Trends and Variations in General Medical Services Indicators for Coronary Heart Disease: Analysis of QRESEARCH Data

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1 EXECUTIVE SUMMARY

This report has three main objectives:

- To determine the inter-practice variation in achievement of 12 indicators for coronary heart disease care using the nGMS measures in the last quarter of 2004 (October 2004 to Dec 2004)
- To describe quarterly trends in achievement of each indicator for the last 3 years (January 2002 to December 2004).
- To report on the pattern of usage of the newly introduced exception codes

The key findings are:

- All practices were able to satisfy Indicator 1, the requirement to have a CHD register.

- The prevalence of coronary heart disease in our study is higher than that in other primary care studies and has increased slightly over the 12 quarters studied in the report.

- Indicator 2 measures referral of new cases of CHD for exercise testing or specialist assessment and shows a constant rate of 40.0% in recent quarters. There is a large variation between practices.

- A group of indicators look at recording of smoking status (Indicator 3), blood pressure (Indicator 5) and cholesterol (Indicator 7). The recording of smoking status has been rising steadily and significantly throughout the time period of two years, almost reaching 92% in the past 15 months by the end of 2004. There is a less dramatic increase in blood pressure recording because the baseline in early 2002 was so much higher (87.5% in the past 15 months) but it had nearly reached 96% by the end of 2004. The recording of cholesterol levels is more analogous to smoking, with a sustained rise from 62% at the beginning of 2002 to over 82% in the last quarter.

- Another group of indicators concern preventive action: Indicator 4 measures smoking advice to smokers; Indicator 9 concerns the taking of aspirin; Indicator 10 looks at beta-blocker prescribing; and Indicator 11 is of ACE inhibitor prescribing in patients with a new myocardial infarction. While there was a surge in the recording of smoking advice given starting in the April 2003 quarter and tailing off towards the end of 2004, by which time it was nearly 93% in the previous 15 months, this was not seen with the other indicators in this group.

- Indicator 12 shows a general trend up from 78% to nearer to 90% in influenza vaccination.

- Indicator 6 reflects level of control of blood pressure; and Indicator 8 looks at control of cholesterol. The percentage of patients with blood pressure of 150/90 or less has been increasing gradually – almost linearly – over the two years. The percent of patients with a cholesterol of 5 mmol/l or less has been rising linearly (except for a fall off in the last quarter) suggesting a genuine improvement in clinical care.

- The use of exemption codes is rising, but remains at a low level for most of them. The exceptions are: the cholesterol exemption code (expiring) is becoming more common reaching 5.5% in the last quarter; salicylate contraindication codes are widely used and over 12% now have an expiring salicylate contraindication recorded; and over 9% of patients have a contraindication to influenza vaccination recorded.

- Overall, there is a trend to improvement across the large majority of indicators and the variation between practices is narrowing even over the relatively short time frame of this analysis.

- The improvements seen in blood pressure control and cholesterol levels are highly likely to reflect genuine improvements in clinical care. The scale of the improvement, even over three years, is likely to have an impact on clinical outcomes for patients, including risk of further myocardial infarction and death. These two indicators suggest that, for whatever reason, primary care is likely to be saving significantly more lives than three years ago and this warrants further study.

TABLE OF CONTENTS

2 TABLE OF FIGURES

3 OBJECTIVES

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- To determine the inter-practice variation in achievement of 12 indicators for coronary heart disease care using the nGMS measures in the last quarter of 2004 (October 2004 to Dec 2004)
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- To report on the pattern of usage of the newly introduced exception codes

4 METHOD

4.1 Version of database used

The 5th national version of the QRESEARCH database was used for this analysis. This database contains data until 31st December 2004.

4.2 Study period

The study period covered twelve quarters. The first quarter was January to March 2002 and the12th quarter was October to December 2004.

4.3 Practice inclusion criteria

To be included in the analyses, practices had to have EMIS installed before the first day of each study period and have complete data for the each quarter.

4.4 Patient inclusion criteria

In order to be included in the analysis, patients had to be registered with the practice on the first day of the relevant quarter.

4.5 Case definition for coronary heart disease

Prevalent cases of coronary heart disease were defined by the presence of a Read code for coronary heart disease (G3 to G3401; G342-G366; G38 to G3z) in their record prior to the end of the analysis period. This is the definition used in the nGMS contract.

4.6 Definition of the quality indicators

We used the "New GMS Contract QOF Implementation Dataset and Business Rules – coronary heart disease Indicator set" (Version 5.0 release date 27th September 2004). Some of current Read codes [particularly the 'exception codes'] were not in existence or possibly not used prior to mid 2004.

4.7 General exclusions

In general patients are excluded from the denominator for each indicator if they were newly registered with the practice (i.e. registered within the preceding 3 months) or if they were newly diagnosed with coronary heart disease (i.e. diagnosed within the preceding three months) or if they have a Read code including an exception to coronary heart disease reporting code within the previous 15 months. However, if the patients happen to have the required measurement then they could appear in the numerator. There are also some exclusions specific to different indicators. This means that the eligible population for each indicator varies. A summary of the use of each individual exclusions is shown in the appendix.

5 RESULTS

5.1 Study population

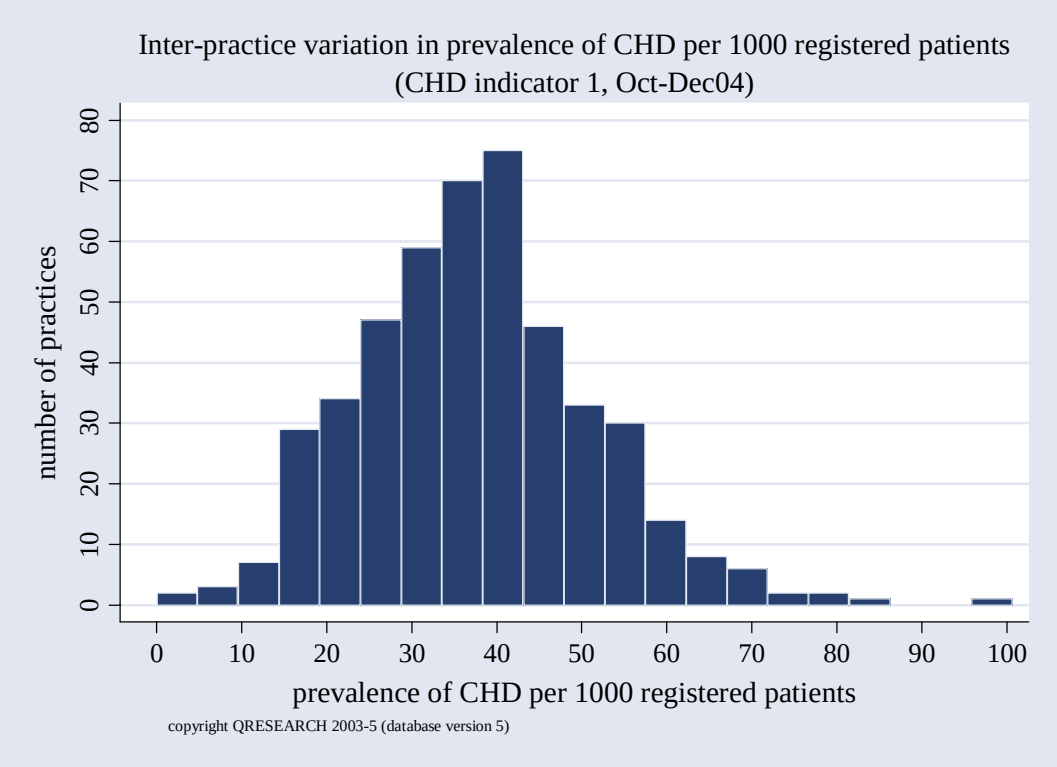
There were 469 practices from the QRESEARCH database (5th version) with complete data for the three year study period which were therefore included in this analysis. There were 3.37 million registered patients on 1st January 2002 rising to 3.42 million on 1st October 2004.

5.2 Coronary heart disease indicator 1: % able with a register

Indication CHD1: The practice can produce a register of patients with established coronary heart disease. No numerator or denominator is required.
Specific exclusions: none – all practices are eligible for inclusion in this indicator

All practices were able to identify some patients with coronary heart disease and were therefore able to satisfy coronary heart disease indicator one. The next graph shows the inter-practice variation in prevalence of coronary heart disease per 1000 registered patients in the last quarter of 2004. Tabular data are available in the appendix (Table 1).

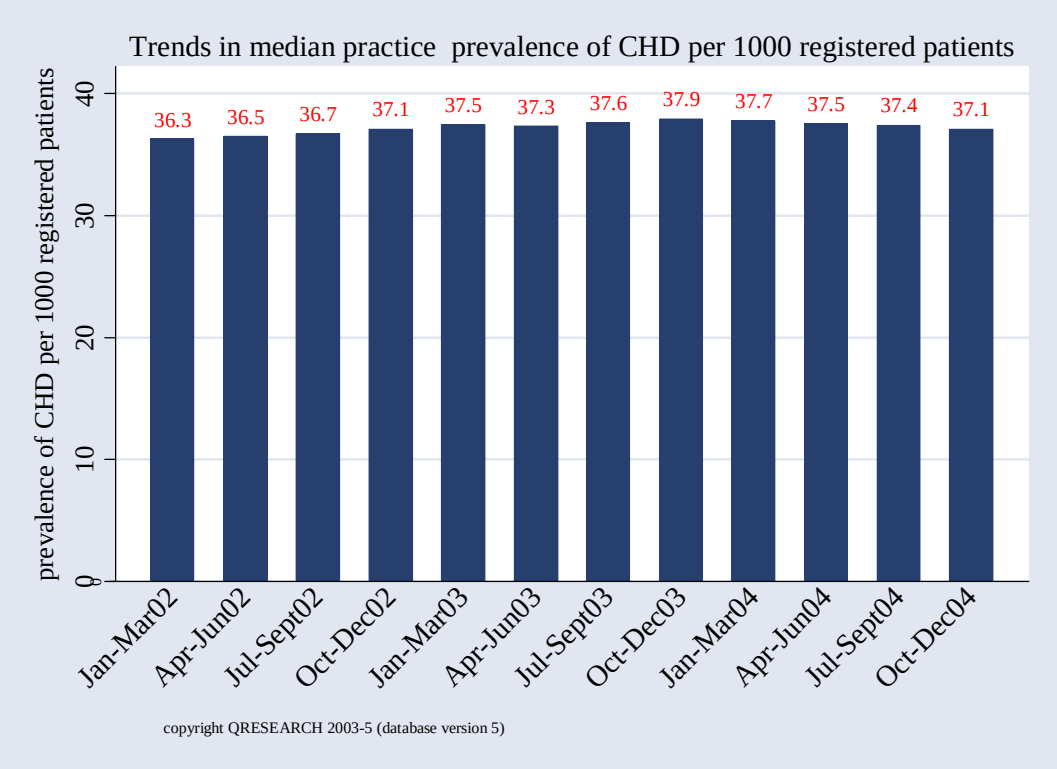
There were 125,000 patients with a diagnosis of coronary heart disease in a registered population of 3.4 million. The practice median prevalence was 37.1 per 1,000 registered patients (inter quartile range 28 to 45).



5.3 Coronary heart disease Indicator 1: Quarterly Trends

The next chart shows the trends in the median practice crude prevalence of coronary heart disease per 1000 registered patients for each of 12 quarters between January 2002 to Dec 2004. Tabular data are available in the appendix (Table 1).

The median practice crude prevalence rose slightly from 36.3 per 1,000 registered patients to 37.1 per 1000 registered patients over the 12 quarters. There has been a worldwide decline in the incidence of ischaemic heart disease so it is interesting to observe a marginal increase in prevalence over the last three years. Possible explanations for the increase in prevalence which deserve further study include: improved computer recording of diagnoses; ageing population and improved survival (which could result from better secondary prevention measures).

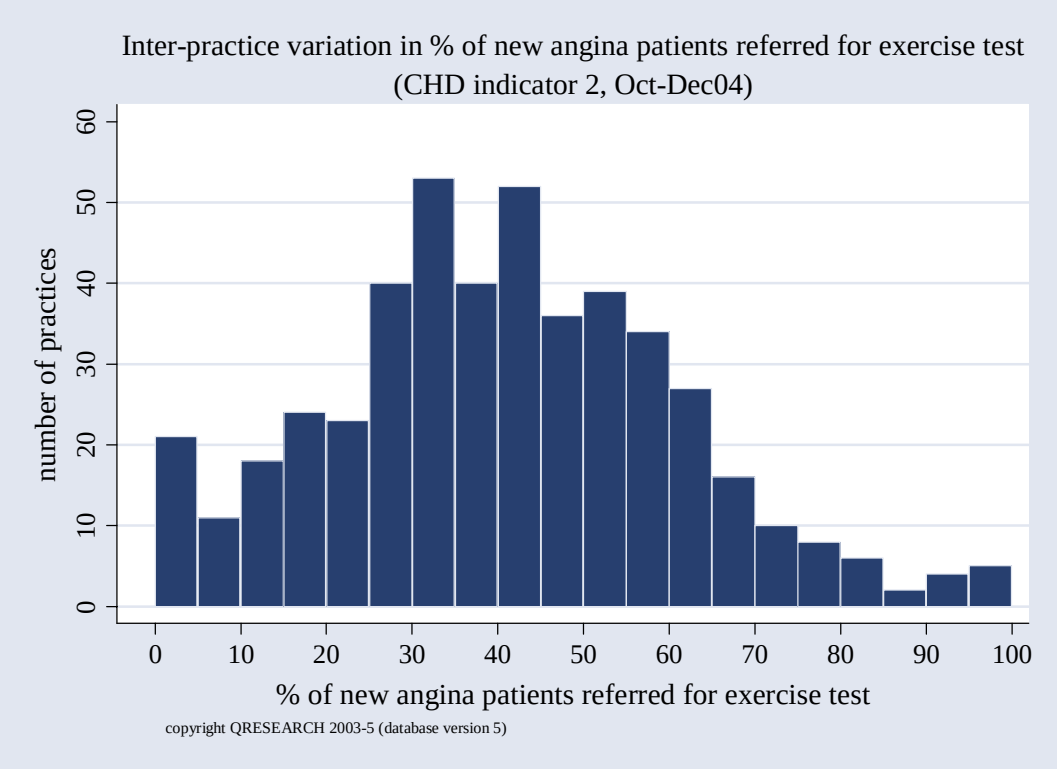


5.4 Coronary heart disease Indicator 2: recent angina & exercise test

Indicator CHD2: The percentage of patients with newly diagnosed angina (diagnosed after 01/04/2003) who are referred for exercise testing and/or specialist assessment.
Exclusions: General exclusions apply (i.e. patient need to be registered within 3 months of the census date and not have an exception code in the last 15 months).

The next chart show the inter-practice variation in the percentage of patients with newly diagnosed angina who are referred for exercise testing or specialist assessment. The corresponding tabular data are in the appendix (Table 2).

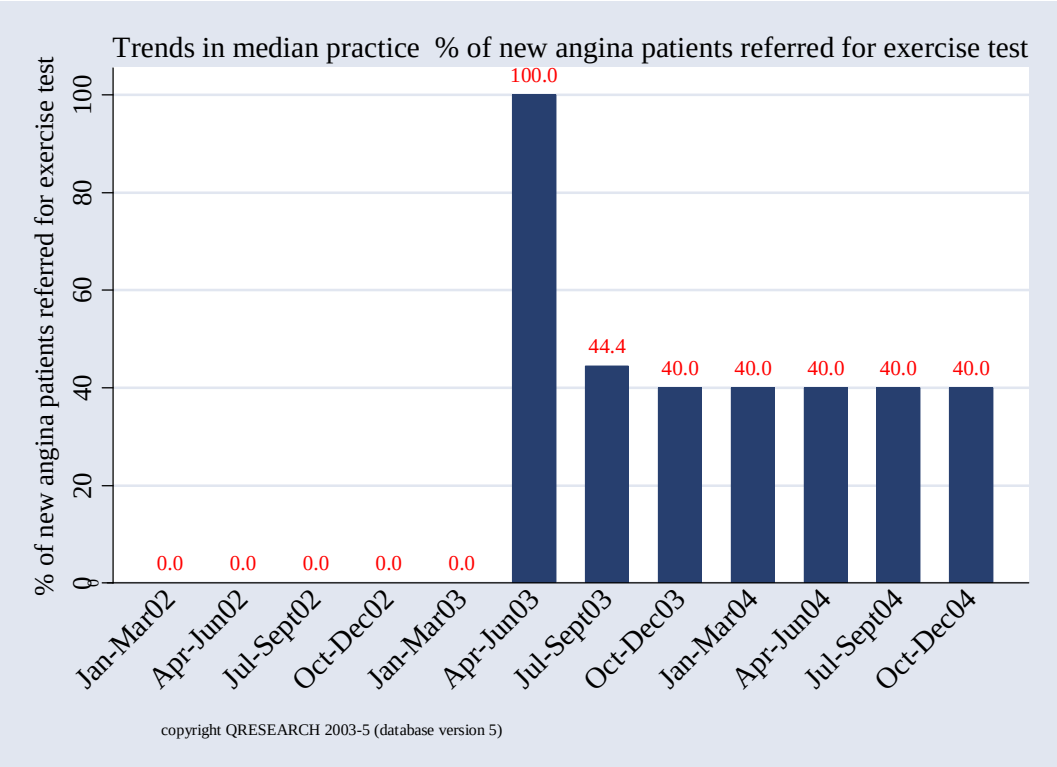
Compared with other indicators, the overall rates are low (median 40%) and there is a large variation between practices (inter quartile range IQR 28% to 54%).



5.5 Coronary heart disease Indicator 2: Quarterly Trends

The next chart show trends in the median practice percentage of patients with newly diagnosed angina who are referred for exercise testing or specialist assessment. The corresponding tabular data are in the appendix (Table 2).

This indicator only applied to patients diagnosed after 1st April 2003 which explains why the percentage was zero before this. The 100% achieved between April and June 2003 naturally follows from the business rule set (people who have been diagnosed within the last 3 months are excluded from the denominator unless they happen to have the indicator in question). The most striking thing to note is the lack of an increase in achievement of this indicator over the 6 quarters with the median practice rate in the most recent quarter still only being 40%. Either (a) patients aren't being referred/tested or (b) patients are being referred but it isn't recorded. Patients may not be referred if there is no local service and so lack of referral may reflect lack of provision of services.

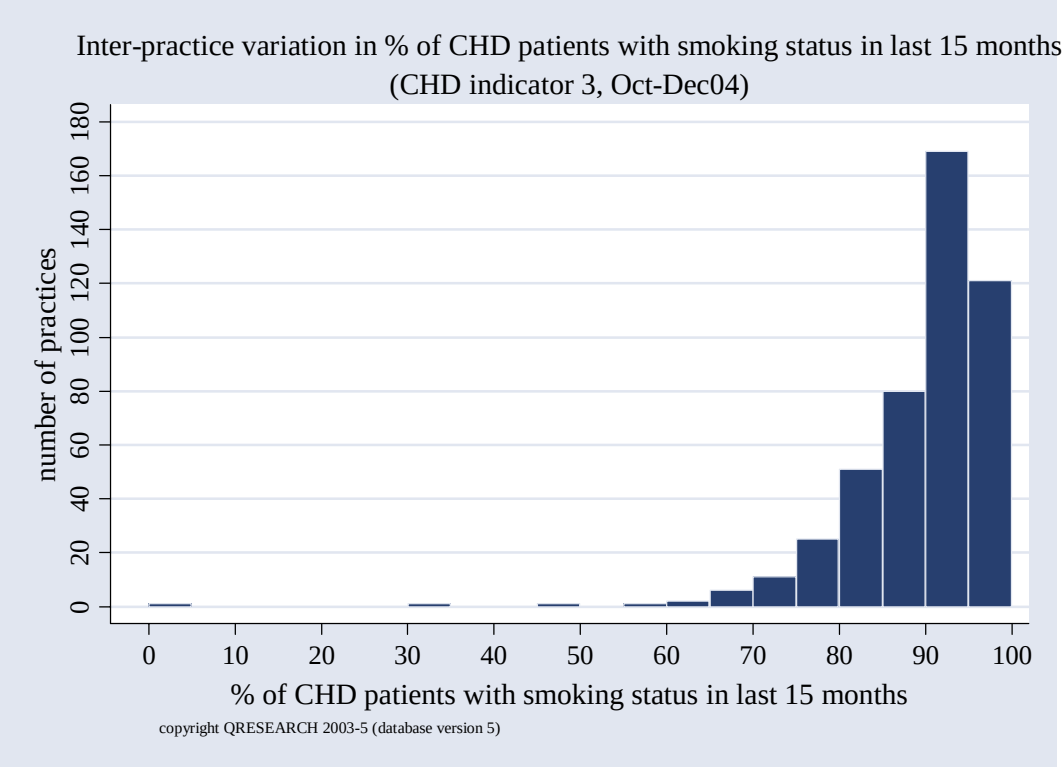


5.6 Coronary heart disease Indicator 3: % of with recording of smoking status

Indicator CHD3: The percentage of patients with coronary heart disease who smoke, whose notes contain record smoking status in the past 15 months except those who have never smoked where smoking status should be recorded at least once since diagnosis.
Exclusions: General exclusions apply.

