NHS SCOTLAND

Scottish Diabetes Survey 2008

Scottish Diabetes Survey Monitoring Group

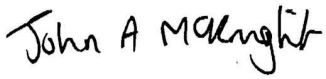
Foreword

The information presented in this 2008 Scottish Diabetes Survey demonstrates a large body of work carried out by health care professionals in Managed Clinical Networks (MCNs) of each NHS Board across the whole of Scotland. The data, to some extent, reflects the quality of services for patients in Scotland and is a powerful source of epidemiological information about diabetes in a whole population. The quality of the data continues to improve with evidence of service improvement in many areas. We acknowledge the work of the MCNs and SCI-DC in the collection of this information.

There are a number of important uses for these data. These include service planning and audit, quality improvement and research. The information in this report will influence the Better Diabetes Care consultation process. The Scottish Intercollegiate Guidelines Network (SIGN) guideline for diabetes will be updated in 2010 and provides another opportunity to assess how well patients in Scotland receive evidence based good clinical care. This month, the Scottish Diabetes Research Network Epidemiology Group published an important paper based on linking data collected as part of the survey to other information systems in Scotland.

The information within this report also generates some challenges for NHS Boards, their clinical governance systems and the diabetes MCNs. It is good to see a gradual improvement in information collection with around 90% of patients having many key measures recorded within the previous 15 months – but what about the 10% who have not? This represents 22,000 people in Scotland. What is happening to these people? There are a number of possible explanations, but this needs to be explored in each NHS Board diabetes network. We also need to improve the collaboration with ophthalmology systems and services. Are there patients who are not receiving eye screening who should be? How do we improve services to fill this possible gap?

We have developed a system to really understand our service. Let us use it to its full potential to improve the quality of care and outcome for patients in Scotland.



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Chairman, Scottish Diabetes Survey Monitoring Group

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Executive Summary

This report presents the results of the 2008 Scottish Diabetes Survey. The survey collates data submitted by all 14 NHS Boards. Argyll and Clyde Board was divided between what are now Greater Glasgow & Clyde, and Highland Health Boards, and some historical comparisons are not possible. The Scottish Diabetes Survey 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 diabetes.

In this Scottish Diabetes Survey 2008, we report that:

- There were 219,963 people with known diabetes in Scotland recorded on local diabetes registers at the end of 2008, which represents 4.3% of the population. In the 2007 diabetes survey, 209,706 people (4.1%) were reported.
- Registered prevalence ranged from 3.8% to 4.7% over NHS Board areas.
- 86.7% of all registered patients had type 2 diabetes.
- 12.5% of registered patients had type 1 diabetes. The number of people with type 1 diabetes has increased from 26,294 in 2006 to 27,464 in 2008.
- 33% of patients with a recorded BMI were overweight (BMI 25-29.9 kg/m^2) and 50.3% obese (BMI ≥30 kg/m^2).
- 89.8% had an HbA_{1c} (a measure of control of blood glucose) result recorded in the previous 15 months. Of these patients, 58% had an HbA_{1c} <7.5%, the current target.
- 90.8% had their blood pressure recorded within the previous 15 months. In 73.4% of these patients, blood pressure is controlled (according to the current target of a systolic pressure ≤140mmHg).
- Cholesterol had been recorded in 90.1% of patients within the previous 15 months and the target of ≤5.0 mmol/l was achieved in 80.2%.
- The targets for HbA_{1c}, blood pressure and cholesterol will be reviewed in the light of updated clinical guidelines.
- Nearly 1 in 5 people with diabetes were current smokers.
- 71.9% of people with diabetes had eye screening in the previous 15 months.
- 1,649 (0.75%) people with diabetes were reported to be blind. However, not all of these patients lost their sight through diabetic complications.
- 76.1% of patients had their feet pulses checked in the previous 15 months.
- 1,051 (0.5%) people with diabetes have had lower limb amputation.
- 1,440 (0.7%) people with diabetes have been recorded as having end stage renal failure.
- 9.5% of patients have had and survived a previous myocardial infarction. 6.1% had undergone cardiac revascularisation.

Implications

The reported prevalence of diabetes is still increasing. People with diabetes have higher risk of eye disease, renal failure and cardiovascular disease than people without diabetes. The NHS in Scotland will use the data in this survey for planning future services.

Prevalence

There were 219,963 people with known diabetes in Scotland recorded on local diabetes registers, which represents 4.3% of the population. In the 2007 Scottish Diabetes Survey, 209,706 people (4.1%) were included. The increase in reported prevalence depends on a number of factors, including:

- an increase in the incidence of type 1 diabetes. We know that there has been a steady increase in the incidence of diabetes in Scottish children over the last 40 years
- an increase in the incidence of type 2 diabetes, related to rising levels of overweight and obesity
- demographic change – the risk of developing diabetes increases with age and increasing numbers of older people in a population results in higher numbers of people with diabetes
- possibly, a fall in the age of onset of type 2 diabetes
- changes in the definition of diabetes, with the diagnosis made at a lower level of fasting plasma glucose
- better survival of people with diabetes because of improved control of blood glucose, blood pressure and cholesterol level
- more complete recording of diabetes on GP computer systems
- better detection of diabetes in people with type 2 diabetes, many of whom have no symptoms

Variation in prevalence of diabetes amongst health boards also depends on the distribution of risk factors of diabetes in each population including age, ethnicity, socio-economic status and body mass index. However the broad similarity of reported prevalence, compared to some previous years, give confidence in the completeness of recording.

Table 1 Diabetes Register: Percentage of total population

NHS Board	Population 2007	Diabetes Register	Crude Prevalence %
Ayrshire & Arran	367,020	17,055	4.6%
Borders	111,430	4,911	4.4%
Dumfries & Galloway	148,300	7,009	4.7%
Fife	360,428	15,987	4.4%
Forth Valley	288,473	12,667	4.4%
Grampian	535,290	21,283	4.0%
Greater Glasgow & Clyde	1,192,419	52,545	4.4%
Highland & Argyll	308,790	12,912	4.2%
Lanarkshire	560,042	24,958	4.5%
Lothian	809,764	30,520	3.8%
Orkney	19,860	866	4.4%
Shetland	21,950	872	4.0%
Tayside	394,134	17,311	4.4%
Western Isles	26,300	1,067	4.1%
Scotland	**5,144,200**	**219,963**	**4.3%**

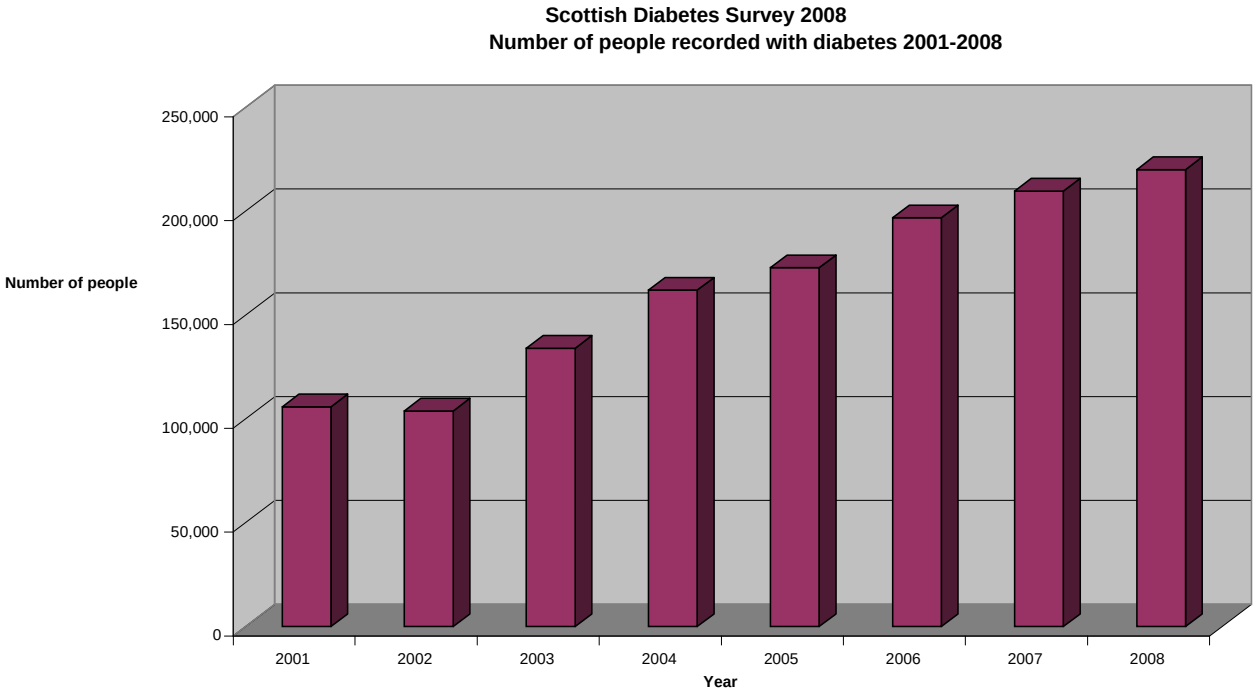

Figure 1 Number of people recorded with diabetes 2001-2008

Table 2 Number of patients included in Scottish Diabetes Surveys 2001-2008

Survey	Area Diabetes Register	Crude Prevalence	Change on Previous Year	
2008	219,963	4.3%	10,257	4.9%
2007	209,706	4.1%	12,905	6.6%
2006	196,801	3.9%	24,014	13.9%
2005	172,787	3.4%	10,841	6.7%
2004	161,946	3.2%	27,982	20.9%
2003	133,964	2.6%	30,129	29.0%
2002	103,835	2.0%	-1,942	-1.8%
2001	105,777	2.1%	---	---

Note: SCI-DC achieved complete coverage of Health Board areas in 2006.

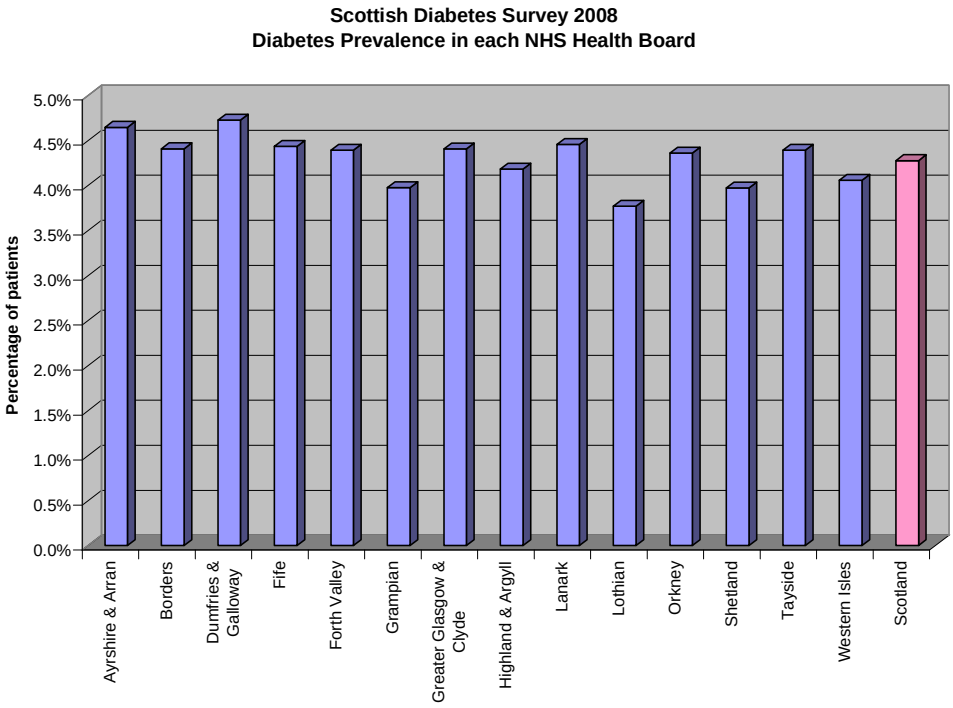

Figure 2 Diabetes prevalence in each NHS board

Differences in prevalence are due to a number of factors. One is age - diabetes is commoner 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 overall prevalence.

Table 3 below shows crude prevalence in each Health Board compared to Scotland as a whole. The Dumfries & Galloway crude prevalence is 9% above the crude prevalence of diabetes in Scotland. When we take into account the age of the population, the Dumfries & Galloway age and sex standardised prevalence is actually slightly lower than the Scottish average. Other reasons for differences in observed prevalence between Boards were given at the start of this section.

Table 3 Ratios of crude diabetes prevalence by Health Board compared to Scotland and ratios of age/sex standardised prevalence by Health Board compared to Scotland

NHS Board	Ratio crude	Ratio age/sex standardised
Ayrshire & Arran	1.07	1.01
Borders	1.02	0.88
Dumfries & Galloway	1.09	0.96
Fife	1.02	1.05
Forth Valley	1.02	1.07
Grampian	0.93	0.95
Greater Glasgow & Clyde	1.02	1.04
Highland & Argyll	0.98	0.86
Lanarkshire	1.05	1.10
Lothian	0.88	0.98
Orkney	1.02	0.93
Shetland	0.93	0.98
Tayside	1.02	0.95
Western Isles	0.95	0.81

Note: a value above 1 suggested a higher prevalence than the national average and a value below 1 suggests a lower prevalence than the national average. Standardised ratios are higher than crude ratios for Health Boards with younger populations and vice versa for Health Boards with older populations.

Figure 3 and Figure 4 show age-specific estimates of diabetes prevalence by type (as recorded on SCI-DC) and sex for Scotland for 2008. Note the different scales for the different graphs.

