

# Prescribing in general practice in Scotland

Supplementary information



Prepared for the Auditor General for Scotland  
January 2013

# Auditor General for Scotland

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# Introduction

1. Audit Scotland published its national report, *Prescribing in general practice in Scotland*, on 24 January 2012. This report supplements the data analysis presented there. For reasons of clarity, a number of exhibits in the main report covered only a selection of NHS boards or certain group of drugs. This supplement provides additional information and exhibits and follows the same structure as the main report. It is divided into three sections:
  - Part 1 gives further information about trends in spending on GP prescribing, and the change in spending on particular groups of drugs over time.
  - Part 2 gives additional information about NHS boards' overall spending on drugs, spending on different types of statins (drugs to help manage cholesterol and treat heart conditions), and additional information from our survey of NHS boards. It also includes more detail on our analysis of the impact of the abolition of prescription charges.
  - Part 3 looks at the influence of deprivation on prescribing for two selected NHS boards, NHS Greater Glasgow and Clyde and NHS Fife. It includes maps comparing the level of deprivation and the use of selected drugs. It also includes some analysis of lifestyle factors and prescribing spending.

# Part 1. Trends in general practice prescribing

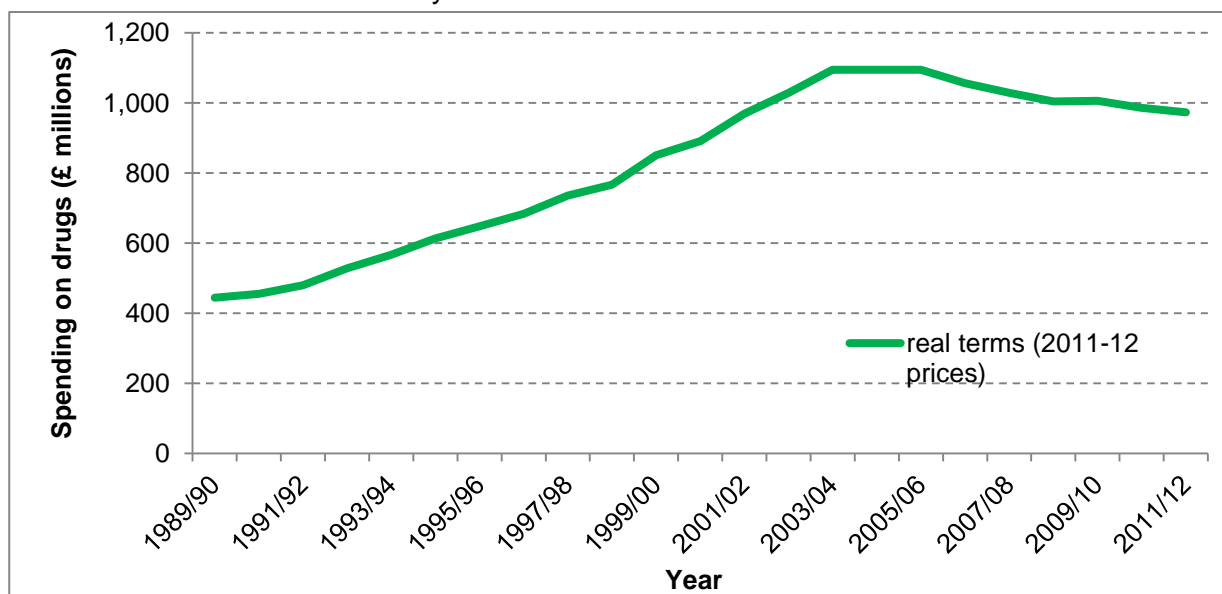
## Trends in prescribing and spending

2. The main report looks at prescribing over the last seven years.<sup>1</sup> The quantity of drugs prescribed by GPs increased by 33 per cent between 2004/05 and 2011/12 while spending fell by 11 per cent in real terms. In the 15-year period before 2004/05, spending on prescribing in general practice increased on average by eight per cent in real terms each year ([Exhibit 1](#)). Since 2004/05, spending on prescribing decreased by an average of two per cent a year in real terms.

### Exhibit 1

#### Spending on drugs prescribed in general practice, 1989/90 to 2011/12

Spending on prescribed drugs increased between 1989/90 and 2003/04, but has fallen in real terms in the last six consecutive years.



Note: Spending on prescribed drugs is reported as the total gross ingredient cost. This is the cost of drugs to the NHS, excluding the fees paid to community pharmacists for drug dispensing and discounts.

Source: Audit Scotland, based on ISD Scotland data

3. The changes in prescribing are not the same across all types of drugs. The main report shows different trends in spending for three groups of drugs (cardiovascular, central nervous system, and respiratory system). Together these groups of drugs accounted for 52 per cent of the total spending in 2011/12.

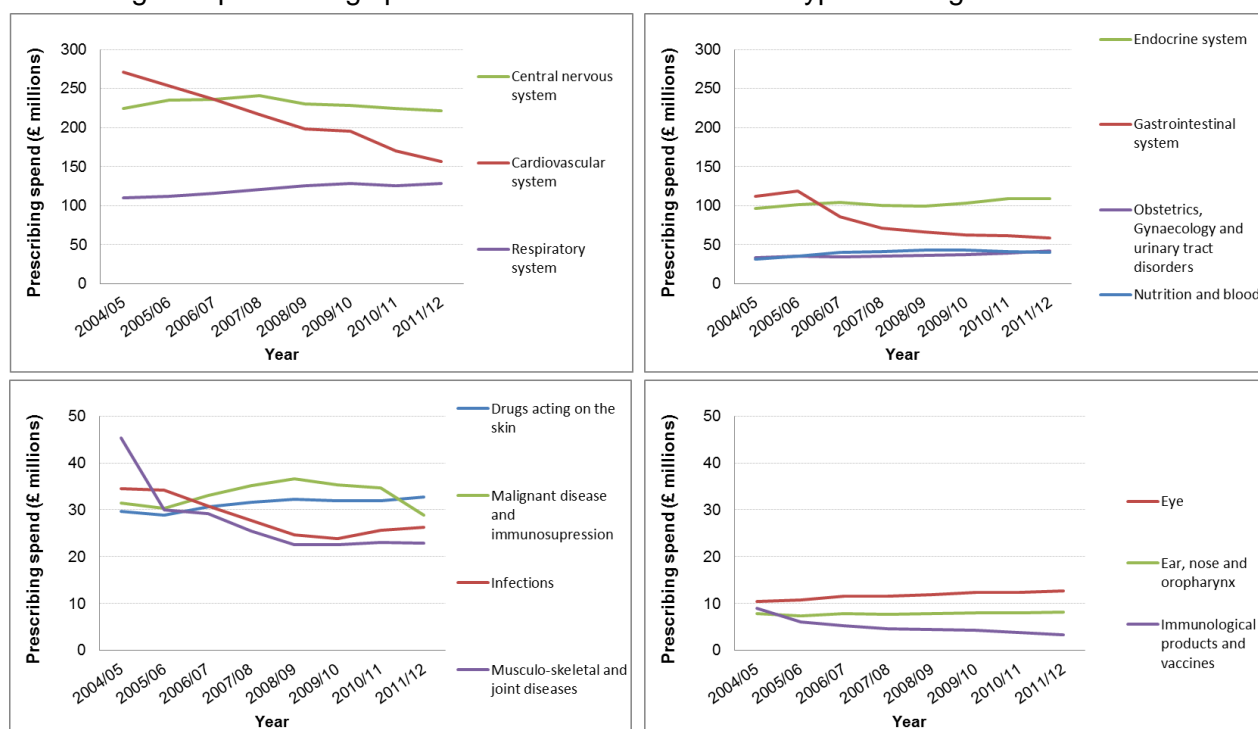
<sup>1</sup> Prescribing in general practice in Scotland, Audit Scotland, 2013

4. The other groups of drugs, defined by British National Formulary (BNF) chapter, also show a varied pattern of changes (Exhibit 2). For example, between 2004/05 and 2011/12, spending on gastrointestinal drugs (drugs for the digestive system) fell from £112 million to £59 million in 2011/12 prices (47 per cent fall), while spending on drugs acting on the skin increased by ten per cent to £33 million.