The next chart shows the inter-practice variation in the percentage of coronary heart disease patients whose notes contain record smoking status in the past 15 months except those who have never smoked where smoking status should be recorded at least once since diagnosis in quarter 12 (October to December 2004). As expected, the overall rates were high: the median rate was 92% and the inter-practice variation relatively small (inter-quartile range 87% to 95%).

The corresponding tabular data can be found in the appendix (Table 3).

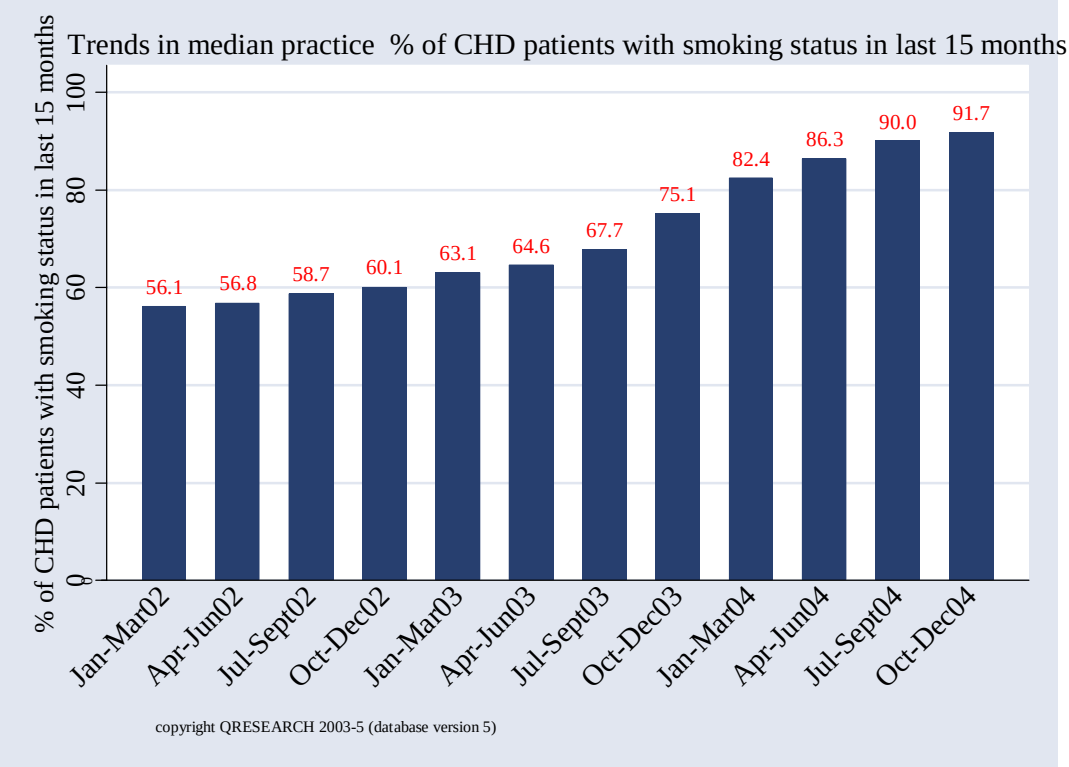


5.7 Coronary heart disease indicator 3: Quarterly Trends

The next chart shows how trends in the median practice percentage of coronary heart disease patients whose notes contain record smoking status in the past 15 months have changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 3).

In quarter 1 (January – March 2002) the median practice percentage was 56% (inter quartile range 42% to 70%). By quarter 12, this had almost doubled to 92% and the inter-practice variation had lessened (87% to 95%).

The trend may reflect a true increase in recording rates or may reflect a change in the pattern of codes use – prior to the new contract, many practices were using EMIS specific codes for smoking status which aren't included in the business rule set.

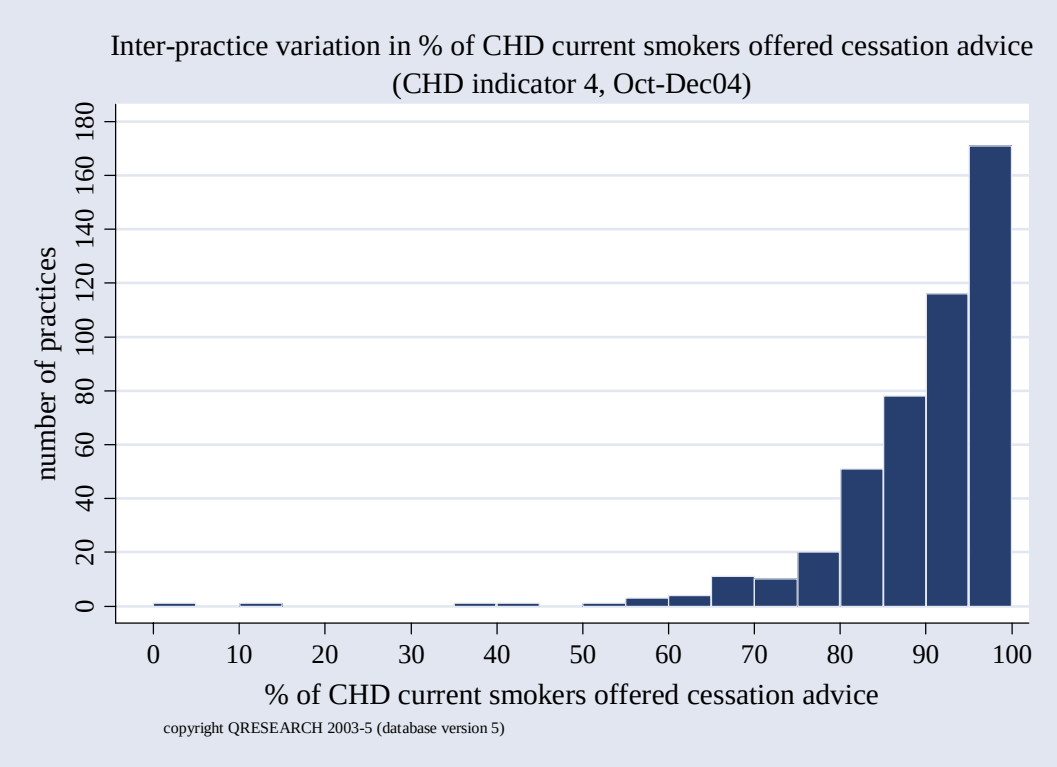


5.8 Coronary heart disease Indicator 4: % smokers offered cessation advice

Indicator CHD4: The percentage of patients with coronary heart disease who smoke, whose notes contain a record that smoking cessation advice has been offered within the last 15 months
Specific exclusions: General exclusions apply.

The next graph shows the inter-practice variation in the percentage of coronary heart disease patients who smoke whose notes contain a record that smoking cessation advice has been offered within the last 15 months. The median rate was high at 93% (inter quartile range 86% to 97%) with the vast majority having in excess of 90% for this indicator.

The corresponding tabular data can be found in the appendix (Table 4).

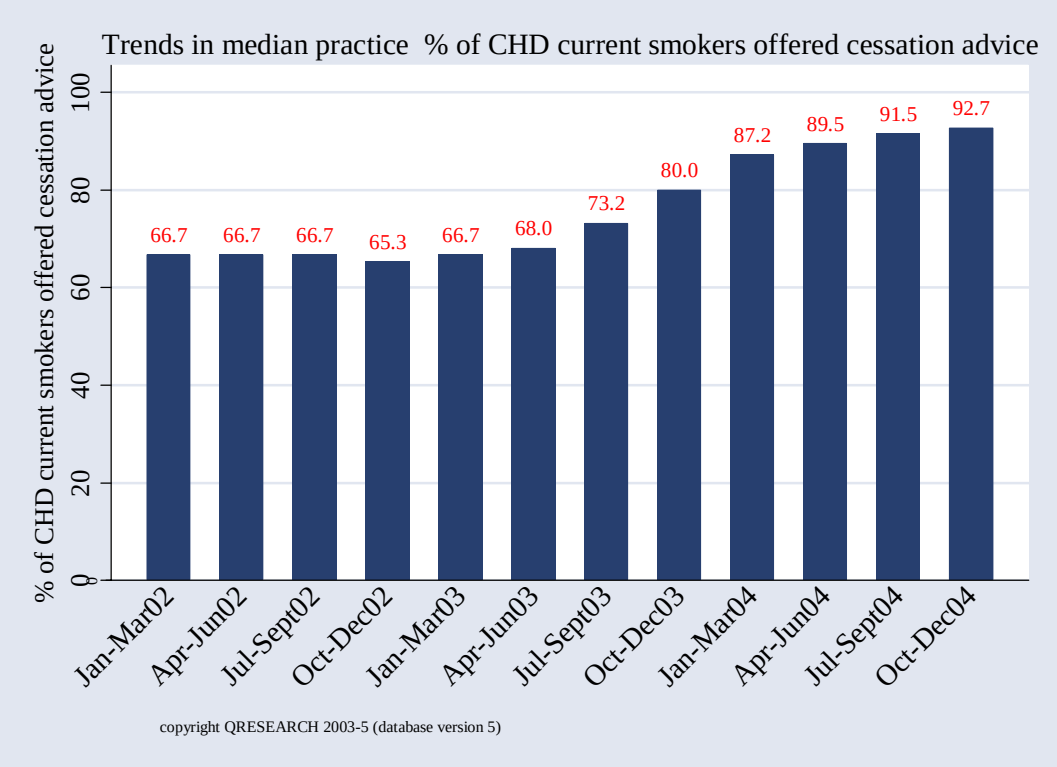


5.9 Coronary heart disease indicator 4: Quarterly Trends

The next chart shows trends in the practice median percentage of coronary heart disease patients who smoke whose notes contain a record that smoking cessation advice has been offered within the last 15 months. The corresponding tabular data can be found in the appendix (Table 4).

In quarter 1 (January – March 2002) the median practice percentage was 67% (inter quartile range 38% to 88%). By quarter 12, this had risen to 93% and the inter-practice variation was (86% to 97%).

The most noticeable thing is the step change in the median rate occurring in the year immediately preceding the introduction of the new contact – in April 2003 the rate was 68% and by April 2004 it was approaching 90%.

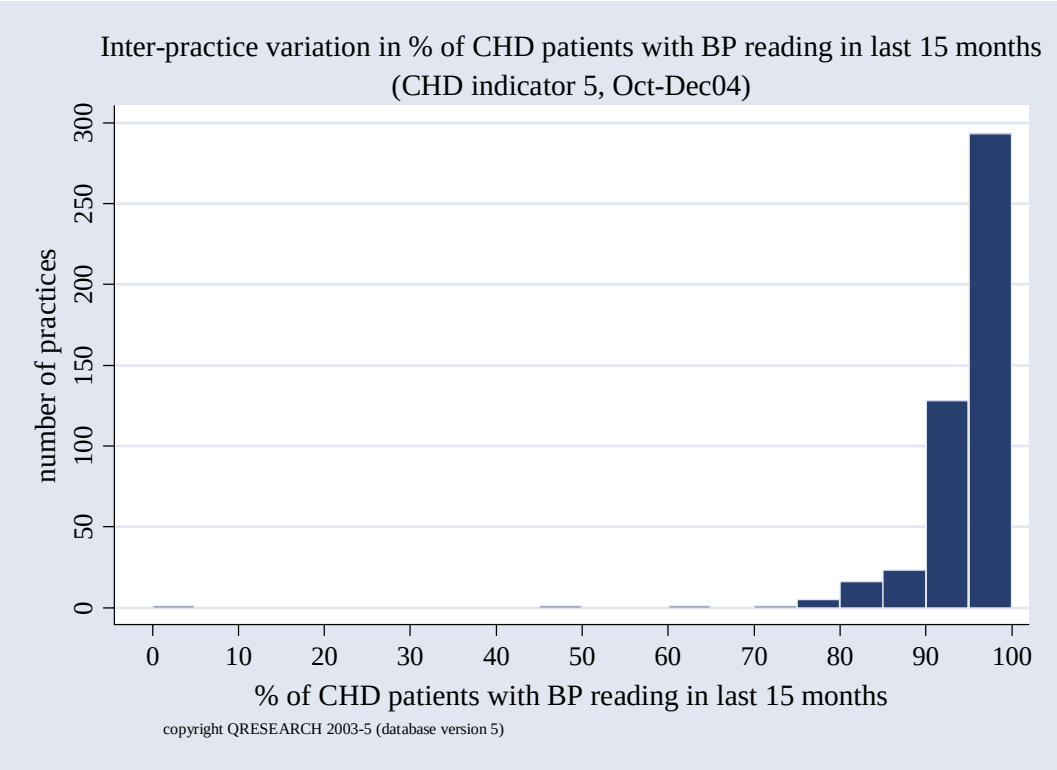


5.10 Coronary heart disease Indicator 5: % with a blood pressure recorded

Indicator CHD5: The percentage of patients with coronary heart disease who have a record of blood pressure in the last 15 months.
Specific exclusions: Patients with a Read code for exception from blood pressure recording.

The next chart shows the inter-practice variation in the percentage of coronary heart disease patients with a blood pressure reading in the last 15 months. The corresponding tabular data can be found in the appendix (Table 5).

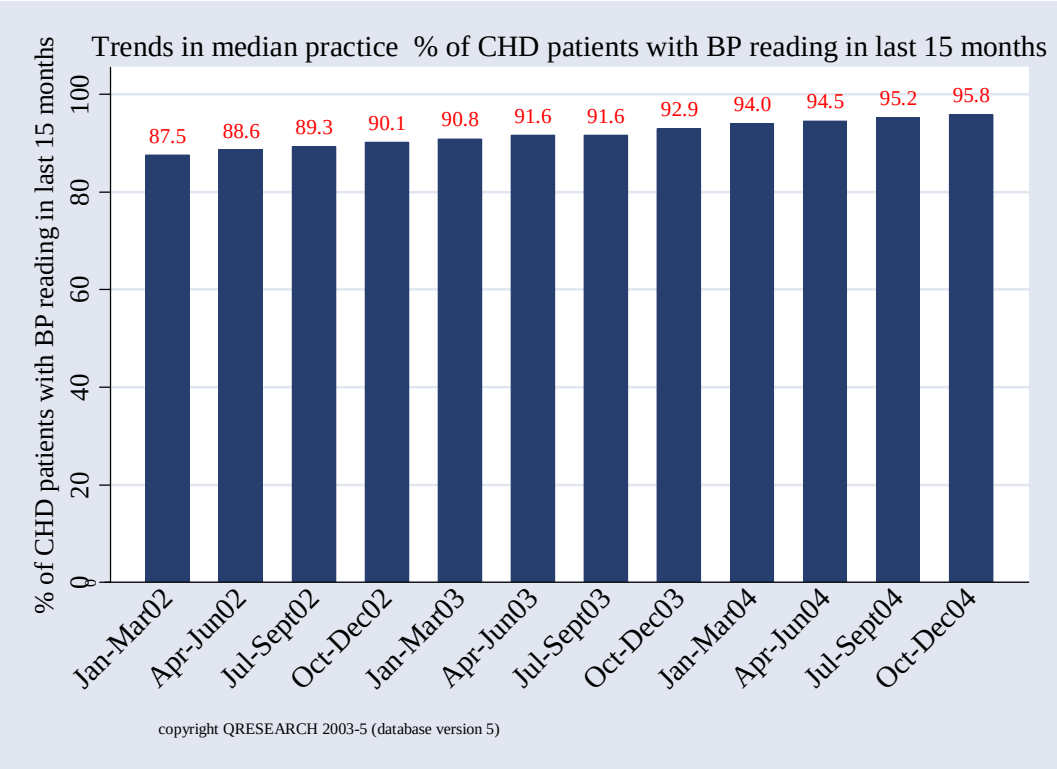
Rates for blood pressure recording are high as expected with a median practice percentage of 96% in the 12th quarter and a relatively narrow inter-practice variation (93% to 97%).



5.11 Coronary heart disease Indicator 5: Quarterly Trends

The next chart shows how trends in the percentage of coronary heart disease patients with a blood pressure recording in the last 15 months has changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 5).

In quarter 1 (January – March 2002) the median practice percentage was already high at 88% (inter quartile range 77% to 93%). By quarter 12, this had increased to 96% and the variation had narrowed (inter-practice variation 93% to 97%).

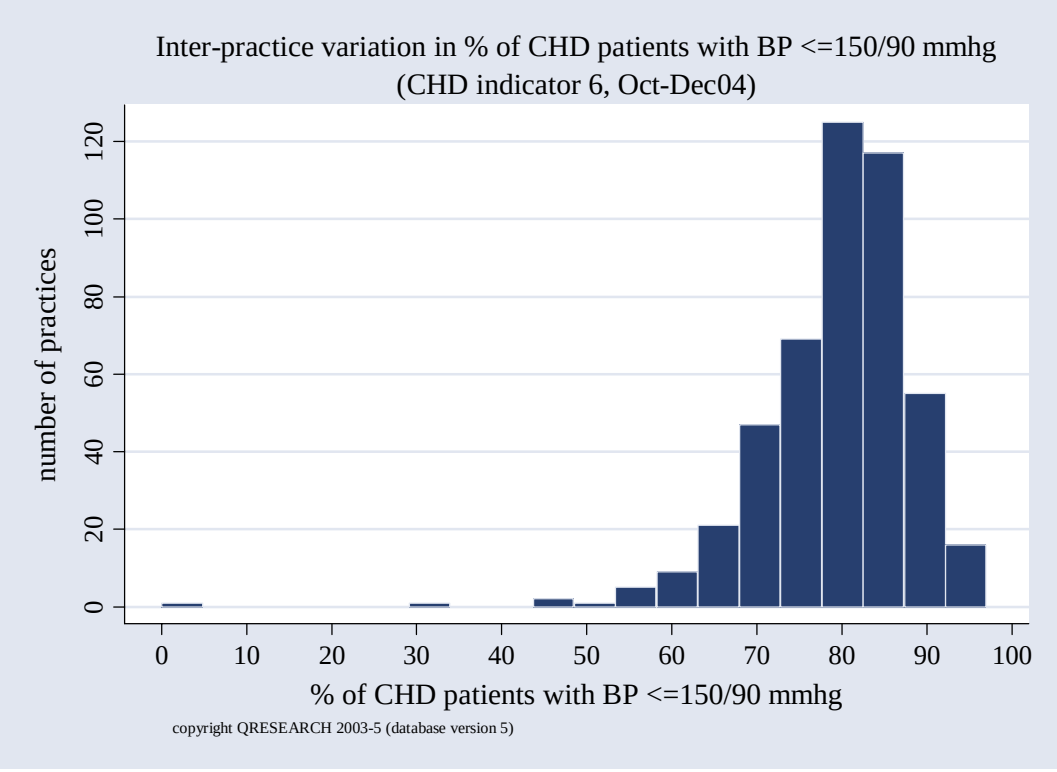


5.12 Coronary heart disease Indicator 6: % with a BP of 150 and 90 mm Hg or less

Indicator CHD6: The percentage of patients with coronary heart disease in whom the last blood pressure (measured in the last 15 months) is 150/90 or less
Specific exclusions: Patients with a Read code for exception from blood pressure recording or a Read code indicating maximal anti-hypertensive treatment
Note: patients may fall out of denominator if registered for less than 9 months or diagnosed with CHD in the last 9 month

The next chart shows the inter-practice variation in the percentage of hypertensive patients with a blood pressure of 150/90 mm hg or less. The corresponding tabular data can be found in the appendix (Table 6)

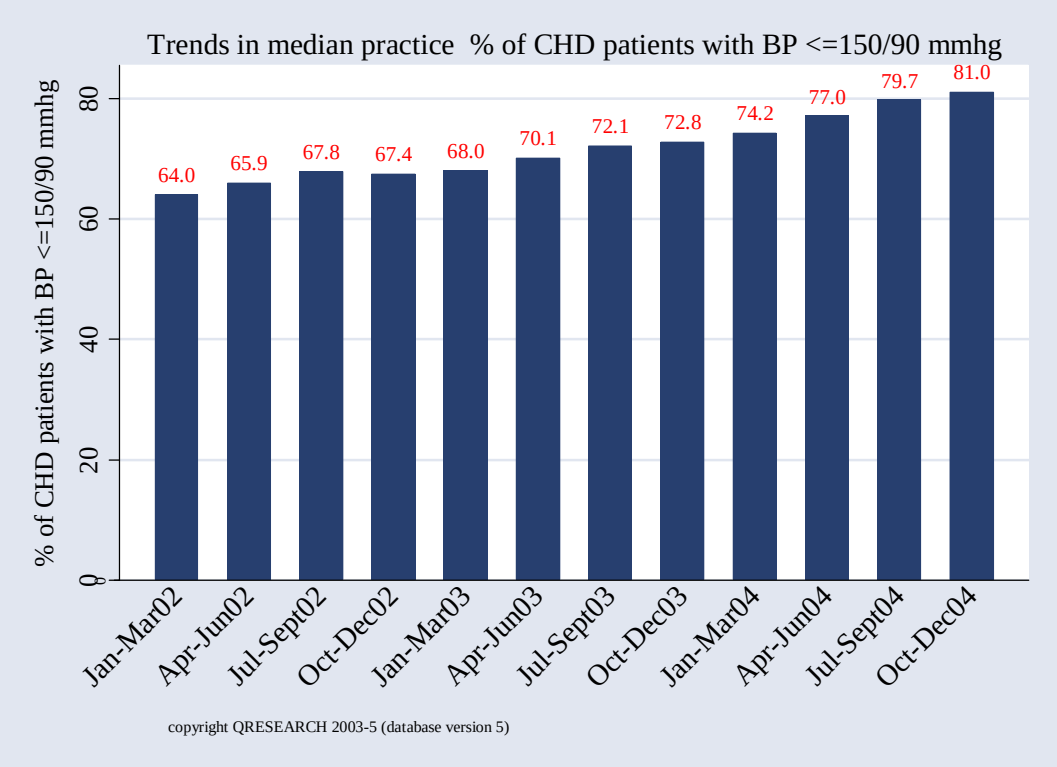
The median practice rate for the percentage of patients with coronary heart disease with a blood pressure of 150/90 mm Hg or less in quarter 12 (October to December 2004) was 81% (inter-quartile range 76% to 85%).