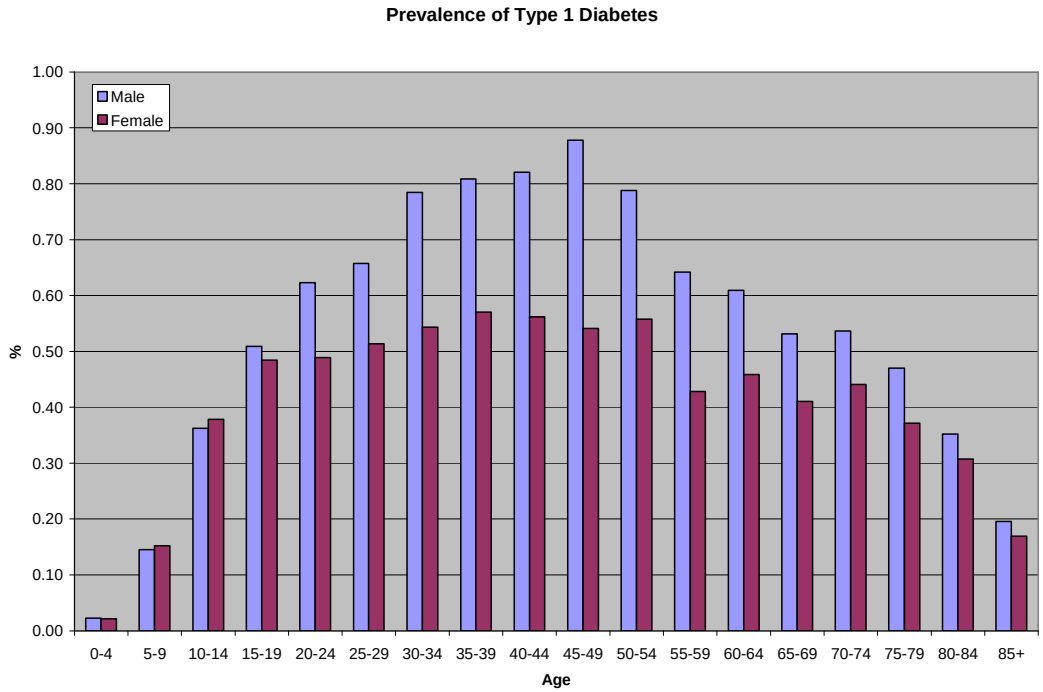

Figure 3 Prevalence of type 1 diabetes in Scotland 2008 as recorded on SCI-DC, by age and sex, using GROS population denominators

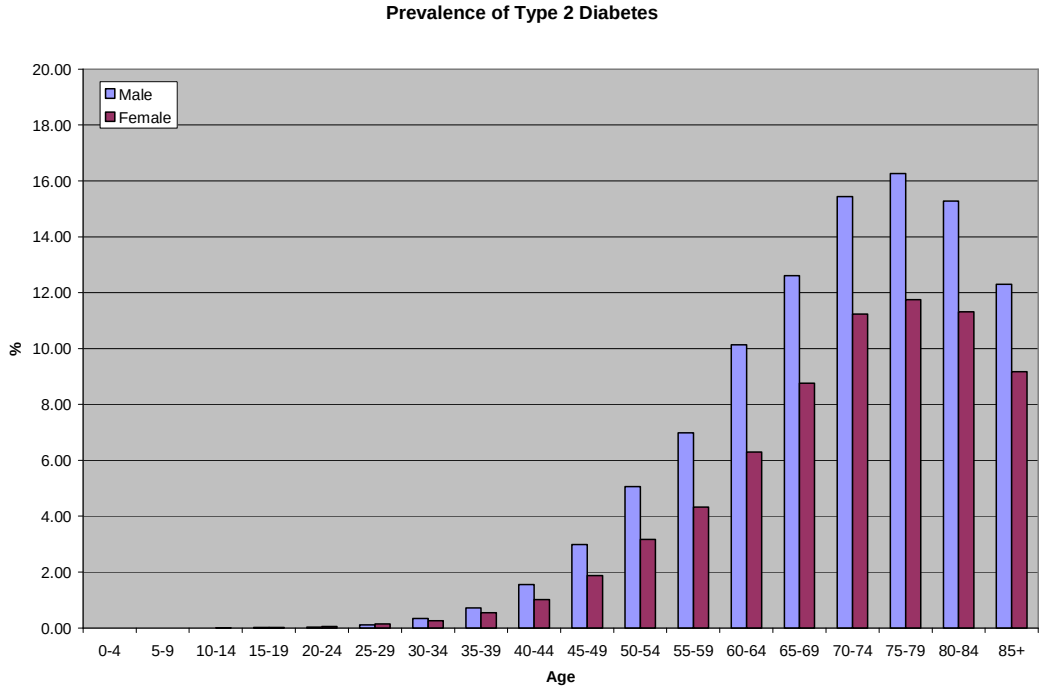

Figure 4 Prevalence of type 2 diabetes in Scotland 2008 as recorded on SCI-DC, by age and sex, using GROS population denominators

Socio-economic status

Prevalence of type 1 diabetes as recorded on SCI-DC does not vary markedly by socio-economic status. The odds of type 2 diabetes are 77% higher among people in the most deprived quintile than the most affluent quintile (after adjusting for age and sex).

Table 4 Odds ratios adjusted for age and sex by type of diabetes and quintile of socio-economic status (using GROS notation in which quintile 1 is the most deprived)

SIMD quintile	Type 1 diabetes OR (95% CIs)	Type 2 diabetes OR (95% CIs)
5 (most affluent)	1.00 (reference)	1.00 (reference)
4	1.04 (1.00-1.08)	1.17 (1.15-1.19)
3	1.09 (1.05-1.13)	1.33 (1.31-1.35)
2	1.09 (1.04-1.13)	1.54 (1.51-1.56)
1 (most deprived)	1.02 (0.98-1.06)	1.77 (1.74-1.80)

SIMD, Scottish Index of Multiple Deprivation; OR, odds ratio; CIs, confidence intervals. Data extracted from SCI-DC in May 2008 for the Scottish Diabetes Research Network epidemiology group for the subset of approximately 204,000 people in Scotland for whom SIMD score data were available were used to compare prevalence of diabetes by socio-economic status by type of diabetes.

Gender

More men than women have diagnosed diabetes; 54.5% compared with 45.5%. This ratio is relatively unchanged from 2001.

Duration of Diabetes

A date of diagnosis was recorded for 99.2% of patients, of which 8.6% have had diabetes for less than one year and 8.2% have had diabetes for 20 years or more. Many people have several dates of diagnosis and work to make these data more accurate is ongoing through the Epidemiology group.

Table 5 Recording of date of diagnosis 2002-2008

Year	Recorded	Not recorded
2008	99.2%	0.8%
2007	98.6%	1.4%
2006	97.6%	2.4%
2005	92.6%	7.4%
2004	84.2%	15.8%
2003	81.5%	18.5%
2002	76.9%	23.1%

Table 6 Duration of diabetes (years since diagnosis)

Duration (Years)	Number of Patients	
< 1	18,727	8.6%
1-4	69,412	31.8%
5-9	65,921	30.2%
10-14	30,073	13.8%
15-19	15,905	7.3%
20-24	7,738	3.5%
25-29	4,325	2.0%
30-34	2,409	1.1%
35-39	1,600	0.7%
40-44	888	0.4%
45-49	539	0.2%
≥50	572	0.3%
Total	**218,109**	

Note: Excludes patients where date of diagnosis not known (n=1854)

Age

Diabetes is more common in older people; half (50%) of all the people reported in the survey are aged 65 years or older. The possibility that type 2 diabetes is developing in people at a younger age is currently under investigation. This may have long-term implications for the NHS, because they are more likely to have diabetes for long enough to develop complications such as renal failure than people whose diabetes is diagnosed at a later age.

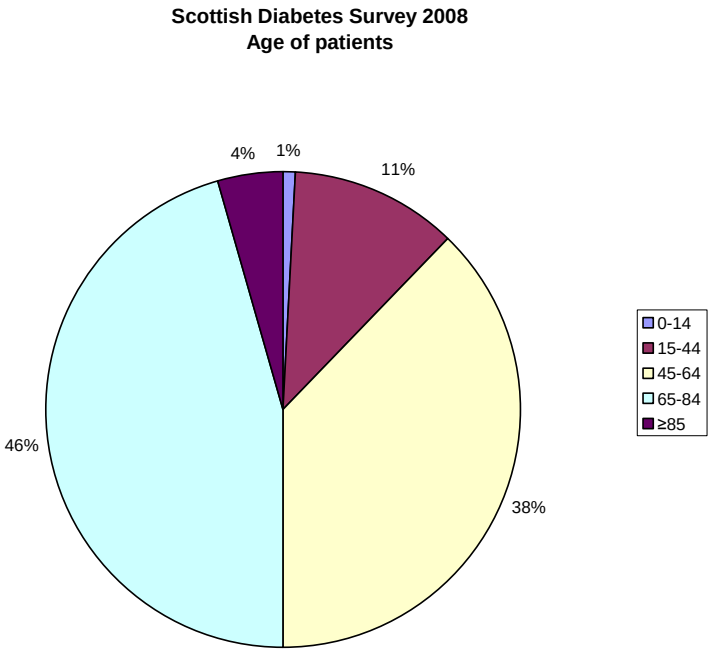

Figure 5 Age of people recorded with diabetes

Table 7 Age group of people recorded with diabetes 2003-2008

Year		0-14	15-44	45-64	65-84	≥85	Total	Not known
2008	Number	**1,934**	**24,778**	**83,089**	**100,267**	**9,797**	**219,865**	**98**
	Percentage	**0.9%**	**11.3%**	**37.8%**	**45.6%**	**4.5%**		
2007	Number	1,888	27,119	78,615	94,792	8,992	209,626	80
	Percentage	0.9%	12.9%	37.5%	45.2%	4.3%		
2006	Number	1,889	24,249	73,401	88,878	8,288	196,705	96
	Percentage	1.0%	12.3%	37.3%	45.2%	4.2%		
2005	Number	1,657	21,492	62,069	76,655	6,636	168,509	232
	Percentage	1.0%	12.8%	36.8%	45.5%	3.9%		
2004	Number	1,363	19,229	52,448	67,133	5,693	145,866	44
	Percentage	0.9%	13.2%	36.0%	46.0%	3.9%		
2003	Number	1,340	16,933	44,357	59,109	5,634	127,373	6,591
	Percentage	1.1%	13.3%	34.8%	46.4%	4.4%		

Table 8 Age group of young people recorded with type 1 diabetes by NHS board

NHS Board	0-4	5-9	10-14	15-19	Total
Ayrshire & Arran	<10	44	98	142	290
Borders	<10	14	37	31	83
Dumfries & Galloway	<10	13	33	40	91
Fife	<10	34	100	119	261
Forth Valley	<10	32	72	102	211
Grampian	<10	49	138	187	381
Greater Glasgow & Clyde	15	118	294	434	861
Highland & Argyll	<10	38	83	114	239
Lanarkshire	17	57	162	211	447
Lothian	14	62	159	261	496
Orkney	0	<10	<10	<10	16
Shetland	0	<10	<10	<10	17
Tayside	<10	23	93	135	259
Western Isles	<10	<10	10	12	26
Scotland	**91**	**492**	**1,296**	**1,799**	**3,678**

Table 9 reports cases of type 2 diabetes under the age of 35. However, data validation is required because of the likelihood of some miscoding and comments are being sought from MCNs. It is known that there are confirmed cases of type 2 in younger people, including a few in children, but some of the non-type 1 diabetes in younger people is due to uncommon genetic conditions.

Table 9 Number of people recorded with type 2 diabetes <35 years of age by NHS board

NHS Board	Under 15 years	15-24	25-34	Total
Ayrshire & Arran	<10	13	118	132
Borders	<10	<10	28	38
Dumfries & Galloway	0	<10	38	44
Fife	<10	15	110	127
Forth Valley	<10	15	89	105
Grampian	<10	30	147	180
Greater Glasgow & Clyde	<10	72	460	539
Highland & Argyll	<10	11	102	114
Lanarkshire	<10	34	208	243
Lothian	<10	40	224	267
Orkney	0	0	<10	<10
Shetland	0	<10	<10	<10
Tayside	0	21	105	126
Western Isles	0	0	<10	<10
Scotland	**22**	**265**	**1642**	**1929**

Type of diabetes

The majority of registered patients had type 2 diabetes (86.7%). The proportion of people with diabetes who have type 1 diabetes has fallen from 18.2% in 2002 to 12.5% in 2008, probably largely due to relatively more complete recording of data from people with type 1 diabetes than type 2 diabetes in earlier years. However, the absolute number of patients with type 1 diabetes continues to increase (22,597 in 2003; 27,464 in 2008). This reflects the rising incidence of type 1 diabetes in children over the last 30 years. We know from a series of studies of incidence that it has been rising by 2-3% a year since 1968.

However, it may also be partly due to miscoding of people with type 2 diabetes who are treated with insulin – the MCNs have been asked to check this. The proportion reported to have type 1 was lower in Tayside than in other boards (~10% - see Table 10) and Tayside is regarded as having the best diabetes data. There is a suspicion that returns from other boards may be over-estimating the number of patients with type 1.

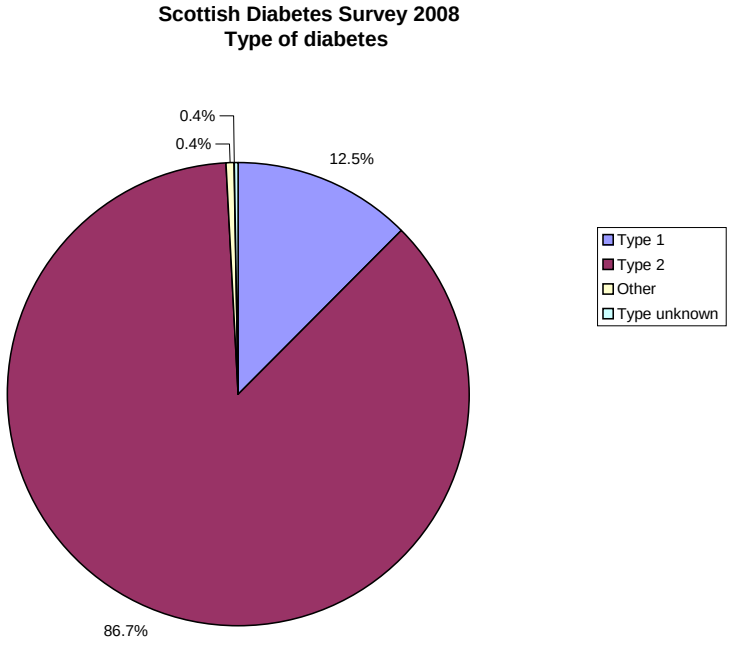

Figure 6 Type of diabetes

Table 10 Type of diabetes by NHS board

NHS Board	Type 1		Type 2		Other types of Diabetes	Not recorded/ Not known	Total
Ayrshire & Arran	2,209	13.0%	14,764	86.6%	19	63	17,055
Borders	596	12.1%	4,295	87.5%	11	9	4,911
Dumfries & Galloway	884	12.6%	6,098	87.0%	21	6	7,009
Fife	1,826	11.4%	14,041	87.8%	70	50	15,987
Forth Valley	1,501	11.8%	11,153	88.0%	7	6	12,667
Grampian	2,971	14.0%	18,048	84.8%	126	138	21,283
Greater Glasgow and Clyde	6,348	12.1%	45,639	86.9%	346	212	52,545
Highland and Argyll	1,673	13.0%	11,131	86.2%	38	70	12,912
Lanark	3,415	13.7%	21,452	86.0%	48	43	24,958
Lothian	3,933	12.9%	26,240	86.0%	221	126	30,520
Orkney	119	13.7%	746	86.1%	0	1	866
Shetland	115	13.2%	752	86.2%	1	4	872
Tayside	1,692	9.8%	15,530	89.7%	47	42	17,311
Western Isles	182	17.1%	883	82.8%	1	1	1,067
Scotland	**27,464**	**12.5%**	**190,772**	**86.7%**	**956**	**771**	**219,963**

Note: Tayside is likely to have the most accurate data and this suggests that some other Boards may be over-reporting the numbers with type 1, perhaps by including some with insulin-treated type 2.

Table 11 Type of diabetes 2001-2008

Year		Type 1	Type 2	Other	Not recorded	Total
Scotland 2008	**Number**	**27,464**	**190,772**	**956**	**771**	**219,963**
	Percentage	**12.5%**	**86.7%**	**0.4%**	**0.4%**	
Scotland 2007	Number	27,176	178,359	2,988	1,183	209,706
	Percentage	13.0%	85.1%	1.4%	0.6%	
Scotland 2006	Number	26,294	166,926	2,246	1,335	196,801
	Percentage	13.4%	84.8%	1.1%	0.7%	
Scotland 2005	Number	23176	137,653	2009	5,903	168,741
	Percentage	13.7%	81.6%	1.2%	3.5%	
Scotland 2004	Number	22,834	116,184	1,073	5,819	145,910
	Percentage	15.6%	79.6%	0.7%	4.0%	
Scotland 2003	Number	22,597	99,481	838	11,048	133,964
	Percentage	16.9%	74.3%	0.6%	8.2%	
Scotland 2002	Number	18,907	76,916	823	7,128	103,774
	Percentage	18.2%	74.1%	0.8%	6.9%	
Scotland 2001	Number	16,922	64,752	10,578	13,525	105,777
	Percentage	16.0%	61.2%	10.0%	12.8%	

Note: The fall in the percentage with type 1 is due to the rise in numbers with type 2 and the increase in completeness of recording.

Ethnicity

Ethnicity data was available for 43% of the registered diabetic population. The completeness of this information fell from 37% in 2002 to 24.4% in 2006, increased to 33.3% in 2007 and again to 43% in 2008.