## Exhibit 2

### Spending on different groups of drugs, 2004/05 to 2011/12

The changes in prescribing spend are not uniform across all types of drugs.



Note: Spending is in real-terms based on 2011/12 prices.

Source: Audit Scotland, based on ISD Scotland data

5. Spending on drugs in the three biggest groups (cardiovascular, central nervous system and respiratory system) accounted for 52 per cent of the total spending in 2011/12 (Exhibit 3). Spending on other groups of drugs accounted for between 11 per cent and less than one per cent of spending. **The main report discusses the trends in prescribing spending in paragraphs 13 to 17.**

**Exhibit 3****Spending on drugs prescribed in general practice by BNF chapter in Scotland, 2011-12**

Spending on drugs in three groups (cardiovascular, central nervous system and respiratory system) accounted for 52 per cent of total spending in 2011/12.

<b>BNF chapter name</b>	<b>Total spending 2011/12 (£ million) and percentage of total spending (%)</b>
<b>Groups of drugs with spending over £120 million</b>	
Central nervous system	221.9 (23%)
Cardiovascular system	156.9 (16%)
Respiratory system	128.4 (13%)
<b>Groups of drugs with spending between £40 million and £120 million</b>	
Endocrine system	108.7 (11%)
Gastrointestinal system	58.9 (6%)
Obstetrics, gynaecology and urinary-tract disorders	41.9 (4%)
Nutrition and blood	40.4 (4%)
<b>Groups of drugs with spending between £20 million and £40 million</b>	
Drugs acting on the skin	32.7 (3%)
Malignant disease and immunosuppression	28.8 (3%)
Infections	26.2 (3%)
Musculo-skeletal and joint diseases	22.9 (2%)
<b>Groups of drugs with spending under £20 million</b>	
Eye	12.7 (1%)
Ear, nose and oropharynx	8.2 (1%)
Immunological products and vaccines	3.3 (less than 1%)

Source: Audit Scotland, based on ISD Scotland data

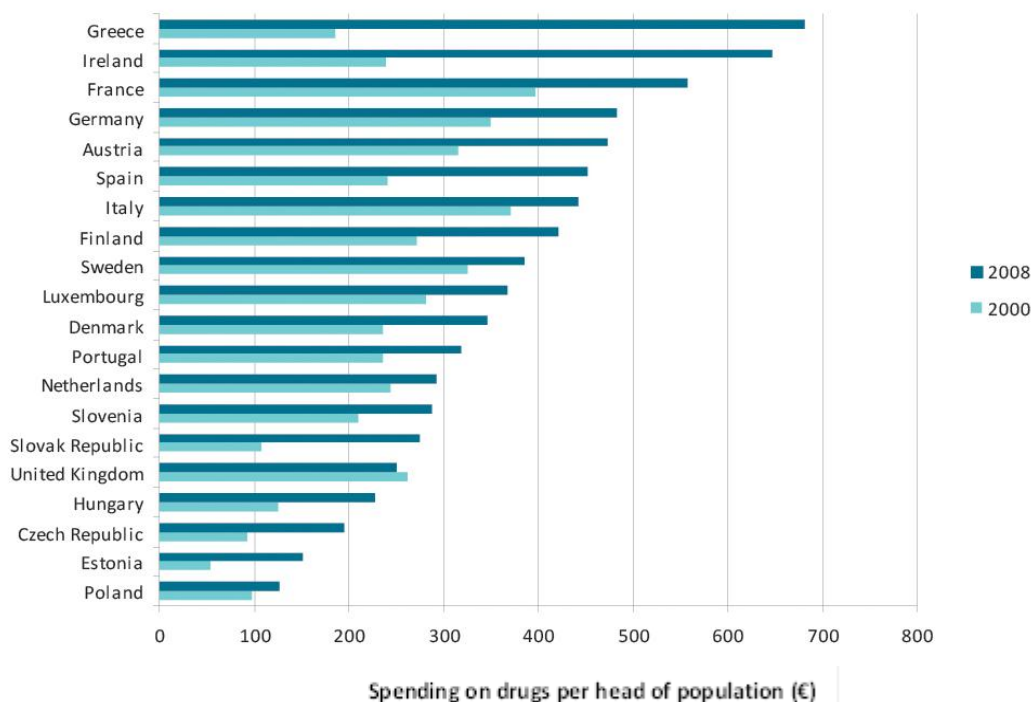
## Comparison with the rest of Europe

- Overall drug spending is lower in the UK than in many other European countries. In addition spending on drugs is increasing at a much lower rate in the UK ([Exhibit 4](#)). International comparisons indicate that overall drug spending, including spending in hospitals, is lower in the UK as a whole than in most other European countries. For example, a Norwegian study found that drug prices in the UK were lower than in other European countries for drugs, ranging from 17 per cent lower than Norway to 57 per cent lower than Germany in wholesale prices.<sup>5</sup>

### Exhibit 4

#### Spending on drugs (hospital and general practice) per head of population (Euros), 2000 compared to 2008

Drug spending was lower in the UK than in most EU countries and spending increased at a much lower rate in the UK.



Note: UK spending appears to fall because the Pound fell against the Euro.

Source: European Parliament, 2011

- The variation in spending per head of population is due to a range of factors including: the amount of drugs that are used in each country; the mix of branded products to generic or non-branded drugs; the introduction of new pricing systems; and the proportion of the price that is reimbursed by national health systems.<sup>7</sup> ***The main discusses trends in spending on drugs in other countries in paragraphs 18 to 20.***

<sup>5</sup> *Comparing Pharmaceutical Prices in Europe*, The institute for research in economics and business administration, Bergen 2011.

<sup>7</sup> *Differences in costs to pharmaceutical products in the EU*, European Parliament, 2011.



# Part 2. Spending and potential savings

## NHS boards' use of national data

8. ISD Scotland manages national datasets which support the national prescribing information system, known as PRISMS. NHS boards use PRISMS in a number of ways ([Exhibit 5](#)). ***The main report comments on the information available to NHS boards to support prescribing in paragraphs 21 to 23.***

### Exhibit 5

#### NHS boards use of PRISMS to support general practice prescribing

Information from PRISMS can help NHS boards monitor the quality of prescribing.

##### How NHS boards help GP practices use PRISMS data

Most boards said that GPs do not access or rarely access PRISMS directly. They felt that the PRISMS user interface is complex and not suitable for new or infrequent users and there is a risk that the system could be used incorrectly. Instead, a member of the prescribing support team with the appropriate skills provides reports using the prescribing data in PRISMS. These are provided regularly to GP practices as well as being available on request, or if variations in prescribing are identified.

##### How PRISMS is used to support performance monitoring and improvement

The majority of boards reported that PRISMS provides comparable data for local and nationally agreed prescribing indicators; to review compliance with the local formulary; to look at prescribing of high cost and high volume drugs; and to look at variance at a GP practice level.

Prescribing support staff use PRISMS data to create monthly reports on performance against budget. This analysis is given to board committees and GP forums to help them monitor and review prescribing. PRISMS data can also be used to identify variation in prescribing compared to other boards and to benchmark across Scotland. It can help inform NHS boards' choice of local medicine management projects, and where they will target prescribing guidance.