5.13 Coronary heart disease Indicator 6: Quarterly Trends

The next chart shows how trends in the percentage of hypertensive patients with a blood pressure value of 150/90 mm hg or less has changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 6).

In quarter 1 (January – March 2002) the median practice percentage was 64% (inter quartile range 56% to 72%). By quarter 12, this had increased to 81% (inter-practice variation 76% to 85%). Interestingly, blood pressure control (i.e. indicator 6) has improved more than blood pressure recording levels (indicator 5). The improvement is likely to be due to more aggressive medical management of blood pressure levels rather than improved recording. This is especially true given the rise in the prevalence of obesity over the same period. We suspect this degree of improvement may be of public health importance in terms of reducing risk of further vascular events.

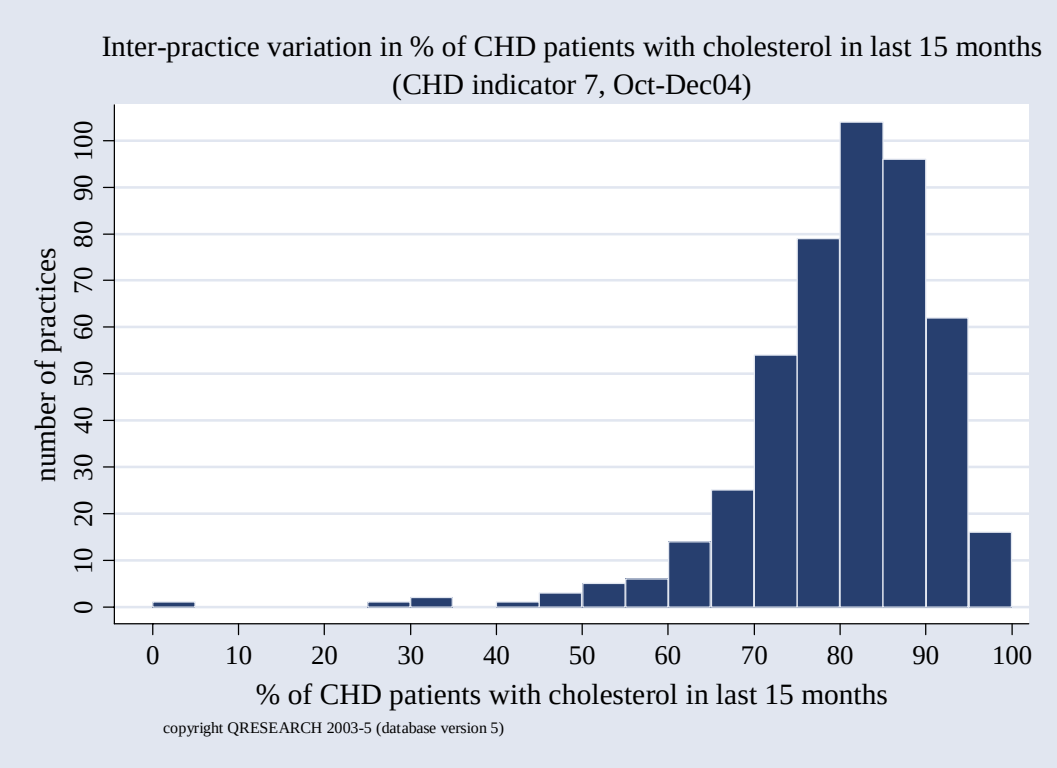


5.14 Coronary heart disease Indicator 7: % with a record of cholesterol

Indicator CHD7: The percentage of patients with coronary heart disease whose notes have a record of total cholesterol in the past 15 months.
Specific exclusions: General exclusions apply.

The next chart shows the inter-practice variation in the percentage of coronary heart disease patients with a record of total cholesterol in the past 15 months. The corresponding tabular data can be found in the appendix (Table 7).

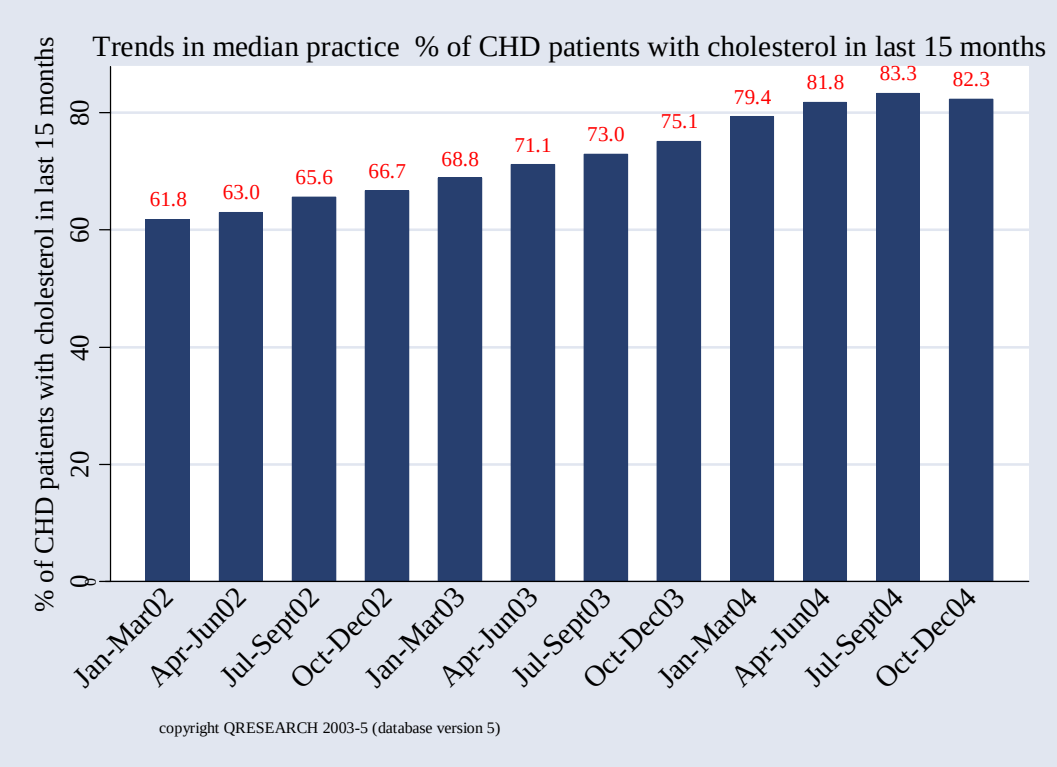
Rates for cholesterol recording are fairly high with a median practice percentage of 82% in the 12th quarter (inter-quartile range 76% to 88%).



5.15 Coronary heart disease Indicator 7: Quarterly Trends

The next chart shows how trends in the percentage of coronary heart disease patients with a record of total cholesterol in the past 15 months has changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 7).

In quarter 1 (January – March 2002) the median practice percentage was 62% (inter quartile range 52% to 71%). By quarter 12, this had increased to 82% (inter-practice variation 76% to 88%). This is a significant rise over a three year period. Increased electronic messaging between practices and the laboratories is likely to have contributed to this rise along with a genuine increase in screening. Interestingly, the trend appears to have levelled off in the last three quarters - in other words, most of the rise occurred before the introduction of the new GMS contract.

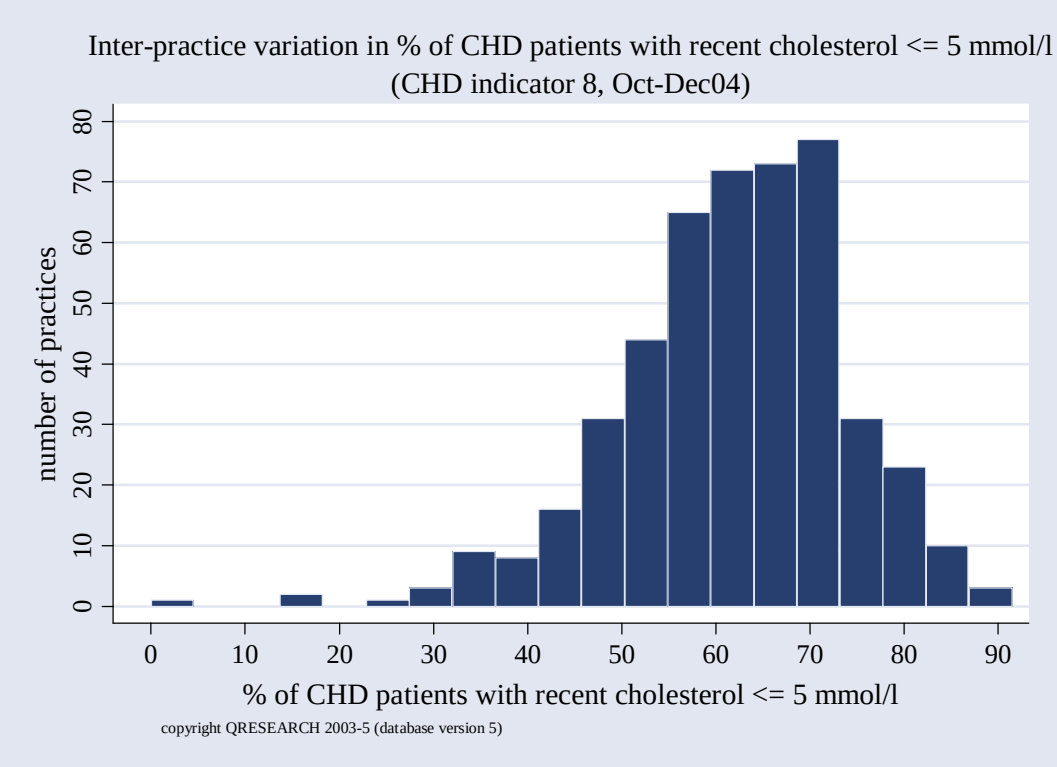


5.16 Coronary heart disease Indicator 8: % with a cholesterol <=5 mmol/l

Indicator CHD8: The percentage of patients with coronary heart disease whose last measured total cholesterol (measured in the last 15 months) is 5 mmol/l or less.
Specific exclusions: General exclusions apply.
Note: patients may fall out of denominator if registered for less than 9 months or diagnosed with CHD in the last 9 month or if they have ever have a persistent exception code for cholesterol recording or a expiring code for cholesterol recording in the last 15 months.

The next chart shows the inter-practice variation in the percentage of coronary heart disease patients whose last measured cholesterol is 5 mmol/l or less. The corresponding tabular data can be found in the appendix (Table 8).

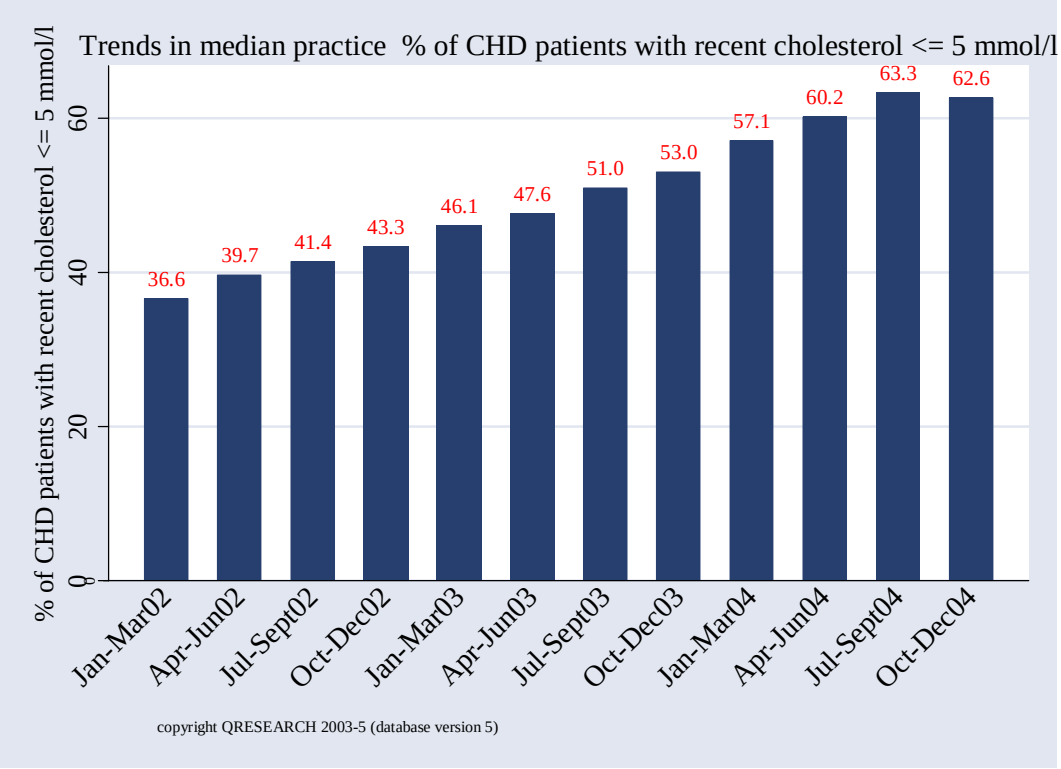
The median practice percentage in the 12th quarter was 63% (inter-quartile range 55% to 70%). At first sight, it may be disappointing that the achievement for this indicator is relatively low relative to the other secondary prevention measures included in this report. This is especially the case given the evidence that lowering cholesterol levels prevents re-infarction and improves survival. However, it is important to remember that even in the randomised controlled trials statins resulted in only a 25-30% lowering of lipid levels. Given that the population mean level of cholesterol is high it is quite possible that patients have had a 30% reduction but still remain above the target value of 5. In other words, they may be treated effectively and have had the best reduction we could expect[1].



5.17 Coronary heart disease Indicator 8: Quarterly Trends

The next chart shows how trends in the percentage of coronary heart disease patients with a cholesterol of 5 mmol/l or less have changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 8).

In quarter 1 (January – March 2002) the median practice percentage was 36% (inter quartile range 29% to 45%). By quarter 12, this had increased to 63% (inter-practice variation 55% to 69%). This increase is difficult to interpret in the light of the increase in recording which occurred over the same period. However, it would be interesting to determine whether this improvement has the expected health gains at a population level in terms of reducing mortality and infarction rates.

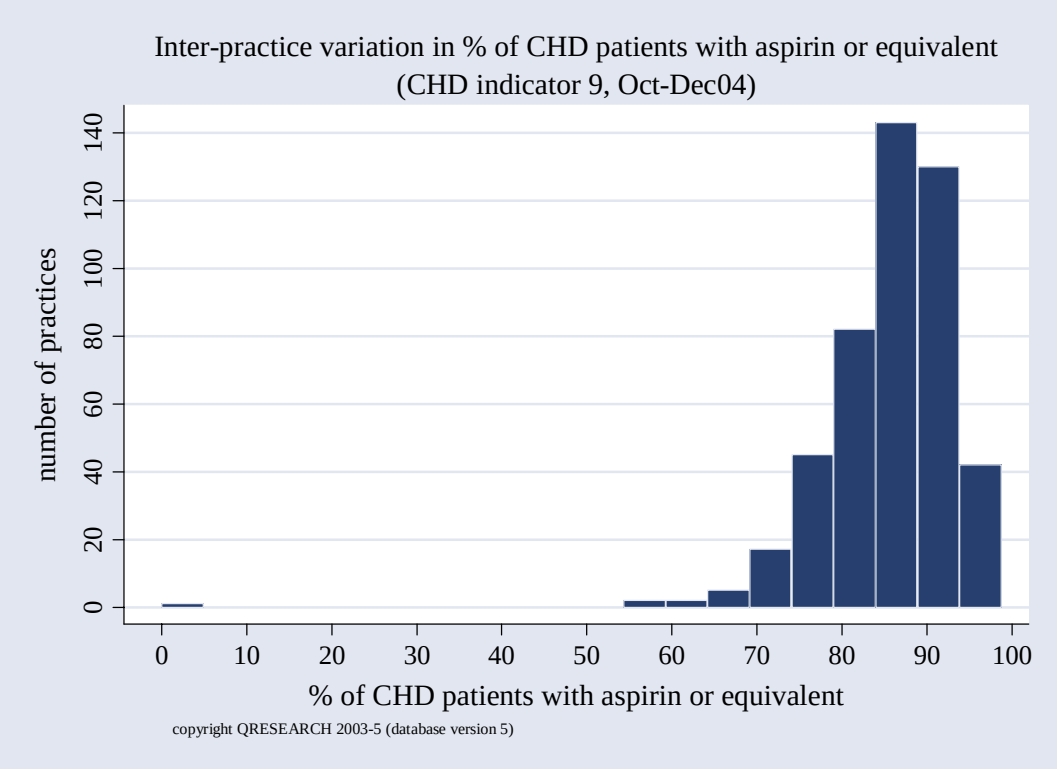


5.18 Coronary heart disease Indicator 9: % with a record of aspirin etc

Indicator CHD9: The percentage of patients with coronary heart disease with a record in the last 15 months that aspirin, an alternative anti-platelet therapy, or an anti-coagulant is being taken (unless a contraindication or side effects are recorded).
General exclusions: General exclusions apply.

The next chart shows the inter-practice variation in the percentage of patients with coronary heart disease with a record in the last 15 months that aspirin, an alternative anti-platelet therapy, or an anti-coagulant is being taken (unless a contraindication or side effects are recorded). The corresponding tabular data can be found in the appendix (Table 9).