Table 12 Recording of ethnic group by NHS board

NHS Board	Ethnic group identified		Not recorded / Not known		Total
Ayrshire & Arran	3,016	17.7%	14,039	82.3%	17,055
Borders	661	13.5%	4,250	86.5%	4,911
Dumfries & Galloway	4,890	69.8%	2,119	30.2%	7,009
Fife	1,502	9.4%	14,485	90.6%	15,987
Forth Valley	9,864	77.9%	2,803	22.1%	12,667
Grampian	3,174	14.9%	18,109	85.1%	21,283
Greater Glasgow & Clyde	30,550	58.1%	21,995	41.9%	52,545
Highland & Argyll	3,554	27.5%	9,358	72.5%	12,912
Lanarkshire	8,672	34.7%	16,286	65.3%	24,958
Lothian	17,997	59.0%	12,523	41.0%	30,520
Orkney	415	47.9%	451	52.1%	866
Shetland	44	5.0%	828	95.0%	872
Tayside	10,501	60.7%	6,810	39.3%	17,311
Western Isles	85	8.0%	982	92.0%	1,067
Scotland	**94,925**	**43.2%**	**125,038**	**56.8%**	**219,963**

Table 13 Recording of ethnic group 2001-2008

Year	Number identified	Percentage identified
2008	94,925	43.2%
2007	69,875	33.3%
2006	48,035	24.4%
2005	42,164	25.0%
2004	44,695	30.6%
2003	49,614	37.0%
2002	32,036	30.9%

Body Mass Index

Body Mass Index (BMI) has been calculated for 87% of patients in the previous 15 months, of whom 33% are overweight (BMI 25–29.9kg/m^2) and 50.3% are obese (BMI 30kg/m^2 or over).

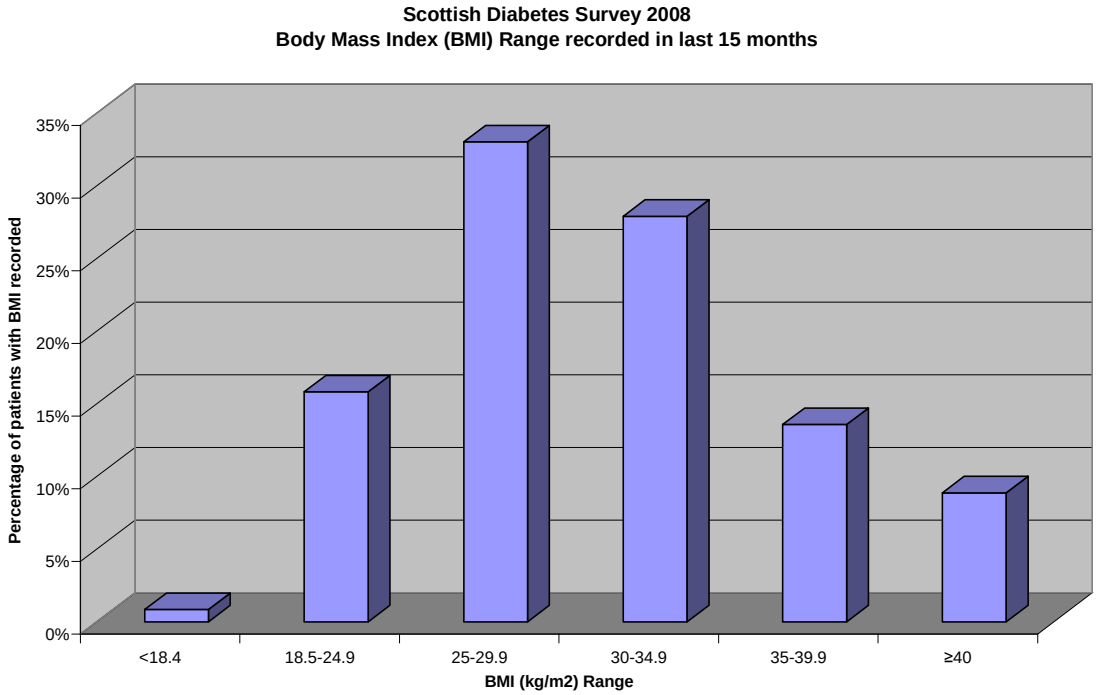

Figure 7 BMI Range recorded in previous 15 months
Note: Excludes children under 12 years (n=1060)

Table 14 Percentage of patients with a recording of BMI in the previous 15 months for each health board in Scotland

NHS Board	Calculated	Total
Ayrshire & Arran	83.4%	16,961
Borders	92.3%	4,879
Dumfries & Galloway	89.2%	6,978
Fife	89.2%	15,902
Forth Valley	88.4%	12,604
Grampian	89.6%	21,172
Greater Glasgow & Clyde	86.1%	52,302
Highland & Argyll	84.8%	12,842
Lanarkshire	86.6%	24,821
Lothian	88.9%	30,403
Orkney	89.2%	862
Shetland	84.2%	867
Tayside	88.4%	17,247
Western Isles	87.3%	1,063
Scotland	**87.4%**	**218,903**

Note: Excludes children under 12 years of age (n=1060)

Table 15 Percentage of patients with a recording of BMI in the previous 15 months 2001-2008

Year	Calculated	Not calculated
2008	87.4%	12.6%
2007	85.3%	14.7%
2006	84.8%	15.2%
2005	69.1%	30.9%
2004	66.1%	33.9%
2003	58.9%	39.9%
2002	52.3%	47.7%
2001	39.8%	60.2%

Note: Excludes children under 12 years of age (n=1060)

Table 16 BMI categories by NHS board

NHS Board	BMI <18.5	BMI 18.5 - 24.9	BMI 25 - 29.9	BMI 30 - 34.9	BMI 35 - 39.9	BMI ≥40	Not calculated/ data incomplete/ not known	Total
Ayrshire & Arran	0.7%	13.2%	27.5%	23.1%	11.3%	7.7%	16.6%	16,961
Borders	0.6%	14.1%	31.1%	25.8%	12.0%	8.6%	7.7%	4,879
Dumfries & Galloway	0.8%	13.2%	30.1%	25.3%	11.9%	8.0%	10.8%	6,978
Fife	0.8%	12.7%	28.7%	25.2%	13.2%	8.7%	10.8%	15,902
Forth Valley	0.7%	13.0%	28.0%	25.0%	12.8%	8.9%	11.6%	12,604
Grampian	0.9%	14.5%	30.2%	25.2%	11.4%	7.4%	10.4%	21,172
Greater Glasgow & Clyde	0.7%	14.5%	29.2%	23.4%	11.0%	7.2%	13.9%	52,302
Highland & Argyll	0.5%	13.5%	28.5%	23.8%	11.4%	7.0%	15.2%	12,842
Lanarkshire	0.7%	13.6%	27.4%	24.8%	12.3%	7.7%	13.4%	24,821
Lothian	0.9%	14.1%	28.8%	24.2%	12.4%	8.5%	11.1%	30,403
Orkney	0.3%	12.2%	27.0%	29.2%	11.6%	8.8%	10.8%	862
Shetland	0.5%	11.4%	26.9%	22.1%	14.1%	9.2%	15.8%	867
Tayside	0.6%	13.6%	29.6%	25.3%	12.2%	7.2%	11.6%	17,247
Western Isles	0.8%	12.9%	30.1%	26.2%	10.7%	6.5%	12.7%	1,063
Scotland	**0.7%**	**13.8%**	**28.8%**	**24.4%**	**11.9%**	**7.7%**	**12.6%**	**218,903**

Note: Excludes children under 12 years of age (n=1060)

Glycaemic Control

89.8% of patients had an HbA_{1c} recorded in the previous 15 months. In 58% of patients with a recorded result, HbA_{1c} was less than 7.5%, suggesting quite good control of diabetes. While all laboratories in Scotland are using a standardised (DCCT aligned) HbA_{1c} assay, there are some slight differences in actual results between laboratories. This should be considered when comparing results from different health board areas. SIGN is reviewing targets for glycaemic control. It should be noted that HbA_{1c} is higher in the winter with a variability of 0.5%.

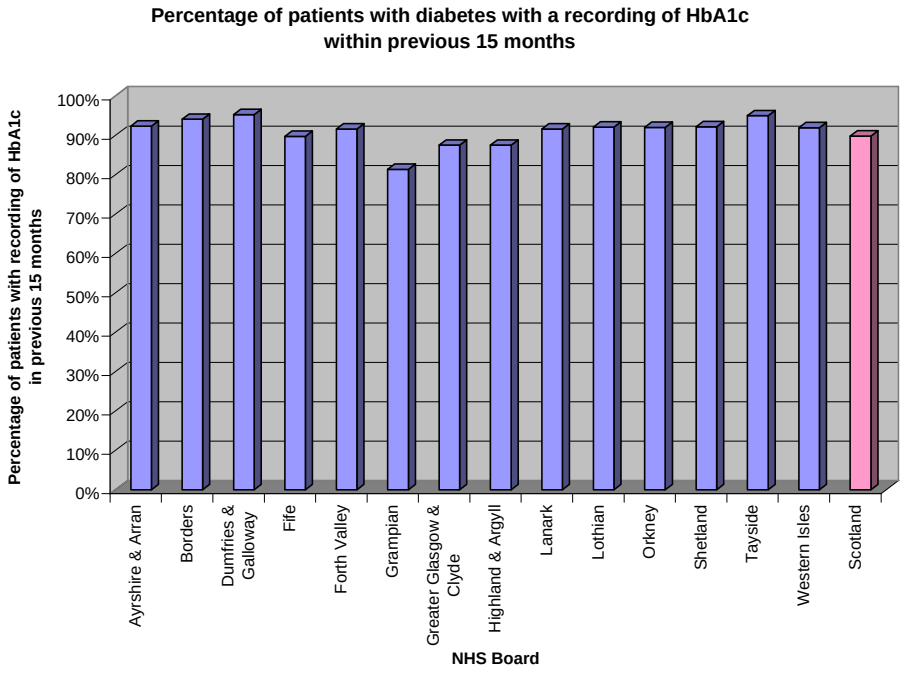

Figure 8 Percentage of patients with a recording of HbA_{1c} within the previous 15 months

Table 17 Recording of HbA_{1c} within previous 15 months by NHS board

NHS Board	Recorded within previous 15 months	Total
Ayrshire & Arran	92.3%	17,055
Borders	94.1%	4,911
Dumfries & Galloway	95.2%	7,009
Fife	89.7%	15,987
Forth Valley	91.6%	12,667
Grampian	81.4%	21,283
Greater Glasgow & Clyde	87.5%	52,545
Highland & Argyll	87.5%	12,912
Lanarkshire	91.6%	24,958
Lothian	92.1%	30,520
Orkney	92.0%	866
Shetland	92.2%	872
Tayside	95.0%	17,311
Western Isles	91.9%	1,067
Scotland	**89.8%**	**219,963**

Table 18 Recording of HbA_{1c} in previous 15 months 2001-2008

Year	Recorded within previous 15 months	Not known
2008	**89.8%**	**10.2%**
2007	88.7%	11.3%
2006	87.0%	13.0%
2005	84.0%	16.0%
2004	73.6%	26.4%
2003	48.8%	51.2%
2002	70.8%	29.2%
2001	72.7%	27.3%

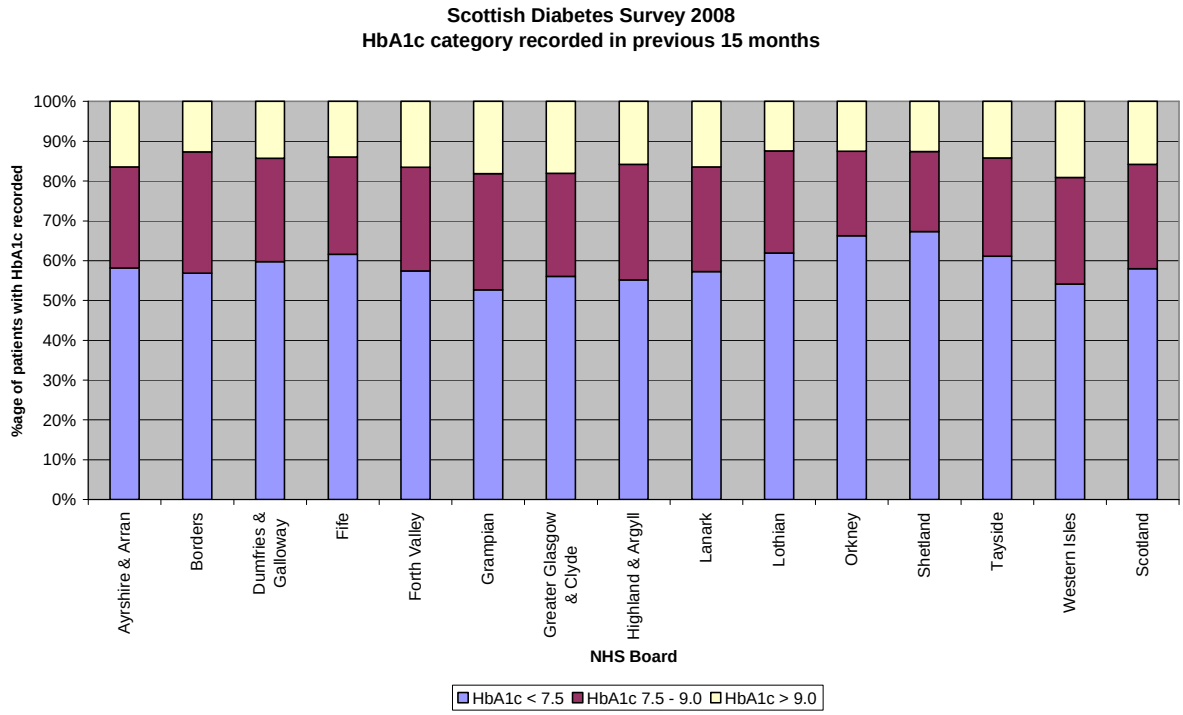

Figure 9 HbA_{1c} category for patients with HbA_{1c} recorded in the previous 15 months

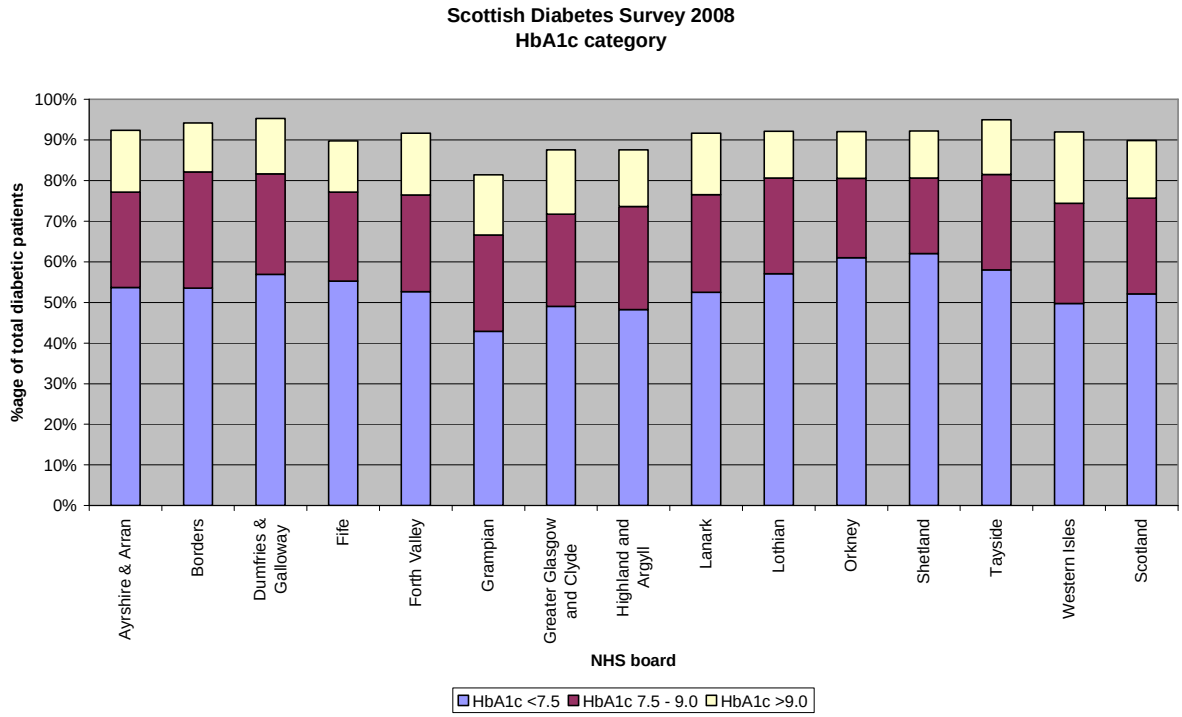

Figure 10 HbA_{1c} category for patients as percentage of total diabetic population

