or over).

Of people with type 1 diabetes and a record of BMI (Table 80), 36.8% were overweight (BMI 25-29.9kg/m²) and 27% were obese (BMI 30kg/m² or over).

Table 81 Type 2 diabetes: Percentage of people with a record of BMI in the last 15 months grouped by BMI category, NHS board and ranked from low to high by percentage with BMI $\geq 40\text{kg/m}^2$, Scotland 2018.

NHS board	BMI (kg/m2, %)						Total recorded (n)	Not recorded (n)
	Under-weight	Normal	Over-weight	Obese				
	<18.5	18.5-24.9	25-29.9	30-34.9	35-39.9	≥40		
Greater Glasgow and Clyde	0.6	13.8	33.1	28.6	14.3	9.4	46,835	10,859
Western Isles	0.4	12.0	30.8	29.9	17.1	9.8	1,071	226
Tayside	0.4	12.6	32.1	29.9	15.0	10.0	18,725	2,747
Grampian	0.4	12.3	31.5	30.4	15.2	10.1	22,536	3,222
Highland	0.4	11.9	33.0	29.3	15.0	10.4	13,385	2,135
Ayrshire and Arran	0.5	12.9	31.0	29.5	15.6	10.4	17,032	4,954
Lothian	0.5	12.8	32.0	28.8	15.2	10.7	29,266	7,497
Lanarkshire	0.5	12.0	30.9	30.1	15.6	10.9	27,303	7,803
Borders	0.3	13.0	31.7	28.9	15.3	10.9	5,048	987
Dumfries and Galloway	0.4	11.7	30.9	29.7	15.9	11.4	6,633	1,934
Forth Valley	0.4	11.0	31.4	29.2	16.3	11.8	12,450	3,028
Fife	0.4	10.8	30.3	29.5	16.8	12.1	16,415	3,303
Orkney	0.2	10.2	31.7	29.2	16.2	12.5	976	125
Shetland	0.5	9.6	26.8	31.9	17.9	13.3	814	175
Scotland	0.5	12.5	31.8	29.4	15.3	10.5	218,489	48,995

Note: Excludes children under 18 years of age or who have no recorded date of birth (n = 131).

Of people with type 2 diabetes and a record of BMI (Table 81), 31.8% were overweight (BMI 25-29.9kg/m²) and 55.2% were obese (BMI 30kg/m² or over).

Glycaemic Control National and Regional Detail

91.0% of people with type 1 or type 2 diabetes had an HbA_{1c} recorded in the previous 15 months (Table 82). It should be noted that HbA_{1c} is higher in the winter with an average variability of around 6mmol/mol.

Table 82 Percentage of people recorded as having type 1 or type 2 diabetes (combined) with a record of HbA_{1c} in previous 15 months, Scotland 2018.

Year	Recorded within previous 15 months (%)
2018	91.0
2017	91.6
2016	92.6
2015	93.5
2014	94.0
2013	93.3
2012	92.1
2011	91.1
2010	91.4
2009	89.5

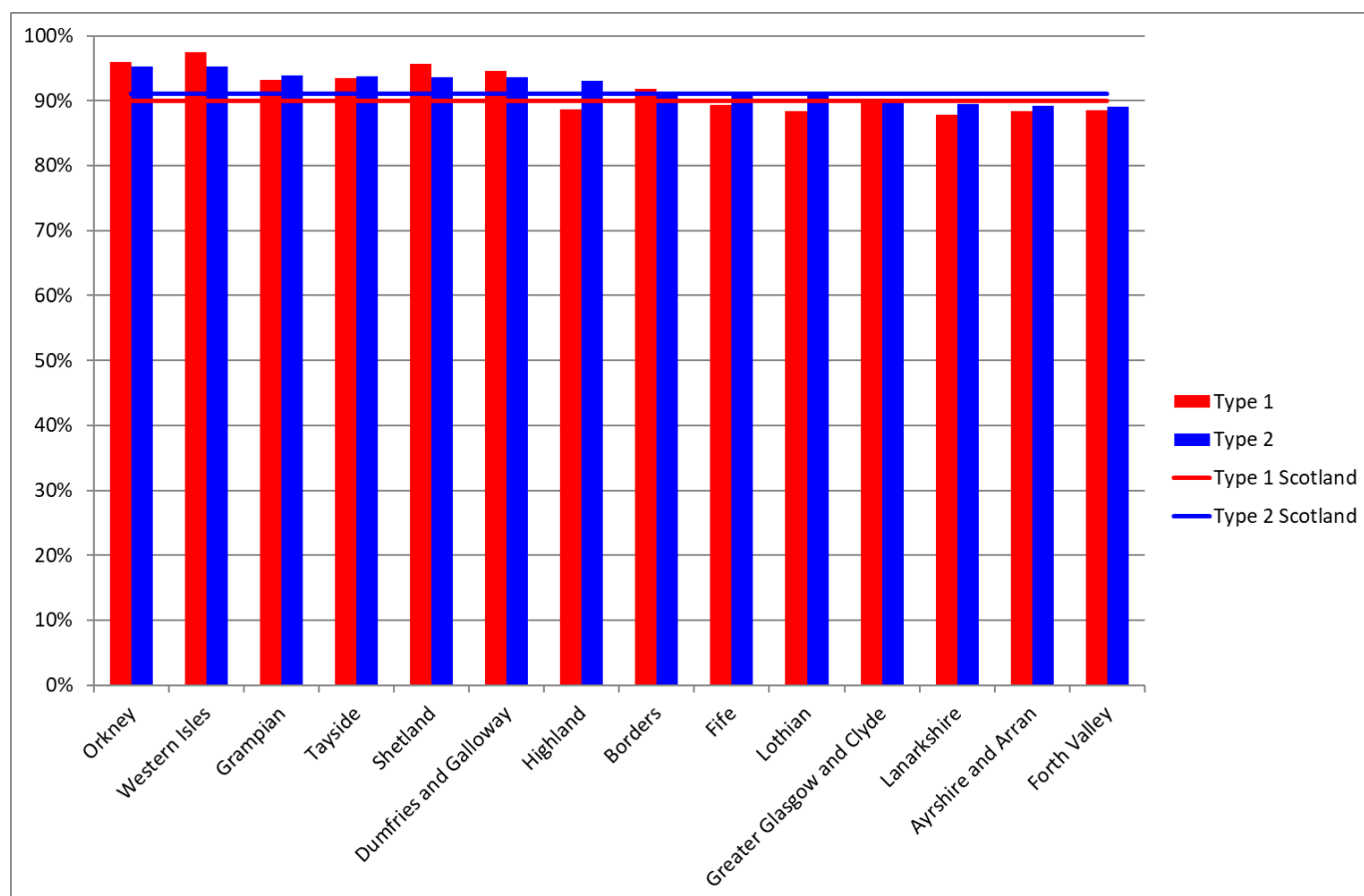
Table 83 Type 2 diabetes: Number and percentage of people with a record of HbA_{1c} in each HbA_{1c} category by year, Scotland 2009-2018.

Year	HbA _{1c} (mmol/mol)						Total recorded (n)	Not recorded (n)
	< 58		58-75		>75			
	n	%	n	%	n	%		
2018	141,143	57.9	64,905	26.6	37,694	15.5	243,742	23,873
2017	141,866	58.7	62,440	25.8	37,306	15.4	241,612	21,659
2016	140,185	58.6	61,832	25.8	37,240	15.6	239,257	18,471
2015	136,132	57.8	61,509	26.1	37,836	16.1	235,477	15,405
2014	141,426	61.4	54,780	23.8	33,981	14.8	230,187	13,863
2013	135,767	61.1	53,972	24.3	32,426	14.6	222,165	14,440
2012	126,141	59.7	52,547	24.8	32,775	15.5	211,463	16,504
2011	123,974	62.1	46,475	23.3	29,177	14.6	199,626	17,888
2010	122,563	64.0	42,603	22.3	26,264	13.7	191,430	16,849
2009	114,281	63.8	40,537	22.6	24,234	13.5	179,052	20,212

See the [Type 1 Diabetes Glycaemic Control](#) section for information on people with type 1 diabetes.

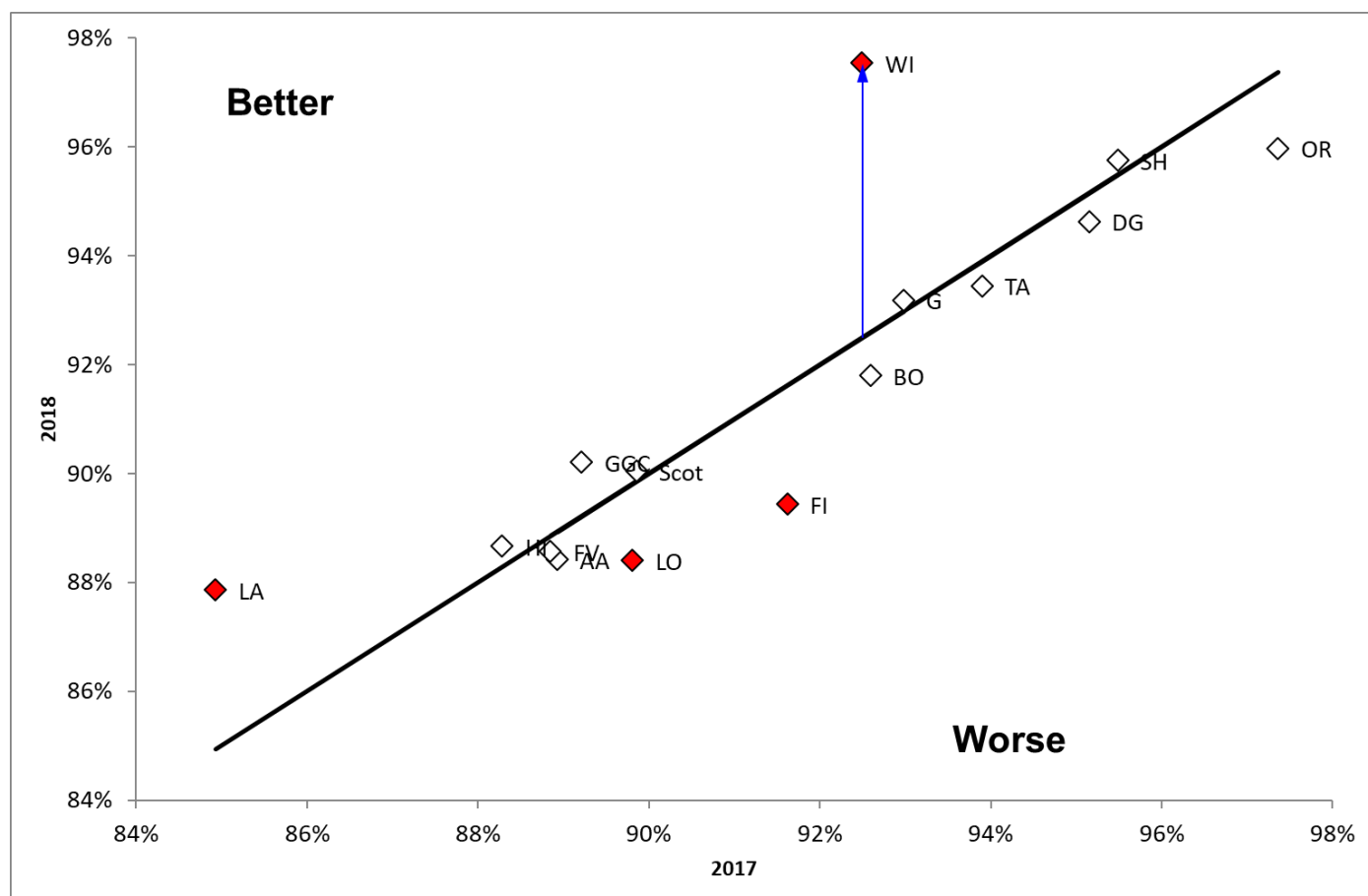
While all laboratories in Scotland are using a standardised (IFCC aligned) HbA_{1c} assay, there are some slight differences in actual results between laboratories and some concerns remain about comparability.

Figure 55 Percentage of people with type 1 or type 2 diabetes with a record of HbA_{1c} within the previous 15 months by NHS board and diabetes type, Scotland 2018.



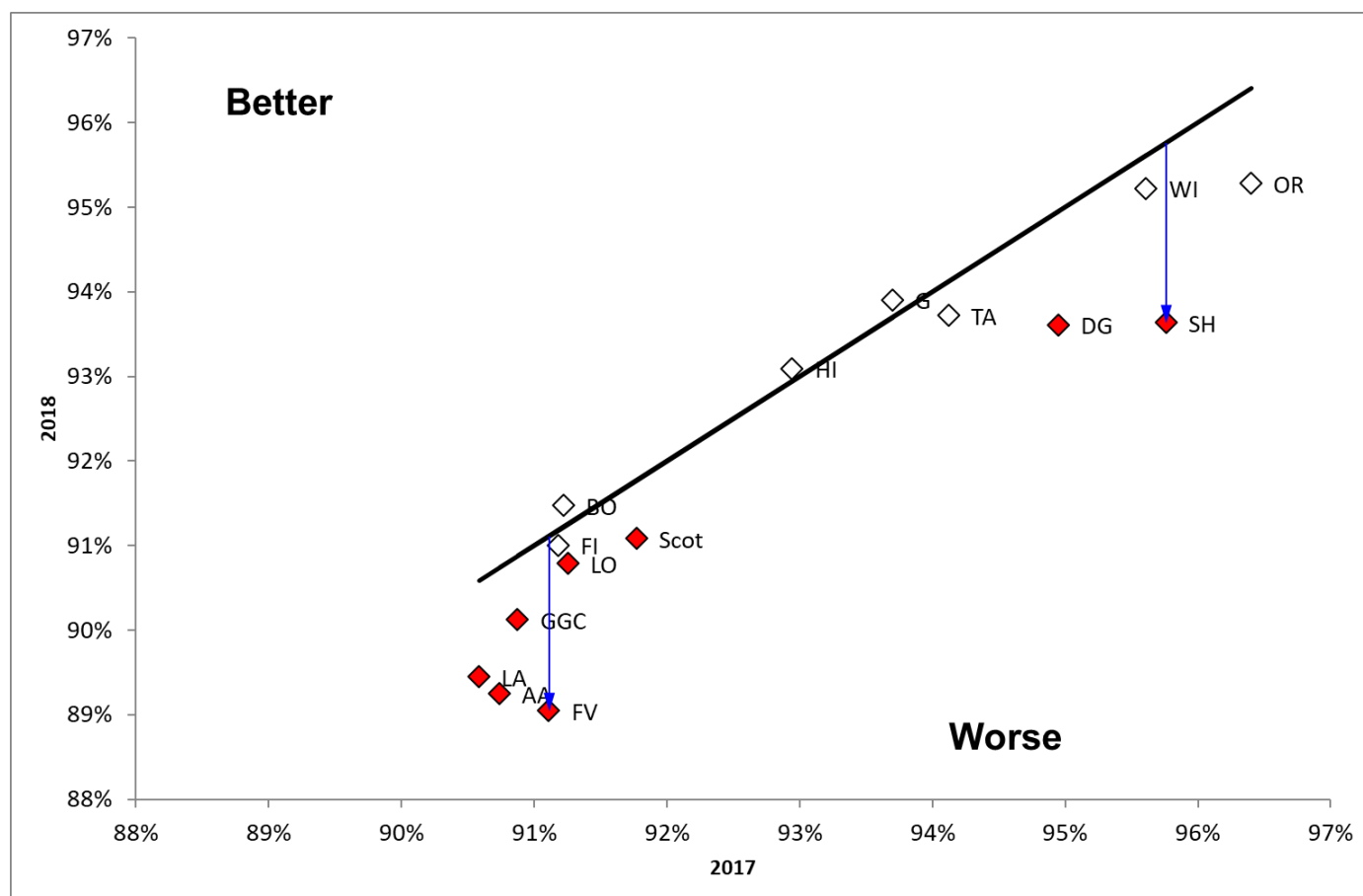
Note: Horizontal lines show figures for Scotland as a whole and bars are ranked by figures for type 2 diabetes

Figure 56 Proportion of people with type 1 diabetes with a record of HbA_{1c} within the previous 15 months by health board, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for all boards with more than 3.5% change over that period. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Figure 57 Proportion of people with type 2 diabetes with a record of HbA_{1c} within the previous 15 months by health board, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for all boards with more than 1.5% change over that period. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Table 84 Number and percentage of people with type 1 or type 2 diabetes with a record of HbA_{1c} within the previous 15 months, by diabetes type and NHS board, ranked by decreasing percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Type 1 diabetes			Type 2 diabetes		
	Recorded within previous 15 months		Not recorded (n)	Recorded within previous 15 months		Not recorded (n)
	n	%		n	%	
Orkney	119	96.0	5	1,049	95.3	52
Western Isles	198	97.5	5	1,235	95.2	62
Grampian	3,346	93.2	245	24,191	93.9	1,571
Tayside	2,094	93.4	147	20,125	93.7	1,350
Shetland	135	95.7	6	926	93.6	63
Dumfries and Galloway	950	94.6	54	8,023	93.6	548
Highland	1,923	88.7	246	14,452	93.1	1,073
Borders	660	91.8	59	5,522	91.5	515
Fife	2,005	89.4	237	17,952	91.0	1,775
Lothian	4,429	88.4	581	33,385	90.8	3,390
Greater Glasgow and Clyde	5,946	90.2	646	52,012	90.1	5,701
Lanarkshire	3,949	87.9	546	31,464	89.4	3,712
Ayrshire and Arran	2,090	88.4	274	19,622	89.2	2,365
Forth Valley	1,712	88.6	221	13,784	89.0	1,696
Scotland	29,556	90.0	3,272	243,742	91.1	23,873

Figure 58 Type 1 diabetes: Percentage of people with a recorded HbA_{1c}, in each HbA_{1c} category for HbA_{1c} recorded in the previous 15 months, by NHS board, ranked by decreasing percentage of those with a recoded HbA_{1c} under 58 mmol/mol, Scotland 2018.

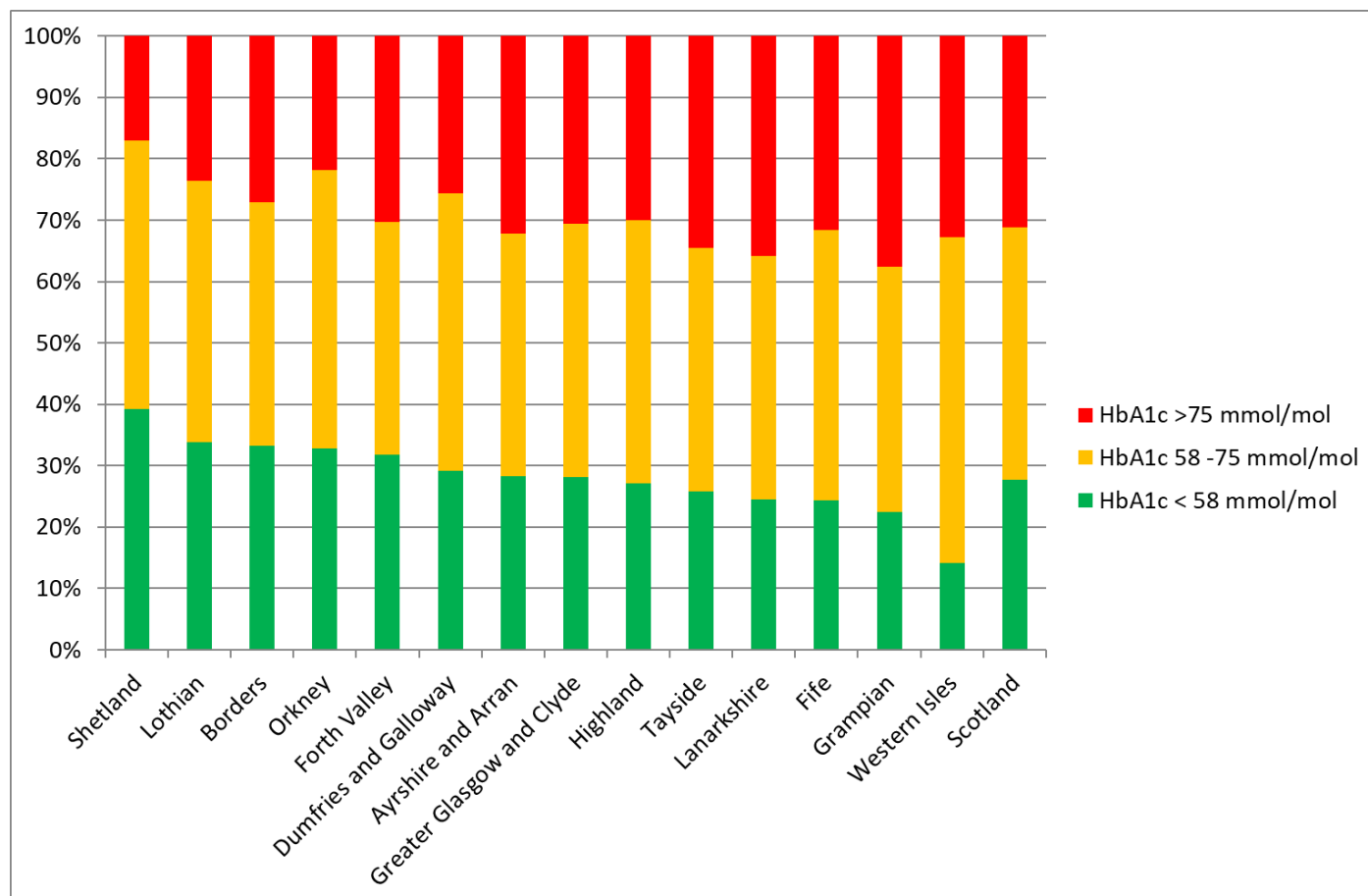
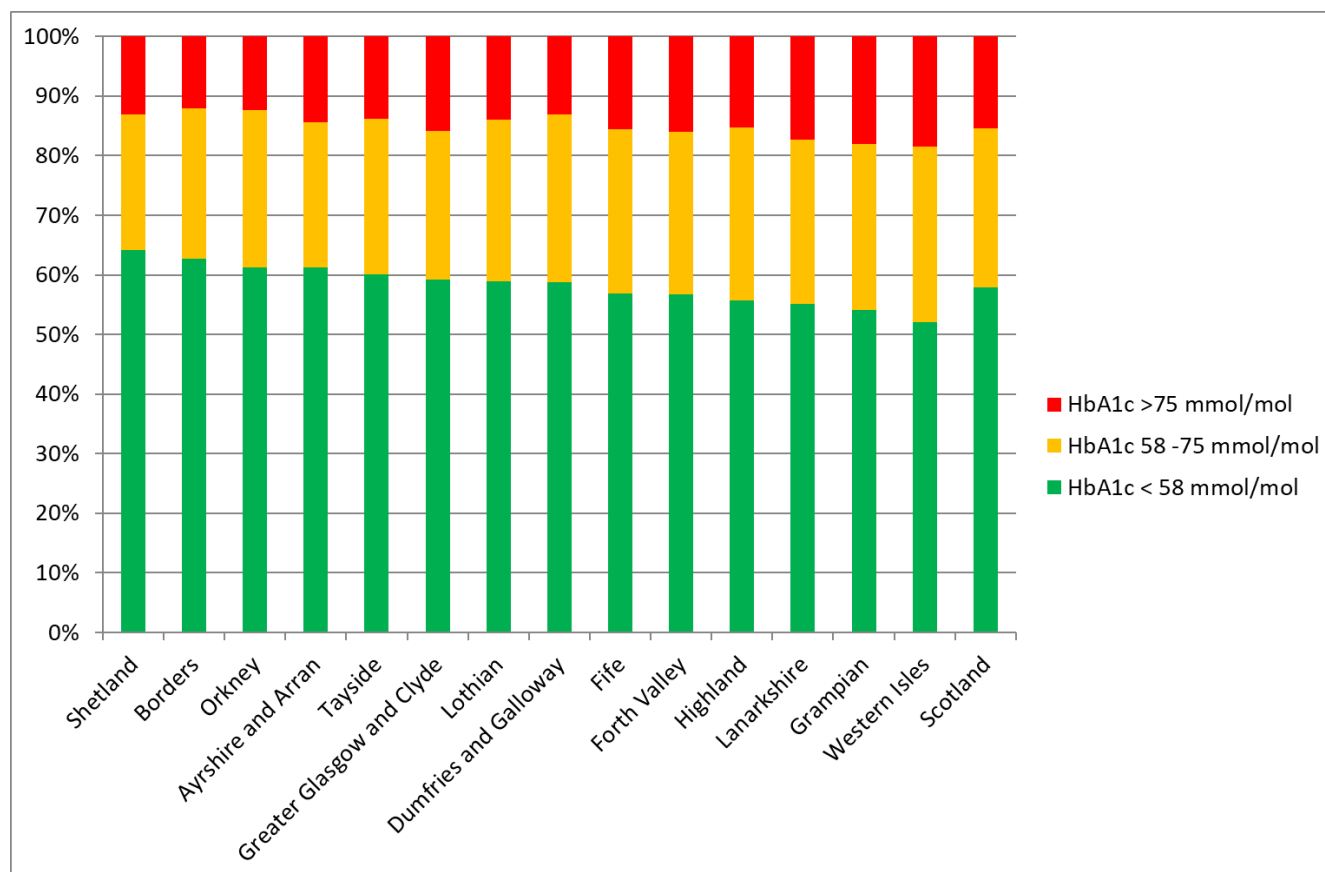


Figure 59 Type 2 diabetes: Percentage of people with a recorded HbA_{1c}, in each HbA_{1c} category for HbA_{1c} recorded in the previous 15 months, by NHS board, ranked by decreasing percentage of those with a recorded HbA_{1c} under 58 mmol/mol, Scotland 2018.