*Source: Audit Scotland survey of NHS boards*

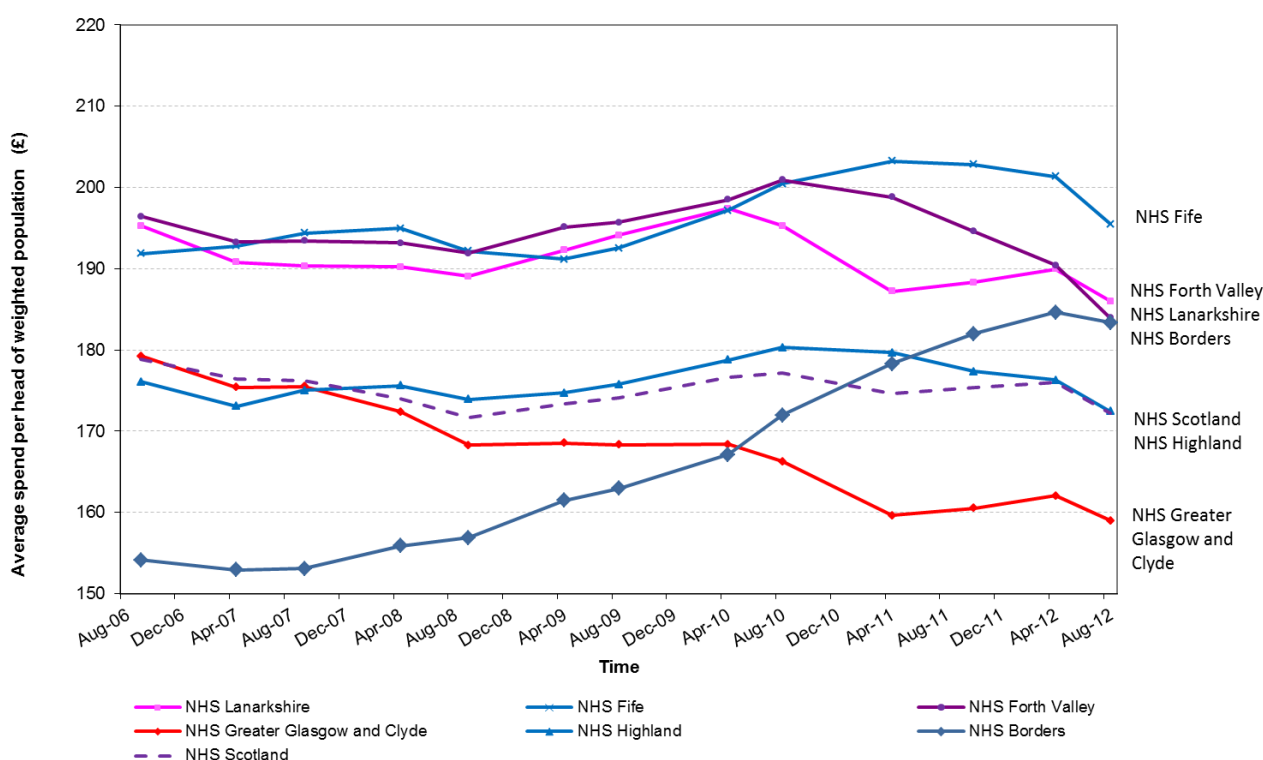
## Patterns of prescribing among NHS boards

9. We found considerable variation in trends in spending per head of population among some NHS boards and we included a sample in the main report (Exhibit 6). Spending on drugs per population for a number of other mainland NHS boards changed less over the same period (Exhibit 7).<sup>9</sup> *The main report discusses variation in prescribing among NHS boards in paragraphs 24 to 26.*

### Exhibit 6

#### Spending on GP prescribing in mainland NHS boards, August 2006 to August 2012

There is considerable variation among some NHS boards in spending over time (this Exhibit is included in the main report as Exhibit 5).



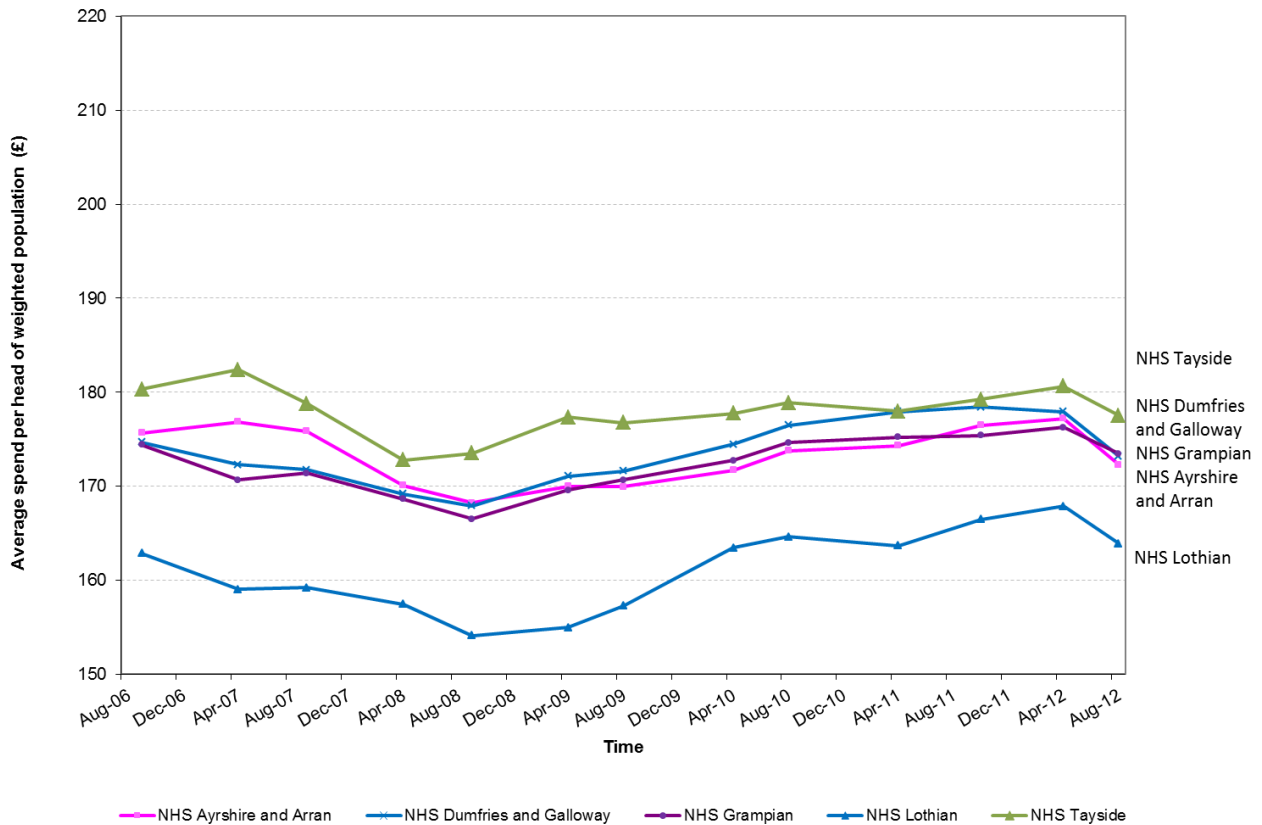
Source: ISD Scotland data (PRISMS)

<sup>9</sup> We have not shown the island NHS boards for this analysis because they have a high level of variability due to their small population size

## Exhibit 7

## Spending on GP prescribing in mainland NHS boards, August 2006 to August 2012

There is less variation among these NHS boards' spending over time.



Source: ISD Scotland data (PRISMS)

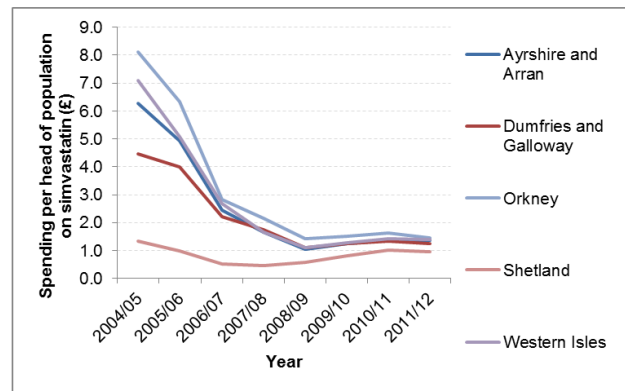
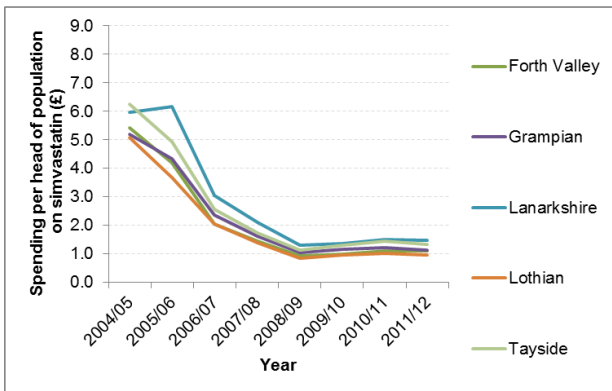
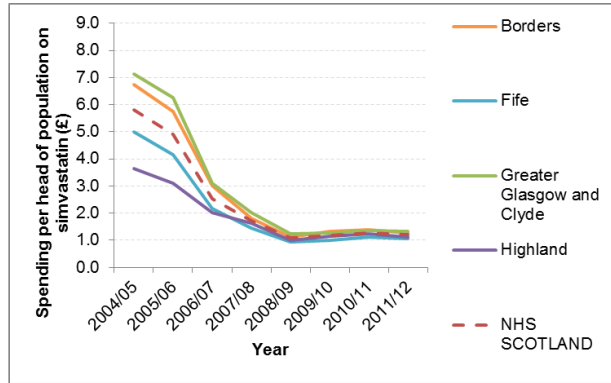
## Statin prescribing