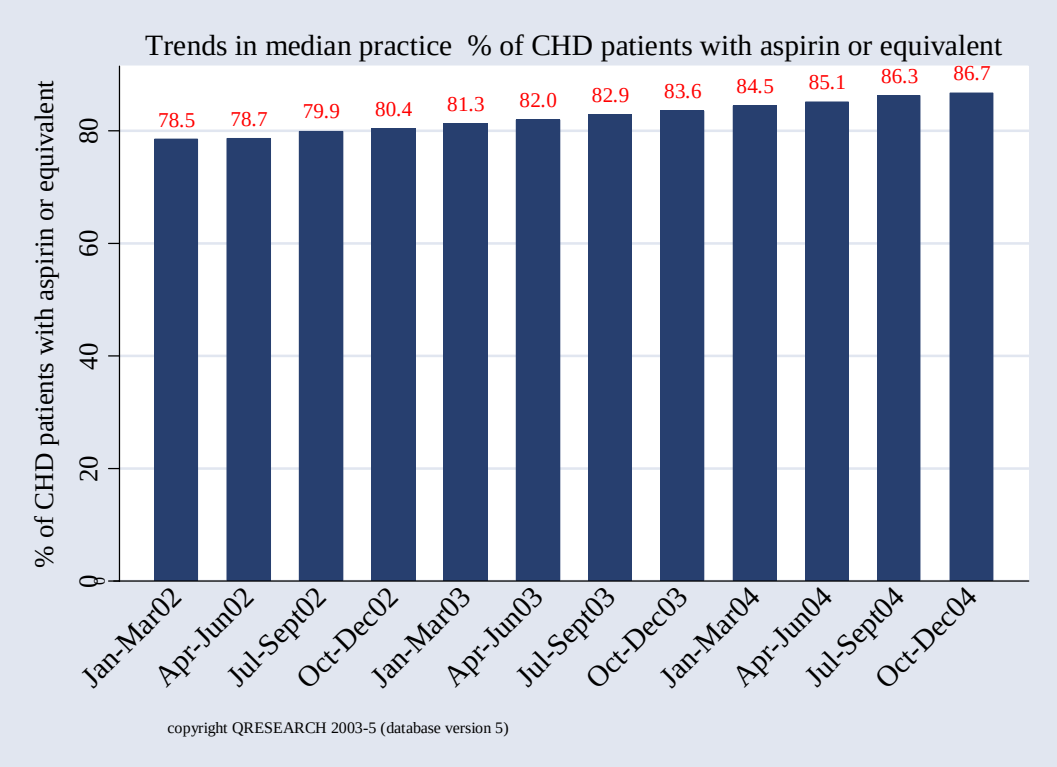
The median practice percentage in the 12th quarter was 87% (inter-quartile range 83% to 91%).



5.19 Coronary heart disease Indicator 9: Quarterly Trends

The next chart shows how trends in the percentage of patients with coronary heart disease with a record in the last 15 months that aspirin, an alternative anti-platelet therapy, or an anti-coagulant is being taken have changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 9).

In quarter 1 (January – March 2002) the median practice percentage was 79% (inter quartile range 782% to 84%). By quarter 12, this had increased to 87% (inter-quartile range 83% to 91%).

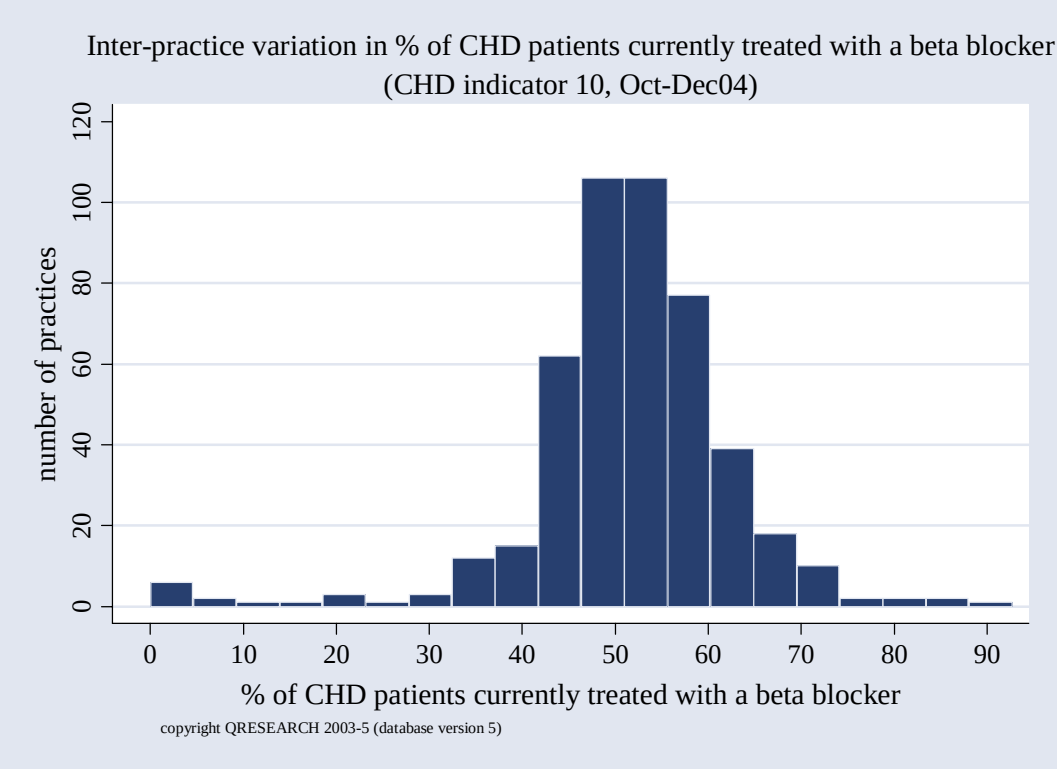


5.20 Coronary heart disease Indicator 10: % currently treated with a beta blocker etc

Indicator CHD10: The percentage of patients with coronary heart disease who are currently treated with a beta blocker (unless a contra-indication or side effects are recorded)
Specific exclusions: General exclusions apply

The next chart shows the inter-practice variation in the percentage of patients with coronary heart disease who are currently treated with a beta blocker (unless a contra-indication or side effects are recorded). The corresponding tabular data can be found in the appendix (Table 10).

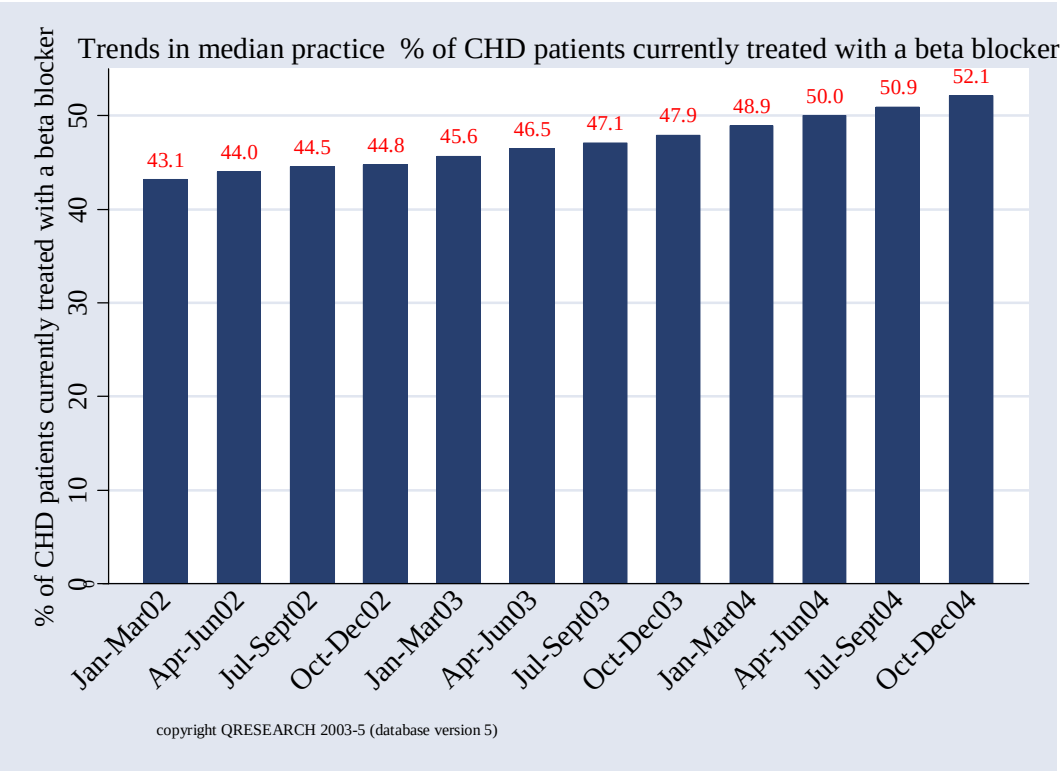
The median practice percentage in the 12th quarter was low at 52% (inter-quartile range 47% to 54%).



5.21 Coronary heart disease Indicator 10: Quarterly Trends

The next chart shows how trends in the percentage of patients with coronary heart disease who are currently treated with a beta blocker have changed over the 12 quarters. The corresponding tabular data can be found in the appendix (Table 10).

There has been a gradual increase in the percentage of patients prescribed a beta blocker over the past three years with no obvious step change. In quarter 1 (January – March 2002) the median practice percentage was 43% (inter quartile range 39% to 48%). By quarter 12, this had increased to 52% (inter-practice variation 47% to 54%). Given that beta blockers are also used to lower blood pressure, then it is possible that the increase in this indicator is related to the improvement in blood pressure levels reported above.

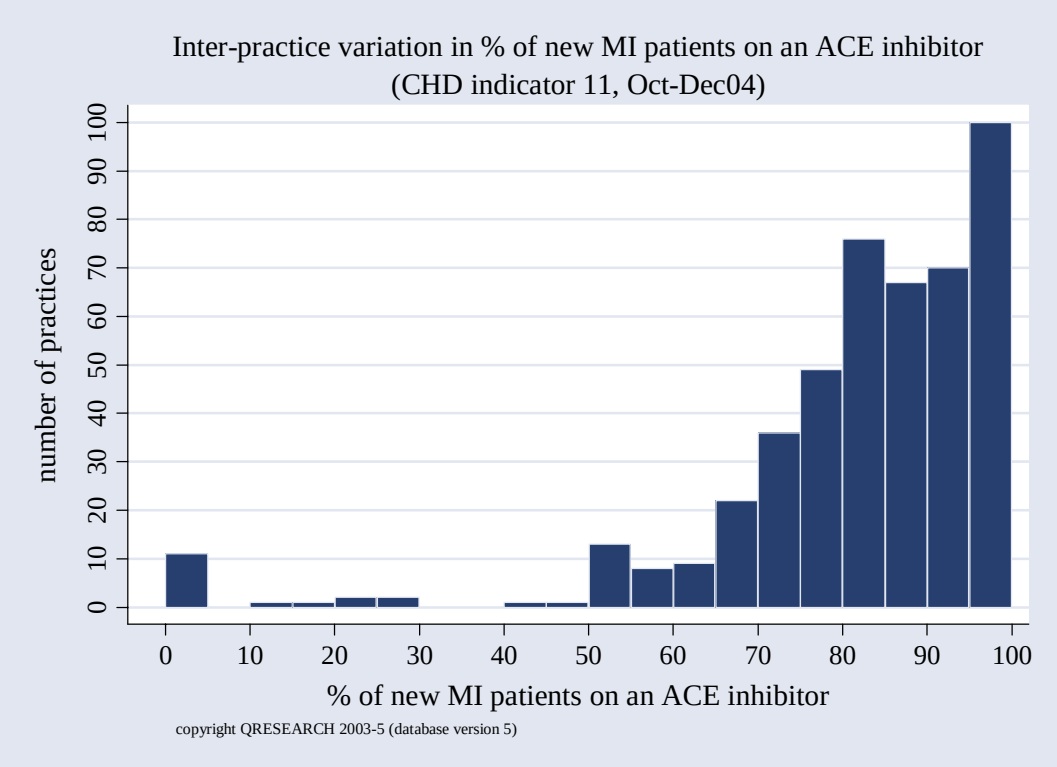


5.22 Coronary heart disease Indicator 11: % of MI patients currently treated with an ACE inhibitor

Indicator CHD11: the percentage of patients with a history of a myocardial infarction (diagnosed after 1st April 2003) who are currently treated with an ACE inhibitor.
Specific exclusions: General exclusions apply

The next chart shows the inter-practice variation in the percentage of patients with a history of a myocardial infarction (diagnosed after 1st April 2003) who are currently treated with an ACE inhibitor. The corresponding tabular data can be found in the appendix (Table 11).

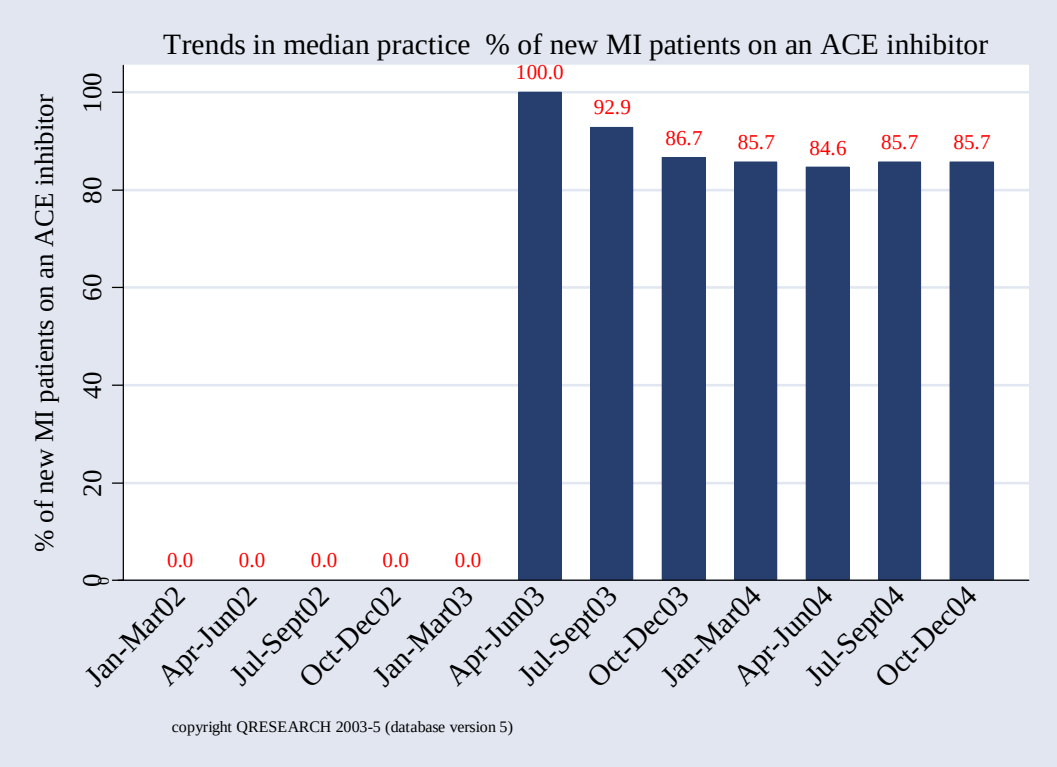
The median practice percentage in the 12th quarter was 86% (inter-quartile range 75% to 93%).



5.23 Coronary heart disease Indicator 11: Quarterly Trends

The next chart shows how trends in the median practice percentage of patients with a history of a myocardial infarction (diagnosed after 1st April 2003) who are currently treated with an ACE inhibitor. The corresponding tabular data can be found in the appendix (Table 11).

In the first quarter (April-June 2003), then there was a 100% achievement (this is a logical consequence of the business rule set as with indicator 2 as discussed above). The noticeable thing is the relatively constant level of achievement of this indicator at 85-86%. Patients with a myocardial infarction tend to be hospitalised now and then discharged on a 'package' of drugs including aspirin, statin and an ACE inhibitor. The levels therefore reflect both hospital initiated treatment and that initiated within primary care.

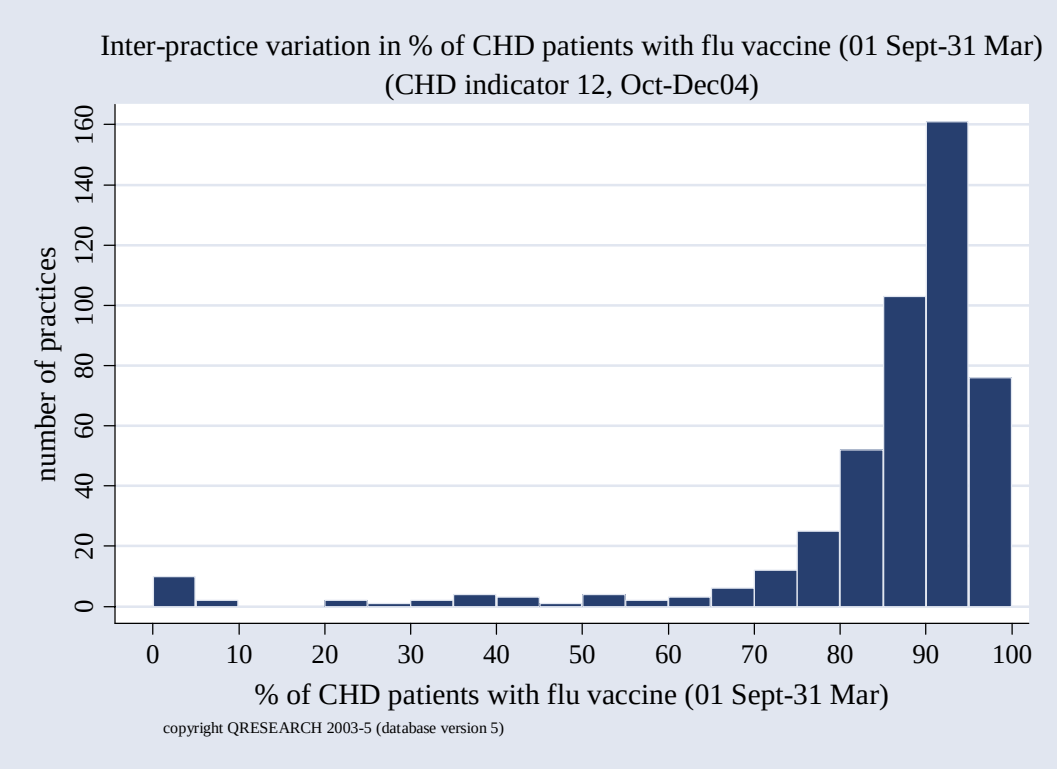


5.24 Coronary heart disease Indicator 12: % with flu vaccine

Indicator CHD11: The percentage of coronary heart disease patients who have a record of influenza vaccination in the preceding 1st September to 31st March.
Specific exclusions: General exclusions apply

The next chart shows the inter-practice variation in the percentage of coronary heart disease patients who have a record of influenza vaccination in the preceding 1st September to 31st March. The corresponding tabular data can be found in the appendix (Table 12).

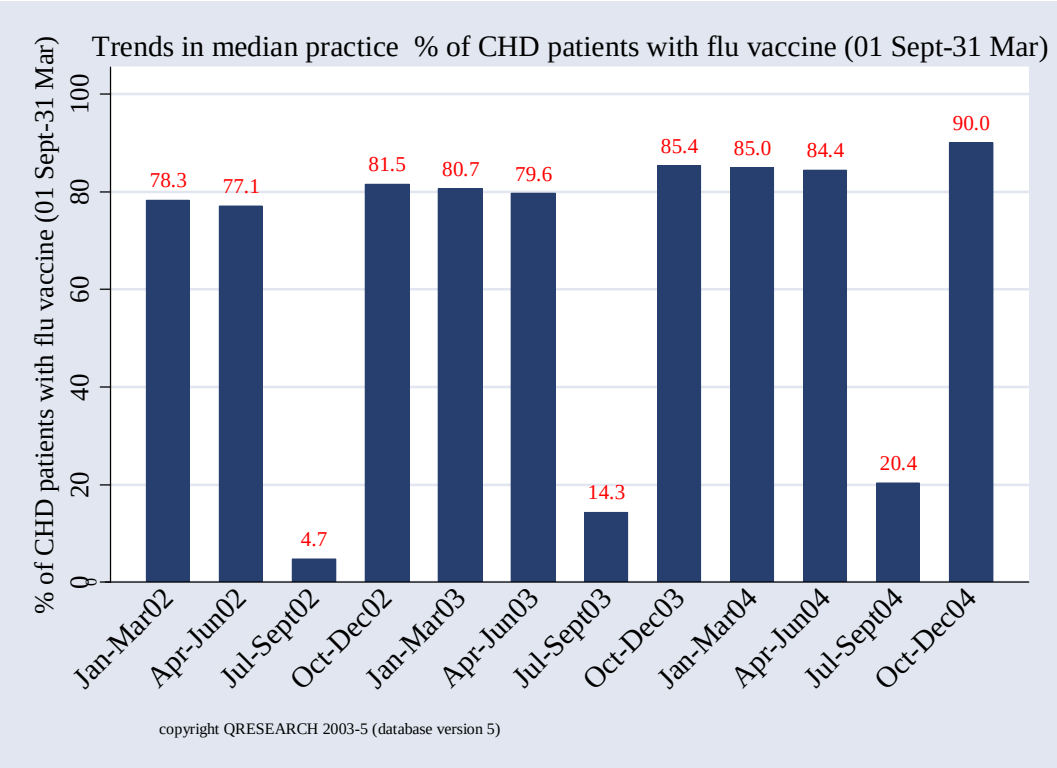
The median practice percentage in the 12th quarter was 90% (inter-quartile range 84% to 94%).