In 54.6% of people with type 1 or type 2 diabetes with a recorded result, HbA_{1c} was less than 58mmol/mol, although this proportion differed by type of diabetes (Table 85 and Table 86).

Table 85 Type 1 diabetes: HbA_{1c} category as a percentage of people with HbA_{1c} recorded in previous 15 months, by NHS board, ranked by descending percentage with HbA_{1c} under 58mmol/mol, Scotland 2018.

NHS board	HbA _{1c} (mmol/mol)						Total recorded (n)	Not recorded (n)
	< 58		58-75		>75			
	n	%	n	%	n	%		
Shetland	53	39.3	59	43.7	23	17.0	135	6
Lothian	1,499	33.8	1,888	42.6	1,042	23.5	4,429	581
Borders	219	33.2	262	39.7	179	27.1	660	59
Orkney	39	32.8	54	45.4	26	21.8	119	5
Forth Valley	545	31.8	649	37.9	518	30.3	1,712	221
Dumfries and Galloway	277	29.2	429	45.2	244	25.7	950	54
Ayrshire and Arran	591	28.3	825	39.5	674	32.2	2,090	274
Greater Glasgow and Clyde	1,676	28.2	2,448	41.2	1,822	30.6	5,946	646
Highland	521	27.1	825	42.9	577	30.0	1,923	246
Tayside	541	25.8	829	39.6	724	34.6	2,094	147
Lanarkshire	965	24.4	1,567	39.7	1,417	35.9	3,949	546
Fife	487	24.3	883	44.0	635	31.7	2,005	237
Grampian	750	22.4	1,337	40.0	1,259	37.6	3,346	245
Western Isles	28	14.1	105	53.0	65	32.8	198	5
Scotland	8,191	27.7	12,160	41.1	9,205	31.1	29,556	3,272

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Table 86 Type 2 diabetes: HbA_{1c} category as percentage of people with HbA_{1c} recorded in previous 15 months, by NHS board, ranked by descending percentage with HbA_{1c} under 58mmol/mol, Scotland 2018.

NHS board	HbA _{1c} (mmol/mol)						Total recorded (n)	Not recorded (n)
	< 58		58 -75		>75			
	N	%	n	%	n	%		
Shetland	594	64.1	211	22.8	121	13.1	926	63
Borders	3,460	62.7	1,398	25.3	664	12.0	5,522	515
Orkney	643	61.3	276	26.3	130	12.4	1,049	52
Ayrshire and Arran	12,017	61.2	4,791	24.4	2,814	14.3	19,622	2,365
Tayside	12,105	60.1	5,231	26.0	2,789	13.9	20,125	1,350
Greater Glasgow and Clyde	30,769	59.2	13,005	25.0	8,238	15.8	52,012	5,701
Lothian	19,683	59.0	9,036	27.1	4,666	14.0	33,385	3,390
Dumfries and Galloway	4,717	58.8	2,252	28.1	1,054	13.1	8,023	548
Fife	10,217	56.9	4,947	27.6	2,788	15.5	17,952	1,775
Forth Valley	7,823	56.8	3,750	27.2	2,211	16.0	13,784	1,696
Highland	8,060	55.8	4,180	28.9	2,212	15.3	14,452	1,073
Lanarkshire	17,335	55.1	8,702	27.7	5,427	17.2	31,464	3,712
Grampian	13,077	54.1	6,762	28.0	4,352	18.0	24,191	1,571
Western Isles	643	52.1	364	29.5	228	18.5	1,235	62
Scotland	141,143	57.9	64,905	26.6	37,694	15.5	243,742	23,873

Table 87 Type 1 diabetes: HbA_{1c} category as percent of all those with HbA_{1c} recorded in the previous 15 months (HbA_{1c} in mmol/mol), by NHS board, ranked by percentage with HbA_{1c} over 75mmol/mol, Scotland 2018.

NHS board	HbA _{1c} (mmol/mol, %)						Total recorded (n)	Not recorded (n)
	< 53	53-57	58-63	64-68	69-75	> 75		
Shetland	18.5	20.7	17.8	16.3	9.6	17.0	135	6
Orkney	19.3	13.4	22.7	10.9	11.8	21.8	119	5
Lothian	20.4	13.4	17.5	12.6	12.6	23.5	4,429	581
Dumfries and Galloway	15.1	14.1	17.6	14.7	12.8	25.7	950	54
Borders	19.1	14.1	17.9	11.8	10.0	27.1	660	59
Highland	14.6	12.5	17.3	12.8	12.8	30.0	1,923	246
Forth Valley	18.6	13.2	14.6	11.3	12.0	30.3	1,712	221
Greater Glasgow and Clyde	16.7	11.5	16.1	12.4	12.7	30.6	5,946	646
Fife	12.9	11.4	17.5	12.4	14.2	31.7	2,005	237
Ayrshire and Arran	16.3	12.0	14.7	14.6	10.2	32.2	2,090	274
Western Isles	7.6	6.6	20.2	13.1	19.7	32.8	198	5
Tayside	15.0	10.8	13.9	12.2	13.4	34.6	2,094	147
Lanarkshire	13.5	10.9	14.1	12.6	13.0	35.9	3,949	546
Grampian	12.8	9.6	14.0	12.3	13.7	37.6	3,346	245
Scotland	15.9	11.8	15.8	12.6	12.8	31.1	29,556	3,272

Table 88 Type 2 diabetes: HbA_{1c} category as percent of all those with HbA_{1c} recorded in the previous 15 months (HbA_{1c} in mmol/mol), by NHS board, ranked by percentage with HbA_{1c} over 75 mmol/mol, Scotland 2018.

NHS board	HbA _{1c} (mmol/mol, %)						Total recorded (n)	Not recorded (n)
	< 53	53-57	58-63	64-68	69-75	> 75		
Borders	48.1	14.6	12.4	7.3	5.6	12.0	5,522	515
Orkney	48.0	13.3	12.0	7.4	6.9	12.4	1,049	52
Shetland	51.2	13.0	9.9	7.7	5.2	13.1	926	63
Dumfries and Galloway	43.5	15.3	13.7	8.1	6.2	13.1	8,023	548
Tayside	45.3	14.8	12.9	7.3	5.8	13.9	20,125	1,350
Lothian	43.8	15.2	13.1	7.6	6.4	14.0	33,385	3,390
Ayrshire and Arran	46.6	14.7	11.2	7.7	5.6	14.3	19,622	2,365
Highland	40.9	14.9	14.0	8.2	6.7	15.3	14,452	1,073
Fife	42.0	15.0	13.7	7.7	6.2	15.5	17,952	1,775
Greater Glasgow and Clyde	44.8	14.4	11.8	7.1	6.1	15.8	52,012	5,701
Forth Valley	41.7	15.1	12.8	7.7	6.6	16.0	13,784	1,696
Lanarkshire	40.4	14.7	12.7	7.8	7.1	17.2	31,464	3,712
Grampian	40.0	14.0	12.7	8.1	7.2	18.0	24,191	1,571
Western Isles	37.4	14.7	14.3	8.3	6.8	18.5	1,235	62
Scotland	43.2	14.7	12.6	7.6	6.4	15.5	243,742	23,873

Table 89 Mean HbA_{1c} (mmol/mol) recorded in the previous 15 months, by NHS board, for people with type 1 diabetes by age and for type 2 diabetes (all ages combined), ranked by mean HbA_{1c} for those with type 2 diabetes, Scotland 2018.

NHS board	Type 1 diabetes: Age in years											Type 2 diabetes (all ages)
	0-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-79	>79	
Shetland	-	65	56	65	70	61	60	65	65	59	61	56
Tayside	66	62	68	69	69	71	68	67	68	66	67	56
Borders	69	56	59	74	74	73	69	71	67	63	59	57
Orkney	60	59	56	60	82	66	61	62	66	64	75	57
Ayrshire and Arran	61	58	62	75	77	73	71	70	69	65	64	58
Dumfries and Galloway	63	56	59	74	78	72	72	67	66	64	69	58
Lothian	58	58	61	71	71	65	66	65	66	64	66	58
Fife	68	60	67	81	73	70	70	69	70	68	67	59
Forth Valley	57	58	63	73	74	72	69	69	68	65	68	59
Greater Glasgow and Clyde	62	58	60	71	72	72	69	69	70	67	67	59
Highland	55	58	59	72	75	74	69	72	68	66	62	59
Grampian	59	60	65	80	78	73	69	72	72	69	75	60
Lanarkshire	62	59	65	74	80	73	71	71	71	68	69	60
Western Isles	68	63	69	75	73	78	72	70	68	71	75	61

Cardiovascular Risk National and Regional Detail

Blood Pressure

83.6% of people with type 1 and 88.6% of people with type 2 diabetes had their BP recorded within the previous 15 months (Table 90).

Note: Data from people of all ages are included in these blood pressure figures, in contrast to the processes of care, where there are restrictions.

Table 90 Number and percentage of people with type 1 or type 2 diabetes with a recorded BP within the previous 15 months, Scotland 2009-2018.

Year	Type 1 diabetes			Type 2 diabetes		
	BP Recorded		Population (n)	BP Recorded		Population (n)
	n	%		n	%	
2018	27,458	83.6	32,828	237,210	88.6	267,615
2017	26,524	84.3	31,447	236,329	89.8	263,271
2016	26,248	84.9	30,899	236,721	91.8	257,728
2015	26,298	86.6	30,356	234,631	93.5	250,881
2014	26,201	87.9	29,802	230,710	94.5	244,050
2013	25,395	86.8	29,261	224,420	94.9	236,605
2012	24,574	85.2	28,849	215,702	94.6	227,967
2011	24,165	85.5	28,272	204,782	94.1	217,514
2010	23,977	85.9	27,910	196,638	94.4	208,279
2009	23,568	86.1	27,367	189,289	95.0	199,264

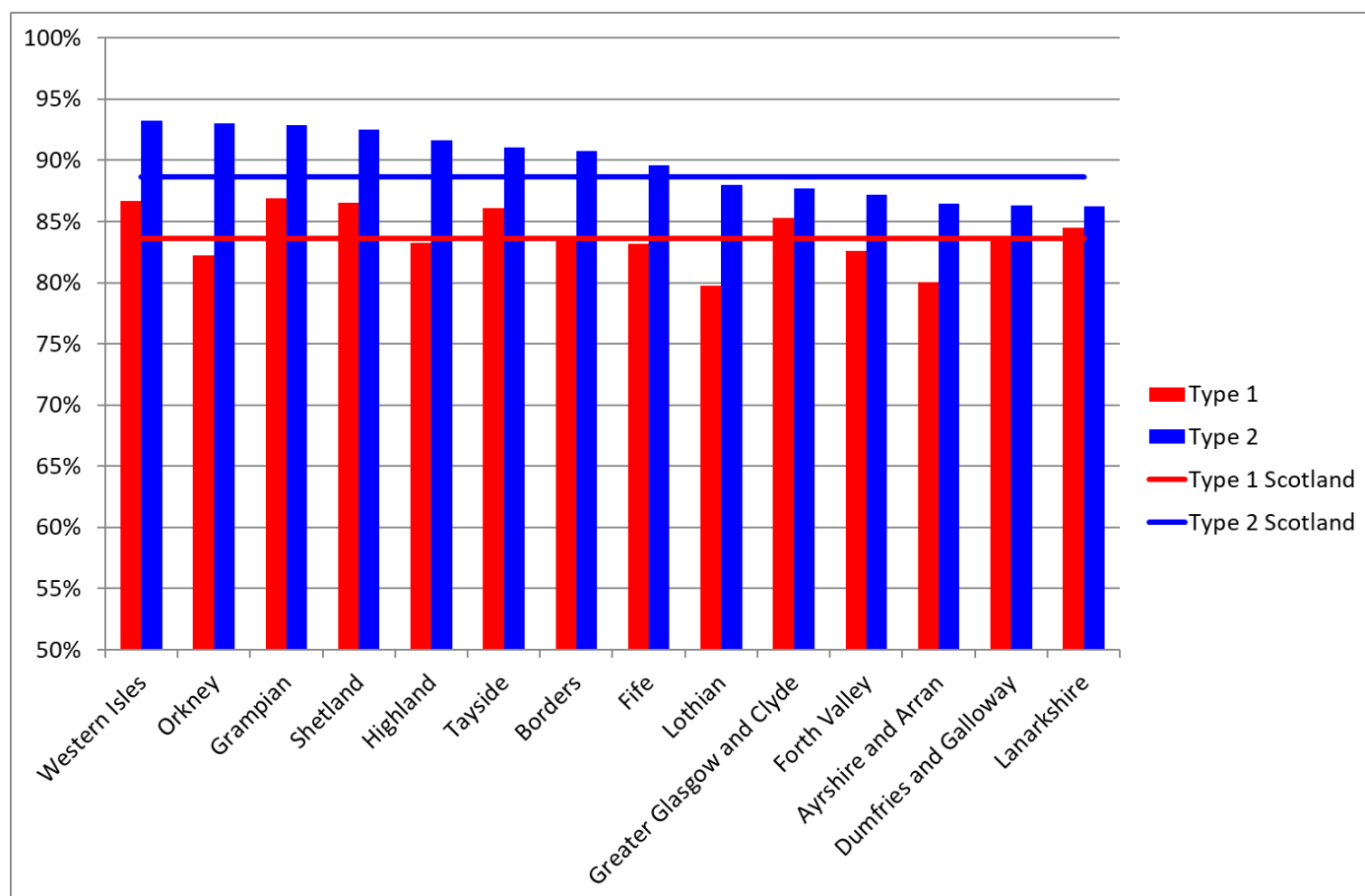
See the [Type 1 Diabetes Blood Pressure](#) section for information on people with type 1 diabetes.

Blood Pressure Regional Detail

Overall 88.1% of people with type 1 or type 2 diabetes had their BP recorded within the previous 15 months (Table 91). Of those, 74.5% had a systolic BP less than or equal to 140 mmHg (Table 92 and Table 94), suggesting reasonable control of blood pressure. Figures for blood pressure recording by NHS board are shown in Figure 60. Data for blood pressure control for people with type 1 diabetes are shown in Figure 61, Figure 62 and Figure 63 (Table 92 and Table 93) and for people with type 2 diabetes in Figure 64, Figure 65 and Figure 66 (Table 94 and Table 95).

Note: Data from people of all ages are included in these blood pressure figures, in contrast to the processes of care, where there are restrictions.

Figure 60 Percentage of people with type 1 or type 2 diabetes (by diabetes type) with a recording of BP in the previous 15 months, by NHS board; ranked by figures for type 2, Scotland 2018.



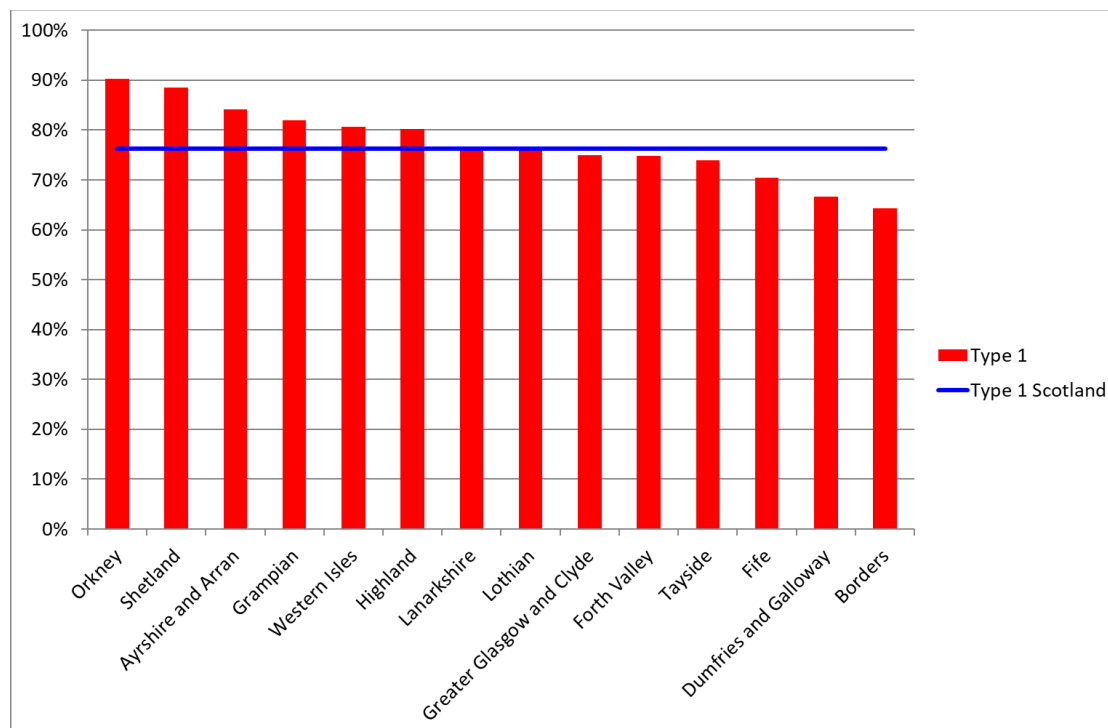
Note: Y axis is interrupted at 50%; Horizontal lines show mean levels for Scotland as a whole.

Table 91 Number and percentage of people with type 1 and type 2 diabetes with a recording of BP in the previous 15 months, by NHS board and diabetes type, ranked by figures for type 2 diabetes, Scotland 2018.

NHS board	Recorded within previous 15 months			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Western Isles	176	86.7	1,209	93.2
Orkney	102	82.3	1,024	93.0
Grampian	3,119	86.9	23,922	92.9
Shetland	122	86.5	915	92.5
Highland	1,806	83.3	14,226	91.6
Tayside	1,929	86.1	19,556	91.1
Borders	600	83.4	5,481	90.8
Fife	1,865	83.2	17,678	89.6
Lothian	3,994	79.7	32,356	88.0
Greater Glasgow and Clyde	5,620	85.3	50,602	87.7
Forth Valley	1,596	82.6	13,499	87.2
Ayrshire and Arran	1,892	80.0	19,014	86.5
Dumfries and Galloway	839	83.6	7,398	86.3
Lanarkshire	3,798	84.5	30,330	86.2
Scotland	27,458	83.6	237,210	88.6

Note: The numbers in this table relate to all ages.

Figure 61 Type 1 diabetes: Percentage of people with most recent systolic blood pressure (SBP) \leq 140 mmHg in the last 15 months by NHS board, ranked by percentage $>$ 140 mmHg, Scotland 2018.



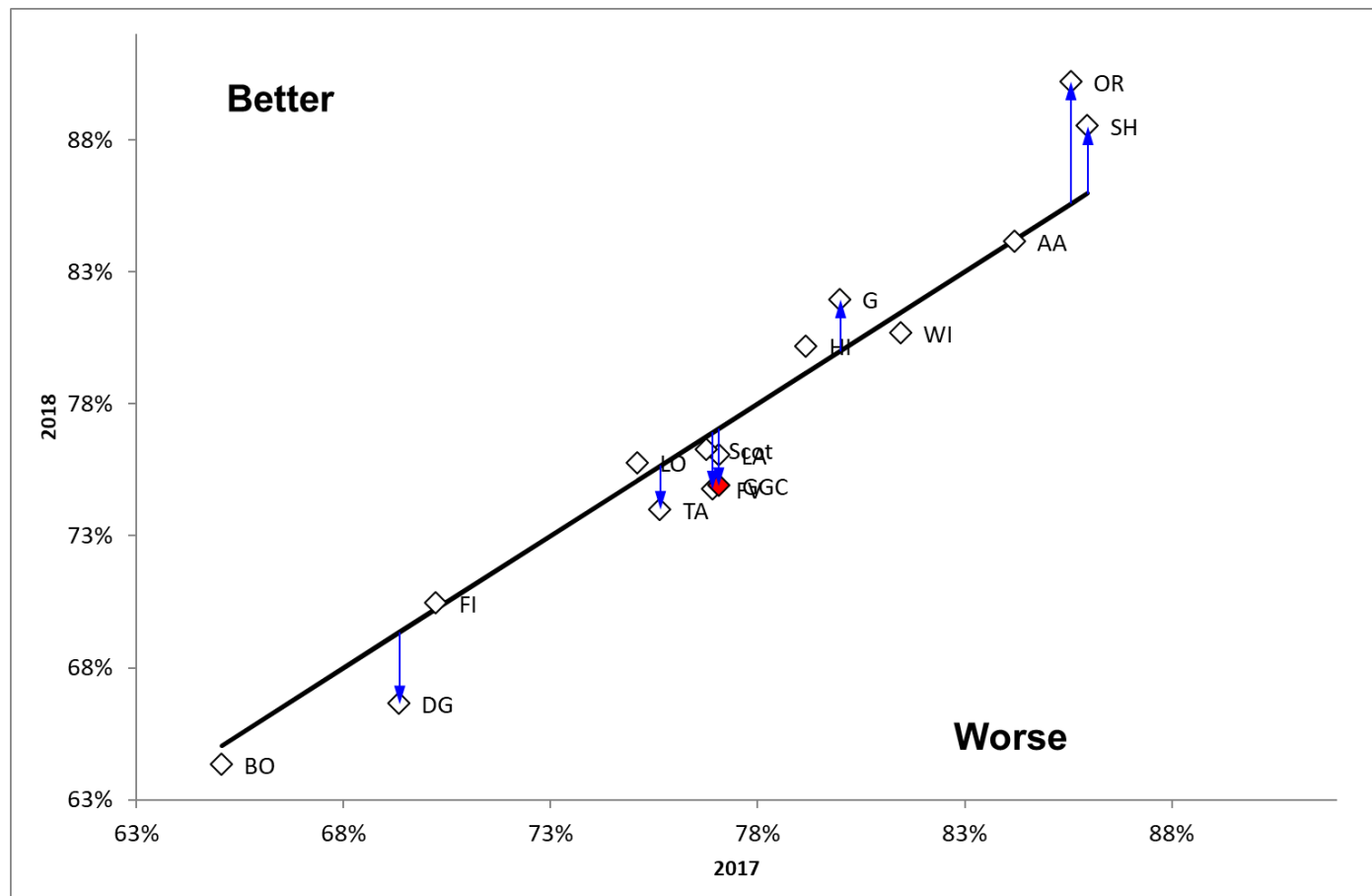
Note: Horizontal line indicates mean level for Scotland as a whole.

Table 92 Type 1 diabetes: Number and percentage of people with systolic blood pressure (SBP) \leq 140 mmHg by NHS board, ranked by percentage $>$ 140 mmHg, Scotland 2018.