- Case study 2 in the main report examined the change in statin prescribing in a sample of NHS boards over time. The analysis of spending on the four different types of statins for all NHS boards is shown here in Exhibits 8 to 11. **The main report comments on the management of spending on statins in paragraphs 34 to 36.**
- The price of simvastatin fell by 94 per cent in Scotland after the drug moved off patent in 2003 (Exhibit 8). Initiatives by NHS boards to encourage GPs to prescribe generic simvastatin resulted in spending falling to around £1.50 per head of population for all NHS boards in 2011/12.

**Exhibit 8**

**Simvastatin - prescribing a generic version drug**

The price of simvastatin fell by 94 per cent in Scotland after the drug moved off patent in 2003. Spending on simvastatin fell significantly in all mainland boards after 2003.



Note: spending is in real terms based on 2011/12 prices

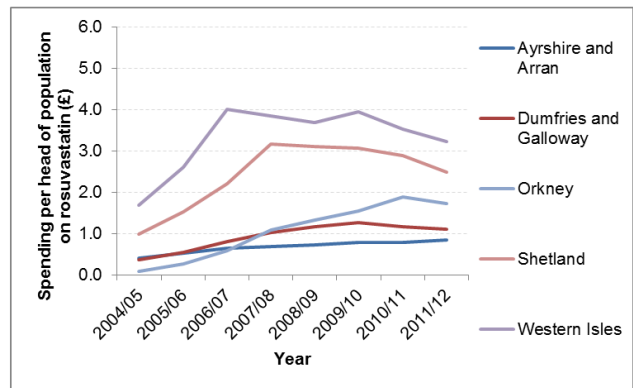
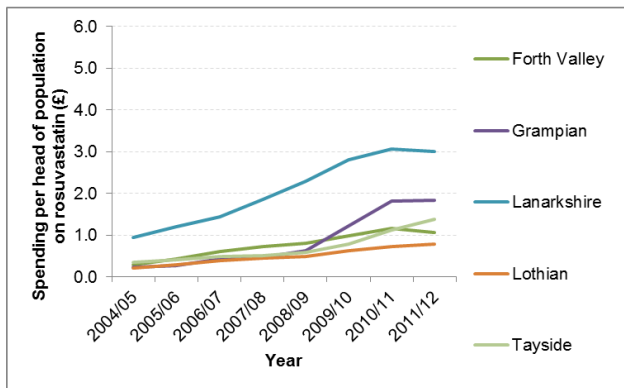
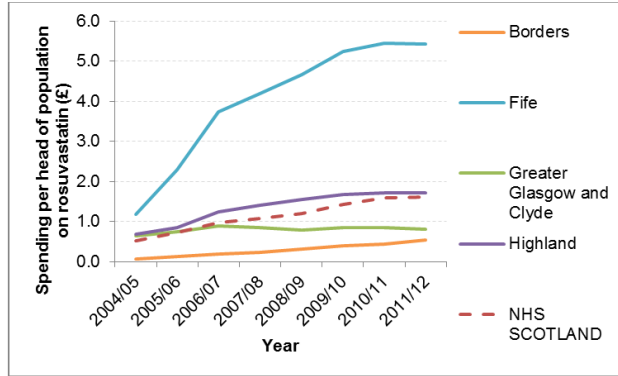
Source: Audit Scotland analysis of ISD Scotland data

12. NHS Fife, NHS Lanarkshire, NHS Dumfries and Galloway and NHS Western Isles have a higher spend on a higher cost statin, rosuvastatin, than other boards (Exhibit 9).

**Exhibit 9**

**Rosuvastatin - variation in use of a higher cost statin among NHS boards**

Rosuvastatin is the newest statin and was introduced in 2003.



Note: spending is in real terms based on 2011/12 prices

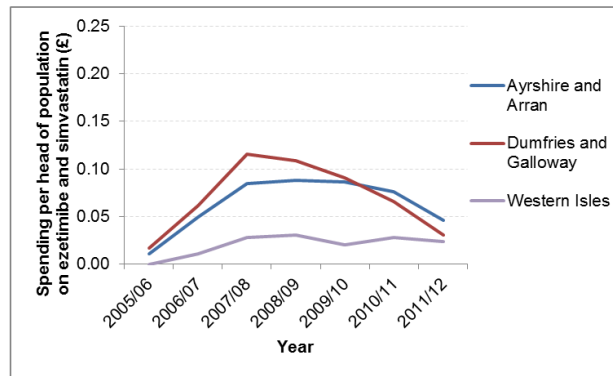
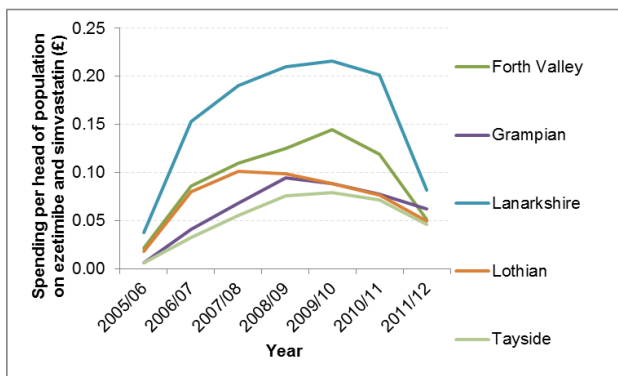
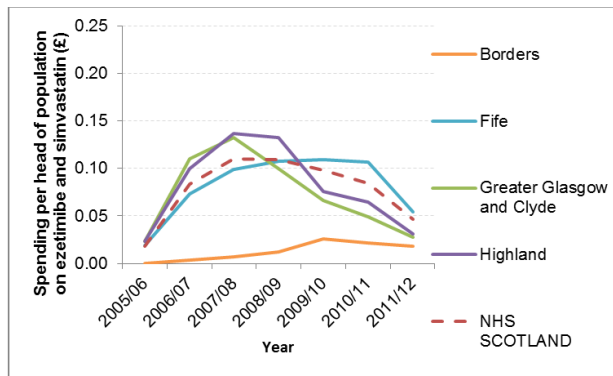
Source: Audit Scotland analysis of ISD Scotland data

13. Spending of the combined drug ezetimibe and simvastatin is small relative to other type of statins. In around 2007, the effectiveness of ezetimibe came into question and some boards have been quicker than others in reducing their use of it (Exhibit 10).

**Exhibit 10**

**Ezetimibe and simvastatin - responses by NHS boards to clinical evidence**

Ezetimibe and simvastatin is a combination drug that was introduced in 2005.