5.25 Coronary heart disease Indicator 12: Quarterly Trends

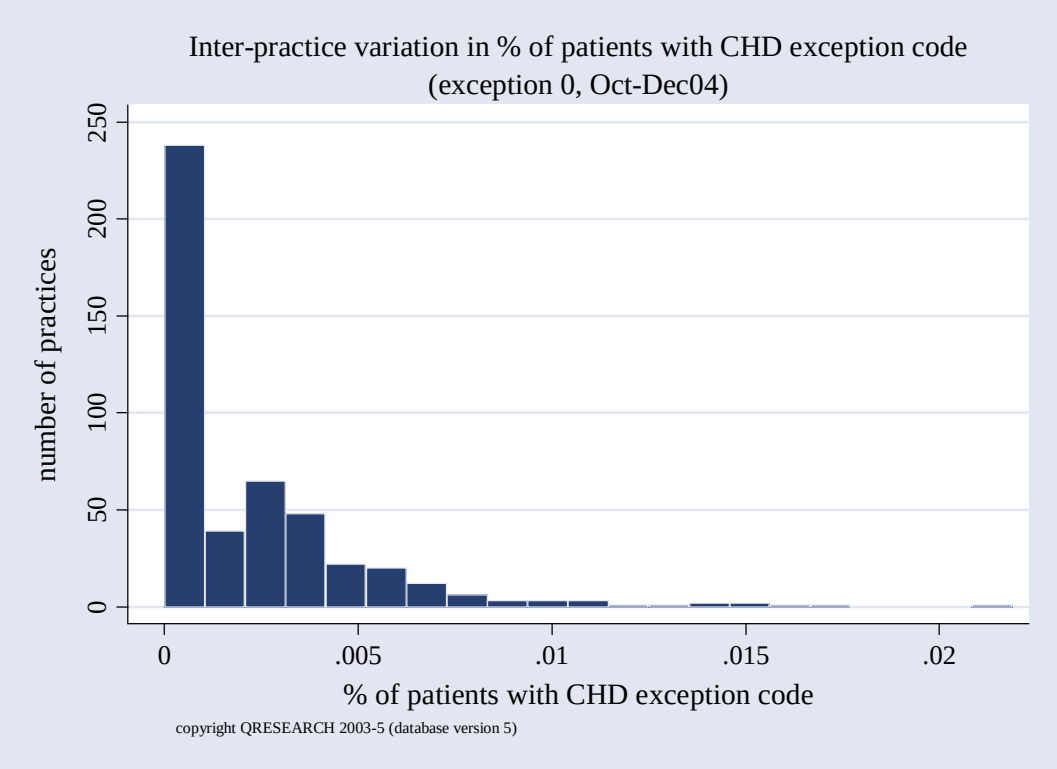
The next chart shows how trends in the median practice the percentage of coronary heart disease patients who have a record of influenza vaccination in the preceding 1st September to 31st March. The corresponding tabular data can be found in the appendix (Table 12).

The unusual pattern in the graph below related to the seasonal nature of indicator 12 which is measured over the preceding September to March. At the beginning of the vaccination period (i.e. in October) the rates are lowest. At the end of the vaccination period (i.e. April), the rates are highest. The majority of vaccinations are done during the last quarter of each year (Oct-Dec) as can be seen from the graph. Comparing rates across the year, we can see that the rate at the end of the 2001/2 'season' was 77%, was 81% in 2002/2003 and 85% in 2003/2004. Data for the end of season for 2004/5 are not yet available but are very likely to be in excess of 90% based on the last quarter of 2004.



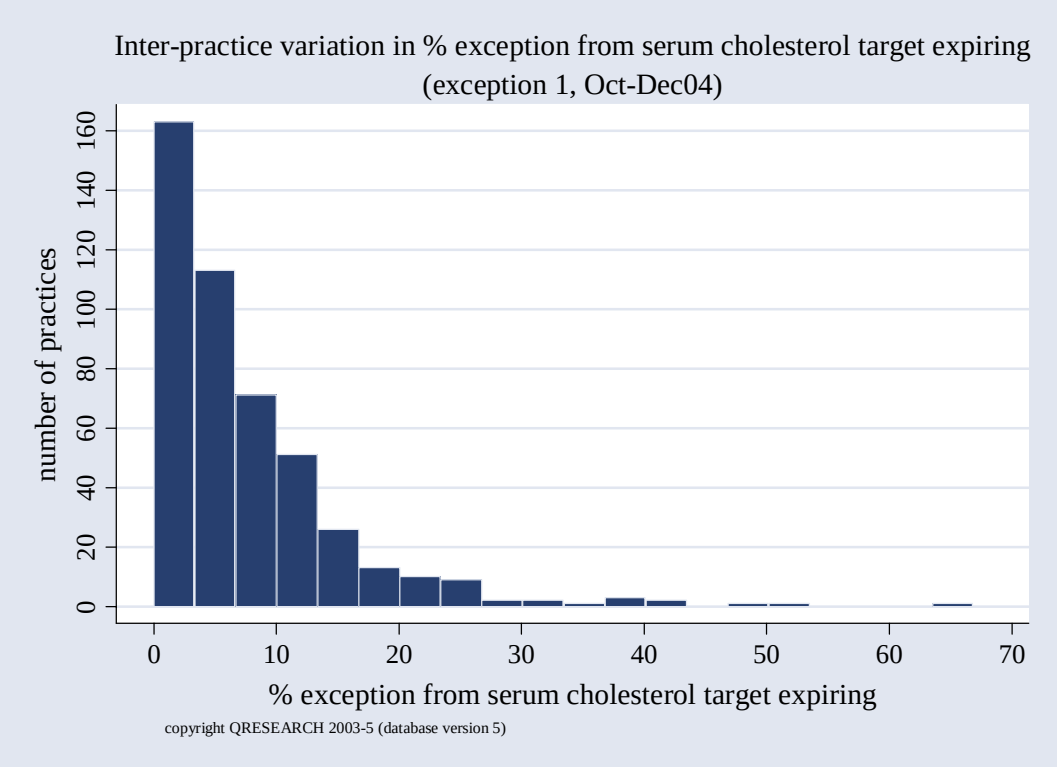
5.26 Trends in median practice % of patients with CHD exception code.

The next graph shows the interpractice variation in the % of patients with CHD exception code in quarter 12 (Table 13). Use of the coronary heart disease exception code is very low with the majority of practices not using it at all. There has been no important increase in the use of this code over the study period (less than 250 patients have the code in every quarter).

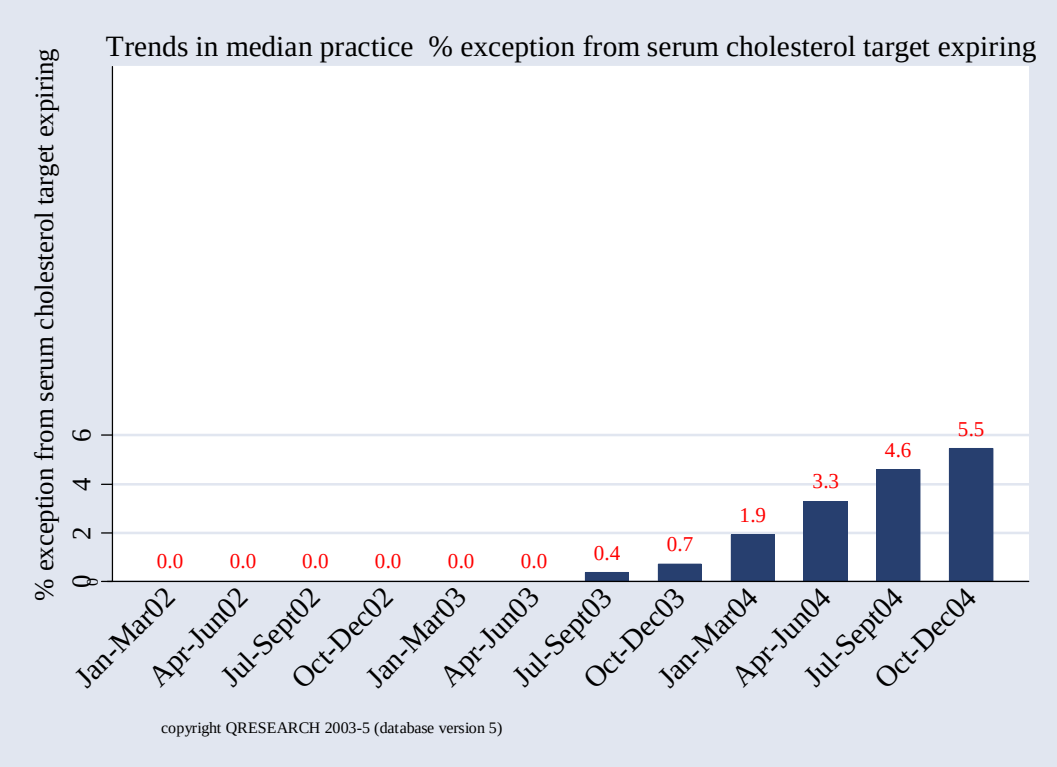


5.27 Trends in median practice % exception from serum cholesterol target expiring

The next chart shows the inter-practice variation in the percentage of patients with an exception from serum cholesterol target (expiring). The corresponding data can found in the appendix (Table 14). The median practice percentage was 5%.

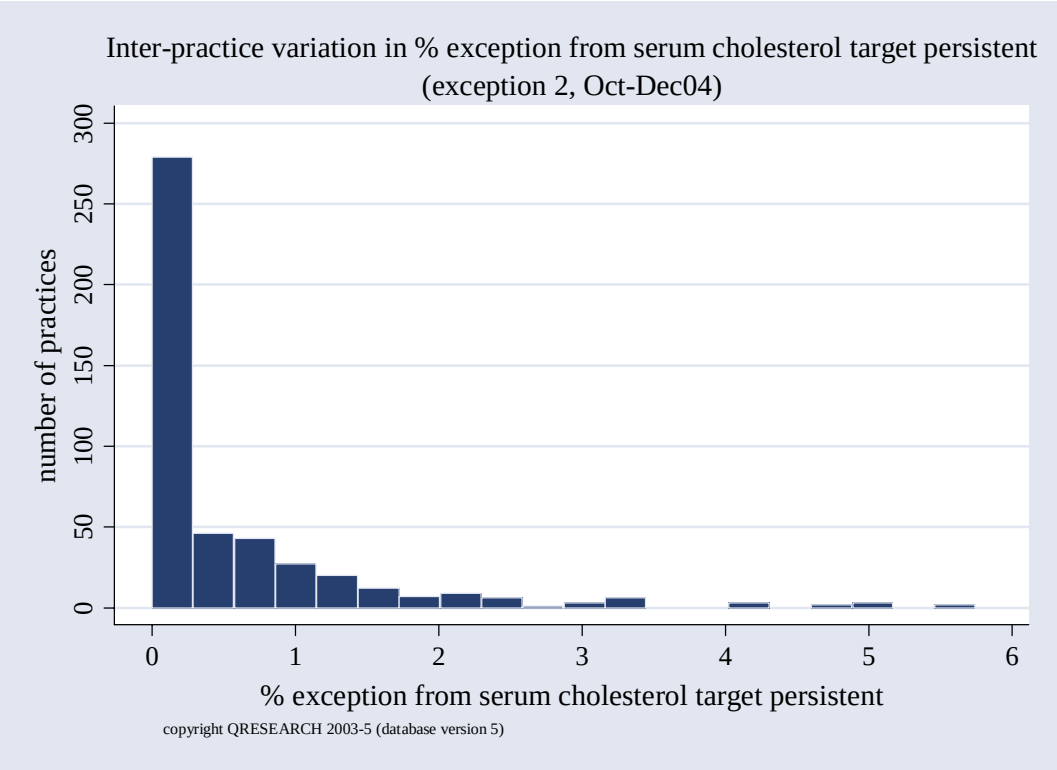


There has been a slow increase over the last few quarters since the code was initially introduced although the absolute levels remain low.



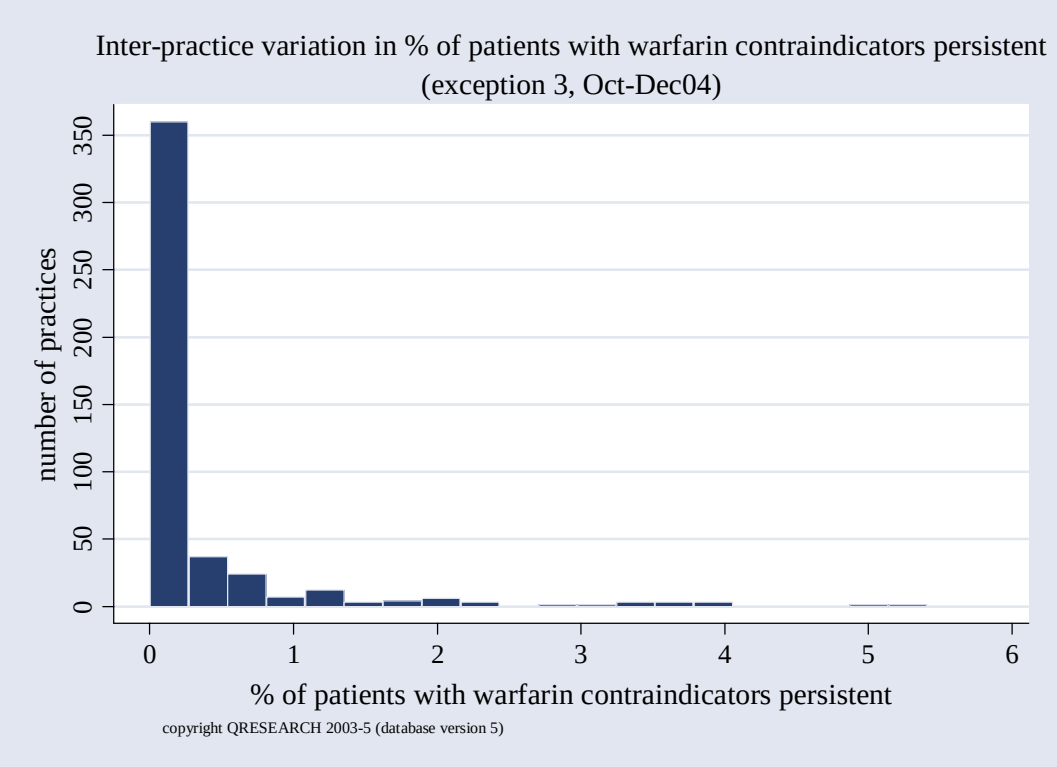
5.28 Trends in median practice % exception from serum cholesterol target persistent

The next chart shows the inter-practice variation in the median percentage of coronary heart disease patients with an exception code from serum cholesterol target (persisting). The absolute numbers (and hence rates) are 1/10th of that found for the corresponding expiring code. The rates were so low over each of the quarters that they have not been plotted but the data is available in the appendix (Table 15).



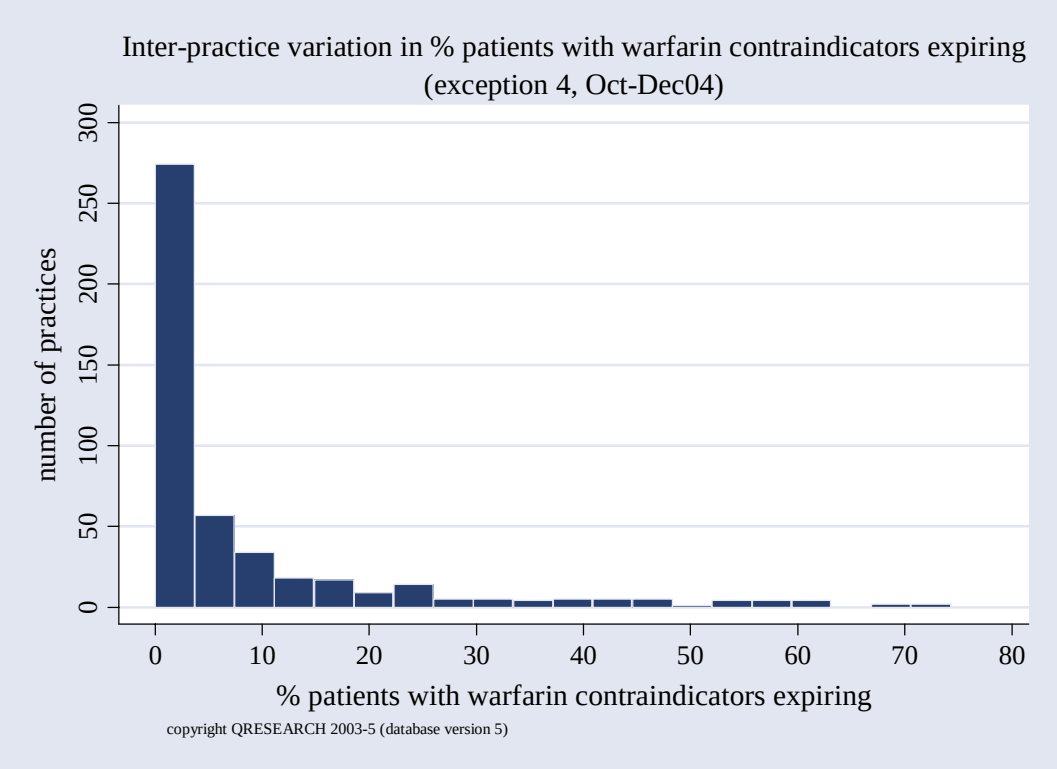
5.29 Trends in median practice % of patients with warfarin contraindicators persistent

Tabular data for trends in median practice % of patients with warfarin contraindications persistent are shown in the appendix(Table 16). The graph showing inter-practice variation in the last quarter is shown below.



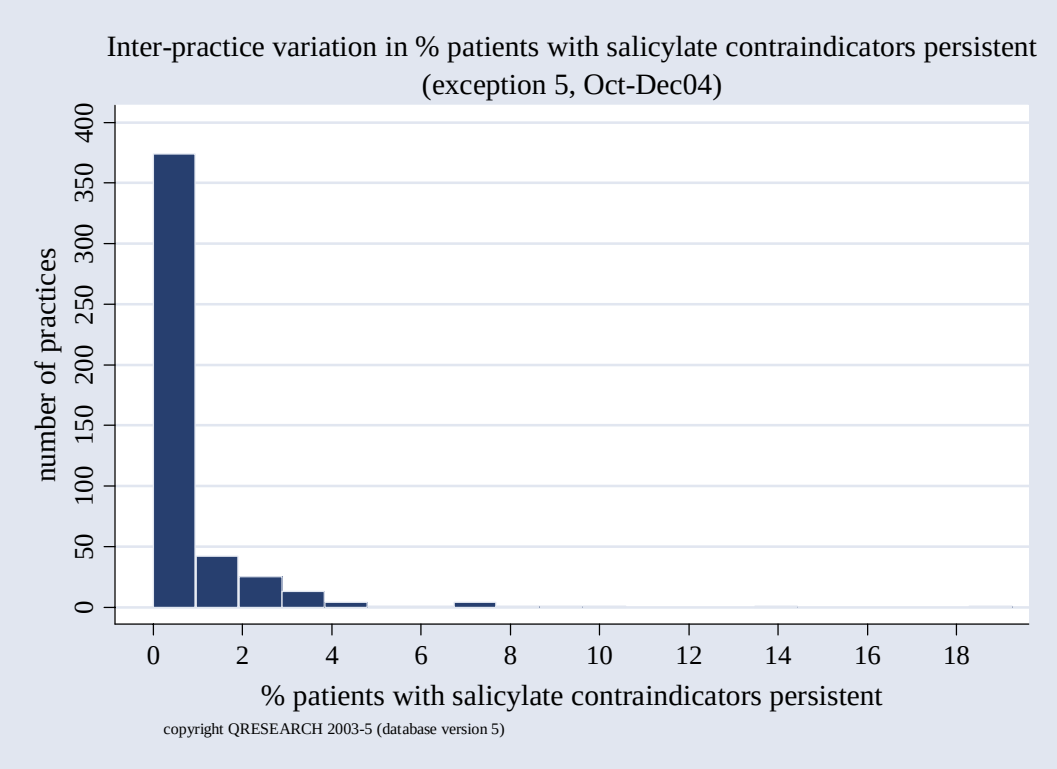
5.30 Trends in median practice % patients with warfarin contraindications expiring

Tabular data for trends in median practice % patients with warfarin contraindications expiring are shown in the appendix (Table 17). The graph showing inter-practice variation in the last quarter is shown below.