NHS board	Systolic BP \leq 140		Systolic BP $>$ 140		Total recorded (n)	Not recorded	
	n	%	n	%		n	%
Orkney	92	90.2	10	9.8	102	22	17.7
Shetland	108	88.5	14	11.5	122	19	13.5
Ayrshire and Arran	1,592	84.1	300	15.9	1,892	472	20.0
Grampian	2,556	81.9	563	18.1	3,119	472	13.1
Western Isles	142	80.7	34	19.3	176	27	13.3
Highland	1,448	80.2	358	19.8	1,806	363	16.7
Lanarkshire	2,888	76.0	910	24.0	3,798	697	15.5
Lothian	3,026	75.8	968	24.2	3,994	1,016	20.3
Greater Glasgow and Clyde	4,209	74.9	1,411	25.1	5,620	972	14.7
Forth Valley	1,193	74.7	403	25.3	1,596	337	17.4
Tayside	1,427	74.0	502	26.0	1,929	312	13.9
Fife	1,314	70.5	551	29.5	1,865	377	16.8
Dumfries and Galloway	559	66.6	280	33.4	839	165	16.4
Borders	386	64.3	214	35.7	600	119	16.6
Scotland	20,940	76.3	6,518	23.7	27,458	5,370	16.4

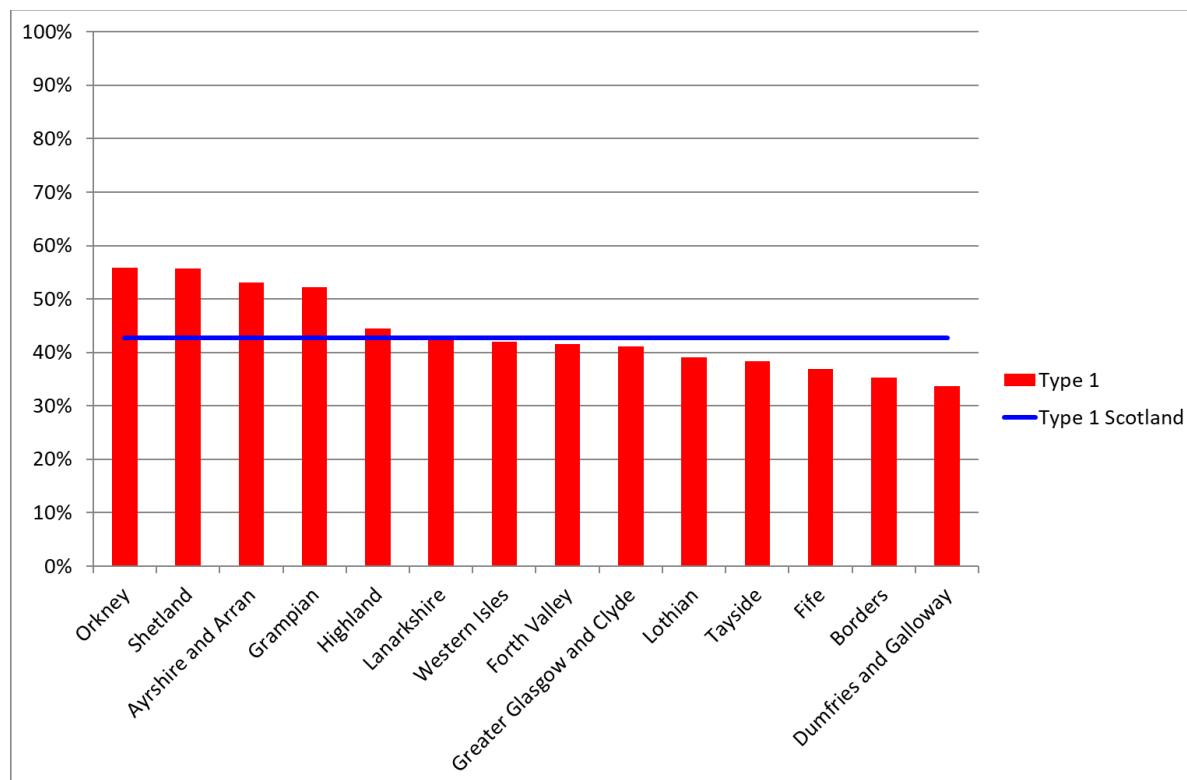
Note: Restricted to most recent value recorded in the previous 15 months – those with only older results are classed as missing (not recorded).

Figure 62 Type 1 diabetes: Percentage of people with SBP \leq 140 mmHg, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for all boards with more than 2.5% change over that period. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Figure 63 Type 1 diabetes: Percentage of people with most recent blood pressure in the last 15 months < 130 mmHg (systolic) and ≤ 80 mmHg (diastolic), by NHS board, ranked by percentage of those who met the target, Scotland 2018.



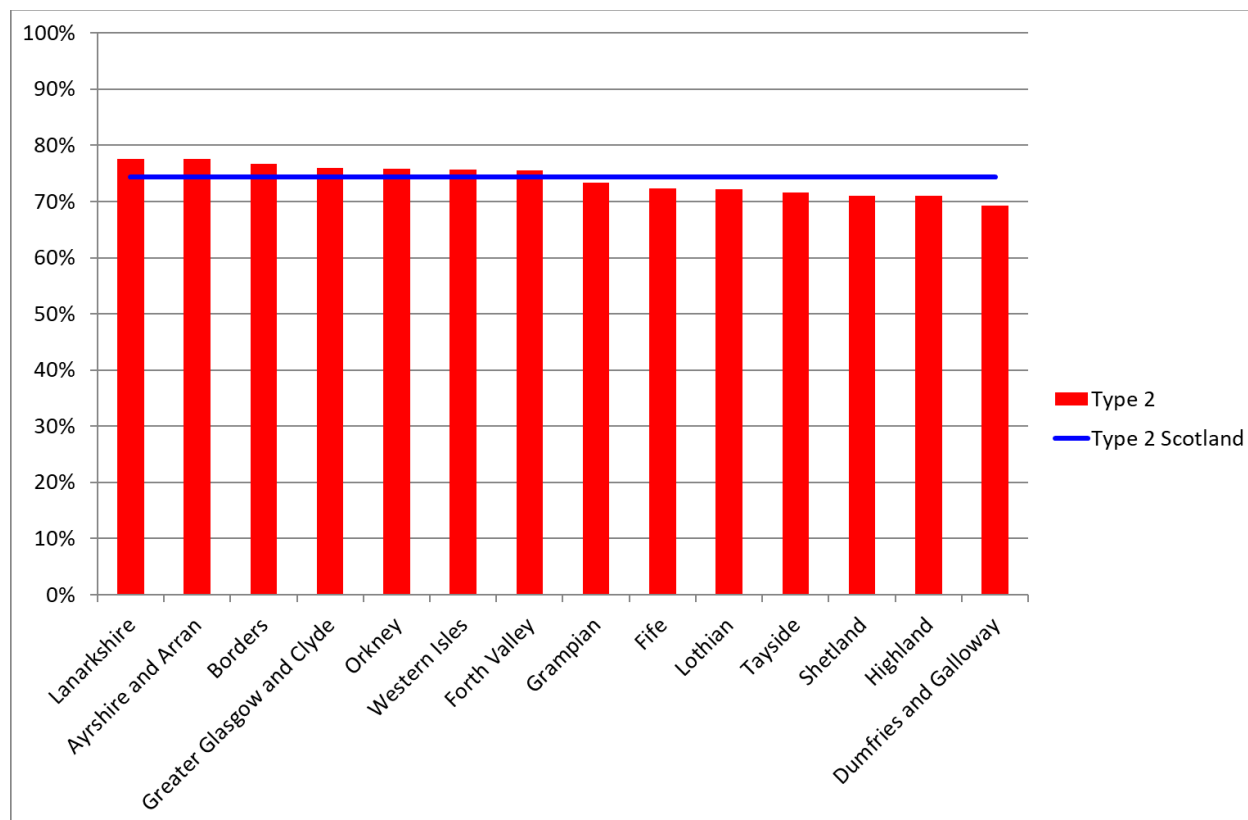
Note: Horizontal line indicates mean level for Scotland as a whole.

Table 93 Type 1 diabetes: Number and percentage of people most recent blood pressure in the last 15 months < 130 mmHg (systolic) and ≤ 80 mmHg (diastolic), by NHS board, ranked by percentage of those who met the target, Scotland 2018.

NHS board	Met BP target		Did not meet BP target		Total recorded (n)	Not recorded	
	N	%	n	%		n	%
Orkney	57	55.9	45	44.1	102	22	17.7
Shetland	68	55.7	54	44.3	122	19	13.5
Ayrshire and Arran	1,005	53.1	887	46.9	1,892	472	20.0
Grampian	1,628	52.2	1,491	47.8	3,119	472	13.1
Highland	803	44.5	1,003	55.5	1,806	363	16.7
Lanarkshire	1,619	42.6	2,179	57.4	3,798	697	15.5
Western Isles	74	42.0	102	58.0	176	27	13.3
Forth Valley	663	41.5	933	58.5	1,596	337	17.4
Greater Glasgow and Clyde	2,313	41.2	3,307	58.8	5,620	972	14.7
Lothian	1,559	39.0	2,435	61.0	3,994	1,016	20.3
Tayside	741	38.4	1,188	61.6	1,929	312	13.9
Fife	689	36.9	1,176	63.1	1,865	377	16.8
Borders	212	35.3	388	64.7	600	119	16.6
Dumfries and Galloway	283	33.7	556	66.3	839	165	16.4
Scotland	11,714	42.7	15,744	57.3	27,458	5,370	16.4

Note: Those with only results older than 15 months are classed as missing (not recorded).

Figure 64 Type 2 diabetes: Percentage of people with most recent systolic blood pressure (SBP) \leq 140 mmHg in the last 15 months by NHS board, ranked by percentage $>$ 140 mmHg, Scotland 2018.



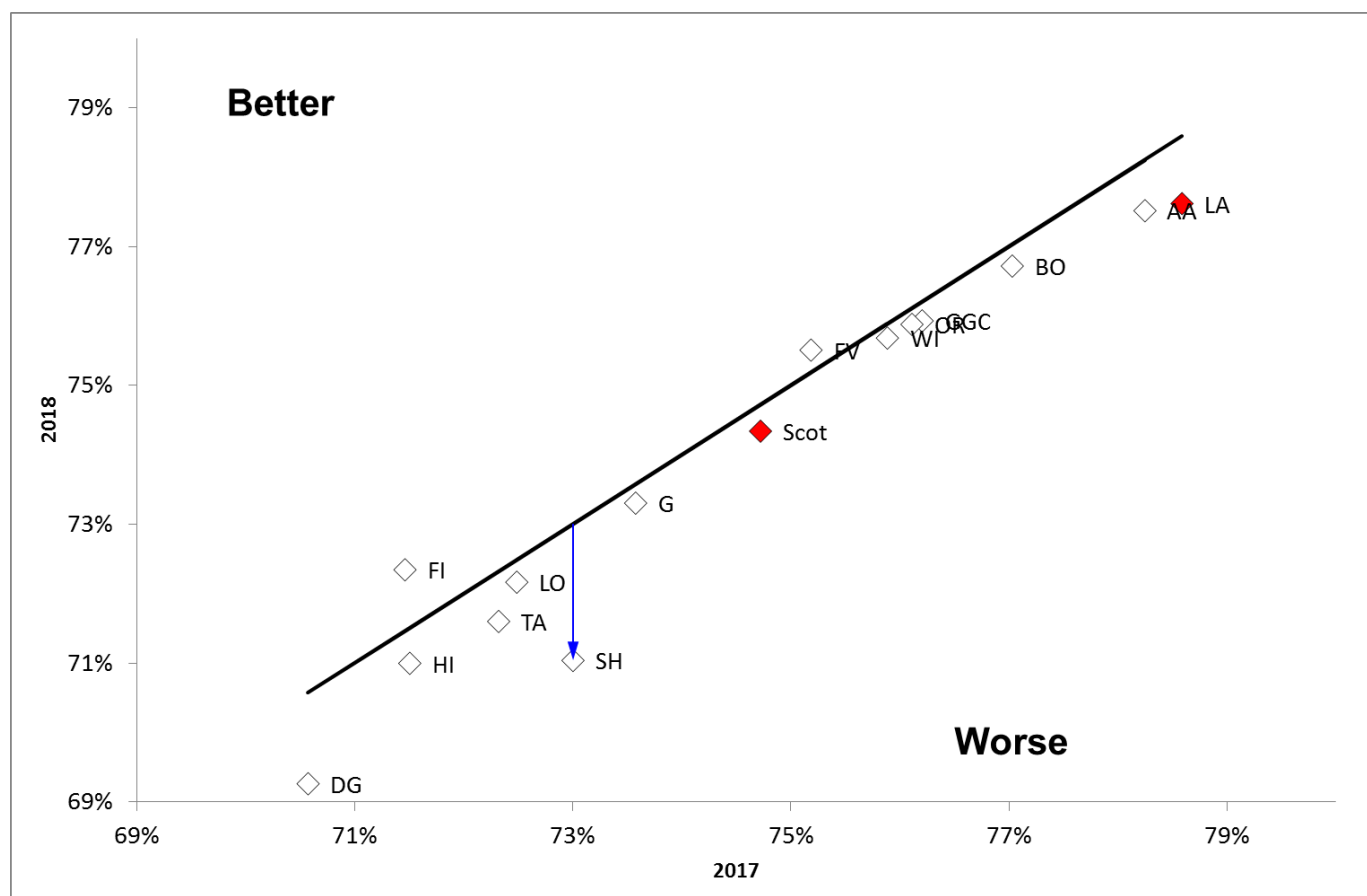
Horizontal line indicates mean level for Scotland as a whole

Table 94 Type 2 diabetes: Number and percentage of people with systolic blood pressure (SBP) \leq 140 mmHg by NHS board, ranked by percentage $>$ 140 mmHg, Scotland 2018.

NHS board	BP \leq 140		BP $>$ 140		Total recorded (n)	Not recorded	
	n	%	n	%		n	%
Lanarkshire	23,542	77.6	6,788	22.4	30,330	4,846	13.8
Ayrshire and Arran	14,739	77.5	4,275	22.5	19,014	2,973	13.5
Borders	4,205	76.7	1,276	23.3	5,481	556	9.2
Greater Glasgow and Clyde	38,422	75.9	12,180	24.1	50,602	7,111	12.3
Orkney	777	75.9	247	24.1	1,024	77	7.0
Western Isles	915	75.7	294	24.3	1,209	88	6.8
Forth Valley	10,193	75.5	3,306	24.5	13,499	1,981	12.8
Grampian	17,536	73.3	6,386	26.7	23,922	1,840	7.1
Fife	12,789	72.3	4,889	27.7	17,678	2,049	10.4
Lothian	23,350	72.2	9,006	27.8	32,356	4,419	12.0
Tayside	14,002	71.6	5,554	28.4	19,556	1,919	8.9
Shetland	650	71.0	265	29.0	915	74	7.5
Highland	10,100	71.0	4,126	29.0	14,226	1,299	8.4
Dumfries and Galloway	5,124	69.3	2,274	30.7	7,398	1,173	13.7
Scotland	176,344	74.3	60,866	25.7	237,210	30,405	11.4

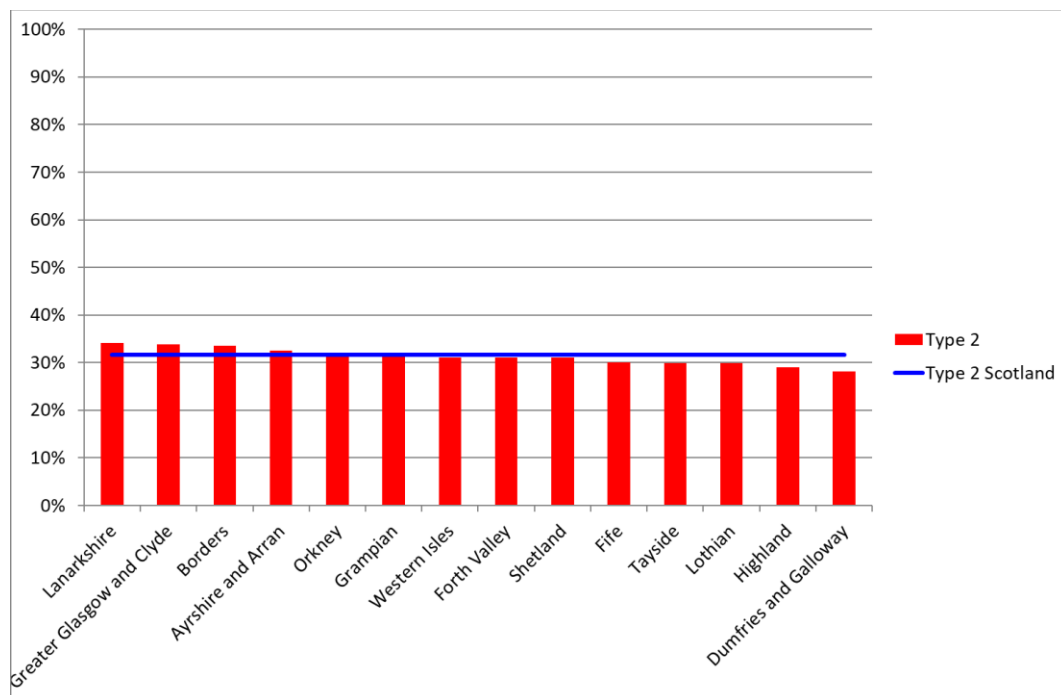
Note: Those with only results older than 15 months are classed as missing (not recorded).

Figure 65 Type 2 diabetes: Percentage of people with SBP \leq 140 mmHg, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for all boards with more than 2.5% change over that period. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Figure 66 Type 2 diabetes: Percentage of people with most recent blood pressure in the last 15 months < 130 mmHg (systolic) and ≤ 80 mmHg (diastolic), by NHS board, ranked by percentage of those who met the target, Scotland 2018.



Note: Horizontal line indicates mean level for Scotland as a whole.

Table 95 Type 2 diabetes: Number and percentage of people with most recent blood pressure in the last 15 months < 130 mmHg (systolic) and ≤ 80 mmHg (diastolic), by NHS board, ranked by percentage of those who met the target, Scotland 2018.

NHS board	Met BP target		Did not meet BP target		Total recorded (n)	Not recorded	
	n	%	n	%		n	%
Lanarkshire	10,333	34.1	19,997	65.9	30,330	4,846	13.8
Greater Glasgow and Clyde	17,142	33.9	33,460	66.1	50,602	7,111	12.3
Borders	1,836	33.5	3,645	66.5	5,481	556	9.2
Ayrshire and Arran	6,183	32.5	12,831	67.5	19,014	2,973	13.5
Orkney	322	31.4	702	68.6	1,024	77	7.0
Grampian	7,458	31.2	16,464	68.8	23,922	1,840	7.1
Western Isles	376	31.1	833	68.9	1,209	88	6.8
Forth Valley	4,191	31.0	9,308	69.0	13,499	1,981	12.8
Shetland	284	31.0	631	69.0	915	74	7.5
Fife	5,318	30.1	12,360	69.9	17,678	2,049	10.4
Tayside	5,851	29.9	13,705	70.1	19,556	1,919	8.9
Lothian	9,676	29.9	22,680	70.1	32,356	4,419	12.0
Highland	4,123	29.0	10,103	71.0	14,226	1,299	8.4
Dumfries and Galloway	2,083	28.2	5,315	71.8	7,398	1,173	13.7
Scotland	75,176	31.7	162,034	68.3	237,210	30,405	11.4

Note. Restricted to most recent value recorded in the previous 15 months – those with only older results are classed as missing (not recorded).

Table 96 Percentage of people with diabetes (type 1 and type 2 combined) with systolic blood pressure (SBP) ≤ 140 mmHg by year, Scotland 2009-2018.

Year	Total	Systolic BP ≤ 140 (%)	Systolic BP > 140 (%)	Not recorded (%)
2018	300,443	74.5	25.5	11.9
2017	294,718	74.9	25.1	10.8
2016	288,627	76.6	23.4	7.2
2015	281,237	77.8	22.2	6.2
2014	273,852	78.5	21.5	6.0
2013	256,866	78.6	21.4	6.4
2012	256,816	77.5	22.5	6.9
2011	228,948	76.0	24.0	6.6
2010	220,615	74.9	25.1	6.1
2009	212,857	75.1	24.9	9.2

Table 97 Type 1 diabetes: Mean BP (mmHg) recorded in previous 15 months in people aged < 40 years, by NHS board, ranked by mean systolic BP, Scotland 2018.

NHS board	Mean systolic BP (mmHg)	Mean diastolic BP (mmHg)
Orkney	116	70
Ayrshire and Arran	119	73
Western Isles	120	75
Grampian	121	73
Highland	122	74
Lanarkshire	124	74
Shetland	124	73
Greater Glasgow and Clyde	125	76
Lothian	125	78
Dumfries and Galloway	126	78
Fife	126	76
Tayside	126	76
Forth Valley	127	77
Borders	130	74

Table 98 Type 2 diabetes: Mean BP recorded in previous 15 months in people aged 50-59 years, by NHS board, ranked by mean systolic BP, Scotland 2018.

NHS board	Mean systolic BP (mmHg)	Mean diastolic BP (mmHg)
Ayrshire and Arran	132	78
Greater Glasgow and Clyde	132	79
Lanarkshire	132	78
Borders	133	79
Forth Valley	133	79
Grampian	133	79
Highland	133	80
Lothian	133	81
Orkney	133	80
Tayside	133	80
Western Isles	133	79
Fife	134	80
Shetland	134	81
Dumfries and Galloway	135	80

Total Cholesterol Summary

Cholesterol level was recorded in 83.5% of people with type 1 or type 2 diabetes within the previous 15 months (Table 99).

Table 99 Number and percentage of people with diabetes (type 1 and type 2 combined) with cholesterol < 5mmol/l, by year (denominator those with recording of cholesterol within the previous 15 months) by year, Scotland 2009-2018.

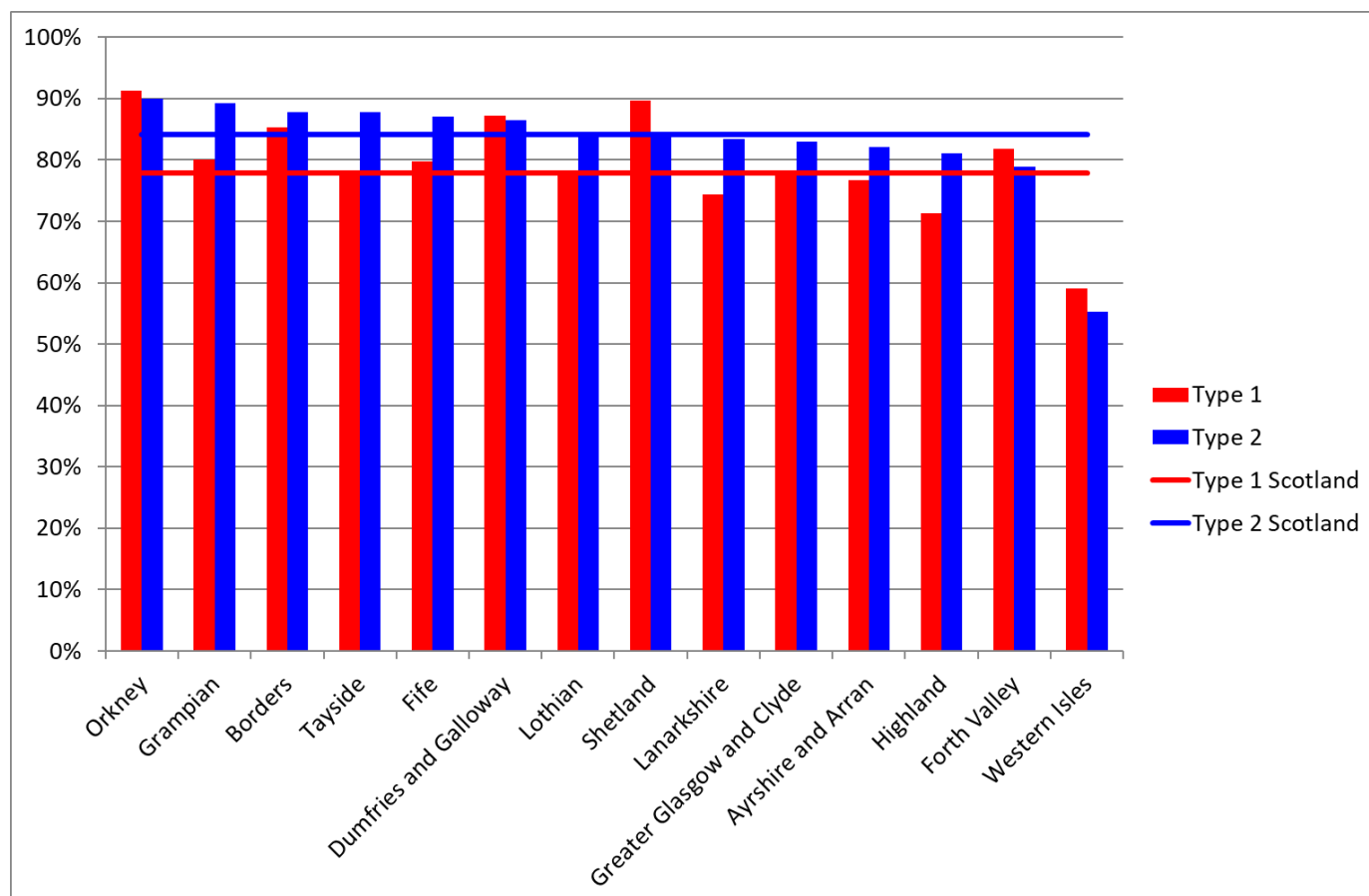
Year	Cholesterol ≤ 5		Cholesterol > 5		Not recorded		Recorded (%)	Total Eligible Population (n)
	Number	%	Number	%	Number	%		
2018	192,771	77.6	55,554	22.4	48,918	16.5	83.5	297,243
2017	188,985	76.5	58,131	23.5	44,446	15.2	84.8	291,562
2016	191,365	77.6	55,287	22.4	38,805	13.6	86.4	285,457
2015	194,520	78.9	52,093	21.1	31,512	11.3	88.7	278,125
2014	196,091	79.8	49,502	20.2	25,132	9.3	90.7	270,725
2013	191,130	79.9	47,970	20.1	23,654	9.0	91.0	262,754
2012	182,643	79.5	47,145	20.5	23,895	9.4	90.6	253,683
2011	174,832	79.8	44,364	20.2	25,604	10.4	89.2	245,786
2010	169,367	80.4	41,391	19.6	24,440	10.4	89.6	235,198
2009	157,434	80.7	37,650	19.3	30,551	13.5	86.5	225,635

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 3200).