Note: spending is in real terms based on 2011/12 prices

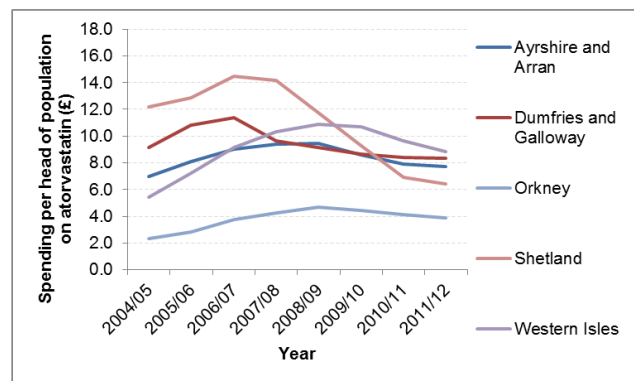
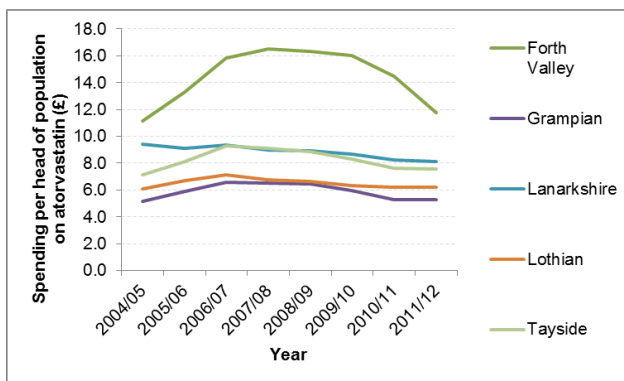
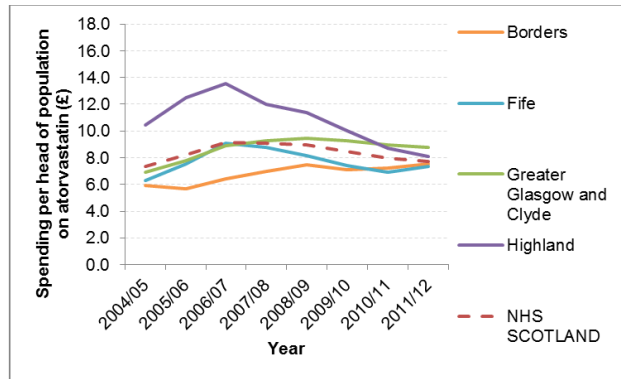
Source: Audit Scotland analysis of ISD Scotland data

14. Atorvastatin was the most expensive prescribed statin before it came off patent in May 2012. Spending per head of population on atorvastatin increased in most boards until 2007/08, before levelling off (Exhibit 11).

**Exhibit 11**

**Atorvastatin - reducing use of a high cost statin**

In 2011/12, atorvastatin accounted for one-third of all statins prescribed and two-thirds of spending.



Note: Spending is in real terms based on 2011/12 prices

Source: Audit Scotland analysis of ISD Scotland data

**Impact of the abolition of prescription charges**

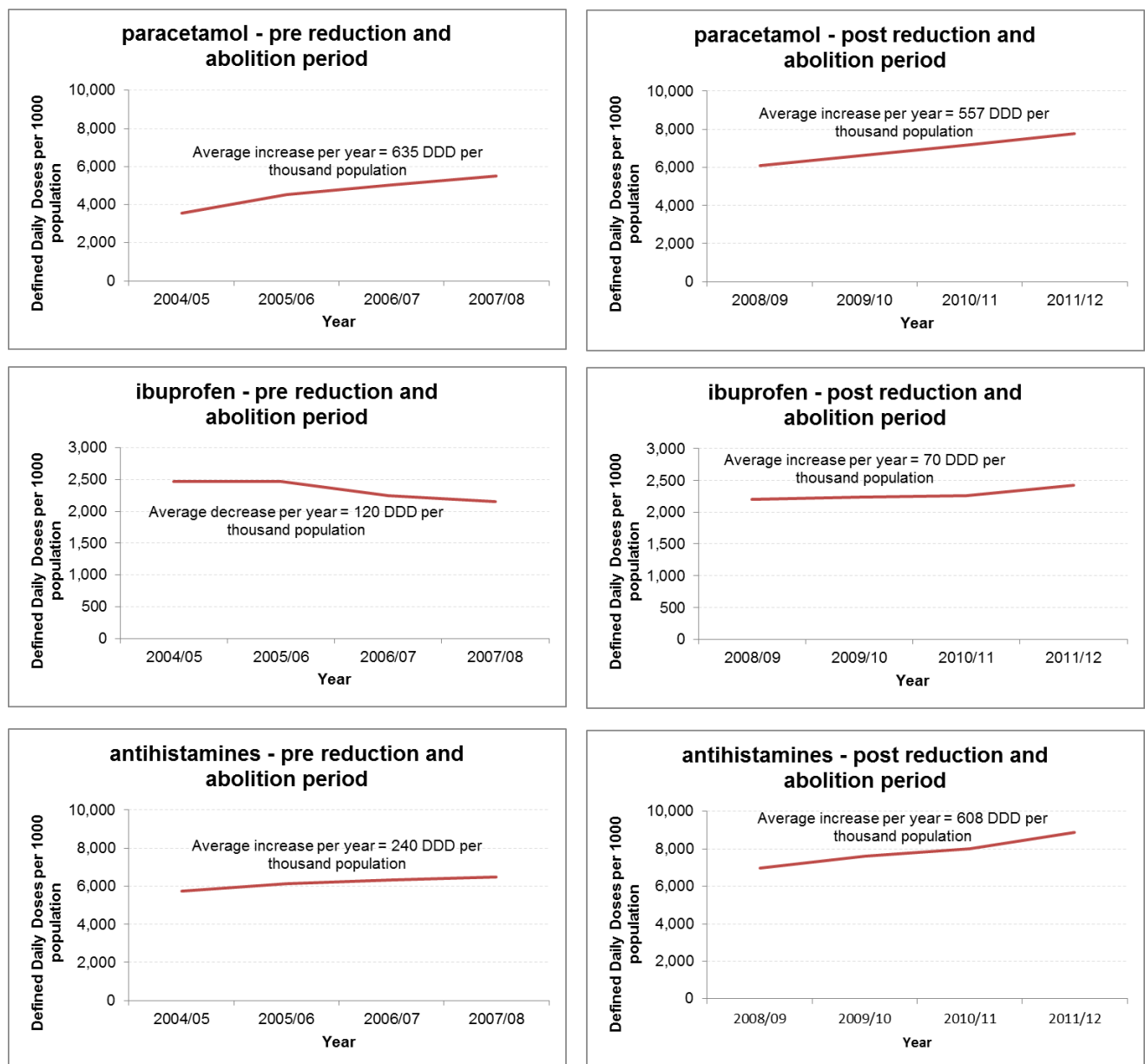
15. It is difficult to measure the impact of the abolition of prescription charges for a number of reasons. **The main report comments on the abolition of prescription charges in paragraphs 51 to 54.**
16. We have looked at prescribing trends in three common drugs that are available on prescription and to buy. We compared prescribing trends for the three years before and after prescription charges started to reduce in April 2008 (Exhibit 12):
- paracetamol - there was less of an increase in the quantity of paracetamol prescribed after the reduction and subsequent abolition of prescription charges. In the earlier period, paracetamol prescriptions increased by 16 per cent per year on average, and after 2008, the average annual increase was only nine per cent.

- ibuprofen - there was a small increase in the quantity of ibuprofen prescribed after 2008. In the earlier period there was an average annual decrease of three per cent and after 2008 there was an average annual increase of four per cent.
- antihistamines - there were an increase in the quantity of antihistamines prescribed after 2008. In the earlier period there was an average annual increase of three per cent and after 2008 there was an average annual increase of eight per cent.

**Exhibit 12**

**Prescribing of three common drugs before and after prescription charges were reduced**

Prescribing trends for three common drugs provide mixed evidence.