Table 19 HbA_{1c} category (as percent of patients with HbA_{1c} recorded in previous 15 months)

NHS Board	HbA_{1c} < 7.5		HbA_{1c} 7.5 - 9.0		HbA_{1c} > 9.0		Total recorded
Ayrshire & Arran	9,153	58.1%	4,009	25.5%	2,585	16.4%	15,747
Borders	2,626	56.8%	1,408	30.5%	588	12.7%	4,622
Dumfries & Galloway	3,988	59.7%	1,734	26.0%	954	14.3%	6,676
Fife	8,836	61.6%	3,500	24.4%	2,009	14.0%	14,345
Forth Valley	6,665	57.4%	3,017	26.0%	1,924	16.6%	11,606
Grampian	9,119	52.7%	5,053	29.2%	3,148	18.2%	17,320
Greater Glasgow & Clyde	25,770	56.0%	11,905	25.9%	8,302	18.1%	45,977
Highland & Argyll	6,231	55.1%	3,277	29.0%	1,791	15.9%	11,299
Lanarkshire	13,095	57.3%	6,011	26.3%	3,759	16.4%	22,865
Lothian	17,411	62.0%	7,191	25.6%	3,500	12.5%	28,102
Orkney	528	66.2%	169	21.2%	100	12.5%	797
Shetland	541	67.3%	162	20.1%	101	12.6%	804
Tayside	10,046	61.1%	4,055	24.7%	2,341	14.2%	16,442
Western Isles	531	54.1%	263	26.8%	187	19.1%	981
Scotland	**114,540**	**58.0%**	**51,754**	**26.2%**	**31,289**	**15.8%**	**197,583**

Table 20 HbA_{1c} category (as percent of total diabetic population)

NHS Board	HbA_{1c} <7.5		HbA_{1c} 7.5 - 9.0		HbA_{1c} >9.0		Not recorded	Total
Ayrshire & Arran	9,153	53.7%	4,009	23.5%	2,585	15.2%	1,308	17,055
Borders	2,626	53.5%	1,408	28.7%	588	12.0%	289	4,911
Dumfries & Galloway	3,988	56.9%	1,734	24.7%	954	13.6%	333	7,009
Fife	8,836	55.3%	3,500	21.9%	2,009	12.6%	1,642	15,987
Forth Valley	6,665	52.6%	3,017	23.8%	1,924	15.2%	1,061	12,667
Grampian	9,119	42.8%	5,053	23.7%	3,148	14.8%	3,963	21,283
Greater Glasgow & Clyde	25,770	49.0%	11,905	22.7%	8,302	15.8%	6,568	52,545
Highland & Argyll	6,231	48.3%	3,277	25.4%	1,791	13.9%	1,613	12,912
Lanarkshire	13,095	52.5%	6,011	24.1%	3,759	15.1%	2,093	24,958
Lothian	17,411	57.0%	7,191	23.6%	3,500	11.5%	2,418	30,520
Orkney	528	61.0%	169	19.5%	100	11.5%	69	866
Shetland	541	62.0%	162	18.6%	101	11.6%	68	872
Tayside	10,046	58.0%	4,055	23.4%	2,341	13.5%	869	17,311
Western Isles	531	49.8%	263	24.6%	187	17.5%	86	1,067
Scotland	**114,540**	**52.1%**	**51,754**	**23.5%**	**31,289**	**14.2%**	**22,380**	**219,963**

Table 21 HbA_{1c} category 2004-2008 (as percentage of total diabetic population)

Year		HbA_{1c} <7.5	HbA_{1c} 7.5-9.0	HbA_{1c} >9.0	Not known	Total
2008	Number	114,540	51,754	31,289	22,380	219,963
	Percentage	52.1%	23.5%	14.2%	10.2%	
2007	Number	114,594	52,987	33,397	8,728	209,706
	Percentage	54.6%	25.3%	15.9%	4.2%	
2006	Number	103,066	49,711	31,145	12,879	196,801
	Percentage	52.4%	25.3%	15.8%	6.5%	
2005	Number	79,865	45,273	27,869	15,734	168,741
	Percentage	47.3%	26.8%	16.5%	9.3%	
2004	Number	58,377	35,796	22,199	19,182	135,554
	Percentage	43.1%	26.4%	16.4%	14.2%	

Note: From 2008 onwards, there was a requirement that HbA_{1c} should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

Table 22 Mean HbA_{1c} recorded in previous 15 months for people with type 1 (in 4 age categories) and type 2 diabetes (all ages)

NHS Board	Mean HbA_{1C}				
	Type 1 Age 0-14	Type 1 Age 15-19	Type 1 Age 20-39	Type 1 Age > 39	Type 2
Ayrshire & Arran	8.7	9.4	8.8	8.7	7.4
Borders	8.8	9.5	9.1	8.5	7.4
Dumfries & Galloway	9.2	9.7	8.8	8.4	7.3
Fife	8.8	9.7	8.6	8.4	7.3
Forth Valley	9.1	10.3	8.9	8.5	7.4
Grampian	8.9	10.2	9.2	8.9	7.6
Greater Glasgow & Clyde	8.6	9.6	8.9	8.6	7.5
Highland & Argyll	9.2	9.7	8.9	8.5	7.5
Lanarkshire	8.8	9.5	8.9	8.5	7.4
Lothian	9.1	9.5	8.5	8.2	7.3
Orkney	8.1	10.2	7.7	7.8	7.1
Shetland	9.3	9.2	8.3	8.0	7.0
Tayside	9.3	10.3	8.9	8.4	7.3
Western Isles	8.7	9.2	9.3	8.4	7.4

Cardiovascular Risk

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

Blood Pressure

90.8% of diabetic patients had their BP recorded within the previous 15 months, of which 73.4% had a systolic BP under 140mmHg, suggesting reasonable control of blood pressure. However, this target level is under review and is lower for people with renal disease.

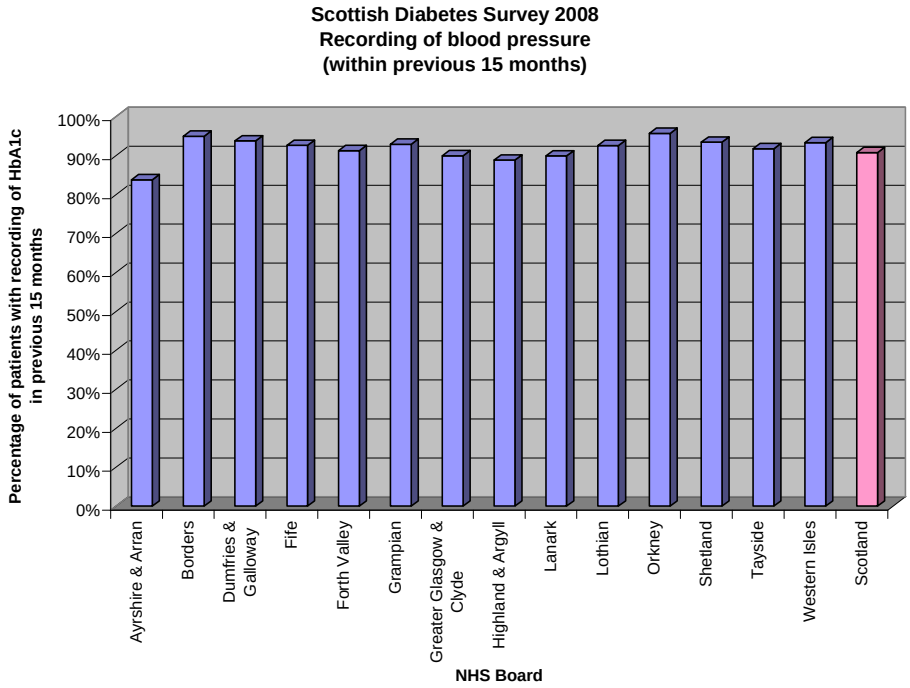

Figure 11 Recording of BP in previous 15 months

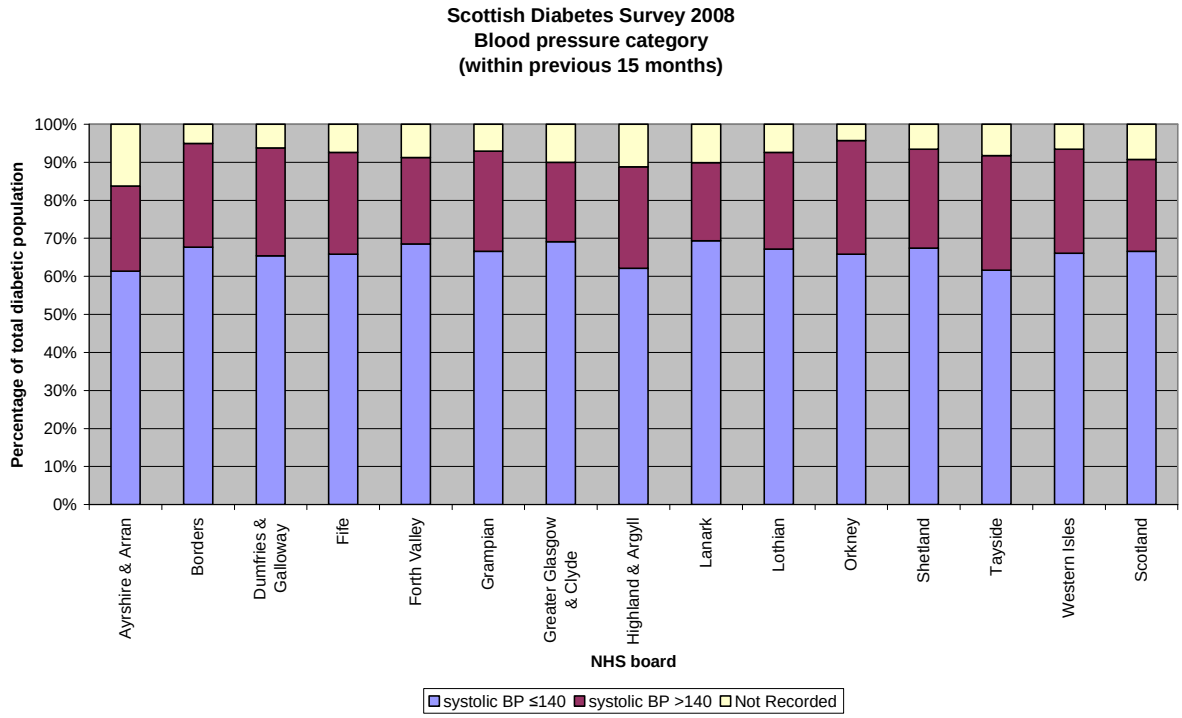

Figure 12 BP category as percentage of total diabetic population

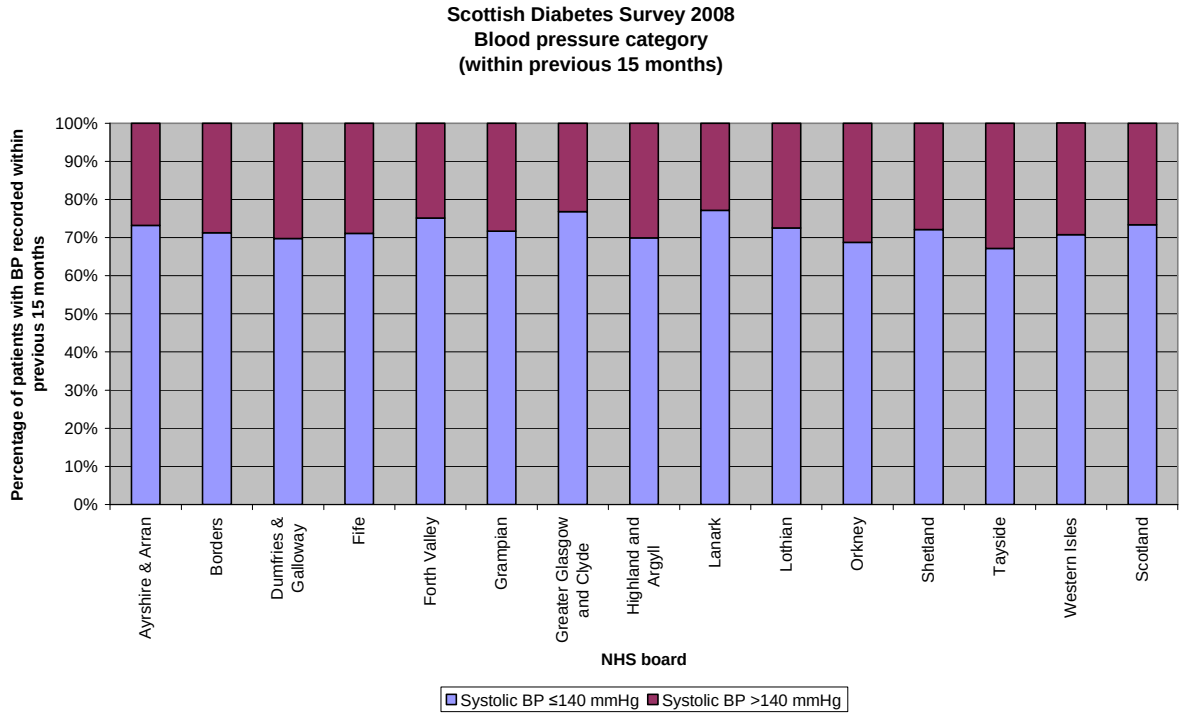

Figure 13 BP category as percentage of patients with BP recorded within previous 15 months

Table 23 Recording of BP within previous 15 months 2002-2008

Year	Measured within previous 15 months	Total
2008	90.8%	219,963
2007	89.7%	209,706
2006	88.9%	196,801
2005	84.3%	172,699
2004	77.7%	138,233
2003	51.6%	123,780
2002	66.8%	103,774

Table 24 BP category 2004-2008 (as percentage of total diabetic population)

Year	Systolic BP ≤140		Systolic BP >140		Not recorded		Total
2008	146,452	66.6%	53,198	24.2%	20,313	9.2%	219,963
2007	149,038	71.1%	55,128	26.3%	5,540	2.6%	209,706
2006	133,898	68.0%	54,526	27.7%	8,377	4.3%	196,801
2005	107,398	63.7%	47,871	28.4%	13,384	7.9%	168,653
2004	76,729	57.0%	45,738	34.0%	12,104	9.0%	134,571

Note: From 2008 onwards, there was a requirement that BP should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

Table 25 BP category 2004-2008 (as percentage of patients with BP recorded)

Year	Systolic BP ≤140		Systolic BP >140		Total	Not recorded
2008	146,452	73.4%	53,198	26.6%	199,650	20,313
2007	149,038	73.0%	55,128	27.0%	204,166	5,540
2006	133,898	71.1%	54,526	28.9%	188,424	8,377
2005	107,398	69.2%	47,871	30.8%	155,269	13,384
2004	76,729	62.7%	45,738	37.3%	122,467	12,104

Note: From 2008 onwards, there was a requirement that BP should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

Table 26 Mean BP recorded in previous 15 months in people with type 2 diabetes aged 50-60 years by NHS board

NHS Board	Mean systolic BP	Mean diastolic BP
Ayrshire & Arran	134	77
Borders	135	77
Dumfries & Galloway	135	79
Fife	133	79
Forth Valley	132	77
Grampian	134	78
Greater Glasgow & Clyde	132	78
Highland & Argyll	135	79
Lanarkshire	132	77
Lothian	133	78
Orkney	136	78
Shetland	135	79
Tayside	135	78
Western Isles	133	78
Scotland	**134**	**78**

Cholesterol

Cholesterol was recorded in 90.1% of patients within the previous 15 months. Total cholesterol was found to be less than or equal to the target of 5.0mmol/l in 80% of patients with a recorded result.