See the [Type 1 Diabetes Total Cholesterol](#) section for information on people with type 1 diabetes.

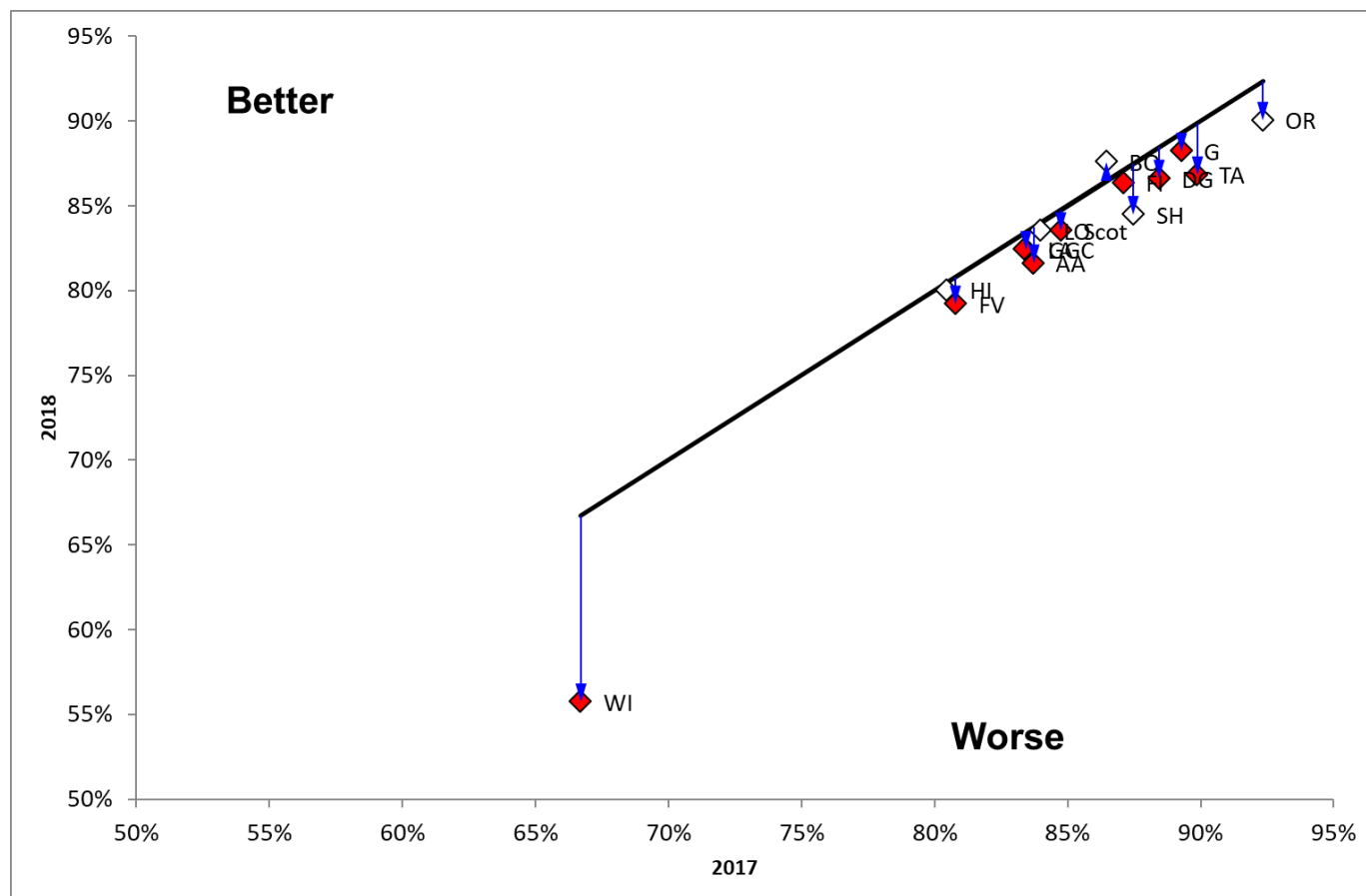
Total Cholesterol Regional Detail

Figure 67 Percentage of people with type 1 or type 2 diabetes with a record of cholesterol within the previous 15 months by diabetes type and NHS board, ranked by the percentage of people with type 2 diabetes with a record of cholesterol, Scotland 2018.



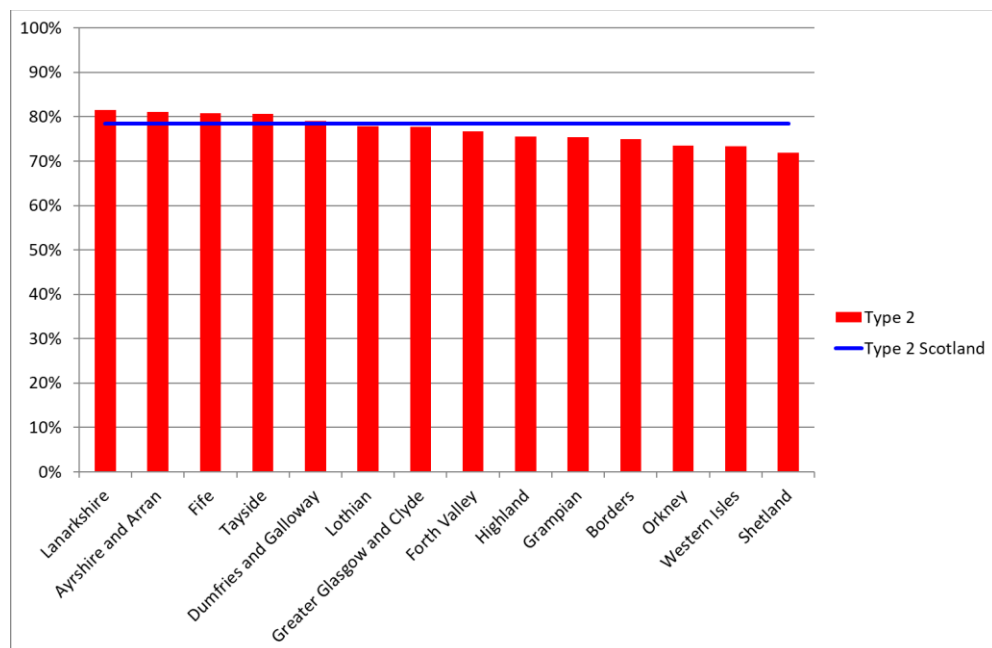
Note: Horizontal lines indicate figures for Scotland as a whole. Excludes children under 18 years or who have no recorded date of birth (type 1 n = 3069, type 2 n = 131).

Figure 68 Percentage of people with diabetes (type 1 and type 2 combined) with a record of cholesterol within the previous 15 months, Scotland, from 2017 to 2018.



Note: Arrows showing the direction of change have been added for boards with more than 1% change over the period. Points in red indicate statistically significant change. The diagonal line shows no change between 2017 and 2018.

Figure 69 Type 2 diabetes: Percentage of people with cholesterol $\leq 5\text{mmol/l}$, by NHS board (denominator those with recording of cholesterol within the previous 15 months), Scotland 2018.



Note: Excludes children under 18 years or who have no recorded date of birth (n= 131); Horizontal line indicates mean level for Scotland as a whole.

Total cholesterol was less than or equal to 5.0mmol/l in 77.6% of people with a recorded result (Table 11 and Table 100).

Table 100 Type 2 diabetes: Number and percentage of people with cholesterol $\leq 5\text{mmol/l}$, by NHS board (denominator those with recording of cholesterol within the previous 15 months), ranked by percentage of people with cholesterol $\leq 5\text{mmol/l}$, Scotland 2018.

NHS board	Total cholesterol ≤ 5 (%)	Total recorded (n)	Not recorded (%)
Lanarkshire	81.5	29,262	16.6
Ayrshire and Arran	81.1	18,048	17.9
Fife	80.7	17,161	13.0
Tayside	80.6	18,836	12.3
Dumfries and Galloway	79.1	7,413	13.5
Lothian	77.9	30,967	15.8
Greater Glasgow and Clyde	77.7	47,833	17.1
Forth Valley	76.6	12,214	21.1
Highland	75.5	12,591	18.9
Grampian	75.4	22,989	10.8
Borders	75.0	5,301	12.2
Orkney	73.4	990	10.1
Western Isles	73.3	717	44.7
Shetland	71.9	829	16.2
Scotland	78.5	225,151	15.8

Note: Excludes people under 18 years of age and people whose date of birth has not been recorded (n = 131).

Figure 70 Percentage of people with diabetes (type 1 and type 2 combined) with cholesterol ≤ 5 mmol/l within the previous 15 months, Scotland, from 2017 to 2018.

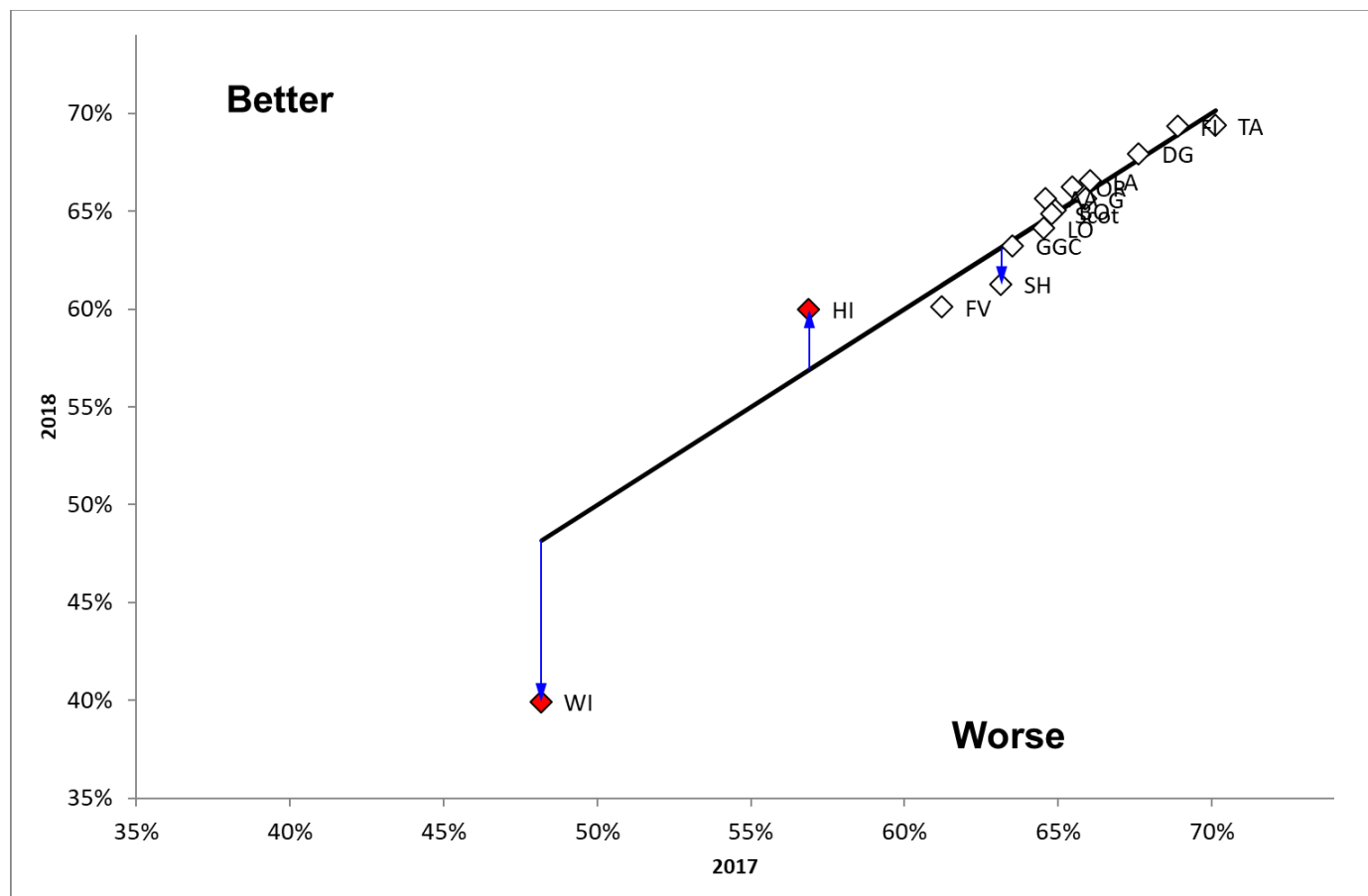


Table 101 Type 2 diabetes: Mean total cholesterol recorded in previous 15 months in people aged 50-59 years, by NHS board, ranked by mean cholesterol, Scotland 2018.

NHS board	Mean total cholesterol (mmol/l)
Ayrshire and Arran	4.2
Fife	4.2
Lanarkshire	4.2
Tayside	4.2
Dumfries and Galloway	4.3
Greater Glasgow and Clyde	4.3
Forth Valley	4.3
Lothian	4.3
Highland	4.4
Orkney	4.4
Western Isles	4.4
Grampian	4.4
Borders	4.4
Shetland	4.4

Smoking Status National and Regional Detail

The smoking status in the last 15 months was recorded for 73.5% of the diabetic population (Table 102). Overall, 16.3% reported that they currently smoke. Note: Data from people of all ages are included in these smoking figures.

Table 102 Percentage of people with diabetes (type 1 and type 2 combined) who were recorded as current, ex- or never-smokers (denominator those with record of smoking status) by year, Scotland 2009-2018.

Year	Current smoker (%)	Ex-smoker (%)	Never smoked (%)	Not recorded (%)
2018	16.3	36.5	47.2	26.5
2017	16.9	36.3	46.8	24.7
2016	17.7	36.4	45.9	21.8
2015	18.1	36.6	45.4	18.8
2014	18.8	36.3	45.0	15.4
2013 (a)	18.7	34.9	46.5	1.5
2012	19.3	35.2	45.5	4.7
2011 (b)	19.3	34.4	46.4	0.8
2010	19.3	35.1	45.7	1.0
2009	19.5	35.5	45.0	1.1

Note: (a) Data for years prior to 2014 are calculated based on whether smoking status has ever been recorded, whereas data from 2014 onwards is calculated based on whether smoking status was recorded in the last 15 months. (b) Data for years prior to 2012 are calculated as a percentage of all registered people with recorded smoking status.

Table 102 and Table 103 show those with a recorded smoking status in the last 15 months. Overall, 16.3% reported that they currently smoke (19.4% type 1 and 16% type 2). Figure 71 and Figure 72 graphically show the percentages of the smoking status, including those without a recording, using the diabetic population as the denominator.

See the type 1 Smoking Status section for information on people with type 1 diabetes.

Note: Data from people of all ages are included in these smoking figures.

Figure 71 Type 1 diabetes: Smoking status as a percentage of all those with type 1 diabetes, by NHS Health Board, ordered by current smoker percentage, Scotland 2018.

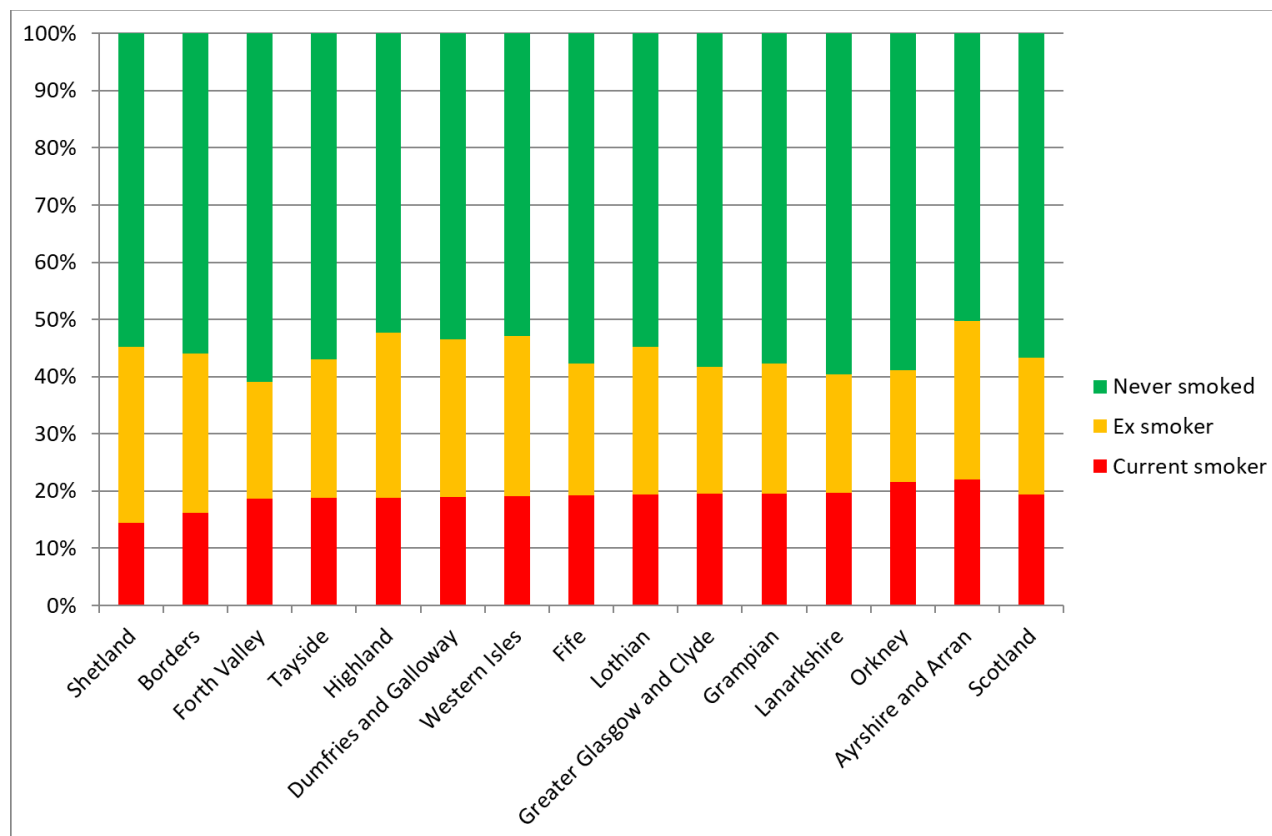


Table 103 Type 1 diabetes: Percentage of people who were recorded as current, ex- or never-smokers, by NHS board (denominator those with a record of smoking status); ordered by current smoker percentage, Scotland 2018.

NHS board	No. with known status	Current smoker (%)	Ex-smoker (%)	Never smoked (%)	Recorded (%)
Shetland	104	14.4	30.8	54.8	73.8
Borders	422	16.1	28.0	55.9	58.7
Forth Valley	1,492	18.7	20.4	60.9	77.2
Tayside	1,301	18.8	24.2	57.0	58.1
Highland	1,484	18.8	28.9	52.3	68.4
Dumfries and Galloway	665	18.9	27.5	53.5	66.2
Western Isles	136	19.1	27.9	52.9	67.0
Fife	1,722	19.2	23.0	57.8	76.8
Lothian	3,349	19.3	25.9	54.7	66.8
Greater Glasgow and Clyde	4,321	19.5	22.1	58.4	65.5
Grampian	2,057	19.6	22.8	57.7	57.3
Lanarkshire	2,650	19.7	20.7	59.6	59.0
Orkney	102	21.6	19.6	58.8	82.3
Ayrshire and Arran	1,252	22.0	27.7	50.2	53.0
Scotland	21,057	19.4	23.9	56.8	64.1

Figure 72 Type 2 diabetes: Smoking status as a percentage of all those with type 2 diabetes, by NHS Health Board, ordered by current smoker percentage, Scotland 2018.

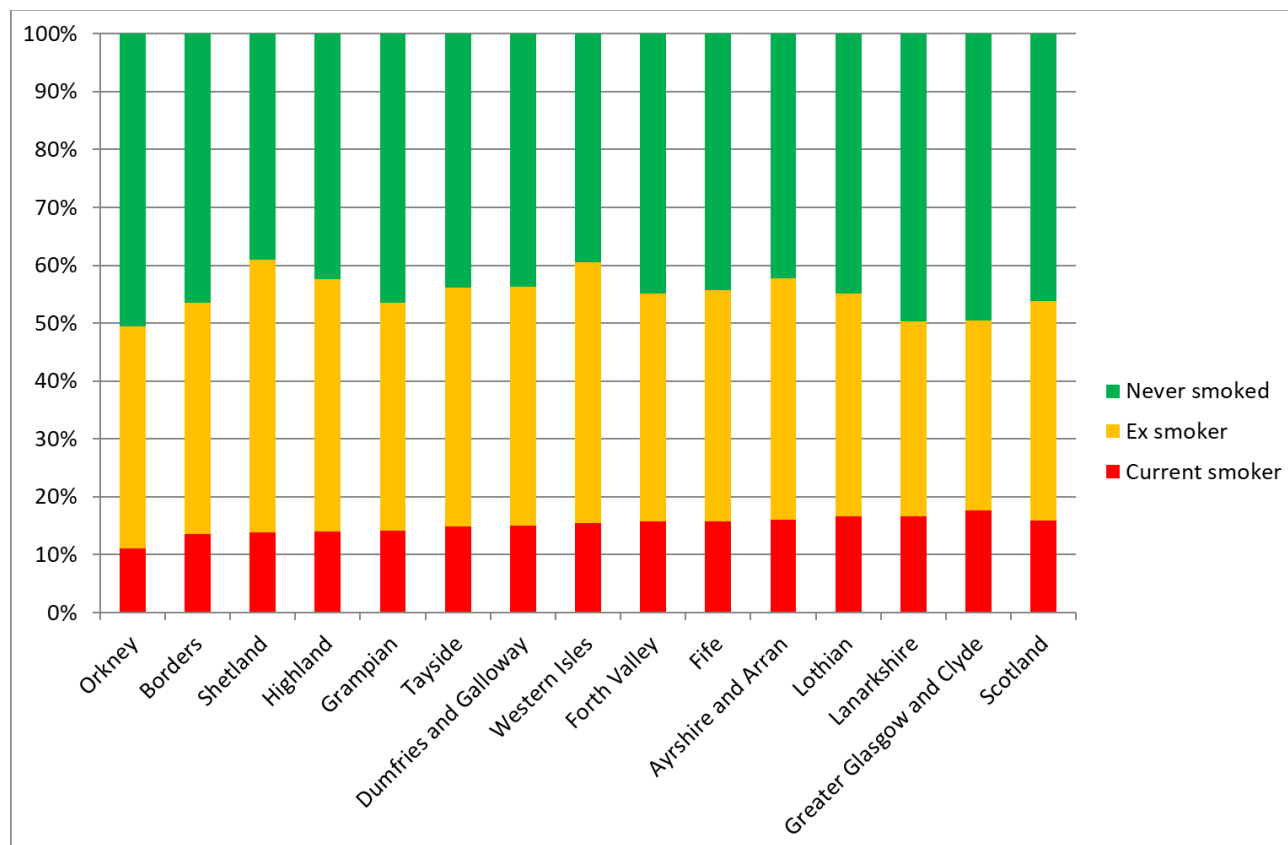


Table 104 Type 2 diabetes: Percentage of people who were recorded as current, ex- or never-smokers, by NHS board (denominator those with a record of smoking status); ranked by percentage who are current smokers, Scotland 2018.