Source: Audit Scotland analysis of ISD Scotland data



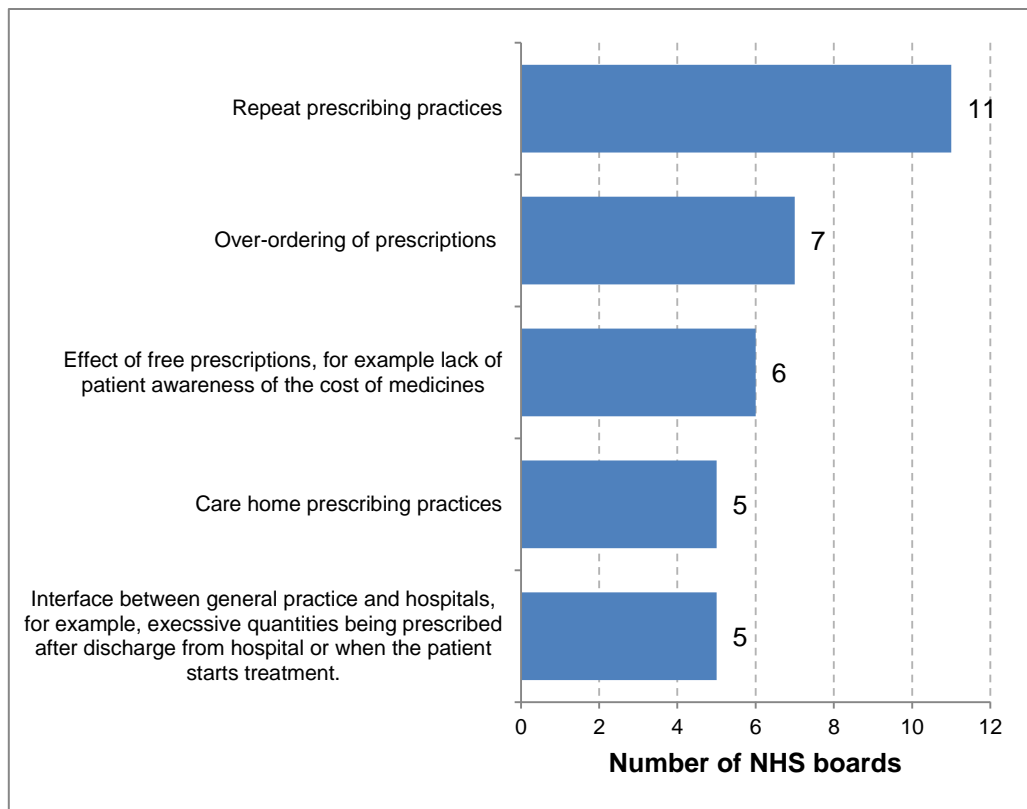
## Drug wastage

17. In our survey of NHS boards, around half identified the abolition of prescription charges as a factor that contributes to drug wastage (Exhibit 13). Drug waste is the largest single area of potential savings identified in our report. ***The main report comments on drug wastage in paragraphs 39 to 43.***

### Exhibit 13

#### NHS boards' views on causes of drug wastage, 2012

Repeat prescribing practices and over-ordering of prescriptions were the two most common reasons reported by NHS boards.



Source: Audit Scotland survey of NHS boards

# Part 3. Age, deprivation and lifestyle

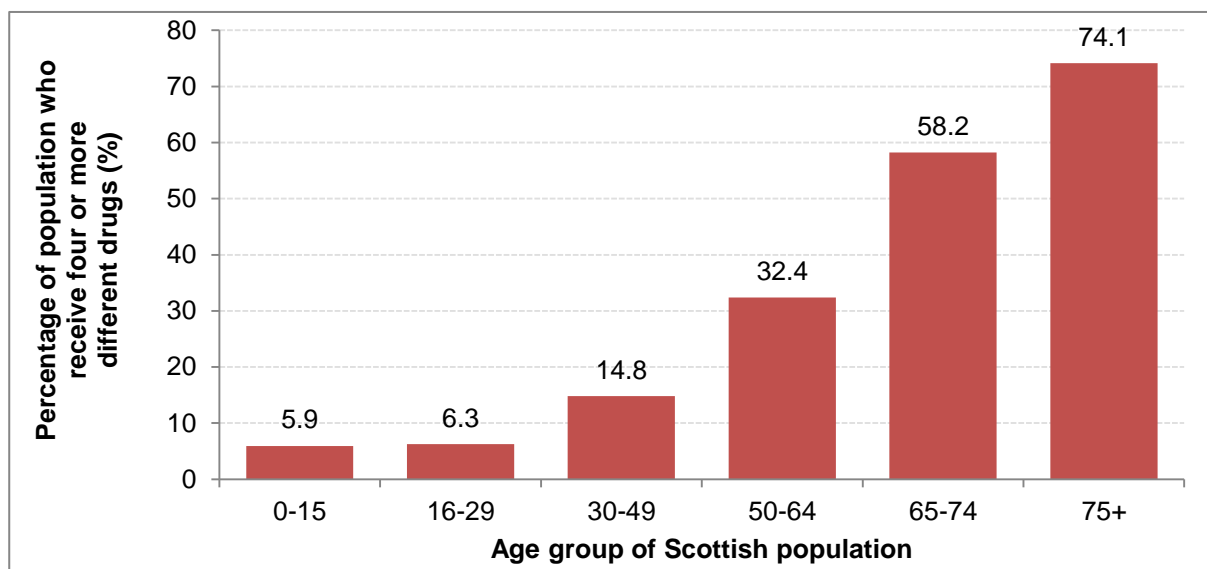
## Impact of age on prescribing

18. The demographic profile of the population has a significant effect on prescribing. Around 24 per cent of the population, an estimated 1.25 million people in Scotland, are taking four or more different drugs. There is variation in the proportion of the population who are taking four or more drugs by age group (Exhibit 14).

### Exhibit 14

#### Proportion of the population taking four or more different drugs by age group, January to March 2012

Around three-quarters of people aged over 75 take four or more different drugs.