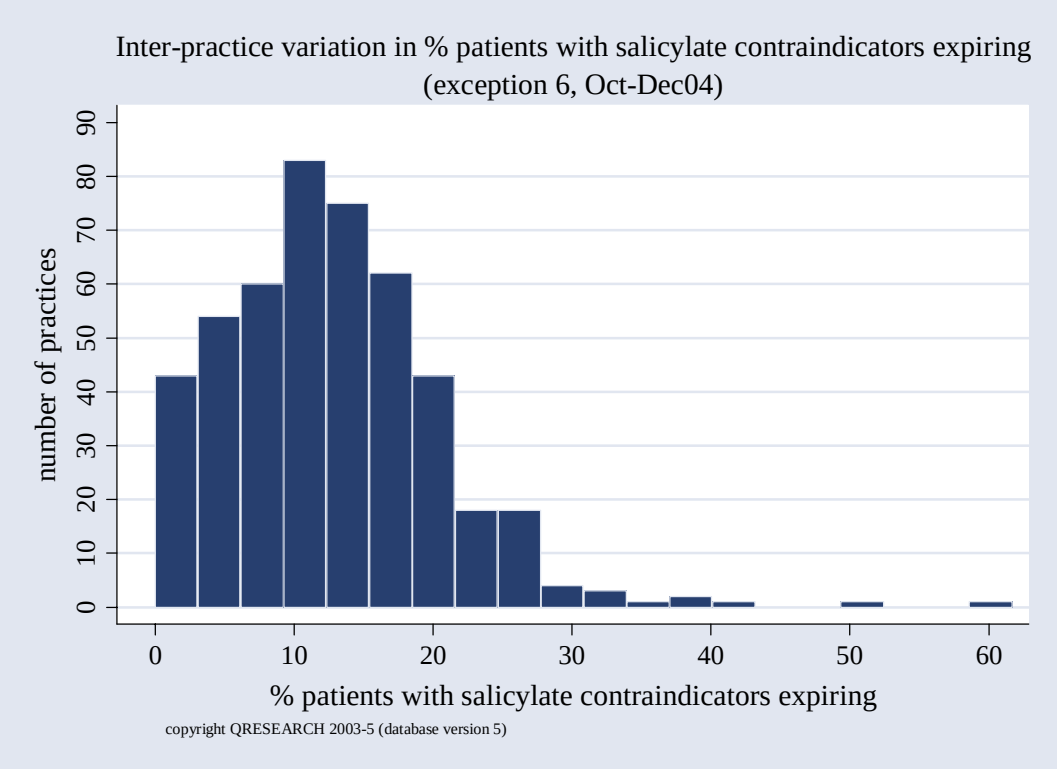
5.31 Trends in median practice % patients with salicylate contraindications persistent

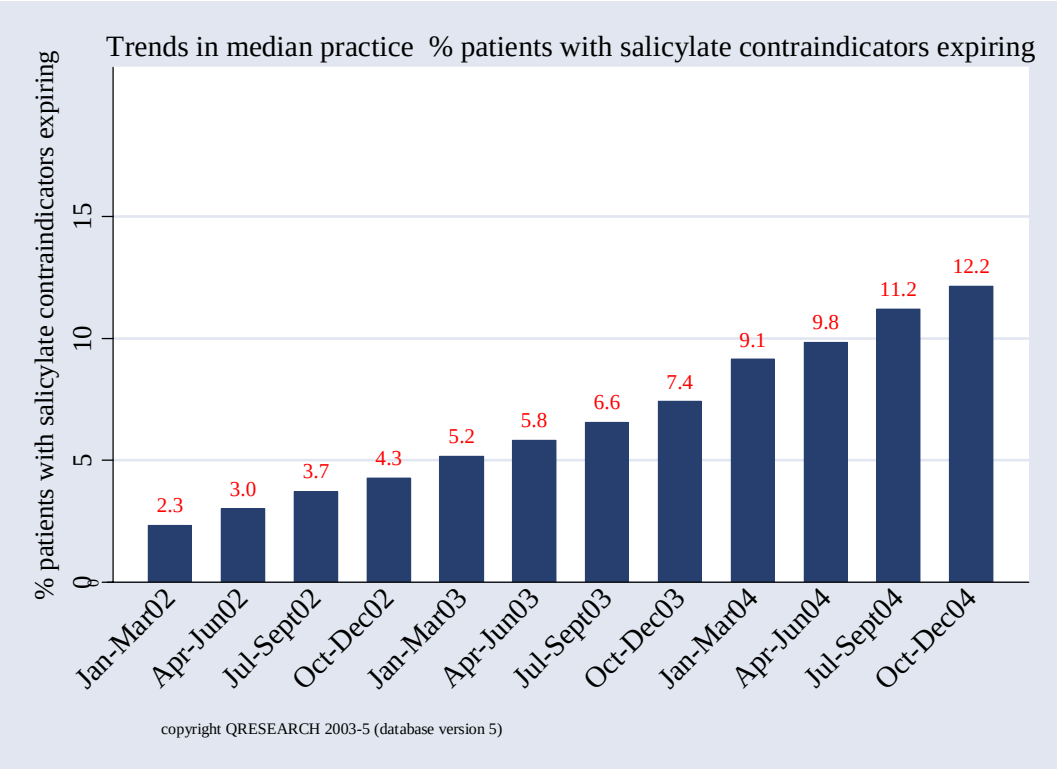
Tabular data for trends in median practice % patients with salicylate contraindications persistent can be found in the appendix (Table 18). The graph showing inter-practice variation in the last quarter is shown below.



5.32 Trends in median practice % patients with salicylate contraindications expiring

Tabular data for trends in median practice % patients with salicylate contraindications expiring can be found in the appendix (Table 19). The graph showing inter-practice variation in the last quarter is shown below.



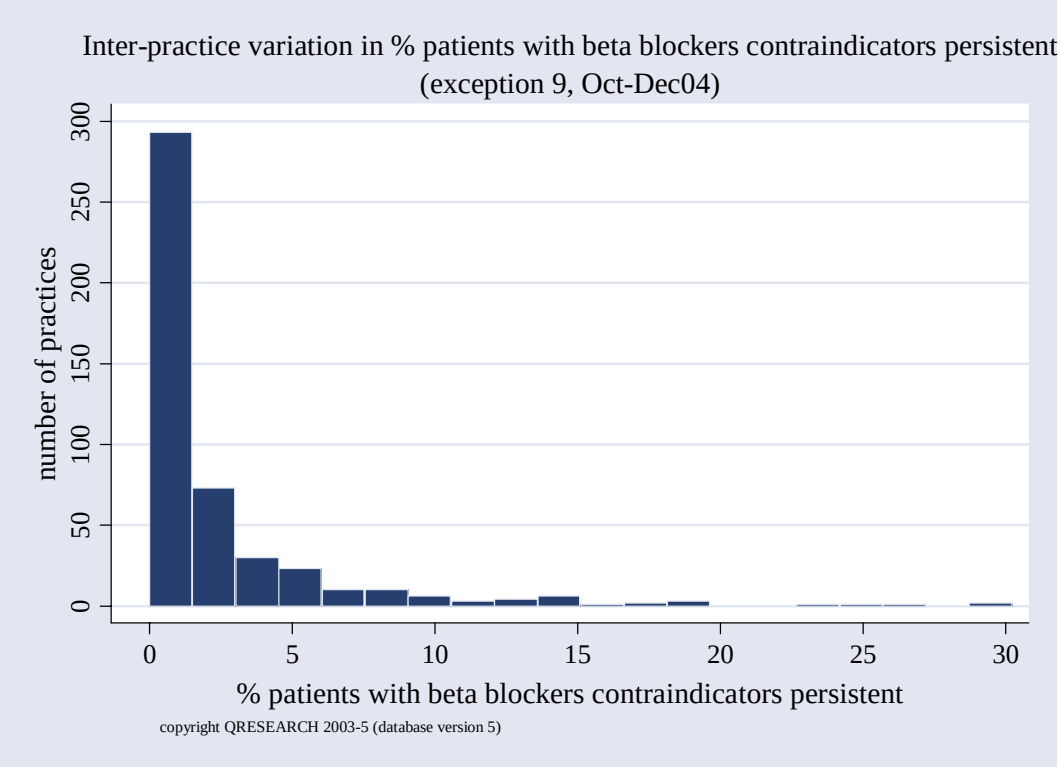


5.33 Trends in median practice % patients with clopidogrel contraindications

Tabular data for trends in median practice % patients with clopidogrel contraindications persistent can be found in (Table 20) and 'expiring' ones can be found in (Table 21). The rates are so low that graphs have not been produced.

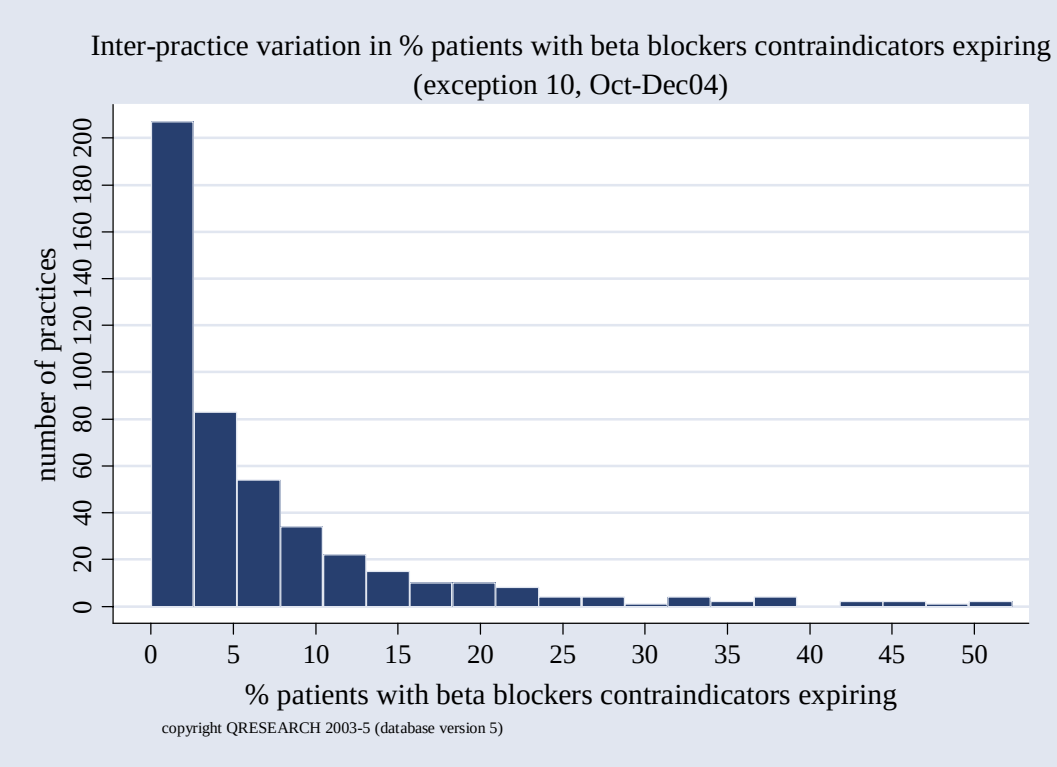
5.34 Trends in median practice % patients with beta blockers contraindications (persistent)

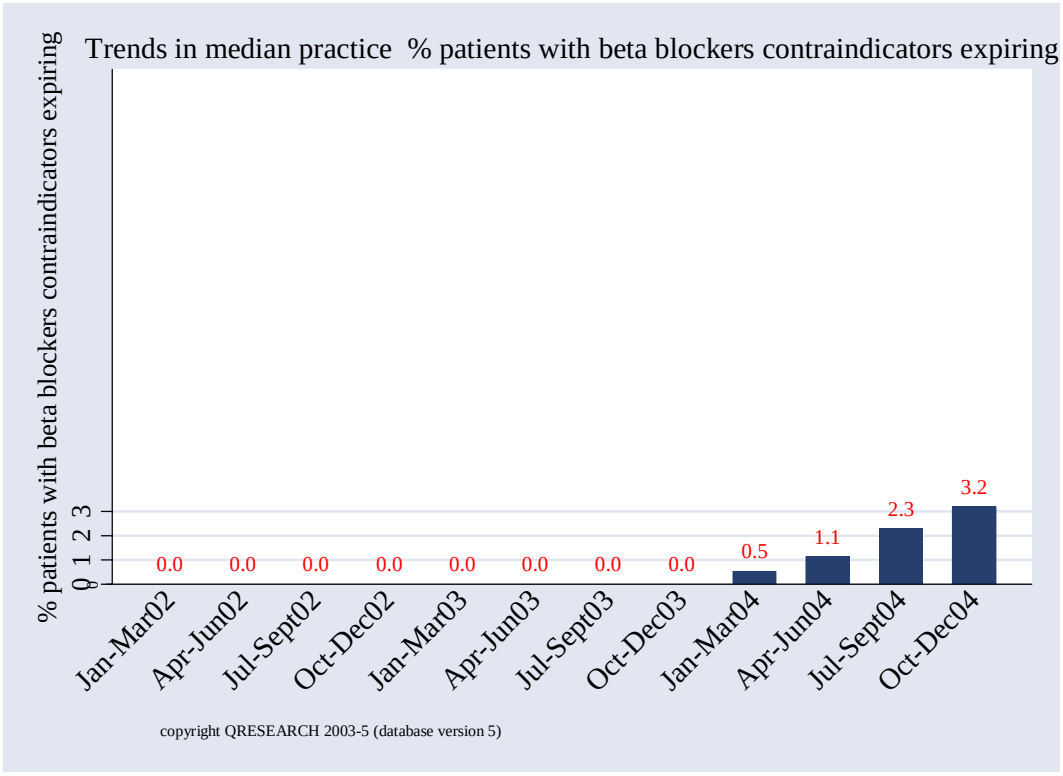
Tabular data for trends in median practice % patients with beta blockers contraindications (persistent) can be found in the appendix (Table 22). The graph showing inter-practice variation in the last quarter is shown below.



5.35 Trends in median practice % patients with beta blockers contraindications expiring

Tabular data for trends in median practice % patients with beta blockers contraindications expiring can be found in the appendix (Table 23). The graph showing inter-practice variation in the last quarter is shown below.



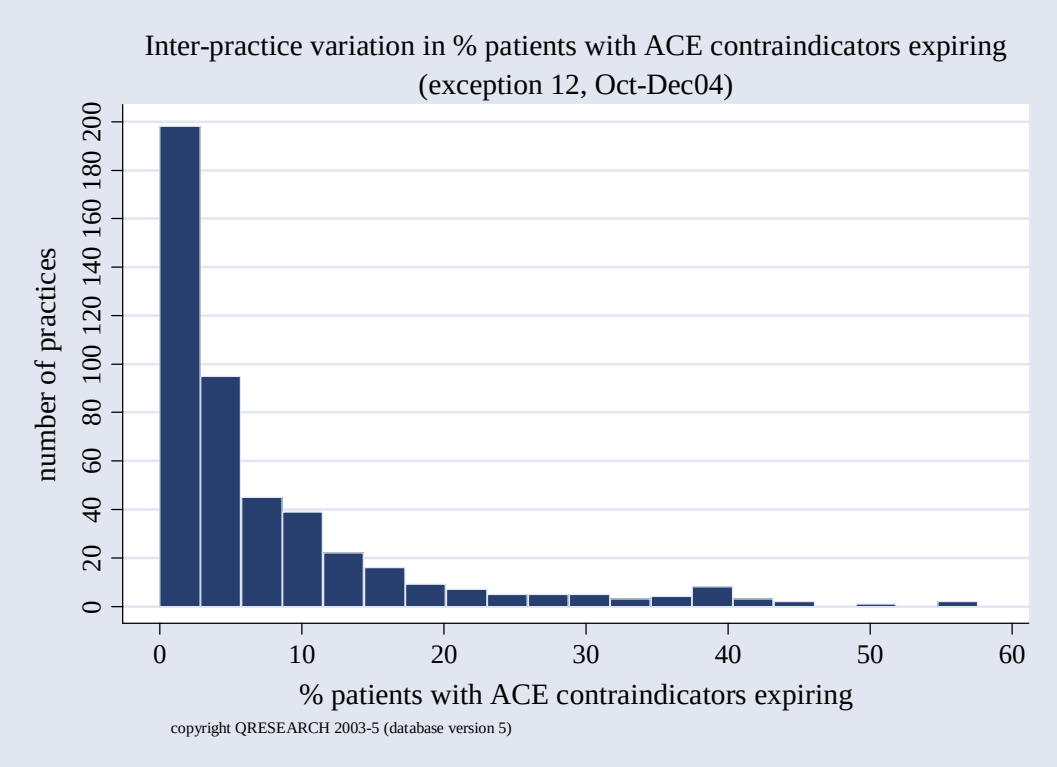


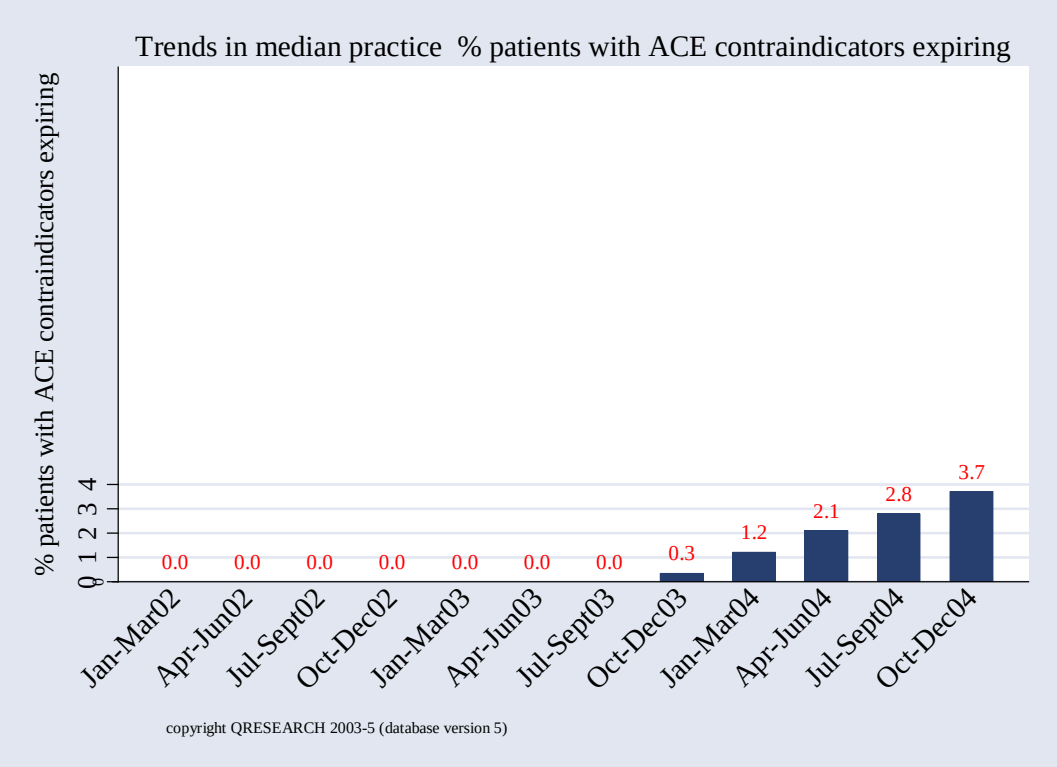
5.36 Trends in median practice % patients with ACE contraindications (persistent)

Tabular data for trends in median practice % patients with ACE contraindications persistent (Table 24). The rates were so low that a graph has not been produced.

5.37 Trends in median practice % patients with ACE contraindications expiring

Tabular data for trends in median practice % patients with ACE contraindications (expiring) can be found in the appendix (Table 25). The graph showing inter-practice variation in the last quarter is shown below.