NHS board	No. with known status	Current smoker (%)	Ex smoker (%)	Never smoked (%)	Recorded (%)
Orkney	924	11.0	38.4	50.5	83.9
Borders	4,119	13.6	39.9	46.5	68.2
Shetland	790	13.9	47.0	39.1	79.9
Highland	12,317	13.9	43.7	42.4	79.3
Grampian	19,873	14.1	39.5	46.5	77.1
Tayside	16,922	14.9	41.2	43.8	78.8
Dumfries and Galloway	5,699	14.9	41.4	43.7	66.5
Western Isles	986	15.4	45.0	39.6	76.0
Forth Valley	11,803	15.7	39.4	44.9	76.2
Fife	15,161	15.7	40.0	44.3	76.9
Ayrshire and Arran	16,360	16.0	41.7	42.3	74.4
Lothian	25,878	16.6	38.5	44.9	70.4
Lanarkshire	25,284	16.6	33.7	49.7	71.9
Greater Glasgow and Clyde	43,765	17.7	32.7	49.6	75.8
Scotland	199,881	16.0	37.9	46.2	74.7

Complications of Diabetes Regional Detail

Myocardial Infarction and Cardiac Revascularisation Summary

27,014 (9.0%) of registered people have a record of a previous MI in primary care records (Table 105). Others will have had an MI but not survived. There have been improvements in recording, increased use of procedures and better survival following an MI in recent years. 21,224 (7.1%) people included in the survey have a record of having undergone cardiac revascularisation (Table 105), including coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty (PTCA).

See the [Myocardial Infarction and Cardiac Regional Detail](#) sections for information on people with type 1 diabetes

Table 105 Percentage of people with diabetes (type 1 and type 2 combined) who are recorded as having had a previous myocardial infarction (MI) or cardiac revascularisation by year, Scotland 2009-2018.

Year	Myocardial infarction (%)	Cardiac Revascularisation (%)
2018	9.0	7.1
2017	9.0	7.0
2016	9.0	6.9
2015	9.1	6.9
2014	9.2	6.9
2013	9.3	6.8
2012	9.4	6.7
2011	9.5	6.6
2010	9.1	6.4
2009	9.5	6.3

Note: The Myocardial infarction column shows the percentage of people with diabetes who have ever had a record of a heart attack and survived.

Myocardial Infarction Regional Detail

Table 106 Number and percentage of people with type 1 or type 2 diabetes recorded as having had a previous myocardial infarction (MI), by diabetes type and NHS board, ranked from low to high by percentage among people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as having had an MI			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Orkney	5	4.0%	91	8.3%
Shetland	5	3.5%	86	8.7%
Grampian	133	3.7%	2,285	8.9%
Fife	76	3.4%	1,792	9.1%
Dumfries and Galloway	41	4.1%	779	9.1%
Forth Valley	51	2.6%	1,439	9.3%
Tayside	81	3.6%	2,001	9.3%
Western Isles	5	2.5%	121	9.3%
Lothian	141	2.8%	3,445	9.4%
Borders	39	5.4%	575	9.5%
Ayrshire and Arran	98	4.1%	2,164	9.8%
Lanarkshire	197	4.4%	3,536	10.1%
Highland	95	4.4%	1,583	10.2%
Greater Glasgow and Clyde	230	3.5%	5,920	10.3%
Scotland	1,197	3.6%	25,817	9.6%

Cardiac Revascularisation Regional Detail

Table 107 Number and percentage of people with type 1 or type 2 diabetes who have a record of cardiac revascularisation by NHS board and diabetes type, ranked from low to high by percentage among people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as having undergone cardiac revascularisation			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Fife	54	2.4	1,231	6.2
Shetland	5	3.5	65	6.6
Orkney	5	4.0	73	6.6
Forth Valley	42	2.2	1,032	6.7
Dumfries and Galloway	32	3.2	622	7.3
Tayside	73	3.3	1,573	7.3
Borders	19	2.6	452	7.5
Western Isles	5	2.5	98	7.6
Lothian	119	2.4	2,786	7.6
Ayrshire and Arran	66	2.8	1,670	7.6
Lanarkshire	153	3.4	2,692	7.7
Greater Glasgow and Clyde	168	2.5	4,508	7.8
Highland	72	3.3	1,308	8.4
Grampian	117	3.3	2,184	8.5
Scotland	930	2.8	20,294	7.6

Stroke

15,251 (5.1%) people with diabetes were recorded as having ever had a cerebrovascular accident (stroke), an increase in numbers, but a similar percentage to that in previous surveys (5.1% in 2017, 5.0% in 2016 and 2015, 4.9% in 2014, 5.0% in 2013, 4.9% in 2012 and 2011, 5.0% in 2010 and 5.1% in 2008 and 2009).

Table 108 Number and percentage of people with type 1 or type 2 diabetes who were recorded as ever having had a stroke, by NHS board and diabetes type, ranked from low to high by percentage among people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as having had a stroke			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Orkney	*	*	33	3.0
Grampian	66	1.8	1,228	4.8
Dumfries and Galloway	18	1.8	416	4.9
Western Isles	6	3.0	63	4.9
Tayside	51	2.3	1,045	4.9
Forth Valley	36	1.9	787	5.1
Lanarkshire	108	2.4	1,794	5.1
Highland	47	2.2	833	5.4
Fife	54	2.4	1,091	5.5
Lothian	111	2.2	2,129	5.8
Greater Glasgow and Clyde	152	2.3	3,354	5.8
Ayrshire and Arran	65	2.7	1,300	5.9
Shetland	*	*	60	6.1
Borders	20	2.8	382	6.3
Scotland	736	2.2	14,515	5.4

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Kidney Function and Disease Regional Detail

Serum Creatinine National and Regional Detail

Serum creatinine was recorded in the previous 15 months for 91.6% (274,055) of people aged over 11 years of age (Table 110).

Table 109 Percentage of people with diabetes (type 1 and type 2 combined) who had a record of serum creatinine within the previous 15 months by year, Scotland 2009-2018.

Year	Record of serum creatinine within previous 15 months %	Total eligible population (n)
2018	91.6	299,121
2017	92.1	293,411
2016	93.1	287,336
2015	94.1	280,003
2014	94.4	272,651
2013	93.3	264,695
2012	92.6	255,640
2011	91.2	244,800
2010	90.8	235,198
2009	90.0	225,635

Note: Excludes children under 12 years of age or people who have no date of birth recorded (n=1322).

See the [Type 1 Diabetes Serum Creatinine](#) section for information on people with type 1 diabetes.

Serum Creatinine Regional Detail**Table 110** Number and percentage of people with type 1 or type 2 diabetes who have a record of serum creatinine within the previous 15 months, by NHS board and diabetes type, ranked from high to low by percentage among people with type 2 diabetes, Scotland 2018.

NHS board	Serum creatinine recorded within previous 15 months				
	Type 1 diabetes		Type 2 diabetes		Total (n)
	People (n)	%	People (n)	%	
Orkney	115	95.0	1,069	97.1	1,184
Shetland	127	92.7	951	96.2	1,078
Grampian	3,061	88.6	24,629	95.6	27,690
Dumfries and Galloway	890	91.6	8,152	95.2	9,042
Western Isles	174	90.6	1,234	95.1	1,408
Borders	631	90.8	5,739	95.1	6,370
Tayside	1,924	88.9	20,289	94.5	22,213
Fife	1,867	87.0	18,478	93.7	20,345
Lothian	4,176	85.9	34,160	92.9	38,336
Greater Glasgow and Clyde	5,567	87.6	53,548	92.8	59,115
Lanarkshire	3,720	86.4	32,509	92.6	36,229
Forth Valley	1,646	89.2	14,204	91.8	15,850
Ayrshire and Arran	1,771	78.3	19,325	87.9	21,096
Highland	1,463	69.8	12,636	81.4	14,099
Scotland	27,132	85.8	246,923	92.3	274,055

Note: Excludes children under 12 years of age or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98).

Urinary Albuminuria

Table 111 Number and percentage of people with type 1 or type 2 diabetes and a record of estimated urinary albumin value available on SCI-Diabetes within the previous 15 months, by diabetes type by year, Scotland 2012-2018.

Year	Urinary albumin recorded within previous 15 months				
	Type 1 diabetes		Type 2 diabetes		Total (n)
	Number	%	Number	%	
2018	19,844	62.8	177,039	66.2	196,883
2017	18,928	62.6	177,868	67.6	196,796
2016	18,815	63.3	180,497	70.1	199,312
2015	18,180	62.2	178,151	71.0	196,331
2014	18,516	64.5	177,646	72.8	196,162
2013	17,256	61.2	166,551	70.4	183,807
2012	16,851	60.7	157,564	69.1	174,415

Note: Excludes children under 12 years of age or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98). In some cases, urinary albumin was estimated from albumin/creatinine ratio (ACR). This table is limited to the years since 2012 due to the absence of data prior to that.

See the [Type 1 Diabetes Urinary Albuminuria](#) section for information on people with type 1 diabetes

Table 112 Number and percentage of people with type 1 or type 2 diabetes with a record of estimated urinary albumin value within the previous 15 months, by NHS board and diabetes type, ranked from high to low by percentage among people with type 2 diabetes, Scotland 2018.

NHS board	Urinary albumin recorded within previous 15 months				
	Type 1 diabetes		Type 2 diabetes		Total (n)
	People (n)	%	People (n)	%	
Orkney	85	70.2	894	81.2	979
Tayside	1,385	64.0	16,695	77.7	18,080
Grampian	2,325	67.3	19,016	73.8	21,341
Lothian	3,528	72.6	25,466	69.3	28,994
Dumfries and Galloway	691	71.1	5,896	68.8	6,587
Fife	1,545	72.0	13,378	67.8	14,923
Forth Valley	1,254	67.9	10,482	67.7	11,736
Highland	1,158	55.2	10,436	67.2	11,594
Ayrshire and Arran	1,242	54.9	14,741	67.0	15,983
Shetland	111	81.0	660	66.7	771
Western Isles	105	54.7	847	65.3	952
Greater Glasgow and Clyde	3,938	62.0	37,497	65.0	41,435
Lanarkshire	2,265	52.6	20,784	59.2	23,049
Borders	212	30.5	247	4.1	459
Scotland	19,844	62.8	177,039	66.2	196,883

Note: Excludes children under 12 years of age or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98). In some cases, urinary albumin was estimated from albumin/creatinine ratio (ACR).

Table 113 Number and percentage of people with type 1 or type 2 diabetes with a record of estimated glomerular filtration rate (eGFR) within the previous 15 months, by NHS board and diabetes type, ranked from high to low by percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Estimated glomerular filtration rate (eGFR) recorded within previous 15 months				
	Type 1 diabetes		Type 2 diabetes		Total (n)
	People (n)	%	People (n)	%	
Orkney	109	94.8	1,070	97.2	1,179
Shetland	121	96.0	951	96.2	1,072
Grampian	2,906	89.7	24,635	95.6	27,541
Dumfries and Galloway	850	93.1	8,146	95.1	8,996
Tayside	1,799	88.1	20,290	94.5	22,089
Fife	1,760	86.7	18,464	93.6	20,224
Western Isles	151	83.4	1,213	93.5	1,364
Greater Glasgow and Clyde	5,265	87.6	53,542	92.8	58,807
Forth Valley	1,551	89.2	14,204	91.8	15,755
Highland	1,621	83.0	14,228	91.7	15,849
Ayrshire and Arran	1,849	87.2	20,108	91.5	21,957
Lothian	3,986	86.3	33,556	91.3	37,542
Lanarkshire	3,387	84.3	31,967	91.1	35,354
Borders	565	86.7	5,272	87.4	5,837
Scotland	25,920	87.1	247,646	92.6	273,566

End Stage Renal Failure

End stage renal failure implies a need for renal dialysis or transplantation and may occur as a consequence of diabetic nephropathy or from other causes of kidney disease.

Table 114 Number and percentage of people with type 1 or type 2 diabetes recorded as having end stage renal failure, by NHS board and diabetes type, ranked by percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as having end stage renal failure			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Orkney	*	*	*	*
Shetland	0	0.0	*	*
Ayrshire and Arran	31	1.3	74	0.3
Borders	17	2.4	24	0.4
Lanarkshire	82	1.8	173	0.5
Fife	18	0.8	106	0.5
Forth Valley	23	1.2	88	0.6
Tayside	38	1.7	124	0.6
Grampian	65	1.8	153	0.6
Highland	30	1.4	93	0.6
Dumfries and Galloway	18	1.8	55	0.6
Lothian	48	1.0	247	0.7
Greater Glasgow and Clyde	93	1.4	456	0.8
Western Isles	*	*	13	1.0
Scotland	467	1.4	1,612	0.6

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Diabetic Eye Screening and Disease Regional Detail

Diabetic Retinal Screening

84.2% of people eligible for screening had a record of eye screening through the retinal screening service recorded on SCI-Diabetes in the previous 15 months, including those attending ophthalmology services (Table 115).

Table 115 shows the proportion of people aged 12 years or older who were either screened, were getting eye-care via specialist services or were deliberately (for clinical or social reasons) suspended from screening as a proportion of the total number of people who had a record of date of birth and were over 12 years of age.

See the [Type 1 Diabetes Diabetic Retinal Screening](#) section for information on people with type 1 diabetes.

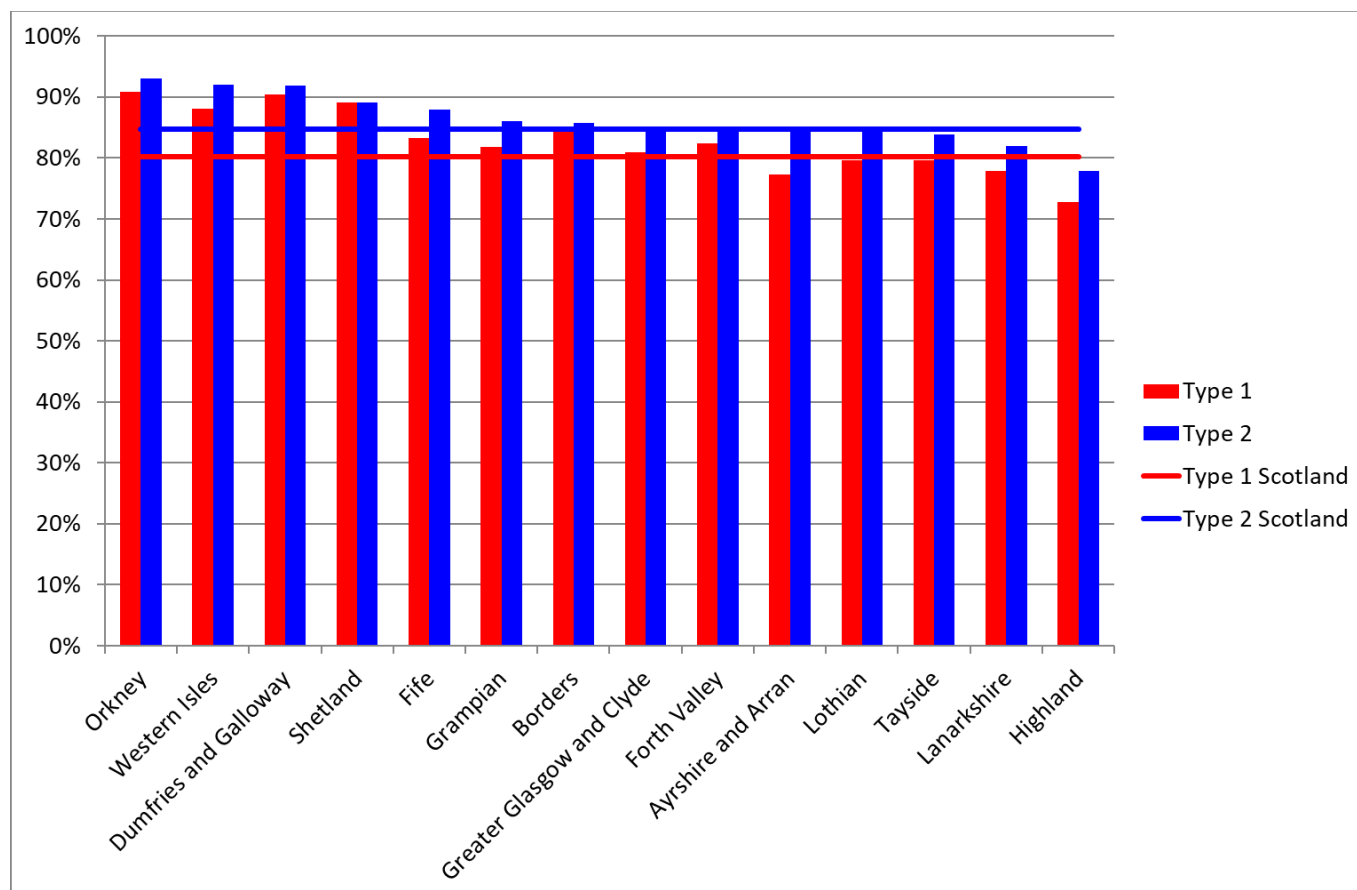
Table 115 Percentage of people with diabetes (type 1 and type 2 combined) who were recorded as having had eye-screening, ophthalmology care or an appropriate suspension from screening (depending on methodology at the time of the report) by year, Scotland 2009-2018

Year	Recorded within previous 15 months (%)
2018	84.2
2017	82.4
2016	85.4
2015	85.7
2014	86.4
2013	86.7
2012	86.1
2011	85.6
2010	85.1
2009	80.6

Note: Excludes children under 12 years or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98). In 2017, data in this table were revised, with years 2013-2015 0.1% lower than previously reported.

Diabetic Retinal Screening Regional Detail

Figure 73 Percentage of people with type 1 or type 2 diabetes with a record of diabetic retinopathy screening within the previous 15 months through retinal screening service, including those attending ophthalmology clinics and those suspended, by NHS board and diabetes type, ranked from high to low by percentage among people with type 2 diabetes, Scotland 2018.



Note: Excludes people under 12 years of age and people whose date of birth has not been recorded (type 1 n = 3069, type 2 n = 131).

Table 116 and Table 117 show the number and proportion of people of appropriate age (≥ 12 years) who were either screened, were getting eye-care via specialist services or were deliberately (for clinical or social reasons) suspended from screening as a proportion of the total number of people who had a record of date of birth and were over 12 years of age.

Table 116 Number and percentage of people with type 1 and type 2 diabetes of appropriate age (>12 years) who were either recorded as having had diabetic retinopathy screening within the previous 15 months, were attending specialist ophthalmology clinics or were appropriately suspended from screening as a proportion of the total number of people who had a record of date of birth and were over 12 years of age; by NHS board and diabetes type, ranked by decreasing percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Type 1 diabetes		Type 2 diabetes		All (Type 1 and Type 2)		Not recorded (n)
	People (n)	%	People (n)	%	People (n)	%	
Orkney	110	90.9	1,025	93.1	1,135	92.9	87
Western Isles	169	88.0	1,193	92.0	1,362	91.5	127
Dumfries and Galloway	879	90.4	7,874	91.9	8,753	91.8	786
Shetland	122	89.1	881	89.1	1,003	89.1	123
Fife	1,786	83.2	17,347	88.0	19,133	87.5	2,733
Grampian	2,824	81.8	22,168	86.1	24,992	85.5	4,222
Borders	588	84.6	5,178	85.8	5,766	85.7	964
Greater Glasgow and Clyde	5,140	80.9	49,134	85.1	54,274	84.7	9,781
Forth Valley	1,520	82.3	13,172	85.1	14,692	84.8	2,633
Ayrshire and Arran	1,749	77.3	18,651	84.8	20,400	84.1	3,849
Lothian	3,866	79.6	31,011	84.3	34,877	83.8	6,752
Tayside	1,725	79.7	17,997	83.8	19,722	83.4	3,918
Lanarkshire	3,352	77.8	28,760	81.9	32,112	81.5	7,307
Highland	1,524	72.7	12,079	77.8	13,603	77.2	4,015
Scotland	25,354	80.2	226,470	84.7	251,824	84.2	47,297

Note: Excludes children under 12 years of age or people who have no date of birth recorded (type 1 n = 1224, type 2 n = 98)

Table 117 Numbers of people eligible for retinopathy screening, numbers screened and percentages of those who had a record of screening (type 1 and type 2 combined), ranked from high to low by percentage of screened people, Scotland 2018.

NHS board	Eligible for screening (n)	Screened	
		People (n)	%
Orkney	1,148	1,061	92.4
Dumfries and Galloway	8,694	7,908	91.0
Western Isles	1,401	1,274	90.9
Shetland	1,072	949	88.5
Fife	20,733	18,000	86.8
Grampian	27,625	23,403	84.7
Borders	6,115	5,151	84.2
Forth Valley	16,667	14,034	84.2
Greater Glasgow and Clyde	60,599	50,818	83.9
Ayrshire and Arran	22,716	18,867	83.1
Lothian	38,916	32,164	82.6
Tayside	21,734	17,816	82.0
Lanarkshire	37,072	29,765	80.3
Highland	16,828	12,813	76.1
Scotland	281,320	234,023	83.2

Table 118 Number and prevalence (per 10,000 people with type 1 diabetes who are recorded as blind) of causes of blindness, ranked from low to high by prevalence of blindness caused by diabetes, Scotland 2018.

NHS board	Diabetic cause		Non-diabetic cause		Not specified		Total Recorded		Total on register (n)
	n	Prevalence	n	Prevalence	n	Prevalence	n	Prevalence	
Borders	0	0.0	0	0.0	*	*	*	*	719
Highland	0	0.0	0	0.0	8	36.9	8	36.9	2,169
Orkney	0	0.0	0	0.0	*	*	*	*	124
Shetland	0	0.0	0	0.0	0	0.0	0	0.00	141
Western Isles	0	0.0	0	0.0	0	0.0	0	0.00	203
Lothian	*	*	0	0.0	*	*	14	27.9	5,010
Lanarkshire	*	*	0	0.0	*	*	40	89.8	4,495
Grampian	*	*	0	0.0	*	*	28	78.0	3,591
Ayrshire and Arran	*	*	0	0.0	*	*	14	59.2	2,364
Greater Glasgow and Clyde	*	*	0	0.0	*	*	25	37.9	6,592
Forth Valley	*	*	0	0.0	*	*	10	51.7	1,933
Dumfries and Galloway	*	*	0	0.0	*	*	6	59.8	1,004
Fife	*	*	0	0.0	*	*	12	53.5	2,242
Tayside	*	*	0	0.0	*	*	15	66.9	2,241
Scotland	17	5.2	0	0.0	157	47.3	174	53.0	32,828

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Table 119 Number and prevalence (per 10,000 people with type 2 diabetes who are recorded as blind) of causes of blindness, ranked by diabetic cause prevalence, Scotland 2018.

NHS board	Diabetic cause		Non-diabetic cause		Not specified		Total Recorded		Total on register (n)
	n	Prevalence	n	Prevalence	n	Prevalence	n	Prevalence	
Borders	0	0.0	0	0.0	33	54.7	33	54.7	6,037
Dumfries and Galloway	0	0.0	0	0.0	51	59.5	51	59.5	8,571
Grampian	0	0.0	*	*	*	*	207	80.4	25,762
Lanarkshire	0	0.0	0	0.0	263	74.8	263	74.8	35,176
Lothian	0	0.0	0	0.0	197	53.6	197	53.6	36,775
Orkney	0	0.0	0	0.0	8	72.7	8	72.7	1,101
Shetland	0	0.0	0	0.0	5	50.6	5	50.6	989
Western Isles	0	0.0	0	0.0	*	*	*	*	1,297
Greater Glasgow and Clyde	*	*	*	*	339	58.7	347	60.1	57,713
Ayrshire and Arran	*	*	0	0.0	*	*	99	45.0	21,987
Forth Valley	*	*	*	*	74	47.8	79	51.0	15,480
Tayside	*	*	7	3.3	129	60.1	138	64.3	21,475
Fife	*	*	0	0.0	*	*	109	55.3	19,727
Highland	*	*	*	*	*	*	106	68.3	15,525
Scotland	10	0.4	19	0.7	1,617	60.4	1,646	61.5	267,615

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Foot Complications National and Regional Detail

Table 120 Type 1 diabetes: Number and percentage of people with active foot disease, high, moderate or low foot risk score recorded in the previous 15 months, by NHS board, ranked by decreasing percentage foot risk score recorded, Scotland 2018.