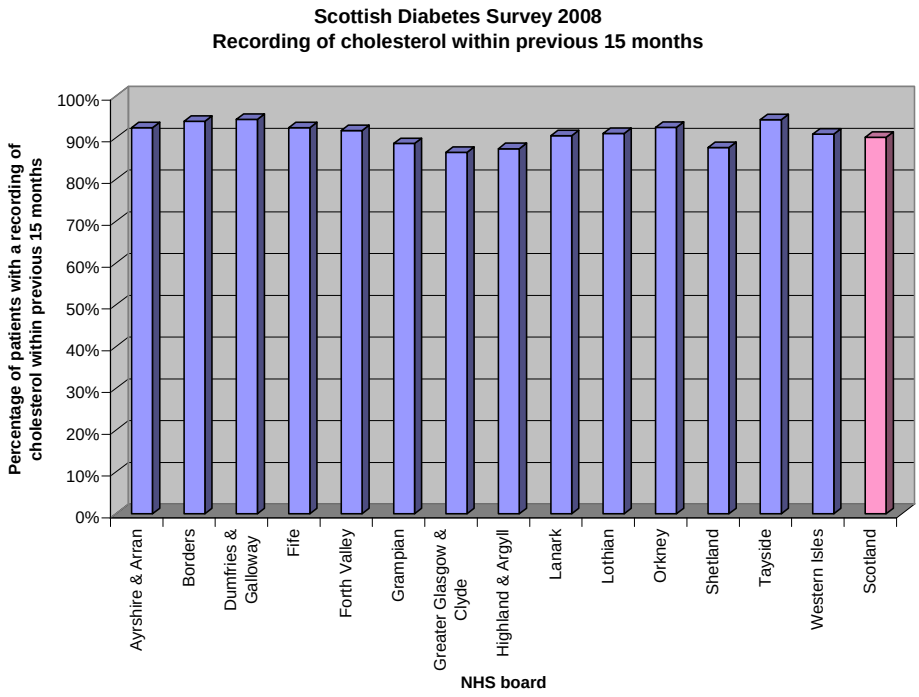

Figure 14 Recording of cholesterol within the previous 15 months
Note: Excludes children under 12 years (n=1060)

Table 27 Recording of cholesterol within the previous 15 months 2002-2008

Year	Recorded within previous 15 months	Total
2008	90.1%	218,903
2007	88.4%	208,652
2006	85.5%	195,717
2005	79.2%	171,899
2004	69.0%	149,353
2003	40.2%	133,889
2002	60.5%	102,837

Note: Excludes children under 12 years of age (n=1060)

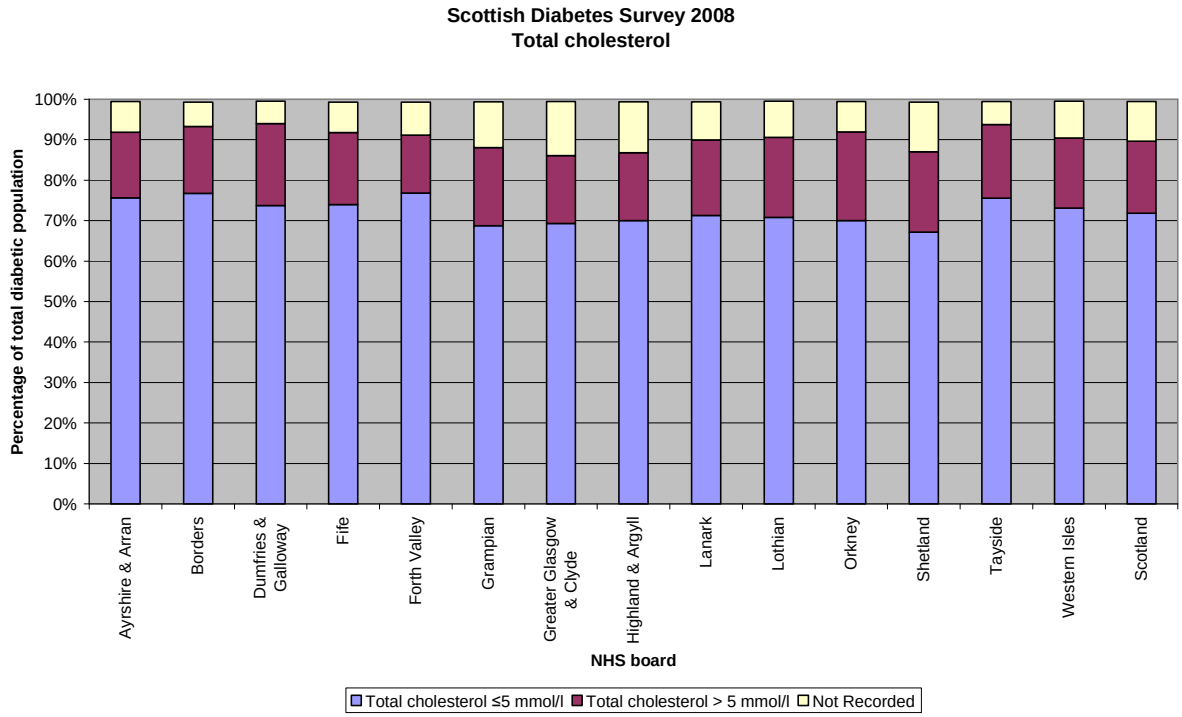

Figure 15 Total cholesterol category recorded within previous 15 months as percentage of total diabetic population

Note: Excludes children under 12 years (n=1060)

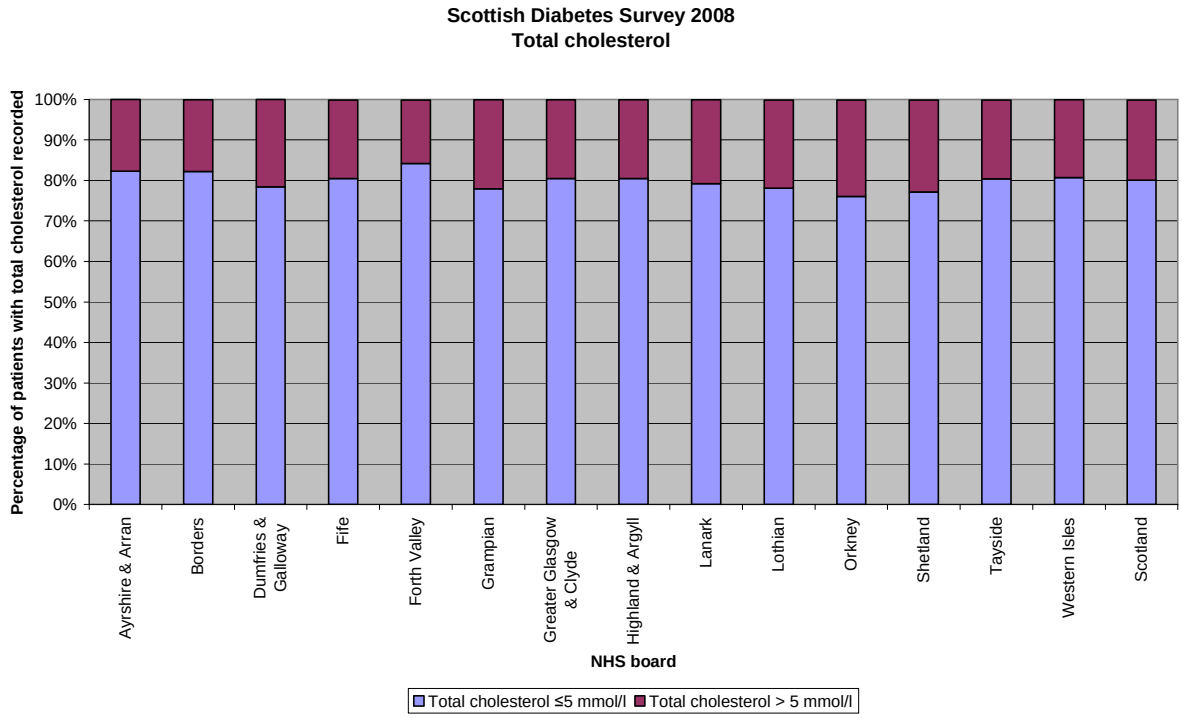

Figure 16 Total cholesterol category recorded within previous 15 months as percentage of patients with total cholesterol recorded

Note: Excludes children under 12 years (n=1060)

Table 28 Total cholesterol category by NHS board as percentage of diabetic population

NHS Board	Total cholesterol ≤5		Total cholesterol >5		Not recorded		Total
Ayrshire & Arran	12,896	76.0%	2,768	16.3%	1,297	7.6%	16,961
Borders	3,769	77.2%	812	16.6%	298	6.1%	4,879
Dumfries & Galloway	5,166	74.0%	1,419	20.3%	393	5.6%	6,978
Fife	11,827	74.4%	2,845	17.9%	1,230	7.7%	15,902
Forth Valley	9,730	77.2%	1,808	14.3%	1,066	8.5%	12,604
Grampian	14,630	69.1%	4,114	19.4%	2,428	11.5%	21,172
Greater Glasgow & Clyde	36,425	69.6%	8,785	16.8%	7,092	13.6%	52,302
Highland & Argyll	9,036	70.4%	2,174	16.9%	1,632	12.7%	12,842
Lanarkshire	17,793	71.7%	4,651	18.7%	2,377	9.6%	24,821
Lothian	21,613	71.1%	6,030	19.8%	2,760	9.1%	30,403
Orkney	586	67.6%	173	20.0%	108	12.5%	867
Shetland	606	70.3%	190	22.0%	66	7.7%	862
Tayside	13,081	75.8%	3,153	18.3%	1,013	5.9%	17,247
Western Isles	780	73.4%	185	17.4%	98	9.2%	1,063
Scotland	**157,938**	**72.1%**	**39,107**	**17.9%**	**21,858**	**10.0%**	**218,903**

Note: Excludes children under 12 years of age (n=1060)

Table 29 Total cholesterol category by NHS board as percentage of patients with cholesterol recorded within the previous 15 months

NHS Board	Total cholesterol ≤5		Total cholesterol >5		Total
Ayrshire & Arran	12,896	82.3%	2,768	17.7%	15,664
Borders	3,769	82.3%	812	17.7%	4,581
Dumfries & Galloway	5,166	78.5%	1,419	21.5%	6,585
Fife	11,827	80.6%	2,845	19.4%	14,672
Forth Valley	9,730	84.3%	1,808	15.7%	11,538
Grampian	14,630	78.1%	4,114	21.9%	18,744
Greater Glasgow & Clyde	36,425	80.6%	8,785	19.4%	45,210
Highland & Argyll	9,036	80.6%	2,174	19.4%	11,210
Lanarkshire	17,793	79.3%	4,651	20.7%	22,444
Lothian	21,613	78.2%	6,030	21.8%	27,643
Orkney	586	77.2%	173	22.8%	759
Shetland	606	76.1%	190	23.9%	796
Tayside	13,081	80.6%	3,153	19.4%	16,234
Western Isles	780	80.8%	185	19.2%	965
Scotland	**157,938**	**80.2%**	**39,107**	**19.8%**	**197,045**

Note: Excludes children under 12 years of age (n=1060)

Table 30 Total cholesterol category 2004-2008 (as percentage of diabetic population)

Year	Cholesterol <=5	Cholesterol >5	Not known	Total
2008	157,938 72.1%	39,107 17.9%	21,858 10.0%	218,903
2007	159,843 76.6%	40,552 19.4%	8,257 4.0%	208,652
2006	143,999 73.6%	38,614 19.7%	13,104 6.7%	195,717
2005	113,542 67.6%	37,631 22.4%	16,680 9.9%	167,853
2004	78,688 54.0%	39,051 26.8%	27,952 19.2%	145,691

Note: From 2008 onwards, there was a requirement that cholesterol should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.
Excludes children under 12 years of age (n=1060)

Table 31 Mean total cholesterol in people with type 2 diabetes aged 50-60 years by NHS board

NHS Board	Mean total cholesterol (mmol/l)
Ayrshire & Arran	4.4
Borders	4.5
Dumfries & Galloway	4.6
Fife	4.4
Forth Valley	4.3
Grampian	4.6
Greater Glasgow & Clyde	4.4
Highland & Argyll	4.5
Lanarkshire	4.5
Lothian	4.5
Orkney	4.4
Shetland	4.5
Tayside	4.5
Western Isles	4.4

Smoking status

Smoking status was recorded for 98.2% of the diabetic population. Almost 1 in 5 people with diabetes were recorded as being current smokers

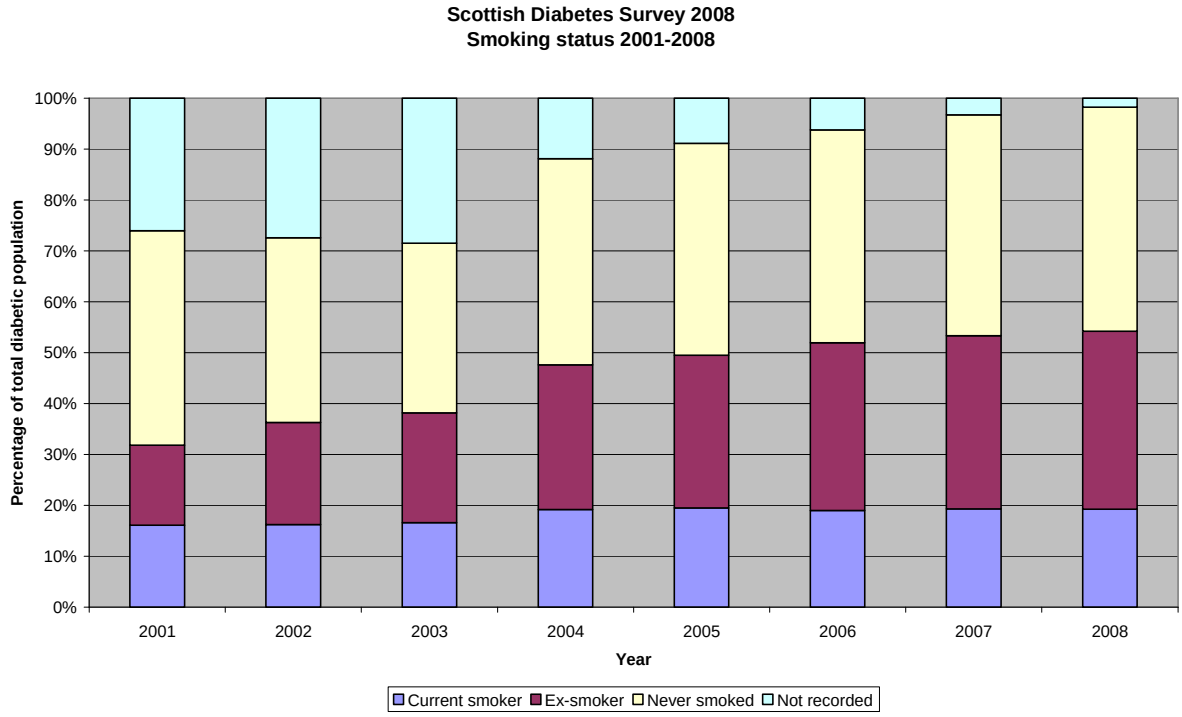

Figure 17 Smoking status as a percentage of total diabetic population

Table 32 Smoking status by NHS board as percentage of total diabetic population

NHS Board	Current smoker	Ex-smoker	Never smoked	Not recorded	Total
Ayrshire & Arran	19.6%	34.2%	45.3%	0.9%	17,055
Borders	15.4%	36.7%	46.9%	1.0%	4,911
Dumfries & Galloway	17.3%	40.1%	41.6%	1.0%	7,009
Fife	19.0%	34.8%	45.2%	1.0%	15,987
Forth Valley	18.9%	36.5%	44.1%	0.5%	12,667
Grampian	15.8%	36.4%	44.4%	3.4%	21,283
Greater Glasgow & Clyde	20.3%	30.5%	46.9%	2.2%	52,545
Highland & Argyll	16.5%	37.1%	42.9%	3.5%	12,912
Lanarkshire	19.8%	32.6%	45.7%	1.9%	24,958
Lothian	22.9%	39.8%	36.5%	0.8%	30,520
Orkney	12.4%	34.1%	52.4%	1.2%	866
Shetland	15.4%	44.6%	39.0%	1.0%	872
Tayside	17.8%	36.4%	44.2%	1.6%	17,311
Western Isles	16.2%	40.4%	42.7%	0.7%	1,067
Scotland	**19.2%**	**35.0%**	**44.0%**	**1.8%**	**219,963**