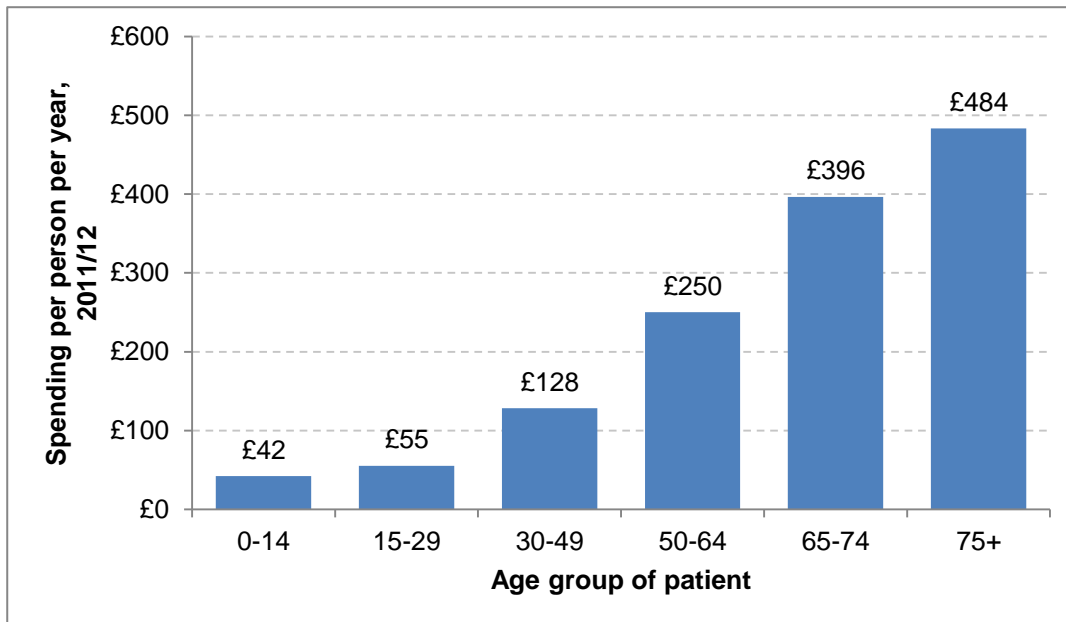


Source: Audit Scotland analysis of ISD Scotland data

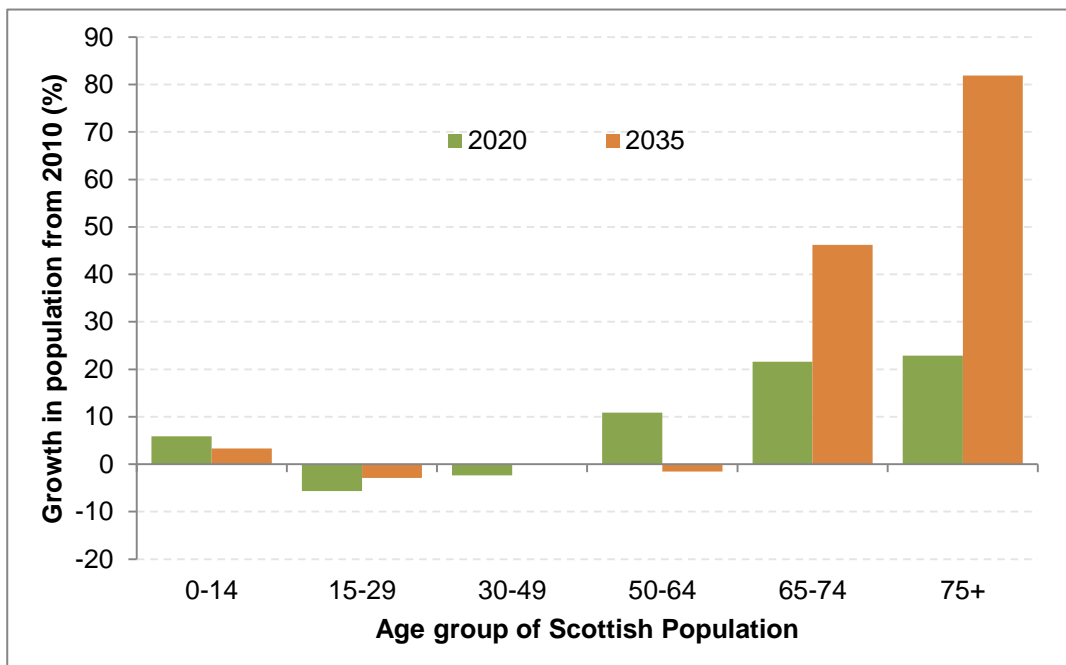
19. The average spending per person on drugs prescribed by GPs in 2011/12 increases as people get older. Prescribing costs increase from £42 per year for children under the age of 14 years to £484 for people aged over 75 years (Exhibit 15a). The average spending on prescribed drugs per year for an adult aged 65 to 74 years is more than three times higher than the spending for an adult aged 30 to 49 years.
20. The percentage of older people in the population is projected to increase dramatically. From a baseline population in 2010, the number of people aged over 75 in Scotland is expected to increase by over 20 per cent by 2015 and 80 per cent by 2035 (Exhibit 15b). At the same time, the number of people aged between 65 and 74 is expected to increase by 20 per cent by 2020 and over 40 per cent by 2035. **The main report comments on the use of drugs and older people in paragraphs 66 to 71.**

**Exhibit 15a****Average spending on prescribed drugs by age group, 2011/12**

Spending on prescribed drugs increases as people grow older.

**Exhibit 15b****Projected growth in population by age group, 2020 and 2035**

The number of older people in Scotland is expected to increase significantly.



Source: Audit Scotland analysis of ISD Scotland data, 2012 and National Records of Scotland, projected population of Scotland (2010-based), 2011

## Deprivation and prescribing of particular types of drugs

21. To get a better picture of the link between prescribing and deprivation, we looked directly at the correlation between deprivation and three types of drugs: painkillers, hypnotics and anxiolytics (sleeping pills and drugs to treat anxiety), and statins. ***The main report comments on prescribing and deprivation in paragraphs 73 to 76.***
22. The main report includes a map showing the area around Glasgow city. [Exhibit 16](#) shows the entire NHS Greater Glasgow and Clyde area. The pattern of prescribing of painkillers and hypnotics and anxiolytics closely reflects the pattern of deprivation in NHS Greater Glasgow and Clyde. There is less of a pattern between statins and deprivation. Prescribing of all of these drugs has a statistically significant correlation with deprivation, although the strength of the link varies.
23. The most deprived small area in NHS Greater Glasgow and Clyde is Ferguslie Park in Paisley. In 2012, the Scottish Index of Multiple Deprivation analysis identified Ferguslie Park as the most deprived area in Scotland.<sup>14</sup> The quantity of hypnotic and anxiolytic drugs prescribed in Ferguslie Park is three times higher than the average in NHS Greater Glasgow and Clyde; the quantity of painkillers prescribed in the area is seven times higher than the average. There is less difference in the quantity of statins prescribed, which is only eight per cent higher than the average.<sup>15</sup>

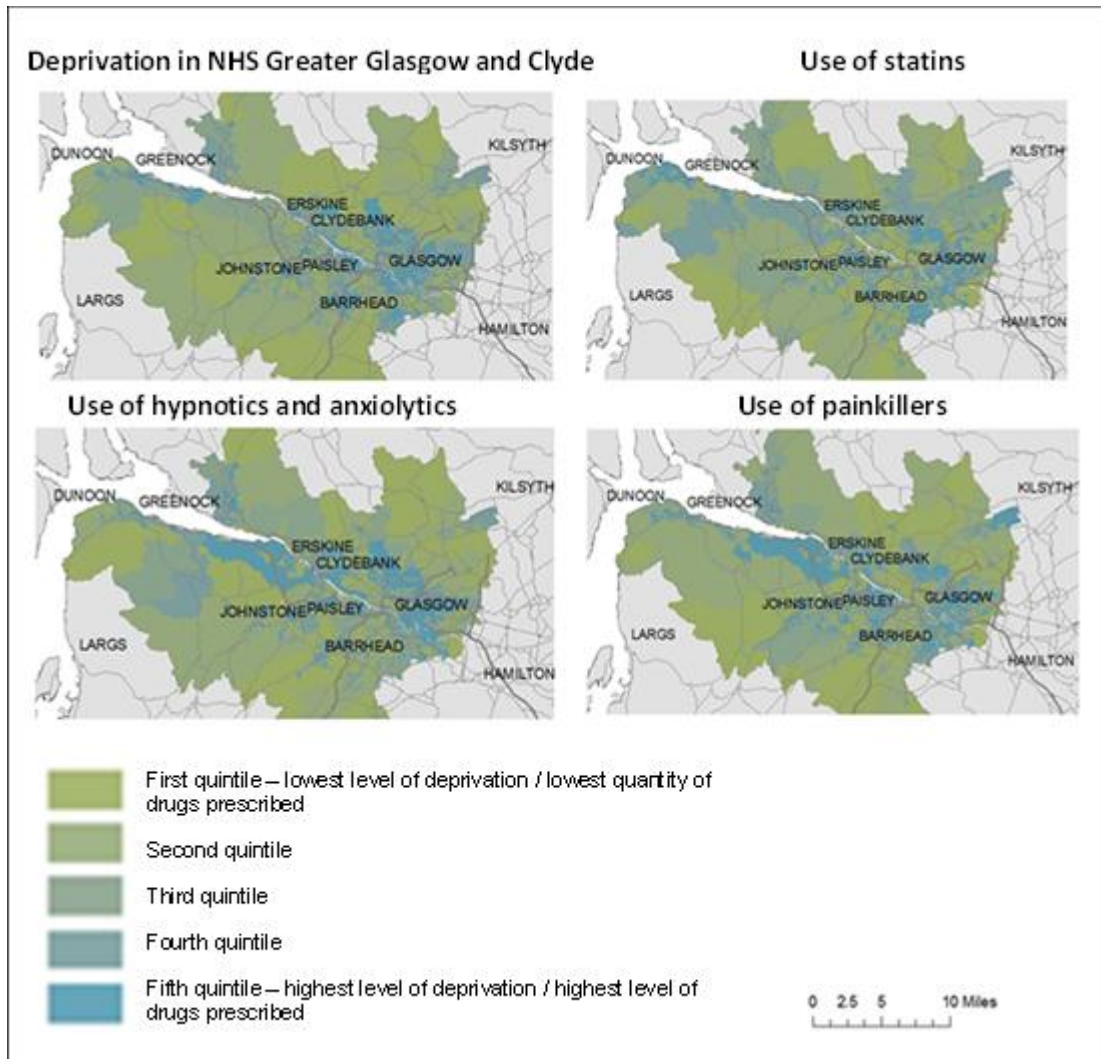
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<sup>14</sup> *Scottish Index of Multiple Deprivation (SIMD), Scottish Government, 2012.*

<sup>15</sup> Audit Scotland analysis of ISD Scotland data

**Exhibit 16****Comparison of deprivation and prescribing in Greater Glasgow and Clyde (2011-12)**

Prescribing of hypnotics and anxiolytic drugs and painkillers is closely linked to deprivation.