NHS board	Recorded as having active foot disease		Recorded as having high foot risk score		Recorded as having moderate foot risk score		Recorded as having low foot risk score		Foot risk score recorded	
	n	%	n	%	n	%	n	%	n	%
Shetland	*	*	*	*	6	5.0	110	91.7	120	85.1
Forth Valley	27	2.1	111	8.5	110	8.5	1,052	80.9	1,300	67.3
Orkney	*	*	*	*	11	13.8	63	78.8	80	64.5
Highland	26	1.9	123	8.8	121	8.7	1,124	80.6	1,394	64.3
Borders	13	2.9	43	9.4	49	10.7	351	77.0	456	63.4
Dumfries and Galloway	13	2.1	47	7.6	45	7.3	514	83.0	619	61.7
Western Isles	*	*	*	*	23	18.4	84	67.2	125	61.6
Ayrshire and Arran	33	2.4	62	4.5	77	5.6	1,200	87.5	1,372	58.0
Tayside	31	2.5	110	8.9	107	8.6	994	80.0	1,242	55.4
Greater Glasgow and Clyde	125	3.4	307	8.4	249	6.8	2,959	81.3	3,640	55.2
Lothian	59	2.2	167	6.3	197	7.4	2,243	84.1	2,666	53.2
Lanarkshire	73	3.1	186	7.8	202	8.4	1,930	80.7	2,391	53.2
Grampian	35	1.8	92	4.8	157	8.3	1,614	85.0	1,898	52.9
Fife	33	3.4	90	9.3	89	9.2	754	78.1	966	43.1
Scotland	474	2.6	1,360	7.4	1,443	7.9	14,992	82.1	18,269	55.7

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Table 121 Type 2 diabetes: Number and percentage of people with active foot disease, high, moderate or low foot risk score recorded in the previous 15 months, by NHS board, ranked by decreasing percentage foot risk score recorded, Scotland 2018.

NHS board	Recorded as having active foot disease		Recorded as having high foot risk score		Recorded as having moderate foot risk score		Recorded as having low foot risk score		Foot risk score recorded	
	n	%	n	%	n	%	n	%	n	%
Shetland	*	*	*	*	94	11.2	703	84.0	837	84.6
Orkney	*	*	*	*	195	22.8	511	59.6	857	77.8
Tayside	172	1.1	1,288	7.9	2,626	16.1	12,212	74.9	16,298	75.9
Highland	137	1.2	927	8.0	1,651	14.2	8,881	76.6	11,596	74.7
Western Isles	15	1.6	244	26.5	217	23.6	444	48.3	920	70.9
Grampian	128	0.7	786	4.3	2,360	13.0	14,829	81.9	18,103	70.3
Forth Valley	56	0.5	425	4.1	1,472	14.3	8,362	81.1	10,315	66.6
Lothian	327	1.4	1,384	5.7	3,381	14.0	19,127	79.0	24,219	65.9
Dumfries and Galloway	59	1.1	327	5.8	699	12.5	4,527	80.7	5,612	65.5
Ayrshire and Arran	119	0.8	438	3.1	1,306	9.2	12,296	86.8	14,159	64.4
Borders	30	0.8	198	5.2	451	11.8	3,157	82.3	3,836	63.5
Greater Glasgow and Clyde	744	2.1	2,503	7.0	4,828	13.5	27,665	77.4	35,740	61.9
Fife	162	1.4	1,003	8.6	2,265	19.3	8,286	70.7	11,716	59.4
Lanarkshire	347	1.7	1,151	5.5	2,477	11.9	16,832	80.9	20,807	59.2
Scotland	2,313	1.3	10,848	6.2	24,022	13.7	137,832	78.8	175,015	65.4

Foot Ulceration National and Regional Detail

Foot Ulceration

Table 122 Percentage of people with diabetes (type 1 and type 2 combined) who had a record of ever having had a foot ulcer by year, Scotland 2009-2018.

Year	Recorded as ever having had a foot ulcer (%)
2018	4.7
2017	4.7
2016	4.7
2015	4.8
2014	4.9
2013	5.2
2012 (a)	5.1
2011	4.3
2010	4.4
2009	4.3

Note: (a) The increase in recorded foot ulcers between 2011 and 2012 is likely to be due to better recording rather than a real increase in the number of foot ulcers.

14,059 (4.7%) people with type 1 or type 2 diabetes were reported to have had a foot ulcer (Table 123).

Table 123 Number and percentage of people with diabetes with a record of ever having had a foot ulcer, by NHS board and diabetes type, ranked by ascending percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as ever having had a foot ulcer			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Grampian	130	3.6	451	1.8
Ayrshire and Arran	138	5.8	514	2.3
Shetland	*	*	25	2.5
Forth Valley	178	9.2	411	2.7
Borders	52	7.2	163	2.7
Dumfries and Galloway	71	7.1	267	3.1
Tayside	150	6.7	770	3.6
Fife	157	7.0	773	3.9
Highland	130	6.0	627	4.0
Lothian	351	7.0	1,753	4.8
Orkney	*	*	55	5.0
Greater Glasgow and Clyde	623	9.5	2,898	5.0
Lanarkshire	751	16.7	2,503	7.1
Western Isles	14	6.9	95	7.3
Scotland	2,754	8.4	11,305	4.2

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

See the [Type 1 Diabetes Foot Ulceration](#) section for information on people with type 1 diabetes.

Lower Limb Amputation National and Regional Detail

There were 1,401 (0.5%) people recorded as having a major lower limb amputation (Table 124).

Table 124 Number and percentage of people with diabetes (type 1 and type 2 combined) who had a record of ever having had a major lower limb amputation by year, Scotland 2009-2018.

Year	Lower limb amputation	
	People (n)	%
2018	1,401	0.5
2017 (a)	2,000	0.7
2016 (a)	2,055	0.7
2015 (a)	2,092	0.7
2014 (a)	2,111	0.8
2013 (a)	2,064	0.8
2012 (a)	1,854	0.7
2011	1,359	0.6
2010	1,250	0.5
2009	1,132	0.5

Note: (a) between 2012 and 2017, digits were inadvertently included in the calculation.

Table 125 Number and percentage of people with type 1 or type 2 diabetes with a record of ever having had a major lower limb amputation, by NHS board and diabetes type, ranked by ascending percentage of people with type 2 diabetes, Scotland 2018.

NHS board	Recorded as ever having had a lower limb amputation			
	Type 1 diabetes		Type 2 diabetes	
	People (n)	%	People (n)	%
Lanarkshire	27	0.6	110	0.3
Borders	*	*	21	0.3
Grampian	20	0.6	99	0.4
Lothian	25	0.5	149	0.4
Highland	21	1.0	65	0.4
Forth Valley	12	0.6	65	0.4
Ayrshire and Arran	25	1.1	98	0.4
Tayside	20	0.9	96	0.4
Greater Glasgow and Clyde	54	0.8	266	0.5
Shetland	*	*	5	0.5
Orkney	*	*	6	0.5
Fife	17	0.8	111	0.6
Dumfries and Galloway	16	1.6	51	0.6
Western Isles	*	*	8	0.6
Scotland	251	0.8	1,150	0.4

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

Other Statistics

My Diabetes My Way

“My Diabetes My Way” (www.mydiabetesmyway.scot.nhs.uk) is the NHS Scotland interactive diabetes website that helps to support people who have diabetes and their carers.

Table 126 Numbers of people with type 1 and type 2 diabetes registered to access and actively accessing their clinical information using the “My Diabetes My Way” website by year, Scotland 2013-2018.

Year	Registered Users				Active users	
	Type 1 diabetes	Type 2 diabetes	Total people	Yearly change (%)	Number	Yearly change (%)
2018	12,120	28,021	40,141	28.2	21,768	31.6
2017	9,972	21,337	31,309	29.1	16,536	39.7
2016	8,570	15,685	24,255	43.2	11,840	58.6
2015	6,456	10,478	16,934	67.6	7,463	101.8
2014	2,722	7,383	10,105	55.0	3,699	92.4
2013	2,195	4,325	6,520	*	1,923	*

Note: * - the Yearly Change (%) for 2013 cannot be calculated as no data is available for the previous year.

At the end of 2018, 21,768 people had accessed their results using “My Diabetes My Way” (Table 126). During the final 3 months of 2018, a total of 6,841 (31.4% of all active users) had logged in, showing good levels of continued engagement. Healthcare providers across NHS Scotland are encouraged to raise awareness of My Diabetes My Way services amongst their patient cohorts.

My Diabetes My Way is currently offering to complete a mail-out on behalf of GP Practices in order to make unregistered people aware of the service. This mail-out will be completed at no cost to the practice on verification of a patient list, provided by SCI-Diabetes.

Further information and awareness materials may be requested by emailing the My Diabetes My Way project team on mydiabetesmyway@nhs.net.

My Diabetes My Way Regional Detail

The table below shows the number of people who had registered to access their own clinical information using the website by the end of 2017. Records access is a key objective of the Scottish Diabetes Improvement Plan.

Table 127 Number and percentage of people with type 1 and type 2 diabetes registered to access their clinical information using the “My Diabetes My Way” website by NHS board ordered by decreasing total percentage of registered users, Scotland 2018.

NHS board	Type 1 diabetes			Type 2 diabetes			Total		
	n	Pop.	%	n	Pop.	%	n	Pop.	%
Greater Glasgow and Clyde	2,749	6,592	41.7	7,668	57,713	13.3	10,417	64,305	16.2
Orkney	58	124	46.8	133	1,101	12.1	191	1,225	15.6
Tayside	730	2,241	32.6	2,867	21,475	13.4	3,597	23,716	15.2
Lothian	2,282	5,010	45.5	3,997	36,775	10.9	6,279	41,785	15.0
Shetland	42	141	29.8	122	989	12.3	164	1,130	14.5
Forth Valley	1,007	1,933	52.1	1,383	15,480	8.9	2,390	17,413	13.7
Borders	267	719	37.1	631	6,037	10.5	898	6,756	13.3
Fife	622	2,242	27.7	2,155	19,727	10.9	2,777	21,969	12.6
Western Isles	48	203	23.6	141	1,297	10.9	189	1,500	12.6
Lanarkshire	1,738	4,495	38.7	3,216	35,176	9.1	4,954	39,671	12.5
Grampian	1,188	3,591	33.1	2,475	25,762	9.6	3,663	29,353	12.5
Ayrshire and Arran	639	2,364	27.0	1,728	21,987	7.9	2,367	24,351	9.7
Dumfries and Galloway	249	1,004	24.8	647	8,571	7.5	896	9,575	9.4
Highland	501	2,169	23.1	858	15,525	5.5	1,359	17,694	7.7
Scotland	12,120	32,828	36.9	28,021	267,615	10.5	40,141	300,443	13.4

Note: The above figures show the number of people who had registered to access their diabetes data at the end of 2018. Registration may be initiated by the patient via the My Diabetes My Way website, or by a clinician using SCI-Diabetes. Following registration, a patient must provide their consent to proceed and verify their email address. At this stage, a username and password are emailed to the patient.

NHS Research Scotland (NRS) Diabetes Research Register'

The NRS Diabetes Research Register allows patient with diabetes living in Scotland to give their permission to be matched to and contacted about taking part in diabetes-related research. The table below shows the number of patients who had joined the register by the end of 2018.

Table 128 Numbers of people with type 1 and type 2 diabetes who had joined the NRS Diabetes Register by the end of 2018, by NHS board, Scotland 2018.

NHS board	People on the NRS Diabetes Register			People with type 1 or type 2 diabetes (n)	Percentage of people with type 1 or type 2 diabetes on the NRS Diabetes Register (%)
	Type 1 diabetes	Type 2 diabetes	Total		
Ayrshire and Arran	20	29	49	24,475	0.2
Borders	16	26	42	6,895	0.6
Dumfries and Galloway	133	541	674	9,664	7.0
Fife	207	337	544	22,132	2.5
Forth Valley	84	153	237	17,587	1.3
Grampian	184	607	791	29,590	2.7
Greater Glasgow and Clyde	550	828	1,378	65,174	2.1
Highland	478	763	1,241	18,083	6.9
Lanarkshire	227	580	807	40,259	2.0
Lothian	986	1,600	2,586	42,650	6.1
Orkney	*	*	*	1,230	*
Shetland	*	*	*	1,141	*
Tayside	380	1,687	2,067	23,985	8.6
Western Isles	*	*	9	1,510	0.6
Scotland	3,278	7,155	10,433	304,375	3.4

Note: * indicates a figure between 1 and 4 or a figure that indirectly reveals such figures.

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- Dr Louise Bath
- Mr Michael Bluett
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- Dr Stuart Ritchie
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Appendix 1: SCI-Diabetes Data Sources

SCI-Diabetes is NHS Scotland's diabetes patient management system. It is used in all fourteen health boards and holds data on all people with diabetes living in Scotland. Its purpose is to ensure that people receive the best possible care for their diabetes by providing authorised members of the healthcare team with the information they require to effectively manage their patients.

Security and Confidentiality

SCI-Diabetes is available to members of the NHS Scotland healthcare team within the confines of the NHS intranet. SCI-Diabetes can only be accessed via a secure connection and data are never shared with any unauthorised third-parties. Diabetes Managed Clinical Networks have been set up in all NHS Scotland health boards and they have the responsibility for managing access to SCI-Diabetes.

Data Sources

SCI-Diabetes is used directly by many professionals, but it also receives data from a variety of data sources in order to maintain its shared electronic record for diabetes. A breakdown of the main sources at February 2019 is as follows:

- Community Health Index (master patient index)
- All ~1,000 general practices across Scotland (EMIS, Vision)
- 42 hospitals (direct data entry on SCI-Diabetes)
- 13 of 14 NHS boards linking to local laboratory data (SCI Store – see below)
- National Diabetic Retinopathy Screening (DRS - Vector) System
- Inpatient Management: 7 NHS boards linking to local patient administration system for admission, discharge and transfer data (TrakCare)
- Connected Ward Meters: 1 NHS board linking ward-based blood glucose measurements. Priority implementation area for national diabetes inpatient management programme
- Scottish Ambulance Service: 1 NHS board linking ambulance service data for ambulance call-outs for hypoglycaemic events.
- Winscribe: 4 NHS Boards linking with Winscribe for digital dictation and letter generation.

Registration onto the system can be initiated via the primary and secondary care feeds, registration onto the DRS system or web patient administration forms. As part of the DRS registration process, primary care users are expected to review their SCI-Diabetes lists periodically to ensure that all people eligible for screening are held.

The current SCI-Store (laboratory data) and Inpatient Management Implementation matrices are shown below.

Table 129 Progress towards links from SCI Store to SCI-Diabetes, Scotland 2018.

NHS board	Implementation Requested	Status	Comments
Ayrshire and Arran	Yes	Live	
Borders	Yes	Live	
Dumfries and Galloway	Yes	Live	
Fife	Yes	Live	
Fife/Tayside	Yes	Live	
Forth Valley	Yes	Live	
Grampian	Yes	Live	
Greater Glasgow and Clyde	Yes	Live	
Highland	Yes	Not Scheduled	Argyll & Bute data obtained from GG&C SCI-Store.
Lanarkshire	Yes	Live	
Lothian	Yes	Live	
Orkney	Yes	Live	
Shetland	Yes	Live	
Tayside	Yes	Live	
Western Isles	Yes	Live	

Table 130 Progress towards links from Patient Administration Systems to SCI-Diabetes, Scotland 2018.

NHS board	Implementation Requested	Status	Comments
Ayrshire and Arran	Yes	Live	TrakCare
Borders	Yes	Not Scheduled	TrakCare
Dumfries and Galloway	Yes	Not scheduled	TOPAS
Fife	Yes	Live	TrakCare
Forth Valley	No	Not scheduled	eWard (Migrating to TrakCare 2019)
Grampian	Yes	Live	TrakCare
Greater Glasgow and Clyde	Yes	Live	TrakCare
Highland	Yes	Live	TrakCare
Lanarkshire	Yes	Live	TrakCare
Lothian	Yes	Awaiting upgrade	TrakCare
Orkney	No	Not scheduled	
Shetland	No	Not scheduled	
Tayside	Yes	Live	TrakCare
Western Isles	No	Not scheduled	Cortex

SCI-Diabetes is supporting a national Healthcare Improvement Programme focusing on inpatient diabetes. To provide accurate reporting it is essential that SCI-Diabetes receives data from all hospital patient administration systems and, where relevant, connected ward-based blood glucose meters from systems supplied by Roche and Abbott. At present, NHS Tayside is the only area providing full support for diabetes inpatient management.

In addition to incoming feeds, SCI-Diabetes data are also transferred to external systems:

- National Diabetic Retinopathy Screening: to maintain the call-recall system
- My Diabetes My Way: people accessing their own information
- SCI-Diabetes Audit Server: for regional and national reporting
- Back-Population of over 95% of GP systems: in support of a single-point of data entry

The SCI-Diabetes team are currently addressing several strategic objectives, of which will begin implementation in 2019. These include the enhanced management and collaborations with:

- Electronic Document Transfer Systems: supporting paperless working

More information about the Scottish Care Information – Diabetes Collaboration (SCI-DC) programme and SCI-Diabetes is available at <http://www.sci-diabetes.scot.nhs.uk/>

Appendix 2: Comparison with England / Wales

This section provides a comparison of the results of this survey with the 2017-18 National Diabetes Audit (NDA) in England and Wales¹. Please note that the definitions and cut-off values for blood pressure are not exactly the same so the figures may not be directly comparable.

- 1 National Diabetes Audit, 2017-18 Care Processes and Treatment Targets short report
<https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2017-18-short-report>
- 2 National Diabetes Audit - Report 1 Care Processes and Treatment Targets 2017-18, Full Report
<https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2017-18-full-report>

Diabetes Prevalence

The 2018 Scottish Diabetes Survey (Table 1) reports that 5.6% of the whole population had diabetes (304,375 people), compared to 6.8% (approximately 3.4 million people) identified from 98.3% of general practices and specialist services in England and Wales that participated in the National Diabetes Audit 2017-18 Full Report 1, Care Processes and Treatment Targets_pdf (no. 2 above).

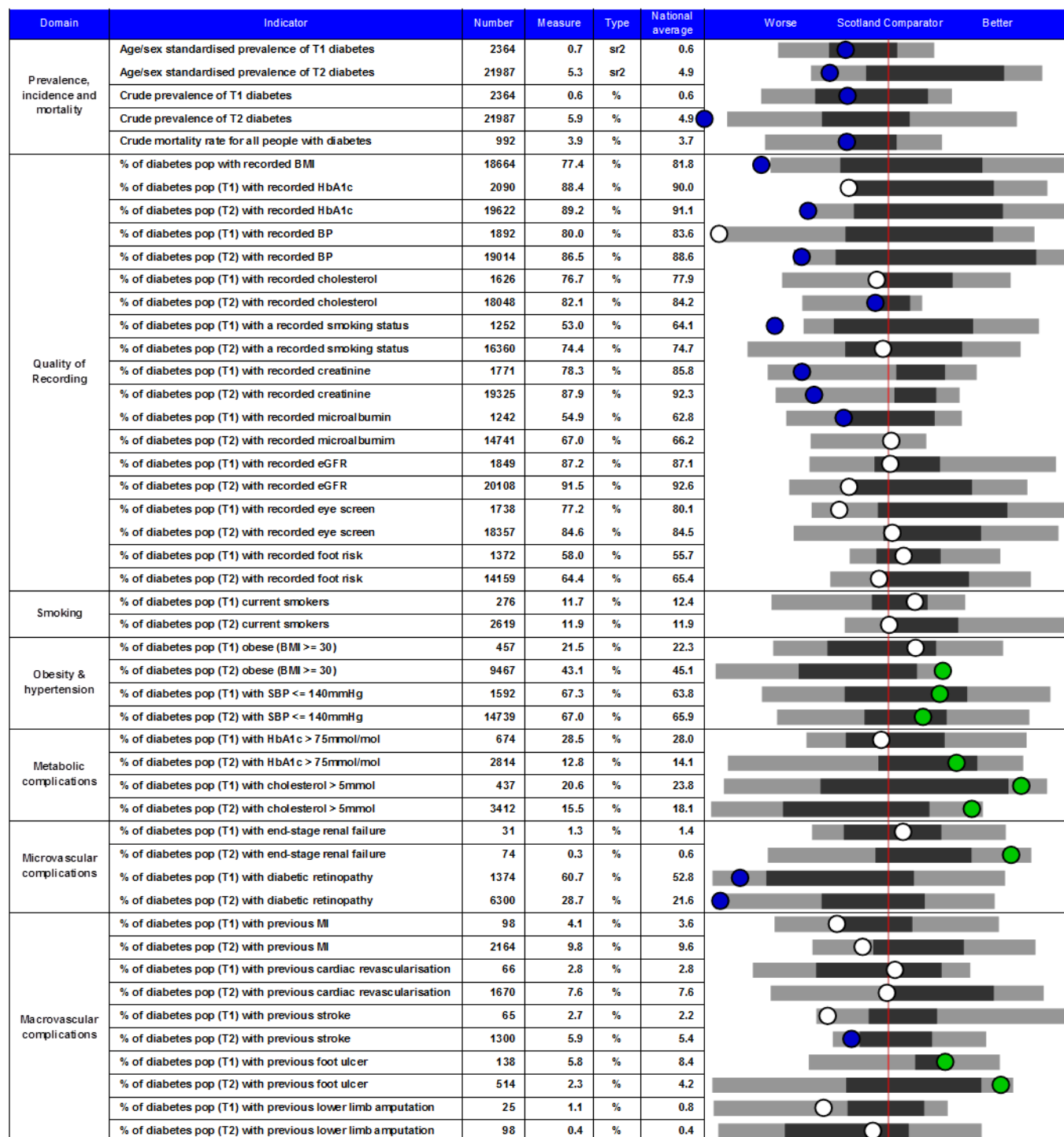
Table 131 Comparison of distribution of key risk factors between Scotland and England/Wales (E&W) by type of diabetes, 2018.

Risk Factor	Range	Type 1		Type 2	
		Scotland (%)	E&W (%)	Scotland (%)	E&W (%)
HbA _{1c}	< 58 mmol/mol	27.7		57.9	
	≤ 58 mmol/mol		29.9		65.8
BP	<130/80 mmHg	42.7		31.7	
	≤140/80 mmHg		74.8		73.8
Cholesterol	≤ 5 mmol/l	69.4		78.5	
	< 5 mmol/l		70.3		76.6

Note: See Tables 6, 83, 93, 95, 10 and 100 for Scottish figures in this table. The figures for England and Wales are from the National Diabetes Audit, 2017-18 Care Processes and Treatment Targets short report (no. 1 above).