Table 33 Smoking status by NHS board as percentage of patients with smoking status recorded

NHS Board	Current smoker	Ex-smoker	Never smoked	Not recorded	Total recorded	Total
Ayrshire & Arran	19.8%	34.5%	45.7%	0.9%	99.1%	17,055
Borders	15.6%	37.0%	47.4%	1.0%	99.0%	4,911
Dumfries & Galloway	17.5%	40.5%	42.0%	1.0%	99.0%	7,009
Fife	19.1%	35.2%	45.7%	1.0%	99.0%	15,987
Forth Valley	19.0%	36.7%	44.3%	0.5%	99.5%	12,667
Grampian	16.4%	37.7%	45.9%	3.4%	96.6%	21,283
Greater Glasgow & Clyde	20.8%	31.2%	48.0%	2.2%	97.8%	52,545
Highland & Argyll	17.1%	38.5%	44.4%	3.5%	96.5%	12,912
Lanarkshire	20.1%	33.3%	46.6%	1.9%	98.1%	24,958
Lothian	23.1%	40.1%	36.8%	0.8%	99.2%	30,520
Orkney	12.5%	34.5%	53.0%	1.2%	98.8%	866
Shetland	15.5%	45.1%	39.4%	1.0%	99.0%	872
Tayside	18.1%	37.0%	45.0%	1.6%	98.4%	17,311
Western Isles	16.3%	40.7%	43.0%	0.7%	99.3%	1,067
Scotland	**19.6%**	**35.6%**	**44.8%**	**1.8%**	**98.2%**	**219,963**

Table 34 Smoking status 2001-2008 as percentage of total diabetic population

Year	Current smoker	Ex-smoker	Never smoked	Not recorded
2008	19.2%	35.0%	44.0%	1.8%
2007	19.3%	34.0%	43.4%	3.3%
2006	19.0%	33.0%	41.8%	6.3%
2005	19.5%	30.0%	41.6%	8.9%
2004	19.2%	28.4%	40.5%	11.9%
2003	16.6%	21.6%	33.4%	28.5%
2002	16.2%	20.1%	36.3%	27.4%
2001	16.1%	15.7%	42.1%	26.1%

$HbA_{1c,}$ BP and cholesterol targets

The targets for HbA_{1c}, blood pressure and cholesterol will be reviewed in the light of updated NICE and SIGN guidelines. The proportions of patients known to be reaching current target levels for control of their blood glucose, blood pressure and cholesterol are shown below.

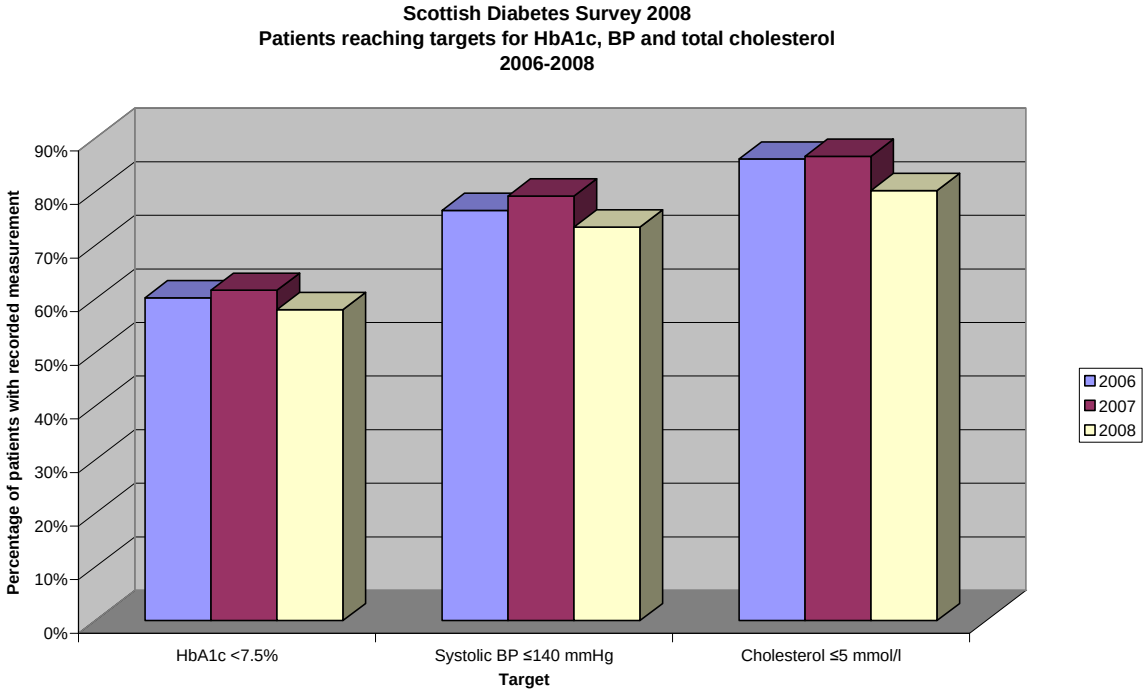

Figure 18 Percentage of patients (with a recorded measurement) reaching targets for HbA_{1c}, BP and total cholesterol 2006-2008

Note: From 2008 onwards, there was a requirement that results should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

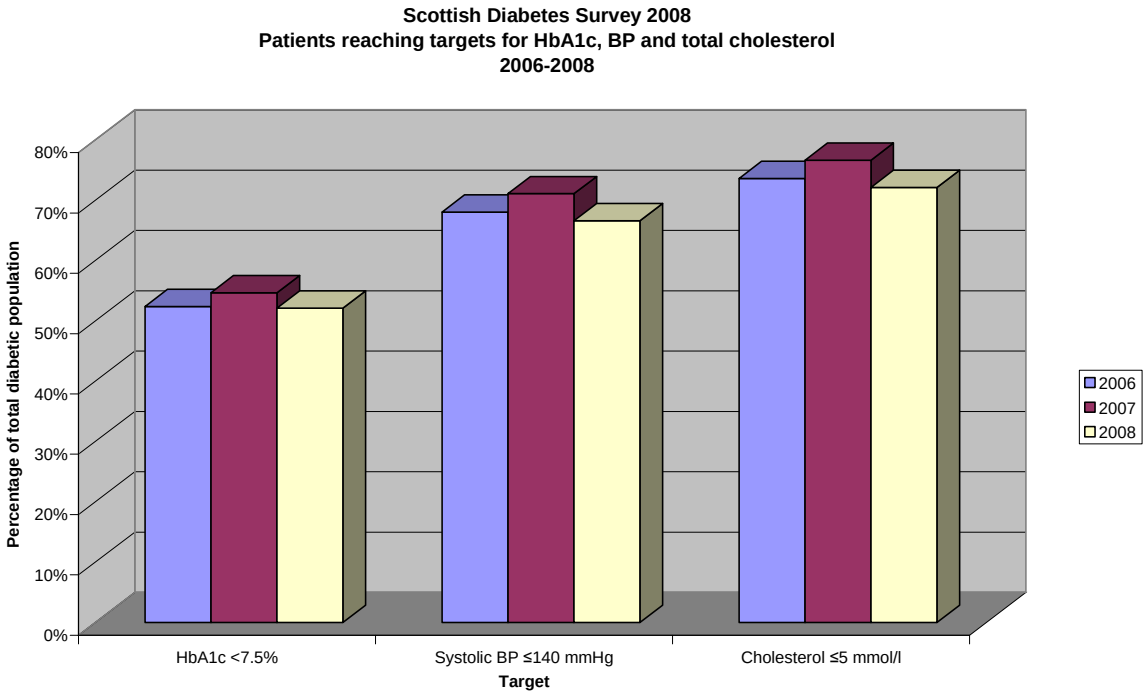

Figure 19 Percentage of patients (from total diabetic population) reaching targets for HbA_{1c}, BP and total cholesterol 2006-2008

Note: From 2008 onwards, there was a requirement that results should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

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 the people of working age

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

In this section, the data presented include both screening performance and recording of prevalent complications. The purpose of screening is to detect changes early and intervene to prevent further deterioration.

Myocardial infarction

20,890 (9.5%) of registered patients have a record of a previous MI. Others will have had an MI but not survived. Validation of these data is needed. There have been improvements in recording, increased use of procedures and better survival following an MI in recent years.

Table 35 Percentage of patients recorded as ever having had a myocardial infarct by NHS board

NHS Board	Recorded as having had an MI	Total on Register
Ayrshire & Arran	9.6%	17,055
Borders	9.7%	4,911
Dumfries & Galloway	8.2%	7,009
Fife	9.5%	15,987
Forth Valley	10.1%	12,667
Grampian	9.0%	21,283
Greater Glasgow & Clyde	9.4%	52,545
Highland & Argyll	9.0%	12,912
Lanarkshire	9.8%	24,958
Lothian	9.2%	30,520
Orkney	9.1%	866
Shetland	5.8%	872
Tayside	11.2%	17,311
Western Isles	9.5%	1,067
Scotland	**9.5%**	**219,963**

Note: these data are as reported and have not been validated.

Table 36 Percentage of patients recorded as ever having had a myocardial infarct 2001-2008

Year of Survey	Myocardial infarct
2008	9.5%
2007	9.5%
2006	9.4%
2005	8.6%
2004	7.3%
2003	7.7%
2002	8.1%
2001	6.7%

Note: this table shows the percentage of patients who have ever had a heart attack and survived.

Cardiac revascularisation

13,481 (6.1%) people included in the survey have undergone cardiac revascularisation.

Table 37 Percentage of patients recorded as ever having had cardiac revascularisation 2001-2008

Year of Survey	Cardiac Revascularisation
2008	6.1%
2007	5.9%
2006	5.5%
2005	4.9%
2004	3.9%
2003	2.8%
2002	3.7%
2001	2.1%

Stroke

11,208 (5.1%) people with diabetes are recorded as having had a cerebrovascular accident (stroke), an increase in numbers but a similar percentage to that in previous surveys.

Table 38 Stroke 2001-2008

Year	Stroke
2008	5.1%
2007	5.1%
2006	5.1%
2005	5.2%
2004	6.3%
2003	4.5%
2002	4.9%
2001	3.4%

Note: this table shows the percentage of patients who have ever had a stroke and survived.

Kidney Disease

Serum creatinine

Serum creatinine was recorded for 90% of patients. This is a small rise from last year (88.6% in 2007).

Table 39 Recording of serum creatinine within the previous 15 months by NHS board

NHS Board	Recorded within previous 15 months	Total
Ayrshire & Arran	90.0%	16,961
Borders	92.4%	4,879
Dumfries & Galloway	94.3%	6,978
Fife	92.2%	15,902
Forth Valley	92.3%	12,604
Grampian	90.2%	21,172
Greater Glasgow & Clyde	87.2%	52,302
Highland & Argyll	85.9%	12,842
Lanarkshire	91.2%	24,821
Lothian	90.4%	30,403
Orkney	87.7%	862
Shetland	90.9%	867
Tayside	96.4%	17,247
Western Isles	89.7%	1,063
Scotland	**90.3%**	**218,903**

Note: Excludes children under 12 years of age (n=1060)

Table 40 Recording of serum creatinine within the previous 15 months 2002-2008

Year	Recorded within previous 15 months	Total
2008	90.3%	218,903
2007	88.6%	208,652
2006	86.1%	195,717
2005	82.3%	171,899
2004	69.2%	149,353
2003	42.5%	133,889
2002	63.5%	97,246

Note: Excludes children under 12 years of age (n=1060)

Urinary microalbuminuria

In 2007, the data showed that 80% of patients had urinary microalbuminuria checked within the previous 15 months. In 2008, the SCI-DC data recorded that only 41% of patients have had microalbuminuria checked. The decrease is due to a change to the guidance regarding data collection and analysis. In previous years, it was sufficient that a protein dipstick test had been done. From 2008 onwards, an actual urinary microalbumin value is required. The figures for microalbuminuria therefore under-estimate numbers tested. For example, according to SCI-DC, 25% of patients in Forth Valley have had microalbuminuria recorded in the previous 15 months, but the MCNs own data suggest a figure of 71%

Table 41 Recording of urinary microalbumin value available on SCI-DC within the previous 15 months by NHS board

NHS Board	Recorded within previous 15 months		Not recorded		Total
Ayrshire & Arran	5,225	30.8%	11,736	69.2%	16,961
Borders	336	6.9%	4,543	93.1%	4,879
Dumfries & Galloway	1,148	16.5%	5,830	83.5%	6,978
Fife	5,474	34.4%	10,428	65.6%	15,902
Forth Valley	3,113	24.7%	9,491	75.3%	12,604
Grampian	14,119	66.7%	7,053	33.3%	21,172
Greater Glasgow & Clyde	24,014	45.9%	28,288	54.1%	52,302
Highland & Argyll	6,252	48.7%	6,590	51.3%	12,842
Lanarkshire	4,468	18.0%	20,353	82.0%	24,821
Lothian	13,685	45.0%	16,718	55.0%	30,403
Orkney	394	45.7%	468	54.3%	862
Shetland	5	0.6%	862	99.4%	867
Tayside	12,151	70.5%	5,096	29.5%	17,247
Western Isles	311	29.3%	752	70.7%	1,063
Scotland	**90,695**	**41.4%**	**128,208**	**58.6%**	**218,903**

Note: Excludes children under 12 years of age (n=1060)

Table 42 Percentage of patients reported as having had a urinary microalbumin test 2002-2007

Year	Recorded within previous 15 months		Recorded >15 months ago		Not recorded		Total
2007	166,746	79.9%	26,188	12.6%	15,718	7.5%	208,652
2006	150,932	77.1%	23,142	11.8%	21,643	11.1%	195,717
2005	116,719	69.5%	20,950	12.5%	30,184	18.0%	167,853
2004	61,463	42.2%	17,679	12.1%	66,549	45.7%	145,691
2003	32,873	24.6%	15,784	11.8%	85,232	63.7%	133,889
2002	25,378	24.8%	11,216	11.0%	65,814	64.3%	102,408

Note: Excludes children under 12 years of age (n=1060)

eGFR

MCNs were requested to obtain data on eGFR (estimated glomerular filtration rate) for this year's survey. This proved challenging as these data will not be entered automatically into SCI-DC until the latest practice filter updates are applied. These include specific Read Codes for eGFR in order to extract this data from primary care records. Direct links to laboratory data held in SCI-store will be available in 2009, but do not exist yet. Consequently, data from most MCNs were incomplete and difficult to interpret so we have not presented them. We hope that eGFR data will be available for next year's report.