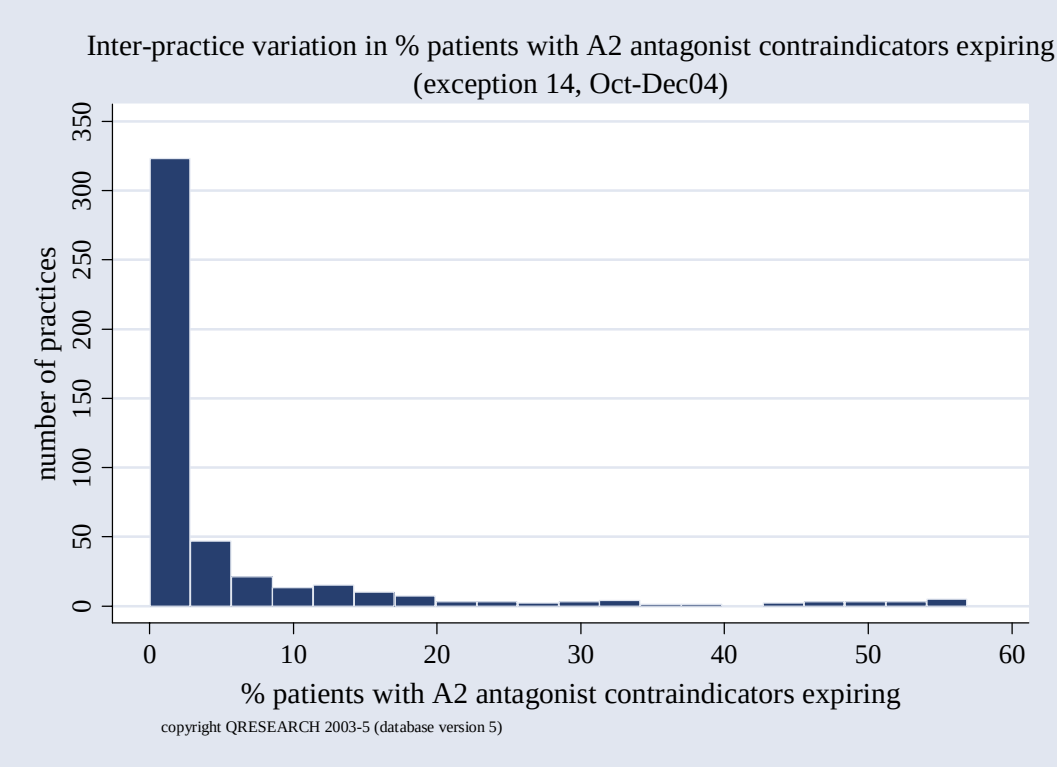


5.38 Trends in median practice % patients with A2 antagonist contraindications (persistent)

Tabular data for trends in median practice % patients with A2 antagonist contraindications (persistent) can be found in the appendix (Table 26). The rates were so low that a graph has not been produced.

5.39 Trends in median practice % patients with A2 antagonist contraindications expiring

Tabular data for trends in median practice % patients with A2 antagonist contraindications expiring can be found in the appendix(Table 27). The graph showing inter-practice variation in the last quarter is shown below.



5.40 Trends in median practice % patients with exercise test decline code

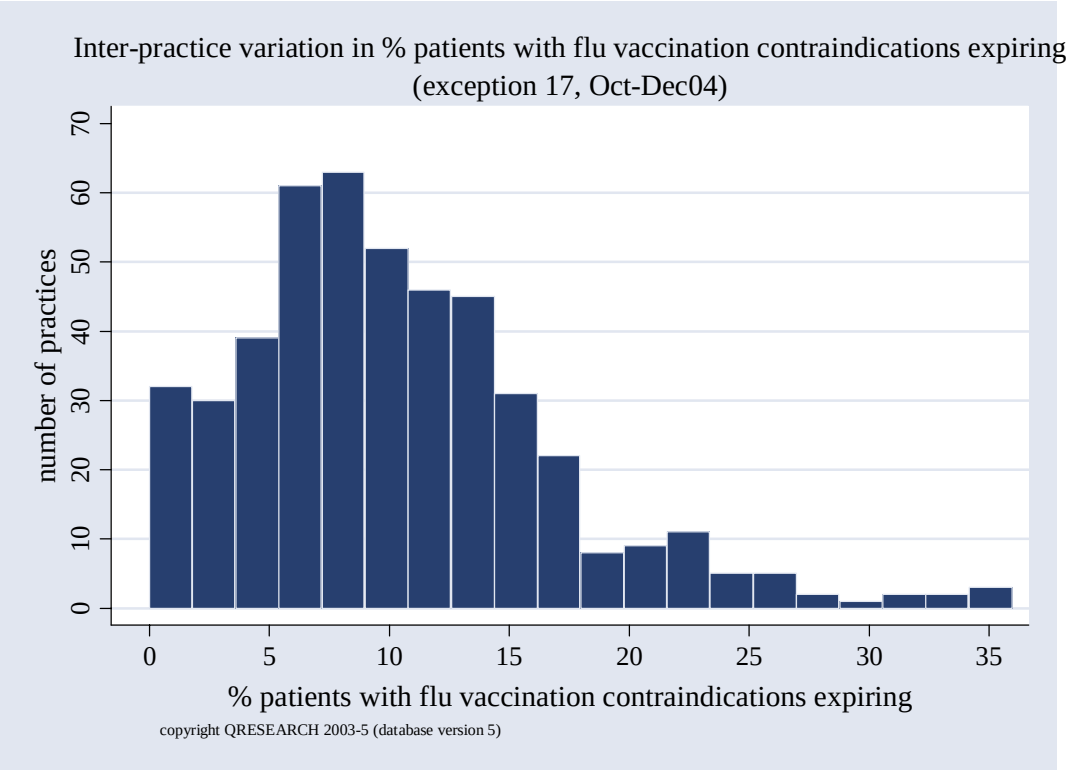
Tabular data for trends in median practice % patients with exercise test decline code can be found in the appendix (Table 28). The rates were so low that a graph has not been produced.

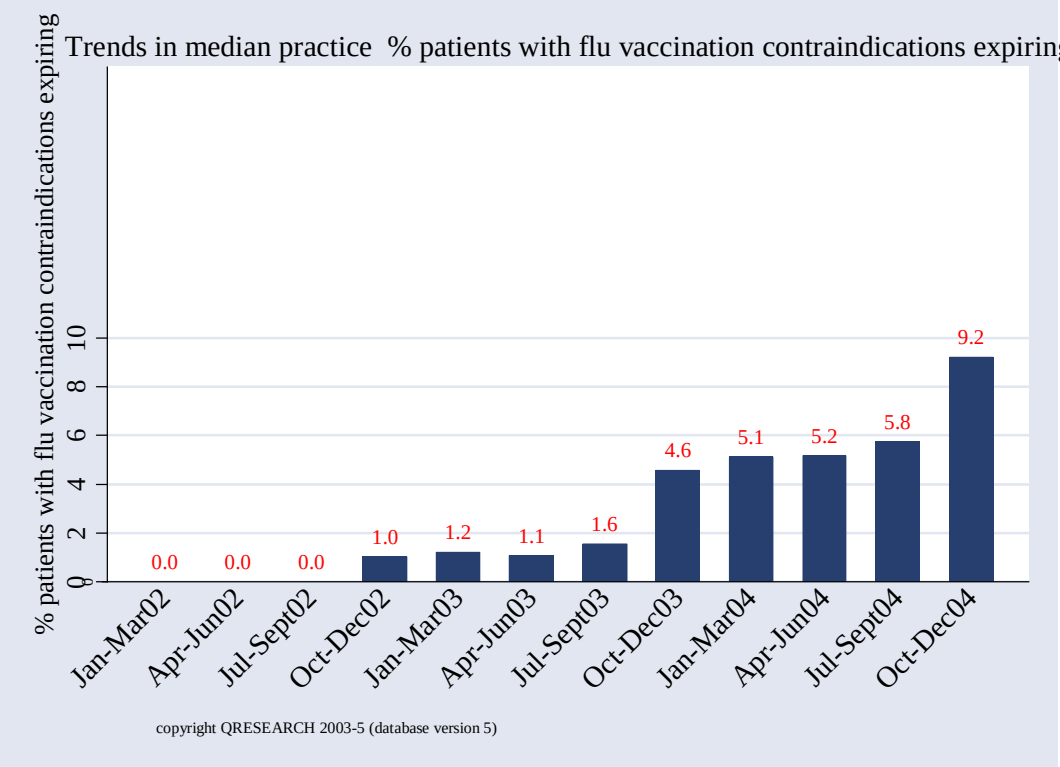
5.41 Trends in median practice % patients with flu vaccination contraindications (persisting)

Tabular data for trends in median practice % patients with flu vaccination contraindications (persisting) can be found in the appendix(Table 29). The rates were so low that a graph has not been produced.

5.42 Trends in median practice % patients with flu vaccination contraindications (expiring)

Tabular data for trends in median practice % patients with flu vaccination contraindications (expiring) can be found in the appendix (Table 30)



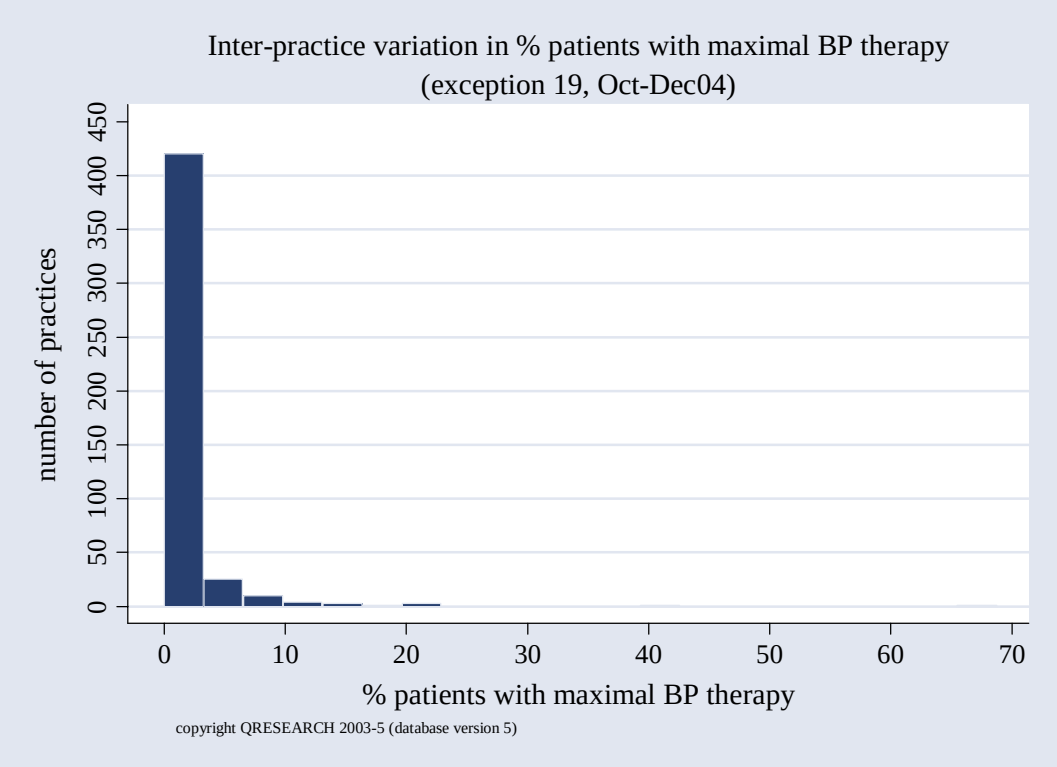


5.43 Trends in median practice % patients with BP recording exception codes in 15/12

Tabular data for trends in median practice % patients with blood pressure recording exception codes in 15/12 (Table 31). The rates were so low that a graph has not been produced.

5.44 Trends in median practice % patients with maximal BP therapy

Tabular data for trends in median practice % patients with maximal BP therapy can be found in the appendix (Table 32). The graph of inter-practice variation in the last quarter is shown below.



6 DISCUSSION

Coronary heart disease became a new GMS Contract indicative disease in the wake of the publication of the National Service Framework (NSF) for Coronary Heart Disease (CHD). The NSF was itself prompted by the realisation of the importance of primary prevention, active acute intervention and secondary prevention in population and individual patient care. It is likely that more years of life will be saved through active intervention in coronary heart disease than in any other area.

It is for these reasons that the analyses in this report are of high importance. Whatever the motivation, improvements in primary and secondary prevention in coronary heart disease will have far-reaching effects.

All practices were able to satisfy Indicator 1, the requirement to have a coronary heart disease register.

The prevalence of coronary heart disease in our study is higher than that in other primary care studies[2] and has increase slightly over the 12 quarters studied in the report. This increase could reflect improved computer recording, better case ascertainment or the effect of an ageing population. However, whilst these factors are likely to be important, other QRESEARCH analyses have shown that the age standardised prevalence of coronary heart disease has increased over the last ten years at the same time as the incidence has decreased. Improved survival for coronary heart disease patients may be the explanation for the increase in prevalence described in the report and this deserves further study.

In the next part of this discussion, the indicators will be grouped by their general type.

One indicator looks at the investigation of new cases of coronary heart disease. Indicator 2 measures referral for exercise testing or specialist assessment. As the charts show (5.4 and 5.5) there is wide inter-practice variation and, overall, a constant rate of 40.0% for this indicator in recent quarters. Firstly this achievement rate is not an artefact, but a genuine finding. Second it suggests that the "natural" level of this indicator is not 100% but much more like 50%. The inter-quartile range is narrowing, suggesting that practices are beginning to coalesce around this value.

A group of indicators look at the recording of key risk factors. Indicator 3 looks at the recording of smoking status; Indicator 5 measures the percent with a blood pressure recorded; and Indicator 7 looks at the recording of cholesterol levels.

As can be seen, the recording of smoking status has been rising steadily and significantly throughout the time period of two years, almost reaching 92% in the past 15 months by the end of 2004. There is a less dramatic increase in blood pressure recording because the

baseline in early 2002 was so much higher (87.5% in the past 15 months) but it had nearly reached 96% by the end of 2004. The recording of cholesterol levels is more analogous to smoking, with a sustained rise from 62% at the beginning of 2002 to over 82% in the last quarter.

The conclusion from these is that recording levels are rising but may be plateauing out. There is no obvious new GMS Contract effect of a sudden rush of recording. And inter-practice variation is narrowing with time.

The third group of indicators concern preventive action on lifestyle and risk factors. Indicator 4 measures smoking advice to smokers; Indicator 9 concerns the taking of aspirin; Indicator 10 looks at beta-blocker prescribing; and Indicator 11 is of ACEI prescribing in patients with a new myocardial infarction.

There was a surge in the recording of smoking advice given starting in the April 2003 quarter and tailing off towards the end of 2004, by which time it was nearly 93% in the previous 15 months. This is the first change that could be attributed through timing and degree to the introduction of the new contract. Many practices will have recorded such advice in free text before and this may therefore be a recording artefact rather than a genuine increase in activity. The rises in the recording of aspirin use and beta-blocker prescribing are less dramatic and more linear, suggesting an underlying trend of either improved recording or better care.

The apparent fall in use of ACEI in patients with a new MI is artefact from the way in which the indicator was calculated in early quarters. It appears to be stable now at about 86%.

A single indicator (12) looks at the giving of influenza vaccination. There is a general trend up from 78% to nearer to 90%. There is no suggestion of a surge from the new contract and since this activity is likely to have been well recorded in the past, the rise, for whatever reason, is likely to reflect genuinely better coverable of this vulnerable group.

The last group of indicators concern disease control measures. Indicator 6 reflects level of control of blood pressure; and Indicator 8 looks at control of cholesterol.

The percentage of patients with blood pressure of 150/90 or less has been increasing gradually – almost linearly – over the two years. Given the high level of recording of blood pressures this can only demonstrate better clinical control of blood pressure, which in itself is gratifying evidence of improving standards of primary care. Similarly the percent of patients with a cholesterol of 5 mmol/l or less has been rising linearly (except for a fall off in the last quarter) suggesting a genuine improvement in clinical care. These two indicators suggest that, for whatever reason, primary care is likely to be saving significantly more lives than three years ago.

We have found a significant variation between practices in the recording of almost all of the indicators. Our study design does not allow us to determine whether this is due to variation in the quality of care or differences in the completeness of data entry though the electronic record tends to be more complete than the paper record[3]. However, there was a marked reduction in the variation between practices over the 12 quarters.

The next, and final, topic for this discussion concerns the use of exemption codes. Many of these are only recently available which makes interpretation difficult. Further the sentiments behind them may have been recorded in free text or have been "understood", but have only now, for the contract indicators, been actually coded.

The coronary heart disease exemption code itself is rarely used and its use is not increasing in recent quarters. The cholesterol exemption code (expiring) is becoming more common reaching 5.5 in the last quarter. If this trend were to continue a significant proportion will soon be recorded as exempt.

Warfarin and clopidogrel contraindication codes are still infrequently used, but are rising from a low base. Beta-blocker and ACEI contraindication codes are rising in frequency, but are still overall at a low level. Salicylate contraindication codes are much more widely used and for longer, but the rise in their use is less marked. However over 12% now have an expiring salicylate contraindication recorded. Over 9% of patients have a contraindication to influenza vaccination recorded, a percentage that is rising quickly in recent quarters. The other exemption codes are seldom used.

These data, reported at the very start of the new GMS contract, will be of interest to practices as they plan their delivery strategies and to health service planners responsible for monitoring and remuneration. The large variation between practices in levels of outcomes achieved was expected although the overall values achieved were lower than expected for several indicators (in particular indicator 5) indicating the substantial amount of work needed to provide optimum care for all patients.

7 REFERENCES

1. Hippisley-Cox J, Cater R, Pringle M, Coupland C. A cross-sectional survey of the effectiveness of lipid lowering drugs in lowering serum cholesterol in 17 general practices:how well do they work? *BMJ* 2003;326:689-694.
2. Newnham A, Ryan R, Khunti K, Majeed A. Prevalence of diagnosed diabetes mellitus in general practice in England and Wales. *Health Statistics Quarterly* 2002;14:5-13.
3. Hippisley-Cox J, Pringle M, Cater R, Wynn A, Hammersley V, Coupland C, et al. Electronic record in primary care - regression or progression? Cross-sectional survey. *BMJ* 2003;326:1439-1443.

8 APPENDIX

Table 1: Trends in median practice prevalence of coronary heart disease per 1000 registered patients (CHD indicator 1)

Start of quarter	Total patients with coronary heart disease	Registered patients	Practice median prevalence rate per 1000 registered patients	25th	75th
01-Jan-02	121,811	3,372,749	36.3	27.3	45.2
01-Apr-02	122,878	3,376,356	36.5	27.9	45.2
01-Jul-02	123,684	3,396,358	36.7	27.8	45.4
01-Oct-02	124,227	3,391,864	37.1	28.3	45.5
01-Jan-03	125,197	3,393,214	37.5	28.4	46.0
01-Apr-03	125,525	3,396,352	37.3	28.6	46.2
01-Jul-03	126,029	3,411,704	37.6	28.7	46.3
01-Oct-03	126,111	3,409,348	37.9	28.5	46.4
01-Jan-04	126,154	3,406,060	37.7	28.4	46.4
01-Apr-04	126,033	3,410,710	37.5	28.3	45.9
01-Jul-04	125,805	3,420,653	37.4	28.2	45.6
01-Oct-04	125,265	3,424,134	37.1	28.0	45.2
	121,811	3,372,749	36.3	27.3	45.2

Table 2 Trends in practice median % new angina patients referred for an exercise test

(CHD indicator 2)

Start of quarter	Total new angina patients referred for an exercise test	Total new angina patients	Practice median % new angina patients referred for an exercise test	25th	75th
01-Jan-02	0	0	0.0	0.0	0.0
01-Apr-02	0	0	0.0	0.0	0.0
01-Jul-02	0	0	0.0	0.0	0.0
01-Oct-02	0	0	0.0	0.0	0.0
01-Jan-03	0	0	0.0	0.0	0.0
01-Apr-03	534	534	100.0	0.0	100.0
01-Jul-03	1,192	2,741	44.4	12.5	66.7
01-Oct-03	1,940	4,941	40.0	18.8	61.5
01-Jan-04	2,891	7,376	40.0	22.2	60.0
01-Apr-04	3,642	9,545	40.0	23.5	57.1
01-Jul-04	4,400	11,364	40.0	27.6	55.6
01-Oct-04	4,889	12,956	40.0	28.0	54.2

Table 3 Trends in practice median % of CHD patients with smoking history in the last 15 months (CHD indicator 3).