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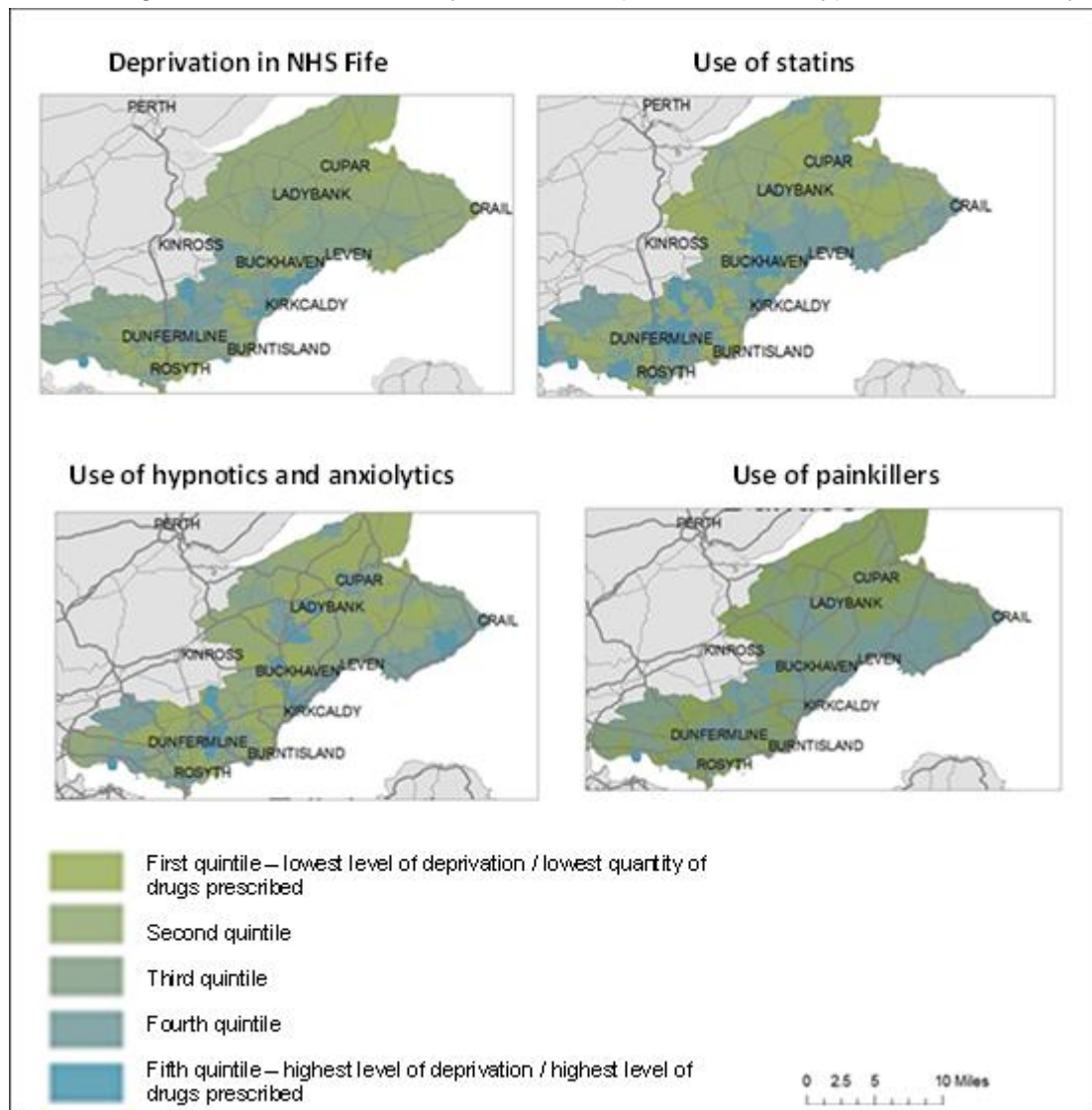
Source: Audit Scotland analysis of ISD Scotland data and Scottish Government Scottish Index of Multiple Deprivation data

24. We carried out the same analysis for NHS Fife and found that the pattern of prescribing of some drugs closely reflects the pattern of deprivation ([Exhibit 17](#)). Prescribing of hypnotics and anxiolytics and painkillers appear strongly linked. However the link between statin use and deprivation was less strong. The map also shows that those areas with high prescribing of hypnotics and anxiolytics also have high prescribing of painkillers.

**Exhibit 17**

**Comparison of deprivation and prescribing in Fife (2011/12)**

Prescribing of statins is less closely linked to deprivation than hypnotics and anxiolytics.



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Source: Audit Scotland analysis of ISD Scotland data and Scottish Government Scottish Index of Multiple Deprivation data

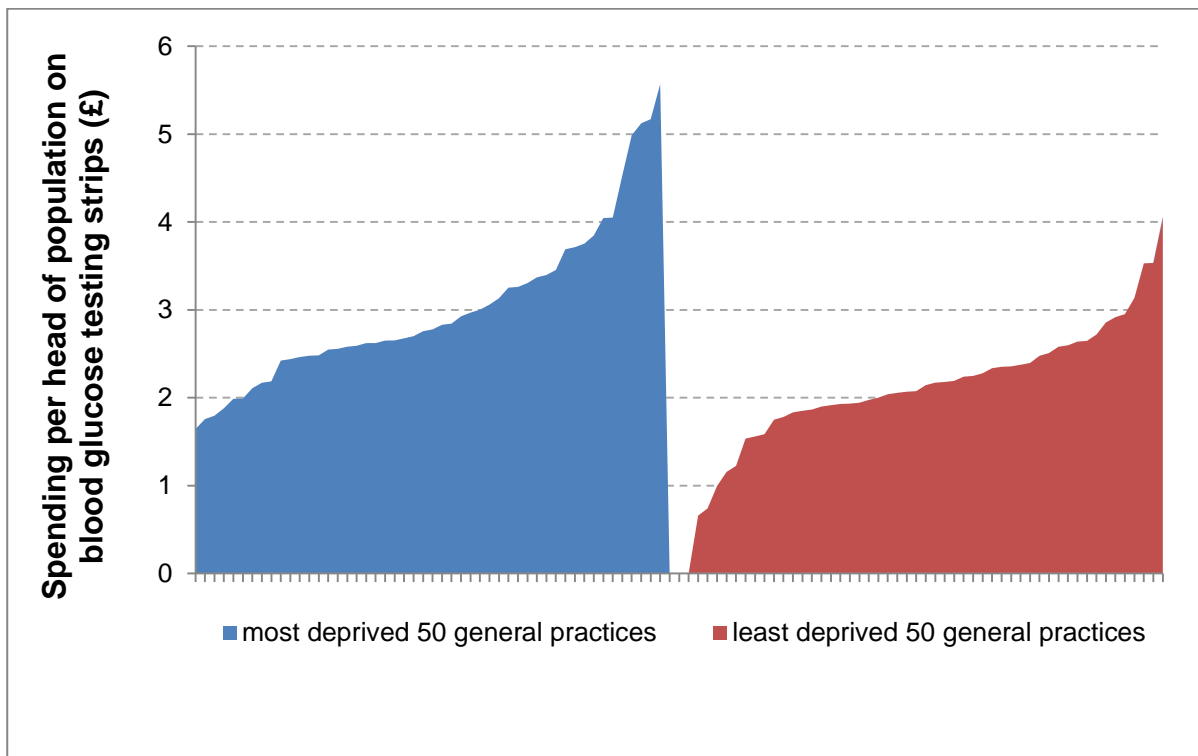
## Impact of lifestyle factors

25. People living in deprived areas tend to have higher levels of avoidable illness and lower life expectancy.<sup>16</sup> This has an impact on prescribing, for example, more drugs for diabetes, which is linked with obesity, are prescribed in deprived areas. Around a third of all spending on diabetes drugs in 2011/12 was on blood glucose testing strips and spending was higher in general practices serving patients from more deprived areas (Exhibit 18). Spending in general practices serving the 50 most deprived areas in Scotland was 39 per cent higher than spending in the 50 general practices serving the least deprived areas.

### Exhibit 18

#### Spending per head of population on blood glucose testing strips, 2011/12

Spending on blood glucose testing strips is higher in the most deprived general practices in Scotland.



Source: Audit Scotland analysis of ISD Scotland data.

<sup>16</sup> *Health inequalities in Scotland*, Audit Scotland, December 2012

# Prescribing in general practice in Scotland

## Supplementary information

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