End stage renal failure

End stage renal failure implies a need for renal dialysis or transplantation.

Table 43 End stage renal failure by NHS board

NHS Board	Recorded as having end stage renal failure		Total
Ayrshire & Arran	51	0.3%	17,055
Borders	37	0.8%	4,911
Dumfries & Galloway	19	0.3%	7,009
Fife	47	0.3%	15,987
Forth Valley	52	0.4%	12,667
Grampian			
Greater Glasgow & Clyde	231	0.4%	52,545
Highland & Argyll	67	0.5%	12,912
Lanarkshire	96	0.4%	24,958
Lothian	240	0.8%	30,520
Orkney	3	0.3%	866
Shetland	3	0.3%	872
Tayside	123	0.7%	17,311
Western Isles	5	0.5%	1,067
Scotland	**974**	**0.5%**	**198,680**

Note: The Grampian data are being investigated.

Table 44 End stage renal failure 2001-2008

Year	Recorded as having end stage renal failure	
2008	974	0.5%
2007	1,719	0.8%
2006	873	0.4%
2005	828	0.5%
2004	638	0.4%
2003	606	0.5%
2002	430	0.4%
2001	576	0.5%

Note: 2008 data excludes Grampian

Diabetic Eye Disease

Diabetic retinopathy screening

71.9% of patients had a record of eye screening through the retinal screening service in the previous 15 months. It is uncertain if patients who attend eye clinics are being included in the screening data. This infers that the number of people getting their eyes screened might actually be higher than the numbers recorded. More exploratory work on data accuracy needs to be carried out.

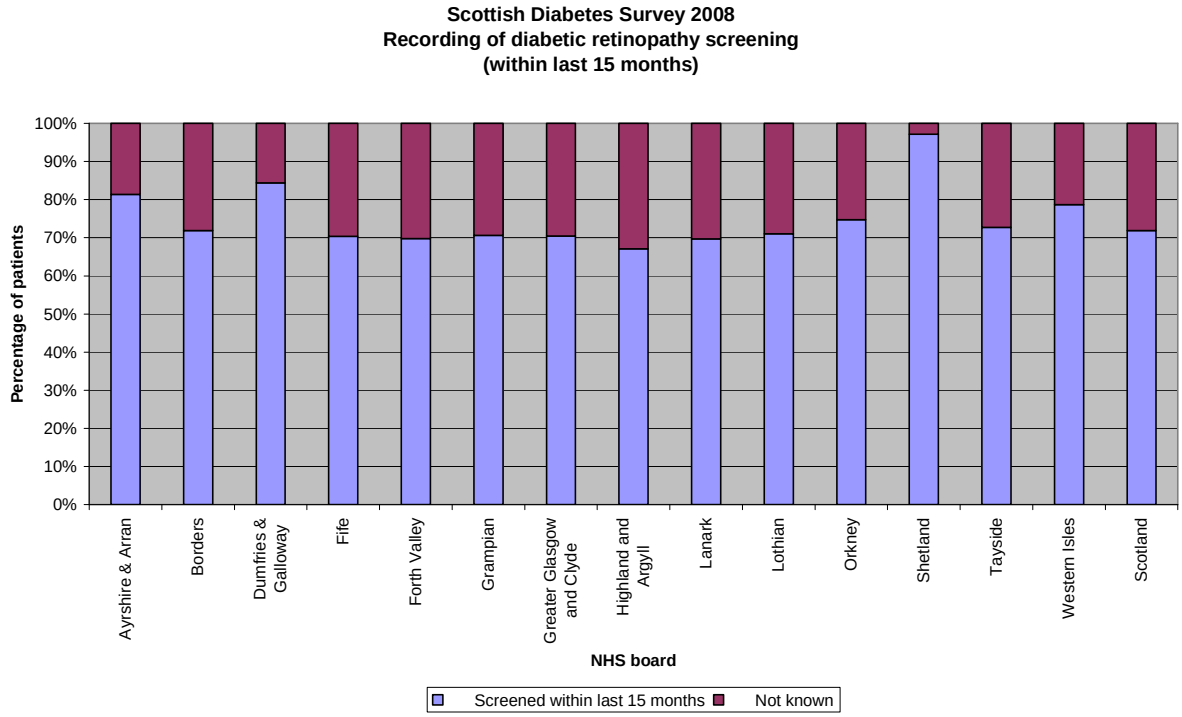

Figure 20 Recording of diabetic retinopathy screening within the previous 15 months through retinal screening service
Note: Excludes children under 12 years (n=1060)

Table 45 Recording of diabetic retinopathy screening within the previous 15 months through retinal screening service

NHS Board	Screened within previous 15 months	Total
Ayrshire & Arran	81.3%	16,961
Borders	71.9%	4,879
Dumfries & Galloway	84.4%	6,978
Fife	70.4%	15,902
Forth Valley	69.8%	12,604
Grampian	70.6%	21,172
Greater Glasgow & Clyde	70.5%	52,302
Highland & Argyll	67.1%	12,842
Lanarkshire	69.8%	24,821
Lothian	71.1%	30,403
Orkney	74.7%	862
Shetland	97.1%	867
Tayside	72.7%	17,247
Western Isles	78.7%	1,063
Scotland	**71.9%**	**218,903**

Note: Excludes children under 12 years (n=1060). This table does not include people with retinopathy attending hospital ophthalmology clinics.

Table 46 Recording of diabetic retinopathy screening 2001-2007

Year	Recorded within previous 15 months	Not recorded
2008	71.9%	28.1%
2007	83.6%	16.4%
2006	70.8%	29.2%
2005	67.7%	32.2%
2004	60.4%	39.6%
2003	40.4%	59.6%
2002	60.3%	39.7%
2001	42.2%	57.8%

Note: Excludes children under 12 years (n=10602008 data are taken only from digital imaging via Diabetes Retinopathy Screening. For 2001 to 2007, data from any form of screening were acceptable. Therefore, 2008 data are not comparable with earlier years' data.

Diabetic retinopathy

29.5% of people with data available have retinopathy present in one or both of their eyes. However, for 30.3% of patients, the register did not include a record of retinopathy status. Data has been collected from the retinopathy screening service. Patients who attend eye clinics (who are likely to have retinopathy) are therefore excluded. the data shown do not therefore report the prevalence of retinopathy in the population with diabetes.

Table 47 Diabetic retinopathy present – left or right eye by NHS board (percentage of patients with a recorded result in the previous 15 months)

NHS Board	Present		Absent		Total with recorded result
Ayrshire & Arran	4,076	35.9%	7,292	64.1%	11,368
Borders	917	27.0%	2,482	73.0%	3,399
Dumfries & Galloway					
Fife	3,047	27.3%	8,103	72.7%	11,150
Forth Valley	3,016	35.4%	5,504	64.6%	8,520
Grampian	4,747	31.9%	10,143	68.1%	14,890
Greater Glasgow and Clyde	10,430	28.5%	26,185	71.5%	36,615
Highland and Argyll	2,972	35.0%	5,529	65.0%	8,501
Lanark	5,030	29.1%	12,231	70.9%	17,261
Lothian	5,277	25.3%	15,546	74.7%	20,823
Orkney	173	27.1%	465	72.9%	638
Shetland	73	32.3%	153	67.7%	226
Tayside	3,261	26.3%	9,155	73.7%	12,416
Western Isles	242	29.2%	587	70.8%	829
Scotland	**43,261**	**29.5%**	**103,375**	**70.5%**	**146,636**

Note: Excludes children under 12 years (n=1060). Dumfries & Galloway data excluded because of data recording problem.

Table 48 Diabetic retinopathy present – left or right eye by NHS board (percentage of total diabetic population)

NHS Board	Present		Absent		Not known		Total
Ayrshire & Arran	4,076	24.0%	7,292	43.0%	5,593	33.0%	16,961
Borders	917	18.8%	2,482	50.9%	1,480	30.3%	4,879
Dumfries & Galloway							
Fife	3,047	19.2%	8,103	51.0%	4,752	29.9%	15,902
Forth Valley	3,016	23.9%	5,504	43.7%	4,084	32.4%	12,604
Grampian	4,747	22.4%	10,143	47.9%	6,282	29.7%	21,172
Greater Glasgow and Clyde	10,430	19.9%	26,185	50.1%	15,687	30.0%	52,302
Highland and Argyll	2,972	23.1%	5,529	43.1%	4,341	33.8%	12,842
Lanark	5,030	20.3%	12,231	49.3%	7,560	30.5%	24,821
Lothian	5,277	17.4%	15,546	51.1%	9,580	31.5%	30,403
Orkney	173	20.1%	465	53.9%	224	26.0%	862
Shetland	73	8.4%	153	17.6%	641	73.9%	867
Tayside	3,261	18.9%	9,155	53.1%	4,831	28.0%	17,247
Western Isles	242	22.8%	587	55.2%	234	22.0%	1,063
Scotland	**43,261**	**20.4%**	**103,375**	**48.8%**	**65,289**	**30.8%**	**211,925**

Excludes children under 12 years (n=1060). Dumfries & Galloway data excluded because of data recording problem.

Table 49 Diabetic retinopathy present – left or right eye 2003-2008 (percentage of diabetic population)

Year	Present	Absent	Not known
2008	20.4%	48.8%	30.8%
2007	28.7%	53.1%	18.2%
2006	19.5%	44.8%	35.7%
2005	13.2%	47.8%	39.0%
2004	14.5%	53.8%	31.7%
2003	14.3%	50.9%	34.6%

Note: Excludes children under 12 years (n=1060). For 2008, Dumfries & Galloway data excluded because of data recording problem. From 2008 onwards, there was a requirement that result should be in previous 15 months. In 2004 to 2007, older results could be included if there was no recent result.

Blindness

1,649 (0.75%) people with diabetes were recorded as blind in 2008. However, not all of these patients lost their sight through diabetic complications. This is a percentage decrease from 2007 and reflects the combination of improvements in diabetes control (so less retinopathy), and the effect of screening, early detection and laser treatment to preserve vision.

Table 50 Recorded as blind by NHS board

NHS Board	Blind - diabetic cause		Blind - non-diabetic cause		Blind - not specified		Total		Total on Register
Ayrshire & Arran	7	0.04%	4	0.02%	102	0.60%	113	0.66%	17,055
Borders	0	0.00%	0	0.00%	23	0.47%	23	0.47%	4,911
Dumfries & Galloway	3	0.04%	4	0.06%	34	0.49%	41	0.58%	7,009
Fife	18	0.11%	5	0.03%	72	0.45%	95	0.59%	15,987
Forth Valley	11	0.09%	14	0.11%	59	0.47%	84	0.66%	12,667
Grampian	1	0.00%	4	0.02%	121	0.57%	126	0.59%	21,283
Greater Glasgow & Clyde	23	0.04%	43	0.08%	332	0.63%	398	0.76%	52,545
Highland & Argyll	5	0.04%	7	0.05%	108	0.84%	120	0.93%	12,912
Lanarkshire	21	0.08%	21	0.08%	173	0.69%	215	0.86%	24,958
Lothian	17	0.06%	40	0.13%	188	0.62%	245	0.80%	30,520
Orkney	0	0.00%	0	0.00%	7	0.81%	7	0.81%	866
Shetland	0	0.00%	1	0.11%	5	0.57%	6	0.69%	872
Tayside	24	0.14%	24	0.14%	124	0.72%	172	0.99%	17,311
Western Isles	1	0.09%	0	0.00%	3	0.28%	4	0.37%	1,067
Scotland	**131**	**0.06%**	**167**	**0.08%**	**1,351**	**0.61%**	**1,649**	**0.75%**	**219,963**

Foot Complications

Peripheral pulses

76.1% of people have had their feet checked (peripheral pulses recorded) in the previous 15 months.

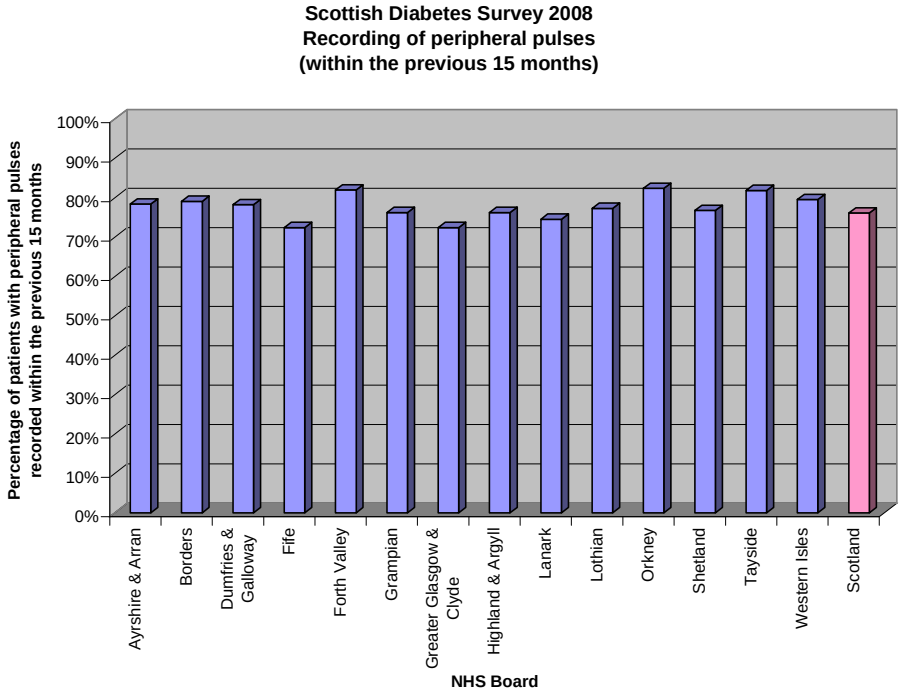

Figure 21 Percentage of patients with peripheral pulses recorded within the previous 15 months

Table 51 Recording of peripheral pulses within the previous 15 months by NHS board

NHS Board	Recorded within previous 15 months	Total
Ayrshire & Arran	78.4%	17,055
Borders	79.0%	4,911
Dumfries & Galloway	78.2%	7,009
Fife	72.4%	15,987
Forth Valley	81.9%	12,667
Grampian	76.2%	21,283
Greater Glasgow & Clyde	72.4%	52,545
Highland & Argyll	76.2%	12,912
Lanarkshire	74.5%	24,958
Lothian	77.3%	30,520
Orkney	82.3%	866
Shetland	76.7%	872
Tayside	81.8%	17,311
Western Isles	79.5%	1,067
Scotland	**76.1%**	**219,963**

Table 52 Recording of peripheral pulses within the previous 15 months 2004-2008

Year	Recorded within previous 15 months	Total
2008	76.1%	219,963
2007	74.5%	209,706
2006	73.9%	196,801
2005	66.9%	172,699
2004	55.2%	149,353

Foot ulceration

10,167 (4.6%) patients were reported to have had a foot ulcer.