Appendix 3: Health Board Performance

Diabetes Health Board Spine Chart (Ayrshire and Arran) 2018

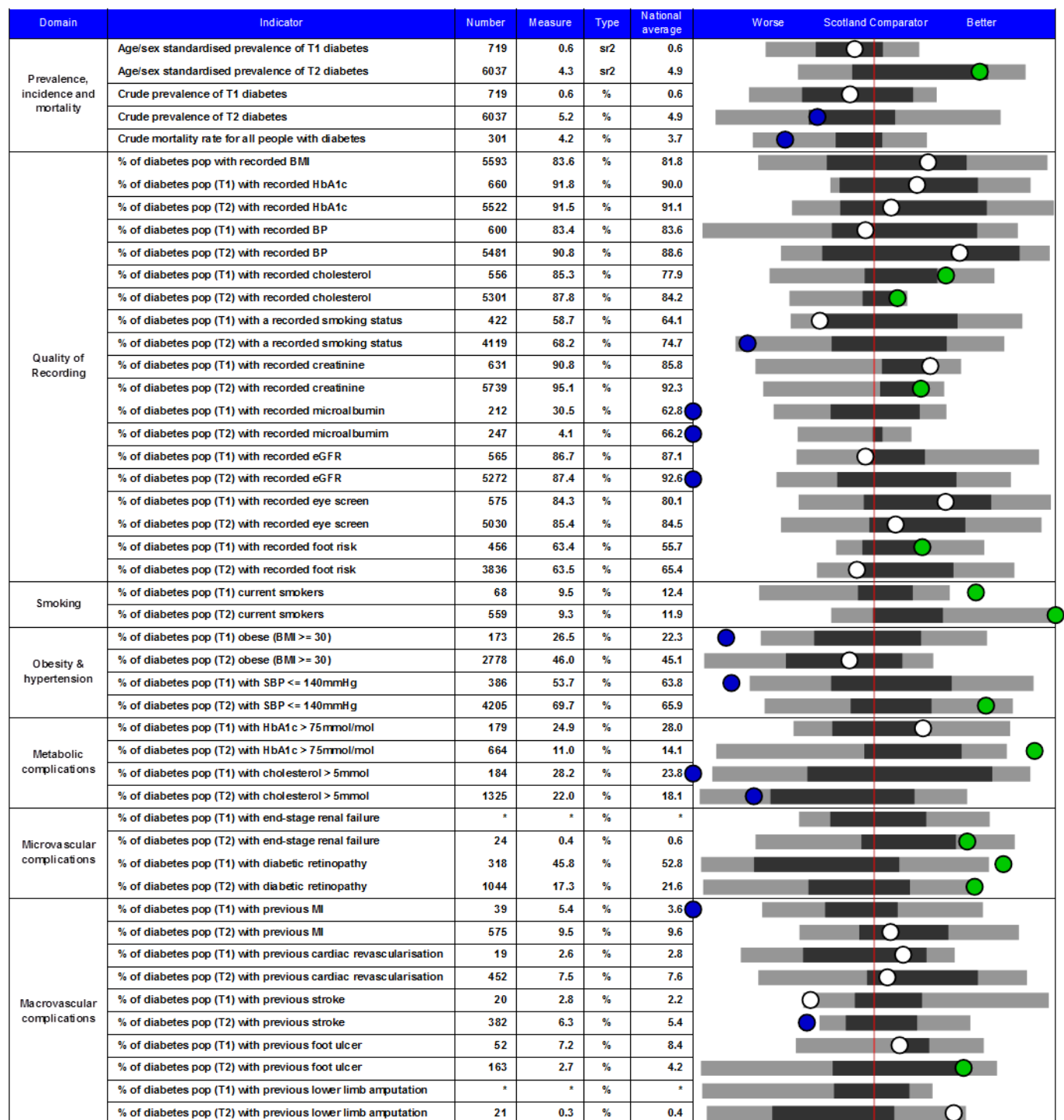


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key:
● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
 5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Borders) 2018

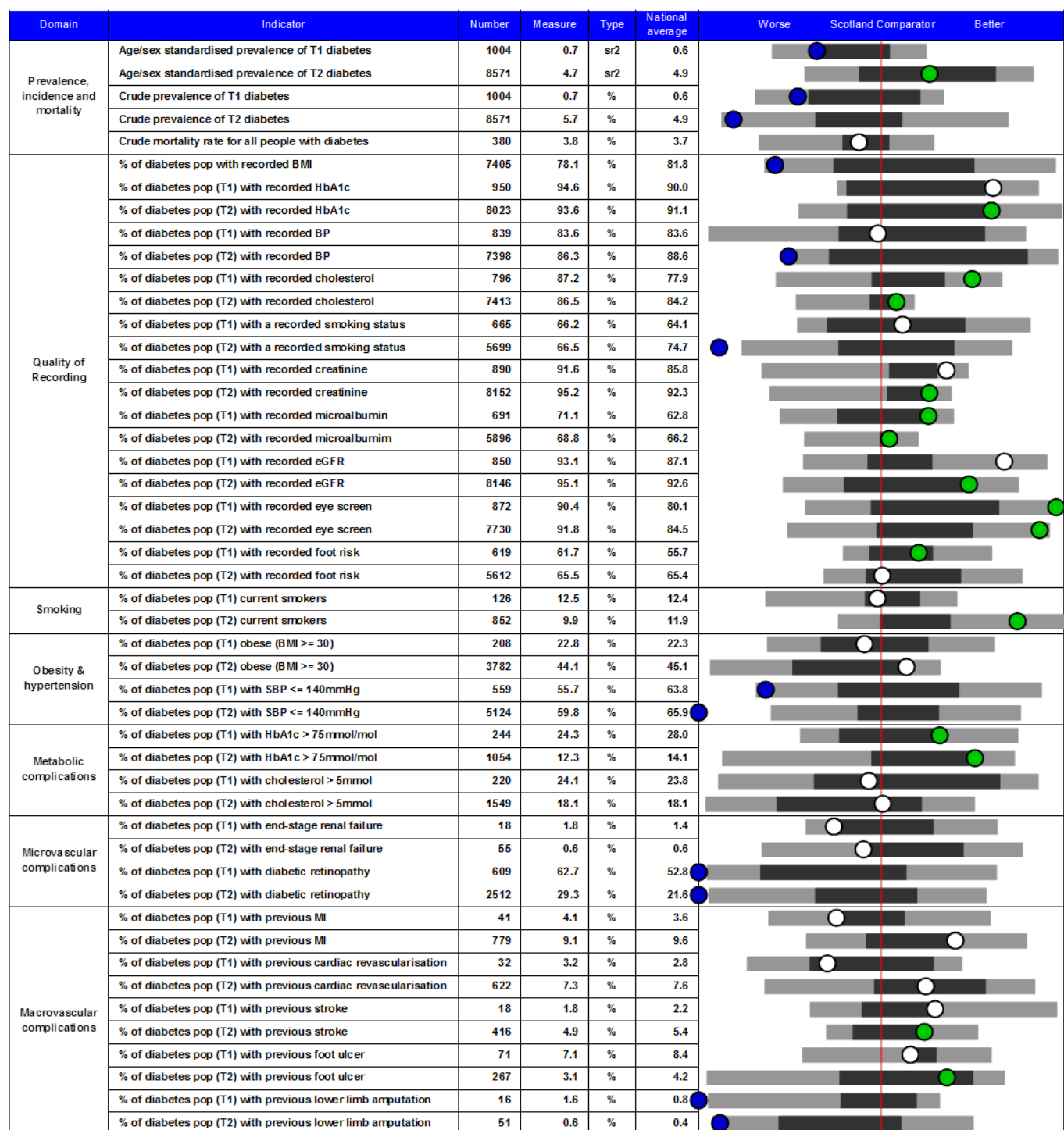


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Dumfries and Galloway) 2018

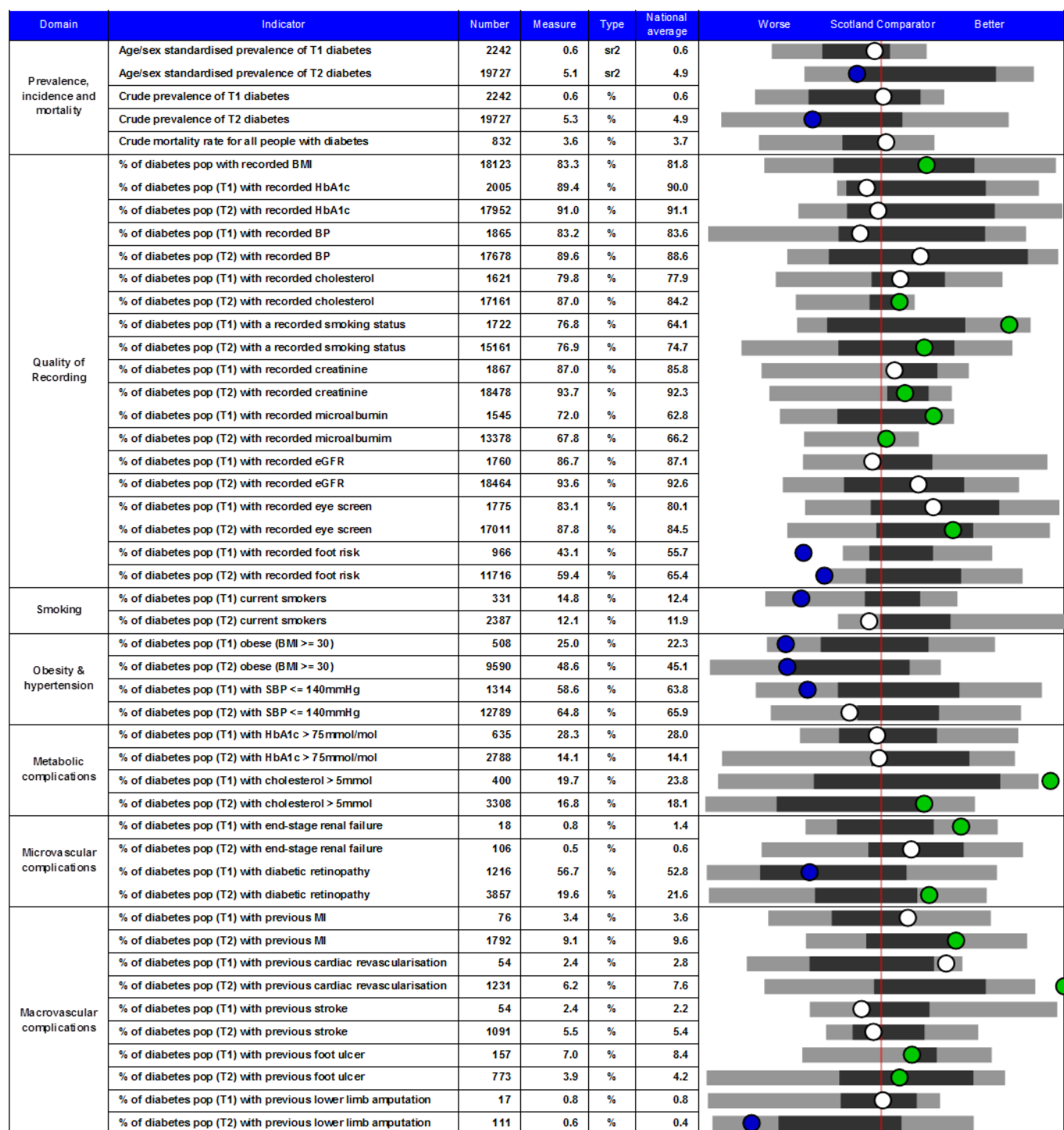


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Fife) 2018

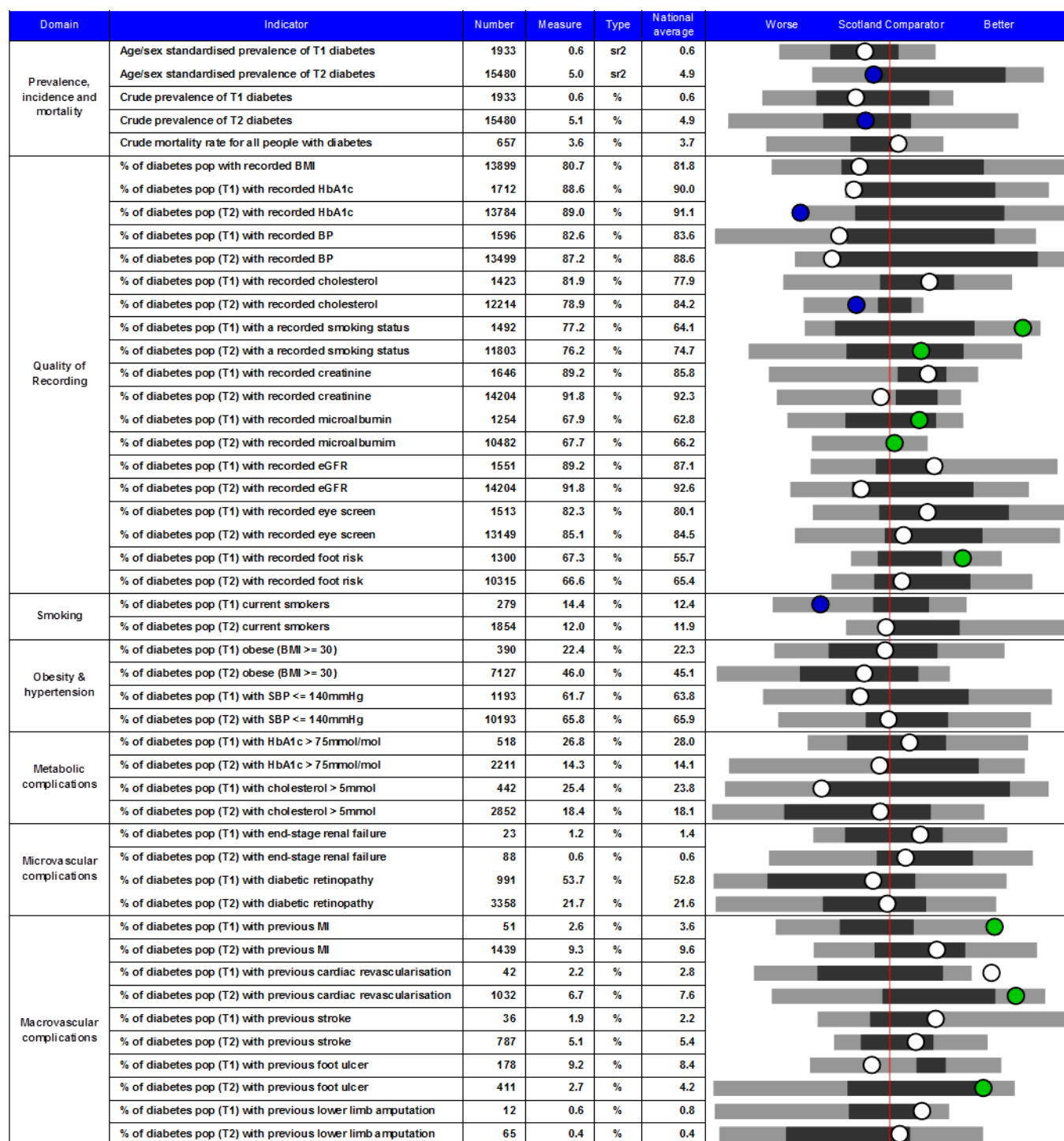


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Forth Valley) 2018

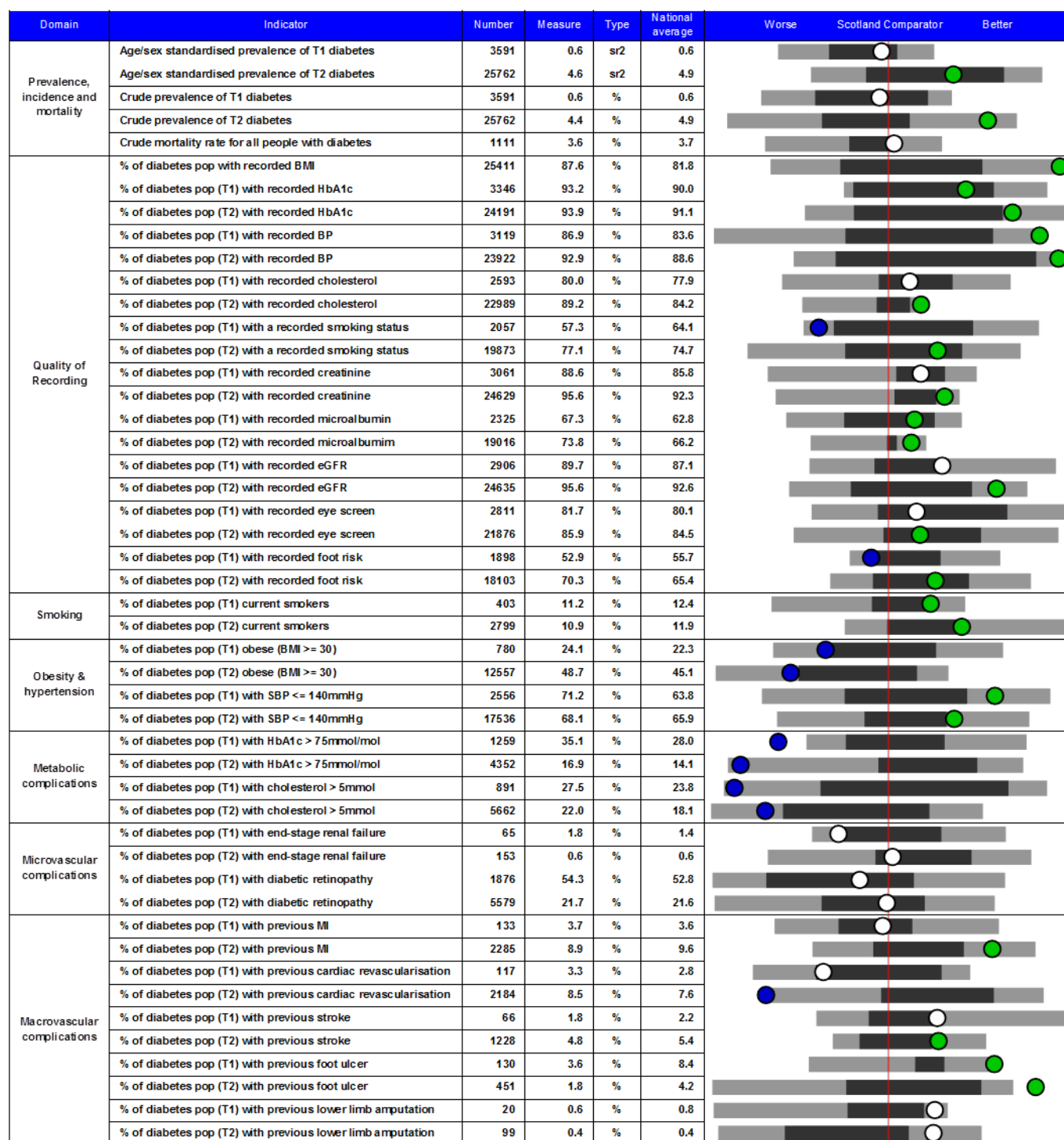


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Grampian) 2018

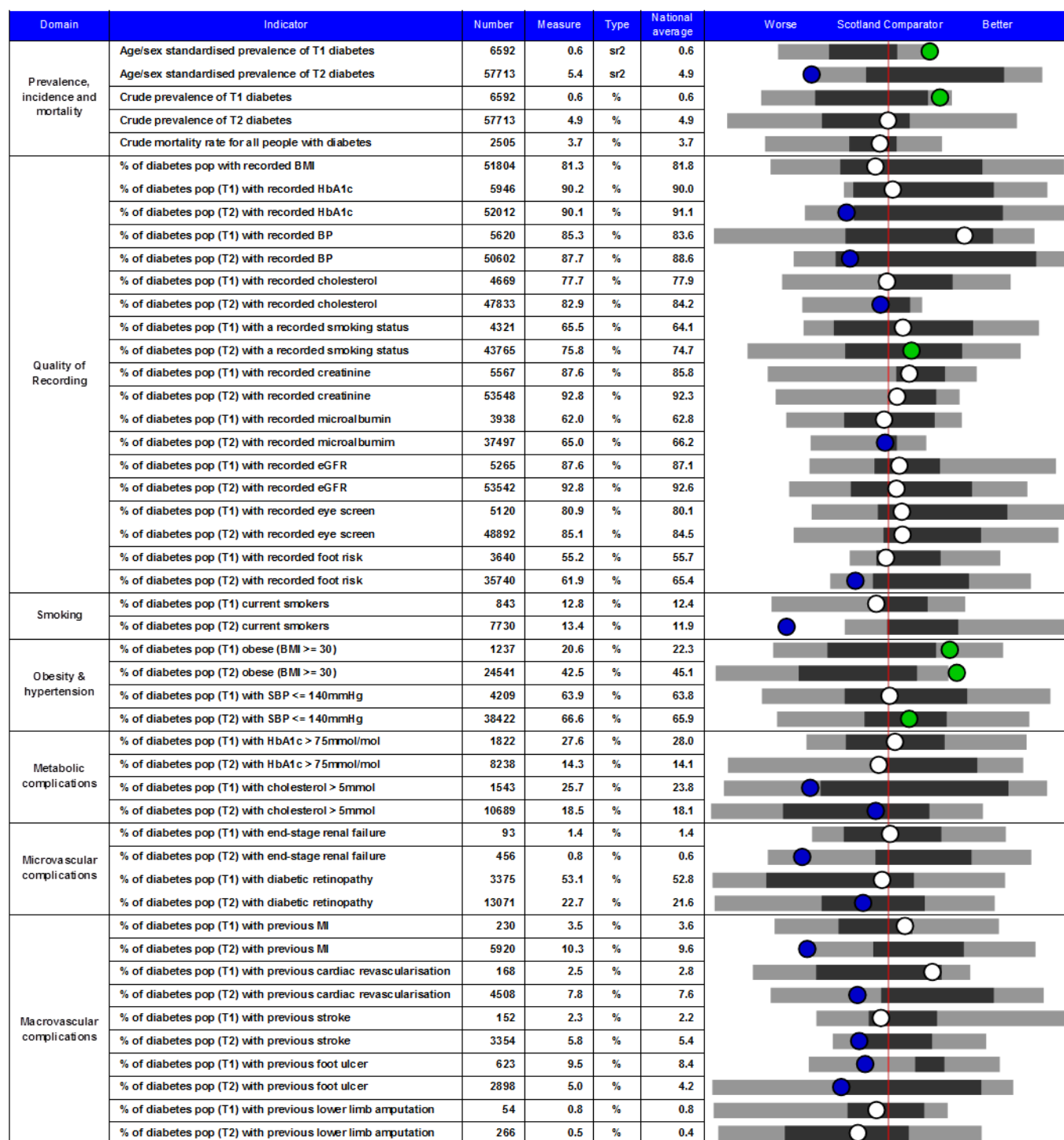


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Greater Glasgow and Clyde) 2018