Table 53 Recorded as ever having had a foot ulcer by NHS board

NHS Board	Recorded as ever having had a foot ulcer	Total
Ayrshire & Arran	1.8%	17,055
Borders	2.7%	4,911
Dumfries & Galloway	1.4%	7,009
Fife	5.1%	15,987
Forth Valley	5.8%	12,667
Grampian	2.1%	21,283
Greater Glasgow & Clyde	3.3%	52,545
Highland & Argyll	1.8%	12,912
Lanarkshire	8.6%	24,958
Lothian	8.6%	30,520
Orkney	3.1%	866
Shetland	0.6%	872
Tayside	4.7%	17,311
Western Isles	4.3%	1,067
Scotland	**4.6%**	**219,963**

Note: We have concerns regarding the quality of these data. Lothian and Lanarkshire have much higher numbers and proportions than other areas, but this is likely to be due to ulcers being less well reported in other areas.

Table 54 Recorded as ever having had a foot ulcer 2001-2008

Year of Survey	Recorded as ever having had a foot ulcer
2008	4.6%
2007	4.7%
2006	5.0%
2005 (a)	3.9%
2004	2.2%
2003	1.5%
2002	1.4%
2001	1.0%

a Excludes Borders and Lanarkshire

Lower limb amputation

1,051 (0.5%) patients have had a lower limb amputation.

Table 55 Percentage of patients reported to have ever had lower limb amputation 2001-2008

Year of Survey	Lower limb amputation	
2008	1051	0.5%
2007	950	0.5%
2006	868	0.4%
2005 (a)	774	0.5%
2004	845	0.6%
2003	1,014	0.8%
2002	996	1.0%
2001	908	0.9%

a Excludes Borders and Lanarkshire
Note: These figures are for those who have ever had an amputation in any year, and are still alive.

Foot risk calculation

Table 56 Foot risk calculation in the previous 15 months by NHS board

NHS Board	Active foot disease	High foot risk	Medium foot risk	Low foot risk	Not recorded		Total
Ayrshire & Arran	42	49	101	948	15,915	93.3%	17,055
Borders	12	117	272	948	3,562	72.5%	4,911
Dumfries & Galloway	50	205	730	1,402	4,622	65.9%	7,009
Fife	48	505	958	2,440	12,036	75.3%	15,987
Forth Valley	56	343	854	2,240	9,174	72.4%	12,667
Grampian	101	20	56	601	20,505	96.3%	21,283
Greater Glasgow & Clyde	283	1,285	4,819	13,639	32,519	61.9%	52,545
Highland & Argyll	107	655	1,302	5,136	5,712	44.2%	12,912
Lanarkshire	135	682	1,924	5,039	17,178	68.8%	24,958
Lothian	178	958	1,655	4,555	23,174	75.9%	30,520
Orkney	5	42	159	86	574	66.3%	866
Shetland	3	26	101	490	252	28.9%	872
Tayside	140	1,041	2,174	8,506	5,450	31.5%	17,311
Western Isles	7	22	54	43	941	88.2%	1,067
Scotland	**1,167**	**5,950**	**15,159**	**46,073**	**151,614**	**68.9%**	**219,963**

Low risk = Normal sensation AND good pulses, no previous ulcer, no foot deformity, normal vision.
Moderate risk = ANY OF loss of sensation, absent pulses, (or previous vascular surgery), significant visual impairment, physical disability (e.g., stroke, gross obesity).
High risk = ANY OF previous ulcer due to neuropathy/ischaemia, absent pulses and neuropathy, callus with risk factor (absent pulse, neuropathy, foot deformity).
The Diabetes Foot Subgroup is encouraging use of this scoring system.

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List of Tables and Figures

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Appendix 1
Scottish Diabetes Survey 2008: Guidance and definitions

1. Total Regional population

Mid-2007 Population Estimate - Source: General Register Office for Scotland (GROS)
http://www.gro-scotland.gov.uk/

The 2008 Survey will still be based on 14 health board areas (but will report on Clyde, and Argyll and Bute separately) and the full detailed National and Regional figures can be found here:

http://www.gro-scotland.gov.uk/statistics/publications-and-data/population-estimates/mid-2007-population-estimates-scotland/list-of-tables.html

NHS Board areas	Persons
Ayrshire & Arran	367,020
Borders	111,430
Dumfries & Galloway	148,300
Fife	360,428
Forth Valley	288,473
Grampian	535,290
Greater Glasgow & Clyde	1,192,419
Highland	308,790
Lanarkshire	560,042
Lothian	809,764
Orkney	19,860
Shetland	21,950
Tayside	394,134
Western Isles	26,300
Scotland total	**5,144,200**

2. Area diabetes register

This allows prevalence to be calculated. Patients should be alive, have a diagnosis of frank diabetes (type 1, type 2, type unknown, type "Other" and MODY are the current SCI-DC categories considered frank diabetes) and be registered with a practice in your region on the day of the data extraction.

2.1 Note that the 'Check' sums used throughout the data submission form MUST equal the figure recorded here.
2.2 The number of patients, if any, who have been excluded from the survey for reasons of non-consent should be recorded.

3. Use of CHI number

3.1 Records the number of patients with CHI number.
3.2 Records the number of patients with no CHI number

The Community Health Index (CHI) is a population register used for health care purposes. The CHI number uniquely identifies a person on the index.

4. Type of diabetes

4.1 Type 1
4.2 Type 2
4.3 Other types of diabetes
4.4 Type Unknown

'Other' should include Maturity onset diabetes of youth (MODY), but should exclude Gestational diabetes and pre-diabetic conditions such as Impaired Glucose Tolerance (IGT) and Impaired fasting Glucose (IFG).

5. Age of people on register

Question	Years
5.1	0-4
5.2	5-14
5.3	15-24
5.4	25-34
5.5	35-44
5.6	45-54
5.7	55-64
5.8	65-74
5.9	75-84
5.10	>=85
5.11	Age not recorded / missing or incomplete data

All ages are to be calculated at the day of data extraction and rounded down to the whole number at that time e.g. a person is 26 right up until the day of their 27th birthday

6. No of people with Type 1 diabetes by age

Question	Years
6.1	0-4 years
6.2	5-9 years
6.3	10-14 years
6.4	15-19 years
6.5	20-24 years
6.6	25-29 years
6.7	30-34 years
6.8	35-39 years
6.9	40-44 years
6.10	45-49 years
6.11	50-54 years
6.12	55-59 years
6.13	60-64 years
6.14	65-69 years
6.15	70-74 years
6.16	Over 74 years
6.17	Age Unavailable or incomplete data

All ages are to be calculated at the day of data extraction and rounded down to the whole number at that time e.g. a person is 26 up until the day of their 27th birthday

7. No. of people with Type 2 diabetes under 35 years
Under 15 years | 15-24 | 25-34

8. Children under 12 years

9. Date of diagnosis
Recorded | Not recorded/Not known

System defaults for "date unknown" (e.g. 01/01/1900 or 31/12/1899, etc depending on system) should be counted as "Not Known"

10. Duration of diabetes (Years since diagnosis)
<1 year (equivalent to incident cases) | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | >=50 years | Unavailable or incomplete data

Duration is calculated only where a valid date of diagnosis is recorded. Where defaults for "date unknown" (e.g. 01/01/1900 or 31/12/1899) are recorded, the duration should be considered "Not Known"

11. Sex of people on register
Male | Female | Not recorded/Not known

Sex should be as determined by the CHI record if available

12. Ethnic group

Ethnic group identified |Not recorded/Not known

An ethnic group is a group of people having racial, religious, linguistic and/or other cultural traits in common. The ethnic group to which a patient belongs is judged by the patient. The standard OPCS classification of ethnicity is used here - 0 = White; 1 = Black Caribbean; 2 = Black African; 3 = Indian; 4 = Pakistani; 5 = Bangladeshi; 6 = Chinese; 30 = Other.

13. BMI within prior 15 months

Calculated | Not calculated/Data incomplete/Not known

Children under 12 years should be excluded.

Values outwith the 15-month time-frame should be considered "Not Calculated"

14. BMI range

<18.4 | 18.5-24.9 | 25-29.9 | 30-34.9 | 35-39.9 | =>40 | Not calculated /Data incomplete/Not known

Children under 12 years should be excluded.

BMI ranges should be based on the most recent value within the prior 15 months. This is calculated using a weight less than 15 months and the most recent height which could be older than 15 months. Values using weights older than 15 months should be considered "Not Calculated"

15. HbA_{1c} recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Glycated haemoglobin refers to measurement of HbA_{1c} (not HbA1).

Values outwith the 15-month time-frame should be considered "Not Recorded"

16. Most recent HbA_{1c} measurement

Number of patients whose most recent HbA_{1c} was < 7.5 | Number of patients whose most recent HbA_{1c} was 7.5 to 9.0 | Number of patients whose most recent HbA_{1c} was > 9.0 | HbA_{1c} not recorded

HbA_{1c} ranges should be based on the most recent value within the prior 15 months. Values older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

17. Most recent HbA_{1c} recording in people with Type 1 and Type 2 diabetes within prior 15 months

Mean of HbA_{1c} values for all people with type 1 diabetes in each age band 0-14 | 15-19 |20-39 |>39 and all people with type 2 diabetes

HbA_{1c} ranges should be based on the most recent value within the prior 15 months. Values older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

18. Blood pressure recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Values outwith the 15-month time-frame should be considered "Not Recorded"

19. Most recent blood pressure measurement

No. of patients whose most recent systolic BP was <= 140 | No. of patients whose most recent systolic BP was >140 | BP not recorded

Blood pressure ranges should be based on the most recent value within the prior 15 months. Values older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

20. Blood pressure measurement for those with Type 2 diabetes aged between 50 and 60 years

Mean systolic and diastolic BP measurement for patients with type 2 diabetes aged between 50 and 59.9 years.

Blood pressure ranges should be based on the most recent value within the prior 15 months.

21. Cholesterol recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Children under 12 years should be excluded. The Scottish Diabetes Core Dataset includes data fields for Serum total cholesterol, Serum HDL Cholesterol and Triglycerides. Measurements can be either fasted or unfasted. For the purposes of the 2008 Survey, any one of these is sufficient.

Values outwith the 15-month time-frame should be considered "Not Recorded"

22. Most recent cholesterol measurement

Number of patients whose most recent total cholesterol was <= 5 | Number of patients whose most recent cholesterol was > 5 | Cholesterol not recorded

Children under 12 years should be excluded.

Cholesterol ranges should be based on the most recent value within the prior 15 months. Values older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

23. Mean cholesterol in those with Type 2 diabetes between the ages of 50 and 60

Mean total cholesterol level for those with type 2 diabetes aged between 50 and 59.9 years.

Cholesterol ranges should be based on the most recent value within the prior 15 months.

24. Serum creatinine recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Children under 12 years should be excluded.

Values outwith the 15-month time-frame should be considered "Not Recorded"

25. Estimated GFR recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Children under 12 years should be excluded

Values outwith the 15-month time-frame should be considered "Not Recorded"

26. Most recent Estimated GFR (eGFR) measurement

No of patients whose most recent eGFR was <15 | No of patients whose most recent eGFR was 15-29 | No of patients whose most recent eGFR was 30-44| No of patients whose most recent eGFR was 45-59 | No of patients whose most recent eGFR was > =60 | eGFR not recorded

Children under 12 years should be excluded

Estimated GFR ranges should be based on the most recent value within the prior 15 months. Values older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

27. Urinary microalbumin recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Children under 12 years should be excluded. Urine specimen tested for presence of microalbuminuria by any method is sufficient for the purposes of the 2008 Survey (Albumin concentration, albumin: creatinine ratio, timed overnight albumin excretion rate or 24 hour albumin excretion rate. Urinary dipstick should not be used unless able to detect low levels of albuminuria and express an ACR).

Values outwith the 15-month time-frame should be considered "Not Recorded"

28. Smoking status

Current smoker | Ex-smoker | Never smoked | Not recorded/Not known.

29. Diabetic Retinopathy Screening (DRS) within prior 15 months

Screened within last 15 months | Screening status not recorded.

Children under 12 years should be excluded.

A person should be recorded as having been screened if they have had a completed episode of appropriate diabetic retinal screening (Digital Image Photography or evaluation at a consultant-led ophthalmology clinic for the purpose of treatment or surveillance of diabetic retinopathy).

Fundoscopy and other eye examination methods outwith the approved DRS criteria should be excluded.

Assessments outwith the 15-month time-frame should be considered "Not Recorded"

30. Diabetic Retinopathy - Left or right eye

Present | Absent | Not recorded

Children under 12 years should be excluded. Present means any degree of retinopathy recorded as present in left and/ or right eye; absent means 'no retinopathy' recorded for both eyes.

Retinal status should be based on the most recent assessment within the prior 15 months. Assessments older than 15 months, being outwith the accepted time-frame should be considered "Not Recorded"

31. Blindness

Diabetic cause | Non-diabetic cause | Cause not recorded/not known

Blindness may be recorded where a clinical record confirms this or can defined as visual acuity corrected (i.e. wearing corrective lenses) of <3/60 (i.e. CF, HM or PL) in the better eye. As the permanency or otherwise of the latter method may be difficult to determine, caution in interpreting these particular figures is advised.

32. Myocardial infarct

Recorded as ever having had an acute myocardial infarction

33. Cardiac Revascularisation

Recorded as having undergone cardiac revascularisation

All forms of revascularisation including stents and angioplasty.

34. Stroke

Recorded as having had a stroke

Stroke (cerebrovascular accident) - defined as rapidly developing signs of focal (and/or global) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than vascular origin.

35. Peripheral pulses recorded within prior 15 months

Recorded within last 15 months | Not recorded/Data incomplete/Not known

Assessments outwith the 15-month time-frame should be considered "Not Recorded"

36. Foot ulceration

Recorded as ever having had a foot ulcer

Foot ulcer is defined as any break in the epithelium greater than a crack below the level of the malleoli.

37. Foot risk calculation within prior 15 months

Active foot disease | Foot risk high | Foot risk medium | Foot risk low | Not recorded/Data incomplete/Not known

Foot risk should be based on the most recent assessment within the prior 15 months. Where assessments are bilateral (right and left foot assessed separately), the WORSE risk status should be used.

Assessments outwith the 15-month time-frame should be considered "Not Recorded"

The risk grading of the foot of a patient with diabetes mellitus, assessed using criteria from SIGN Guideline 55.
Low risk = Normal sensation **AND** good pulses, no previous ulcer, no foot deformity, normal vision.
Moderate risk = **ANY OF** loss of sensation, absent pulses, (or previous vascular surgery), significant visual impairment, physical disability (e.g., stroke, gross obesity).
High risk = **ANY OF** previous ulcer due to neuropathy/ischaemia, absent pulses and neuropathy, callus with risk factor (absent pulse, neuropathy, foot deformity).

38. Lower limb amputation

Recorded as ever having had a lower limb amputation

Amputation is defined as recommended in the SIGN guideline on management of diabetic foot disease as 'removal of forefoot or part of the lower limb'. This excludes loss of toes or single metatarsals.

39. End stage renal failure

Recorded as having end stage renal failure

"Either serum creatinine was chronically greater than 500 µmol/l on two occasions at least three months apart within the prior 15 months or stage 5 renal failure (eGFR less than 15) or the patient has ever been placed on permanent dialysis or received a renal transplant".

40. Deprivation Category

This allows the deprivation profile of the diabetic population to be compared to the profile of the NHS Board and the Scottish population as a whole. Deprivation quintiles are derived from the Scottish Index of Multiple Deprivation (SIMD) rankings

(http://www.scotland.gov.uk/Topics/Statistics/SIMD/)

Quintiles divide the Scottish population into five overall deprivation categories ranging from 1 (Most Deprived) to 5 (Least Deprived) Deprivation quintiles can be assigned to diabetic populations through the patient's postcode.

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