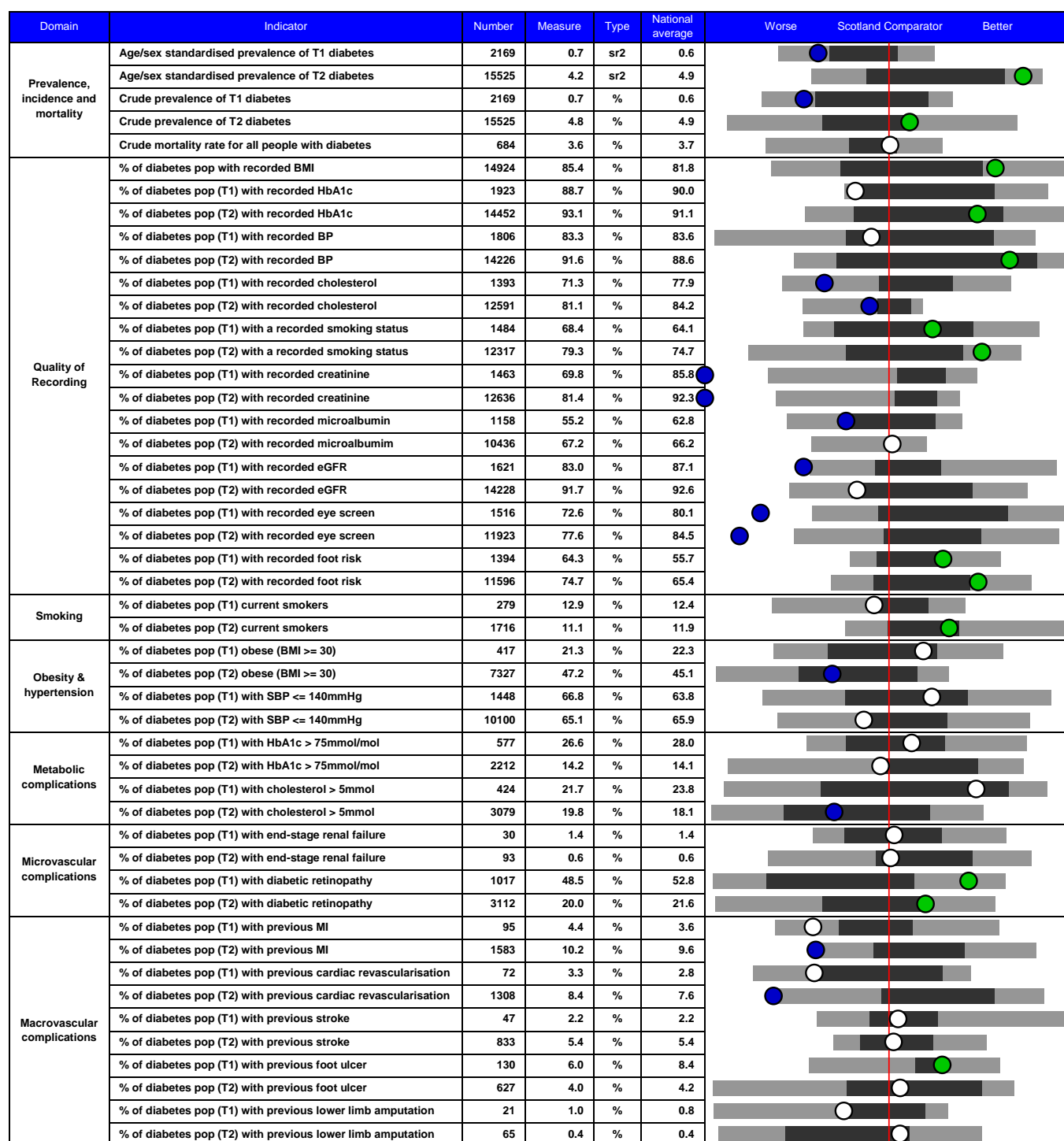


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Highland) 2018

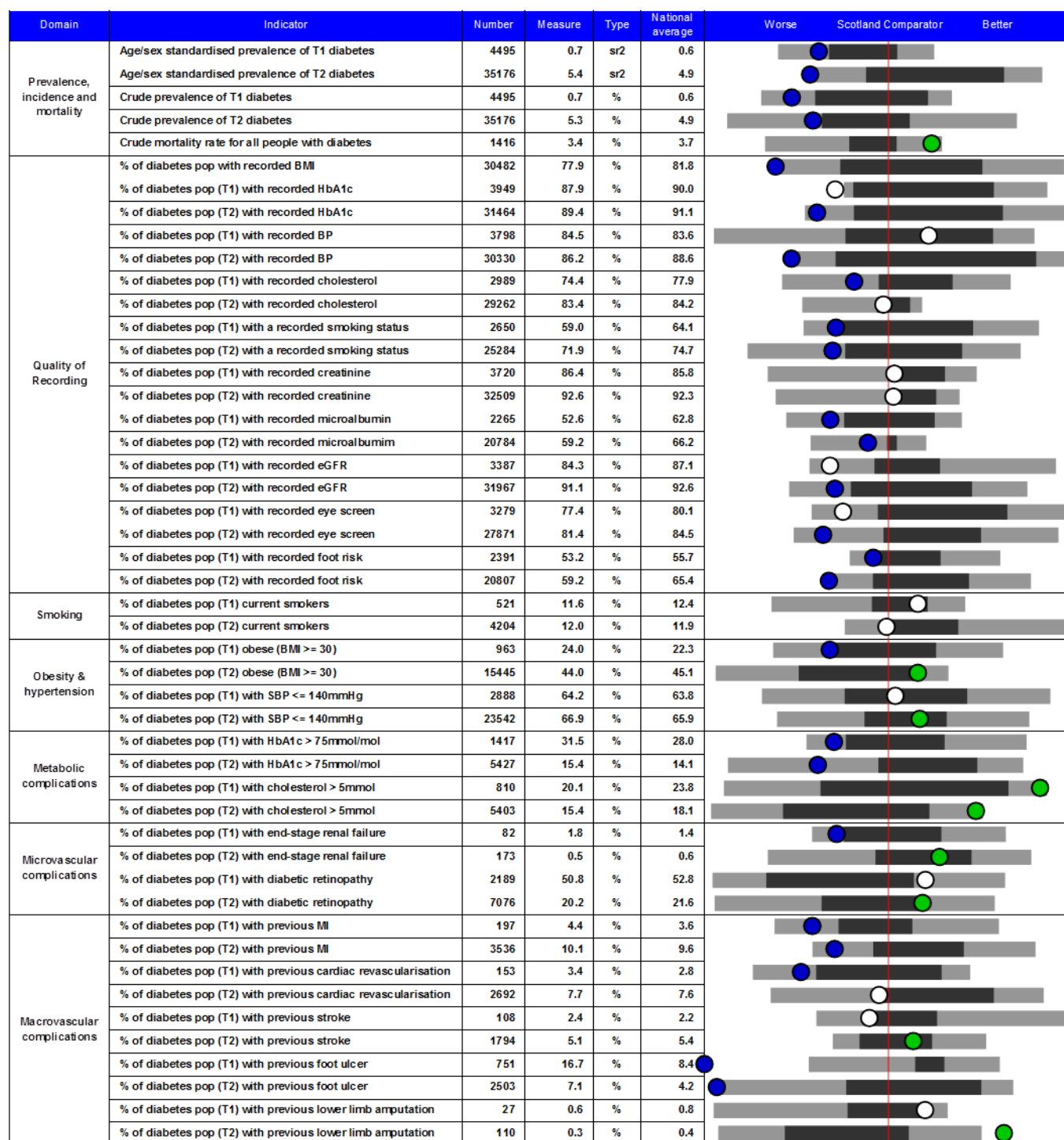


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key:
● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
 5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Lanarkshire) 2018

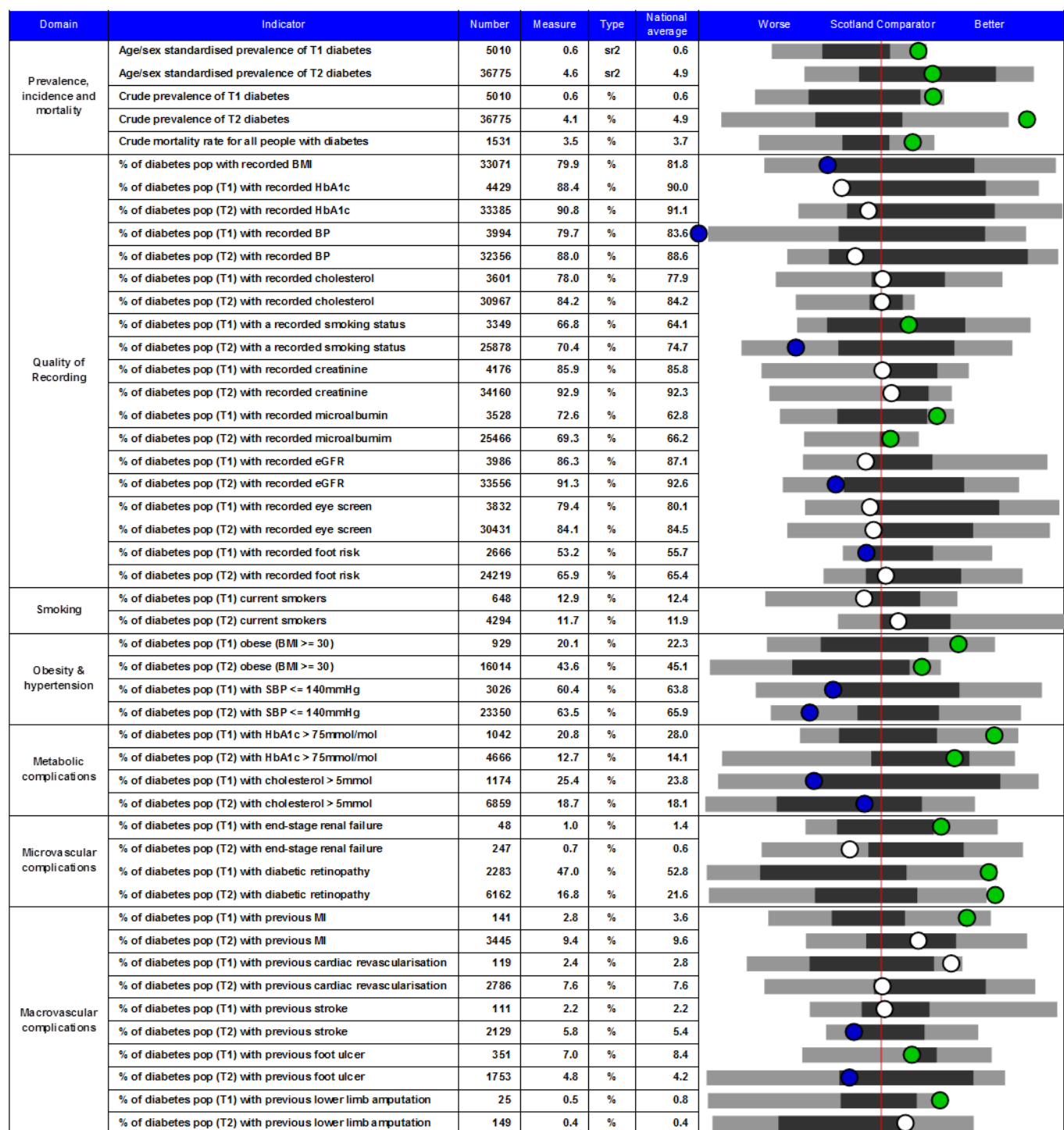


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Lothian) 2018

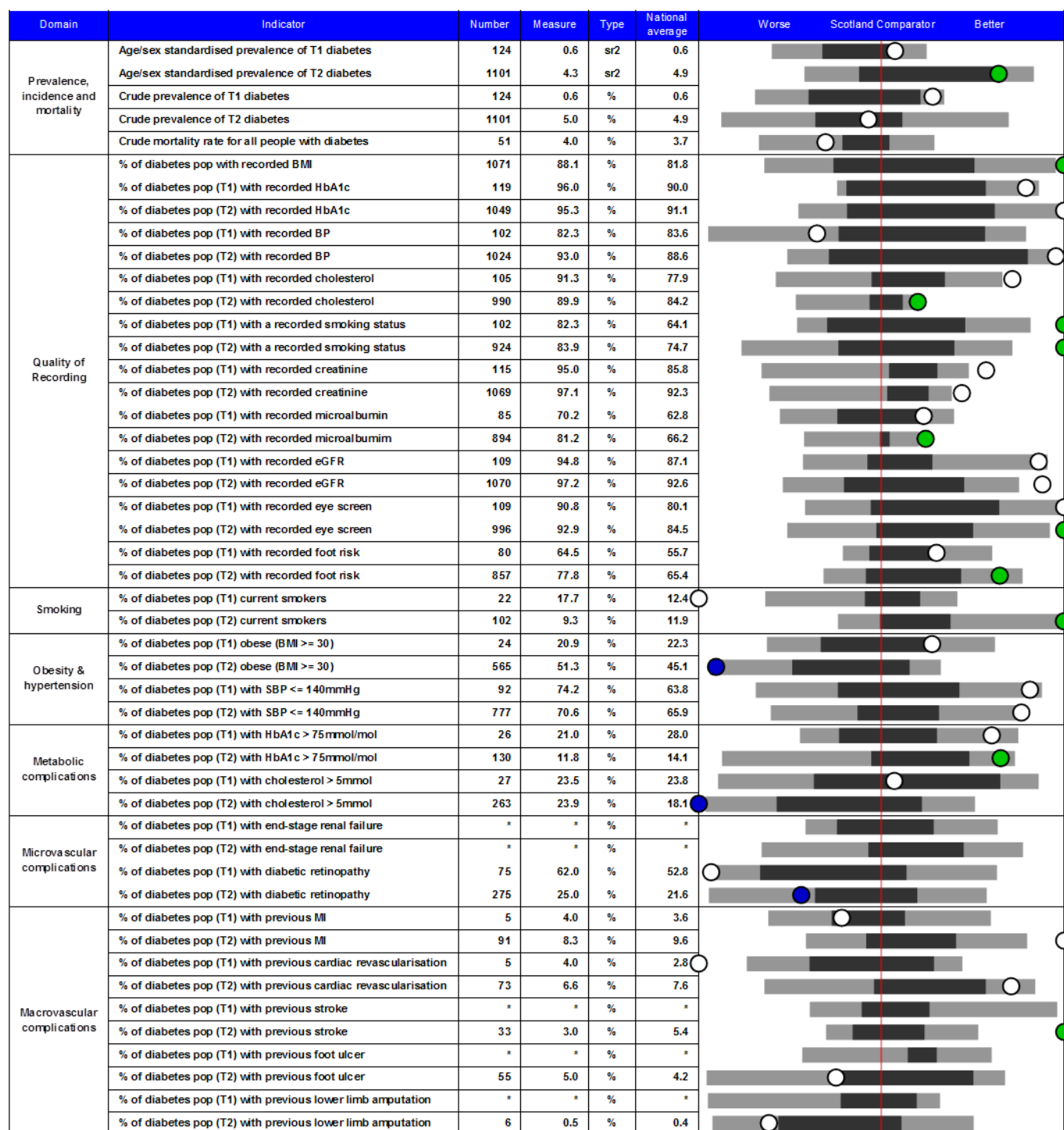


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Orkney) 2018

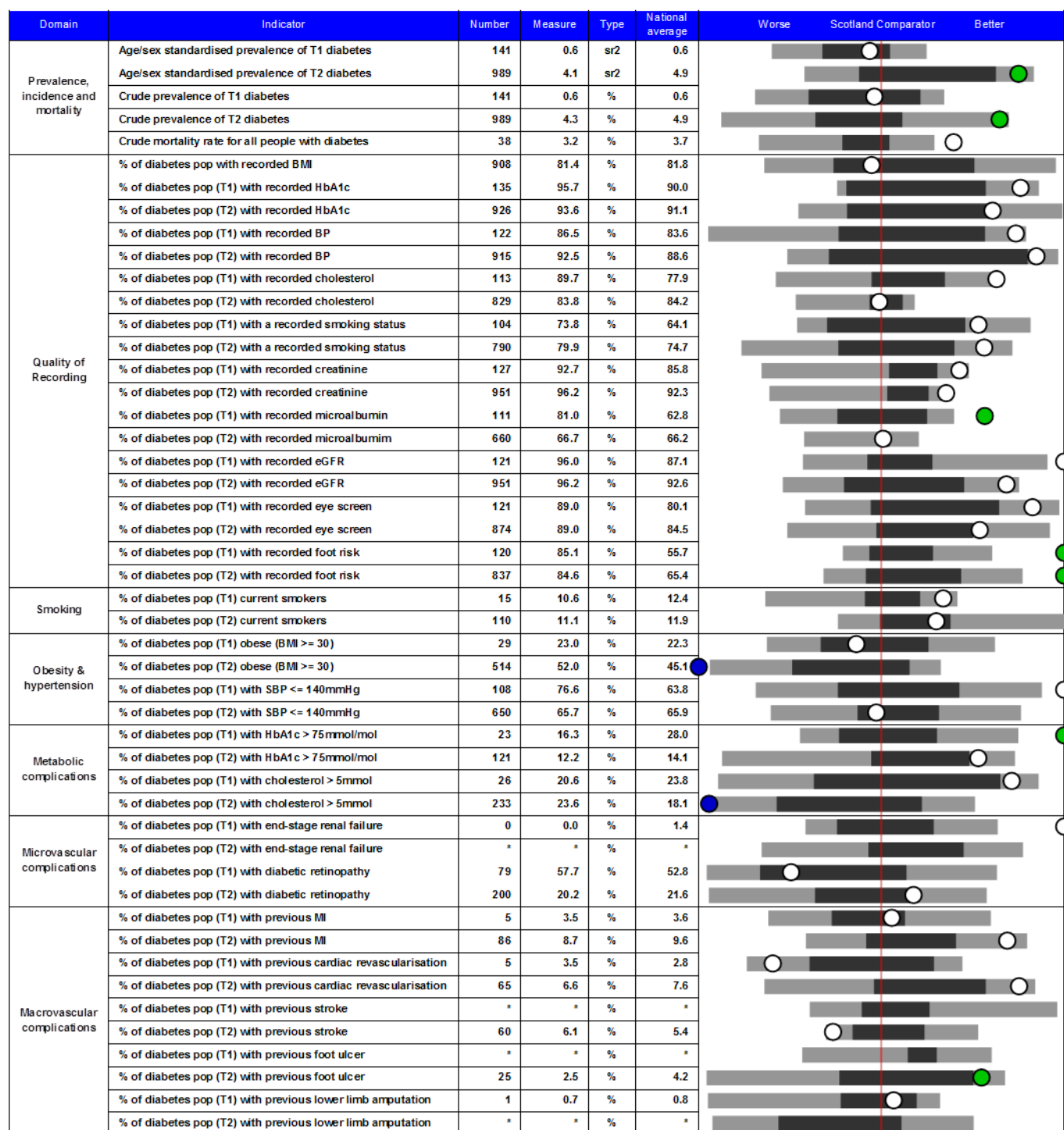


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Shetland) 2018

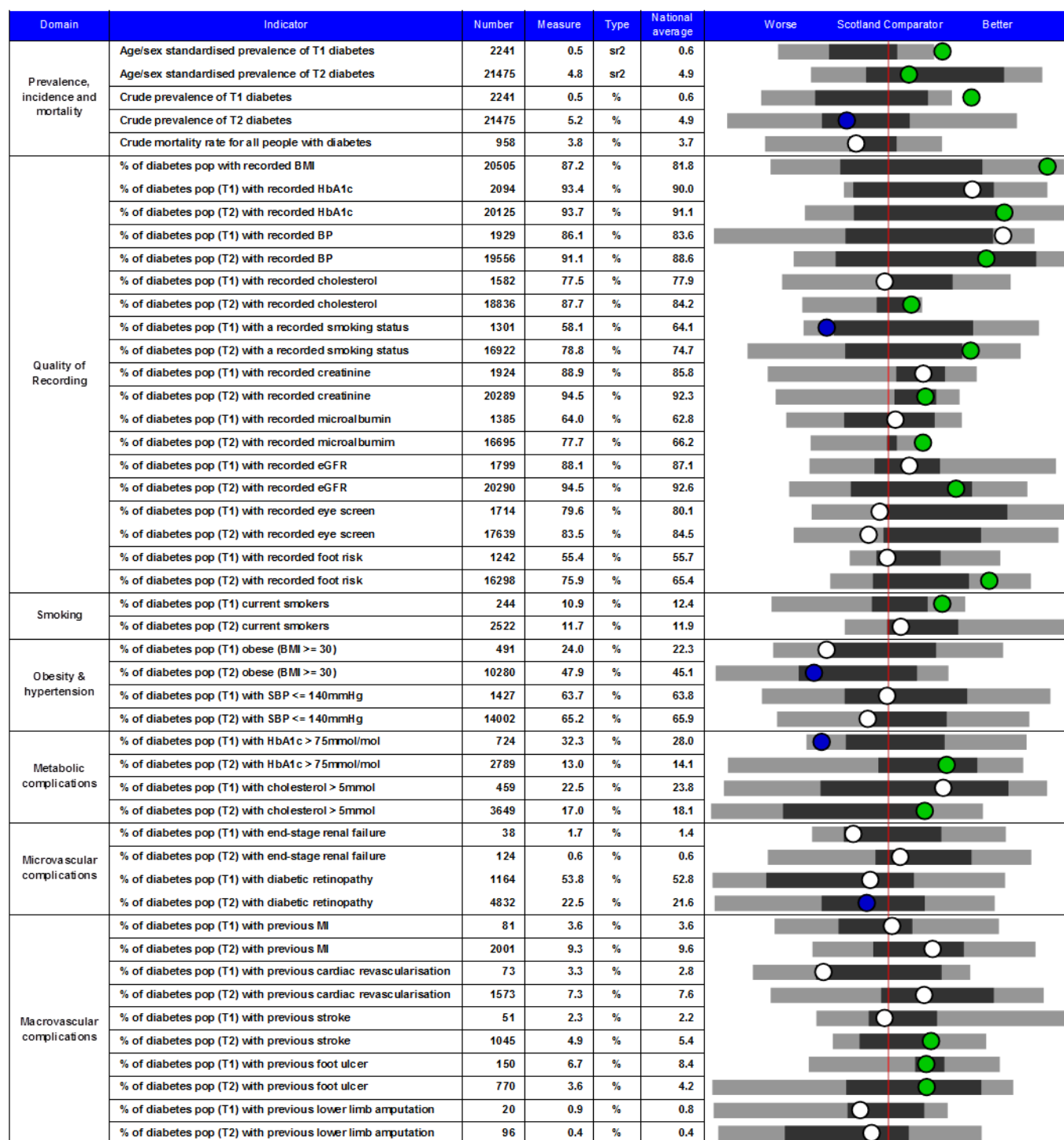


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Tayside) 2018

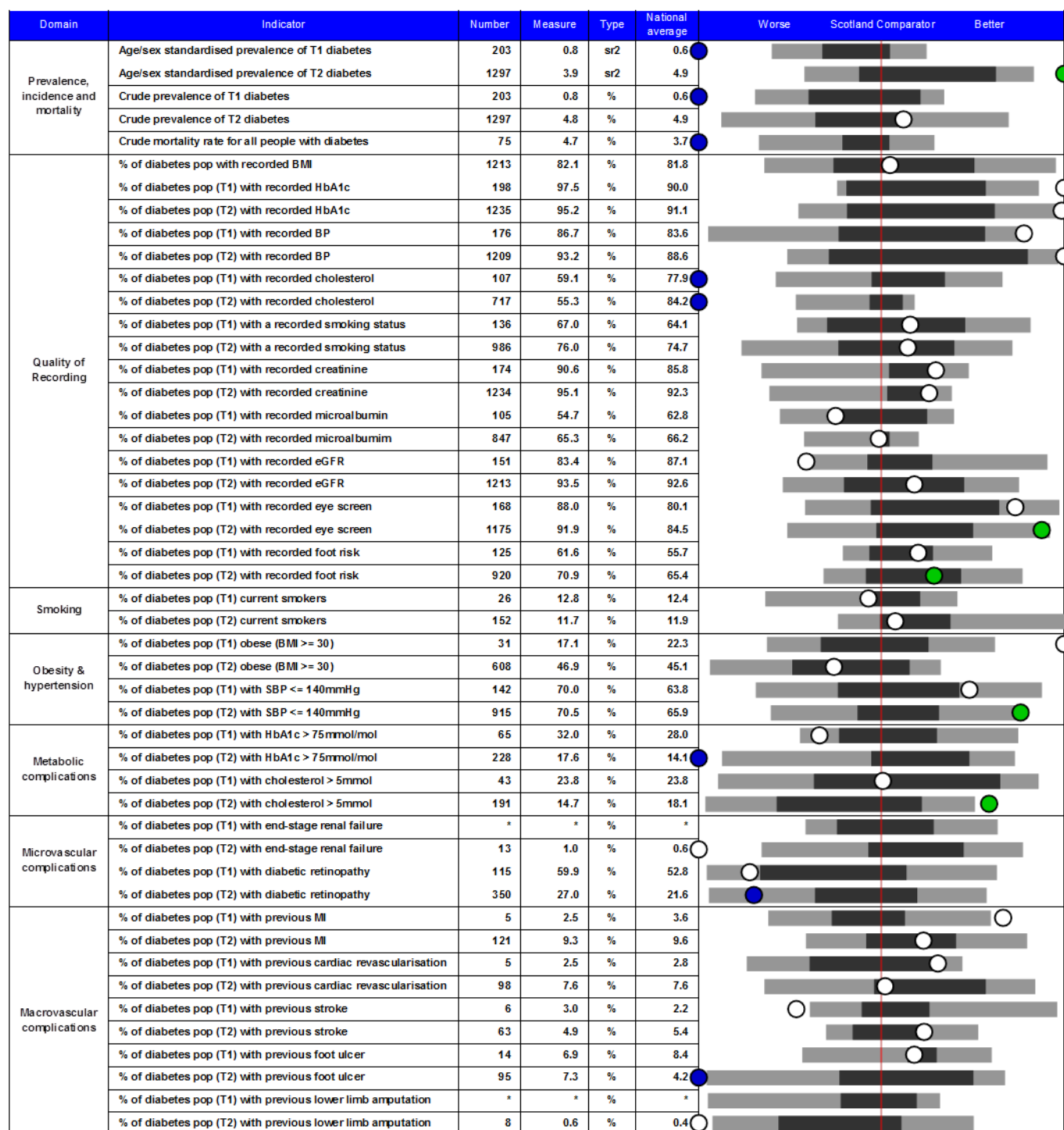


Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key:
● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
 5th percentile 25th percentile 75th percentile 95th percentile

Diabetes Health Board Spine Chart (Western Isles) 2018



Spine chart key: % percent
sr2=age-sex standardised rate per 100 population

Spine chart key: ● Statistically significantly 'worse' than National average
○ Statistically not significantly different from National average
● Statistically significantly 'better' than National average

'Worse' Area ← Scotland Average → 'Better' Area
5th percentile 25th percentile 75th percentile 95th percentile