Start of quarter	Total coronary heart disease patients with smoking history in the last 15 months	Total coronary heart disease patients eligible for smoking history	Practice median % of coronary heart disease patients with smoking history recorded in the last 15 months	25th	75th
01-Jan-02	65,851	119,667	56.1	41.6	70.2
01-Apr-02	68,159	121,269	56.8	43.4	71.0
01-Jul-02	70,545	122,159	58.7	44.8	71.6
01-Oct-02	72,769	122,600	60.1	46.7	73.6
01-Jan-03	76,330	123,520	63.1	49.4	75.5
01-Apr-03	79,062	124,265	64.6	51.9	77.4
01-Jul-03	83,019	124,863	67.7	55.3	79.2
01-Oct-03	90,013	125,098	75.1	62.5	84.5
01-Jan-04	99,658	125,391	82.4	72.0	90.1
01-Apr-04	105,188	125,527	86.3	77.7	92.2
01-Jul-04	109,746	125,403	90.0	82.5	94.4
01-Oct-04	112,219	125,075	91.7	86.6	95.1

Table 4 Trends in practice median % of CHD patients who smoke who have had smoking advice given (CHD indicator 4)

Start of quarter	Total coronary heart disease who smoke given advice ever	Total coronary heart disease patients who smoke	Practice median % of coronary heart disease patients who smoke who have had smoking advice given	25th	75th
01-Jan-02	6,068	9,501	66.7	38.3	88.2
01-Apr-02	6,406	10,058	66.7	42.9	85.7
01-Jul-02	6,735	10,558	66.7	45.0	85.4
01-Oct-02	7,117	11,020	65.3	44.4	83.3
01-Jan-03	7,680	11,615	66.7	50.0	84.0
01-Apr-03	8,307	12,268	68.0	51.0	83.6
01-Jul-03	9,387	13,198	73.2	58.3	85.7
01-Oct-03	10,891	14,163	80.0	64.3	90.9
01-Jan-04	12,842	15,244	87.2	75.0	95.2
01-Apr-04	13,693	15,765	89.5	80.0	96.4
01-Jul-04	14,534	16,280	91.5	84.4	96.3
01-Oct-04	14,838	16,433	92.7	85.7	97.3

Table 5 Trends in practice median % of CHD patients who have had BP check in the last 15 months (CHD indicator 5)

Start of quarter	Total coronary heart disease patients with blood pressure check in last 15 months	Total coronary heart disease patients eligible for blood pressure check	Practice median % of coronary heart disease patients who have had BP check in the last 15 months	25th	75th
01-Jan-02	101,817	121,041	87.5	78.6	93.1
01-Apr-02	104,375	122,427	88.6	80.0	93.5
01-Jul-02	106,586	123,285	89.3	81.8	93.6
01-Oct-02	108,396	123,806	90.1	82.6	94.2
01-Jan-03	110,880	124,747	90.8	85.1	94.3
01-Apr-03	112,365	125,240	91.6	86.2	94.7
01-Jul-03	113,574	125,796	91.6	87.0	95.3
01-Oct-03	114,923	125,913	92.9	88.2	96.0
01-Jan-04	116,898	126,056	94.0	90.3	96.6
01-Apr-04	117,860	125,996	94.5	91.4	96.8
01-Jul-04	118,612	125,793	95.2	92.5	97.0
01-Oct-04	118,544	125,328	95.8	93.3	97.3

Table 6 Trends in practice median % of CHD patients who have BP <=159/90 mmhg

(CHD indicator 6)

Start of quarter	Total coronary heart disease patients with BP 150/90 or less	Total eligible for BP value checks	Practice median % of coronary heart disease patients who have BP <=159/90 mmhg	25th	75th
01-Jan-02	73,628	117,421	64.0	55.8	71.8
01-Apr-02	76,875	118,621	65.9	58.8	73.1
01-Jul-02	80,299	119,818	67.8	60.5	74.9
01-Oct-02	80,945	120,590	67.4	60.8	74.6
01-Jan-03	82,266	121,526	68.0	61.2	75.1
01-Apr-03	85,280	122,288	70.1	63.3	76.8
01-Jul-03	88,093	123,127	72.1	65.6	79.0
01-Oct-03	88,881	123,441	72.8	66.4	79.2
01-Jan-04	91,128	123,557	74.2	68.2	80.5
01-Apr-04	94,515	123,728	77.0	71.3	82.9
01-Jul-04	97,542	123,741	79.7	74.0	84.7
01-Oct-04	98,121	123,342	81.0	75.6	85.0

Table 7 Trends in practice median % of CHD patients who have cholesterol recorded in last 15 months (CHD indicator 7)

Start of quarter	Total coronary heart disease patients with cholesterol recorded in last 15 months	Total eligible for cholesterol checks	Practice median % of coronary heart disease patients who have cholesterol recorded in last 15 monthhs	25th	75th
01-Jan-02	71,390	119,536	61.8	51.5	70.8
01-Apr-02	74,758	121,078	63.0	54.3	72.6
01-Jul-02	77,642	122,052	65.6	56.8	73.8
01-Oct-02	80,497	122,553	66.7	58.7	75.9
01-Jan-03	84,357	123,405	68.8	61.1	78.1
01-Apr-03	86,879	124,175	71.1	62.0	80.2
01-Jul-03	89,204	124,725	73.0	64.9	81.3
01-Oct-03	91,981	124,781	75.1	67.2	83.2
01-Jan-04	97,312	125,022	79.4	71.8	86.3
01-Apr-04	100,313	125,175	81.8	75.0	87.2
01-Jul-04	102,234	124,950	83.3	77.2	88.6
01-Oct-04	100,529	124,559	82.3	75.6	88.2

Table 8 Trends in practice median % of CHD patients who have cholesterol <= 5 mmol/l

(CHD indicator 8)

Start of quarter	Total coronary heart disease patients with cholesterol <=5 mmol/l	Total eligible for cholesterol checks	Practice median % of coronary heart disease patients who have cholesterol <= 5mmol/l	25th	75th
01-Jan-02	40,971	113,336	36.6	28.9	44.9
01-Apr-02	44,177	114,176	39.7	31.4	46.7
01-Jul-02	47,494	115,250	41.4	34.0	48.9
01-Oct-02	50,360	116,309	43.3	36.0	51.2
01-Jan-03	53,653	117,004	46.1	38.1	54.4
01-Apr-03	56,914	117,650	47.6	40.3	57.5
01-Jul-03	59,941	118,555	51.0	42.4	59.6
01-Oct-03	62,445	118,894	53.0	44.5	61.9
01-Jan-04	66,550	118,575	57.1	49.1	64.9
01-Apr-04	70,264	118,492	60.2	52.4	67.2
01-Jul-04	73,205	118,132	63.3	55.0	70.0
01-Oct-04	72,547	117,464	62.6	55.0	69.8

Table 9 Trends in practice median % of CHD patients with aspirin or equivalent antiplatelet (CHD indicator 9)

Start of quarter	Total coronary heart disease patients currently on aspirin or equivalent	Total eligible for aspirin or equivalent	Practice median % of coronary heart disease patients currently on aspirin or equivalent	25th	75th
01-Jan-02	91,467	120,354	78.5	72.1	84.2
01-Apr-02	93,201	121,822	78.7	73.5	84.6
01-Jul-02	94,753	122,646	79.9	74.4	85.5
01-Oct-02	95,880	123,222	80.4	75.1	86.1
01-Jan-03	97,226	123,966	81.3	76.0	86.5
01-Apr-03	98,278	124,694	82.0	76.4	87.1
01-Jul-03	99,298	125,201	82.9	77.3	88.0
01-Oct-03	100,138	125,315	83.6	78.5	88.5
01-Jan-04	101,056	125,374	84.5	79.5	89.5
01-Apr-04	101,617	125,200	85.1	80.5	89.8
01-Jul-04	102,130	124,654	86.3	81.7	90.7
01-Oct-04	102,182	124,072	86.7	82.5	90.9

Table 10 Trends in practice median % of CHD patients currently treated with a beta blocker

(CHD indicator 10)

Start of quarter	Total coronary heart disease patients currently treated with a beta blocker	Total eligible for cholesterol checks	Practice median % of coronary heart disease patients currently treated with a beta blocker	25th	75th
01-Jan-02	50,577	116,148	43.1	38.6	48.0
01-Apr-02	51,982	117,007	44.0	39.2	48.4
01-Jul-02	53,118	117,967	44.5	39.5	48.9
01-Oct-02	54,128	118,859	44.8	39.9	49.7
01-Jan-03	55,274	119,374	45.6	41.0	50.2
01-Apr-03	56,133	119,722	46.5	41.5	50.8
01-Jul-03	57,038	120,041	47.1	42.2	51.2
01-Oct-03	57,948	119,981	47.9	43.1	51.9
01-Jan-04	58,933	119,074	48.9	43.9	53.6
01-Apr-04	59,579	117,952	50.0	45.0	55.2
01-Jul-04	59,822	116,418	50.9	45.9	56.1
01-Oct-04	59,310	115,360	52.1	46.8	57.4

Table 11 Trends in practice median % of new MI patients currently on an ACE inhibitor

(CHD indicator 11)

Start of quarter	Total of new MI patients currently on an ACE inhibitor	Total MI patients eligible for ACE	Practice median % of new MI patients currently on an ACE inhibitor	25th	75th
01-Jan-02	0	0	0.0	0.0	0.0
01-Apr-02	0	0	0.0	0.0	0.0
01-Jul-02	0	0	0.0	0.0	0.0
01-Oct-02	0	0	0.0	0.0	0.0
01-Jan-03	0	0	0.0	0.0	0.0
01-Apr-03	913	913	100.0	100.0	100.0
01-Jul-03	1,862	2,186	92.9	75.0	100.0
01-Oct-03	2,796	3,382	86.7	75.0	100.0
01-Jan-04	3,808	4,595	85.7	75.0	100.0
01-Apr-04	4,664	5,726	84.6	75.0	93.8
01-Jul-04	5,379	6,666	85.7	75.0	93.8
01-Oct-04	5,936	7,504	85.7	75.0	92.9

Table 12 Trends in practice median % of CHD patients with a flu vaccine in the preceding Sept-March (CHD indicator 12)

Start of quarter	Total coronary heart disease patients with current flu vaccination	Total eligible for flu vaccination	Practice median % of coronary heart disease patients with a flu vaccine in the preceding Sept-March	25th	75th
01-Jan-02	82,618	107,234	78.3	71.5	84.1
01-Apr-02	82,323	108,481	77.1	70.5	83.3
01-Jul-02	6,052	33,241	4.7	0.0	23.4
01-Oct-02	86,044	107,928	81.5	75.0	86.9
01-Jan-03	86,395	109,461	80.7	74.6	86.0
01-Apr-03	85,722	110,167	79.6	72.9	85.0
01-Jul-03	9,176	34,159	14.3	0.0	39.3
01-Oct-03	91,810	109,445	85.4	79.9	90.3
01-Jan-04	91,642	109,712	85.0	79.5	89.6
01-Apr-04	90,871	109,963	84.4	78.5	88.8
01-Jul-04	11,931	30,613	20.4	0.0	56.1
01-Oct-04	84,752	96,630	90.0	84.4	93.6

Table 13: Trends in practice median % of all CHD patients with a coronary heart disease exception code

Start of quarter	Total coronary heart disease patients with CHD exception code	All patients with CHD	Practice median % of all coronary heart disease patients with a CHD exception code	25th	75th
01-Jan-02	208	122,019	0.0	0.0	0.0
01-Apr-02	210	123,088	0.0	0.0	0.0
01-Jul-02	209	123,893	0.0	0.0	0.0
01-Oct-02	203	124,430	0.0	0.0	0.0
01-Jan-03	225	125,422	0.0	0.0	0.0
01-Apr-03	227	125,752	0.0	0.0	0.0
01-Jul-03	235	126,264	0.0	0.0	0.0
01-Oct-03	233	126,344	0.0	0.0	0.0
01-Jan-04	239	126,393	0.0	0.0	0.0
01-Apr-04	237	126,270	0.0	0.0	0.0
01-Jul-04	239	126,044	0.0	0.0	0.0
01-Oct-04	231	125,496	0.0	0.0	0.0

Table 14: Trends in practice median % of CHD patients with exception from cholesterol testing (expiring)

Start of quarter	Total coronary heart disease patients with exception from cholesterol testing (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients exception from cholesterol testing (expiring)	25th	75th
01-Jan-02	566	122,019	0.0	0.0	0.0
01-Apr-02	1,031	123,088	0.0	0.0	0.0
01-Jul-02	1,232	123,893	0.0	0.0	0.0
01-Oct-02	1,496	124,430	0.0	0.0	0.0
01-Jan-03	2,102	125,422	0.0	0.0	0.0
01-Apr-03	2,644	125,752	0.0	0.0	0.0
01-Jul-03	3,153	126,264	0.4	0.0	0.0
01-Oct-03	3,704	126,344	0.7	0.0	0.0
01-Jan-04	5,183	126,393	1.9	0.4	0.4
01-Apr-04	6,540	126,270	3.3	1.1	1.1
01-Jul-04	7,972	126,044	4.6	1.5	1.5
01-Oct-04	9,122	125,496	5.5	2.1	2.1

Table 15: Trends in practice median % of CHD patients exception from cholesterol testing (persistent)

Start of quarter	Total coronary heart disease patients with exception from cholesterol testing (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients exception from cholesterol testing (persistent)	25th	75th
01-Jan-02	84	122,019	0.0	0.0	0.0
01-Apr-02	95	123,088	0.0	0.0	0.0
01-Jul-02	106	123,893	0.0	0.0	0.0
01-Oct-02	132	124,430	0.0	0.0	0.0
01-Jan-03	157	125,422	0.0	0.0	0.0
01-Apr-03	199	125,752	0.0	0.0	0.0
01-Jul-03	277	126,264	0.0	0.0	0.0
01-Oct-03	341	126,344	0.0	0.0	0.0
01-Jan-04	431	126,393	0.0	0.0	0.0
01-Apr-04	532	126,270	0.0	0.0	0.0
01-Jul-04	610	126,044	0.0	0.0	0.0
01-Oct-04	730	125,496	0.0	0.0	0.0

Table 16: Trends in median practice % of CHD patients with warfarin contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with warfarin contraindicators (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with warfarin contraindicators (persistent)	25th	75th
01-Jan-02	50	122,019	0.0	0.0	0.0
01-Apr-02	53	123,088	0.0	0.0	0.0
01-Jul-02	54	123,893	0.0	0.0	0.0
01-Oct-02	57	124,430	0.0	0.0	0.0
01-Jan-03	58	125,422	0.0	0.0	0.0
01-Apr-03	57	125,752	0.0	0.0	0.0
01-Jul-03	67	126,264	0.0	0.0	0.0
01-Oct-03	89	126,344	0.0	0.0	0.0
01-Jan-04	149	126,393	0.0	0.0	0.0
01-Apr-04	213	126,270	0.0	0.0	0.0
01-Jul-04	283	126,044	0.0	0.0	0.0
01-Oct-04	345	125,496	0.0	0.0	0.0

Table 17: Trends in median practice % CHD patients with warfarin contraindicators (expiring)

Start of quarter	Total coronary heart disease patients with with warfarin contraindicators (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with warfarin contraindicators (expiring)	25th	75th
01-Jan-02	190	122,019	0.0	0.0	0.0
01-Apr-02	262	123,088	0.0	0.0	0.0
01-Jul-02	361	123,893	0.0	0.0	0.0
01-Oct-02	519	124,430	0.0	0.0	0.0
01-Jan-03	761	125,422	0.0	0.0	0.0
01-Apr-03	976	125,752	0.0	0.0	0.0
01-Jul-03	1,236	126,264	0.0	0.0	0.0
01-Oct-03	1,568	126,344	0.0	0.0	0.0
01-Jan-04	3,121	126,393	0.6	0.0	0.0
01-Apr-04	5,594	126,270	1.3	0.0	0.0
01-Jul-04	8,270	126,044	1.9	0.5	0.5
01-Oct-04	10,483	125,496	2.7	0.7	0.7

Table 18: Trends in median practice % CHD patients with salicylate contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with salicylate contraindicators (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with salicylate contraindicators (persistent)	25th	75th
01-Jan-02	390	122,019	0.0	0.0	0.0
01-Apr-02	427	123,088	0.0	0.0	0.0
01-Jul-02	436	123,893	0.0	0.0	0.0
01-Oct-02	454	124,430	0.0	0.0	0.0
01-Jan-03	480	125,422	0.0	0.0	0.0
01-Apr-03	514	125,752	0.0	0.0	0.0
01-Jul-03	558	126,264	0.0	0.0	0.0
01-Oct-03	611	126,344	0.0	0.0	0.0
01-Jan-04	708	126,393	0.0	0.0	0.0
01-Apr-04	791	126,270	0.0	0.0	0.0
01-Jul-04	888	126,044	0.0	0.0	0.0
01-Oct-04	964	125,496	0.2	0.0	0.0

Table 19: Trends in median practice % CHD patients with salicylate contraindicators (expiring)

Start of quarter	Total coronary heart disease patients with salicylate contraindicators (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with salicylate contraindicators (expiring)	25th	75th
01-Jan-02	6,050	122,019	2.3	0.0	0.0
01-Apr-02	6,842	123,088	3.0	0.3	0.3
01-Jul-02	7,554	123,893	3.7	0.8	0.8
01-Oct-02	8,280	124,430	4.3	1.0	1.0
01-Jan-03	9,166	125,422	5.2	1.3	1.3
01-Apr-03	10,028	125,752	5.8	1.8	1.8
01-Jul-03	10,831	126,264	6.6	2.3	2.3
01-Oct-03	11,674	126,344	7.4	3.1	3.1
01-Jan-04	13,052	126,393	9.1	4.2	4.2
01-Apr-04	14,213	126,270	9.8	5.4	5.4
01-Jul-04	15,428	126,044	11.2	6.8	6.8
01-Oct-04	16,442	125,496	12.2	7.4	7.4

Table 20: Trends in median practice % CHD patients with clopidogrel contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with clopidogrel contraindicators (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with clopidogrel contraindicators (persistent)	25th	75th
01-Jan-02	1	122,019	0.0	0.0	0.0
01-Apr-02	1	123,088	0.0	0.0	0.0
01-Jul-02	1	123,893	0.0	0.0	0.0
01-Oct-02	1	124,430	0.0	0.0	0.0
01-Jan-03	2	125,422	0.0	0.0	0.0
01-Apr-03	2	125,752	0.0	0.0	0.0
01-Jul-03	2	126,264	0.0	0.0	0.0
01-Oct-03	2	126,344	0.0	0.0	0.0
01-Jan-04	11	126,393	0.0	0.0	0.0
01-Apr-04	36	126,270	0.0	0.0	0.0
01-Jul-04	52	126,044	0.0	0.0	0.0
01-Oct-04	72	125,496	0.0	0.0	0.0

Table 21: Trends in median practice % CHD patients with clopidogrel contraindicators (expiring)

Start of quarter	Total coronary heart disease patients with clopidogrel contraindicators (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with clopidogrel contraindicators (expiring)	25th	75th
01-Jan-02	7	122,019	0.0	0.0	0.0
01-Apr-02	8	123,088	0.0	0.0	0.0
01-Jul-02	8	123,893	0.0	0.0	0.0
01-Oct-02	8	124,430	0.0	0.0	0.0
01-Jan-03	9	125,422	0.0	0.0	0.0
01-Apr-03	12	125,752	0.0	0.0	0.0
01-Jul-03	14	126,264	0.0	0.0	0.0
01-Oct-03	52	126,344	0.0	0.0	0.0
01-Jan-04	1,159	126,393	0.0	0.0	0.0
01-Apr-04	3,174	126,270	0.0	0.0	0.0
01-Jul-04	5,550	126,044	0.0	0.0	0.0
01-Oct-04	7,570	125,496	0.0	0.0	0.0

Table 22: Trends in median practice % CHD patients with beta blockers contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with with beta blockers contraindicators (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with beta blockers contraindicators (persistent)	25th	75th
01-Jan-02	768	122,019	0.0	0.0	0.0
01-Apr-02	855	123,088	0.0	0.0	0.0
01-Jul-02	889	123,893	0.0	0.0	0.0
01-Oct-02	956	124,430	0.0	0.0	0.0
01-Jan-03	1,002	125,422	0.0	0.0	0.0
01-Apr-03	1,044	125,752	0.0	0.0	0.0
01-Jul-03	1,085	126,264	0.0	0.0	0.0
01-Oct-03	1,170	126,344	0.0	0.0	0.0
01-Jan-04	1,650	126,393	0.3	0.0	0.0
01-Apr-04	2,086	126,270	0.5	0.0	0.0
01-Jul-04	2,576	126,044	0.8	0.0	0.0
01-Oct-04	2,855	125,496	0.9	0.0	0.0

Table 23: Trends in median practice % CHD patients with beta blockers contraindicators (expiring)

Start of quarter	Total coronary heart disease patients with beta blockers contraindicators (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with beta blockers contraindicators (expiring)	25th	75th
01-Jan-02	459	122,019	0.0	0.0	0.0
01-Apr-02	565	123,088	0.0	0.0	0.0
01-Jul-02	651	123,893	0.0	0.0	0.0
01-Oct-02	818	124,430	0.0	0.0	0.0
01-Jan-03	1,090	125,422	0.0	0.0	0.0
01-Apr-03	1,407	125,752	0.0	0.0	0.0
01-Jul-03	1,953	126,264	0.0	0.0	0.0
01-Oct-03	2,568	126,344	0.0	0.0	0.0
01-Jan-04	3,678	126,393	0.5	0.0	0.0
01-Apr-04	5,096	126,270	1.1	0.0	0.0
01-Jul-04	6,763	126,044	2.3	0.4	0.4
01-Oct-04	8,134	125,496	3.2	0.8	0.8

Table 24: Trends in median practice % CHD patients with ACE contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with ACE contraindications (persistent)	All patients with MI	Practice median % of all coronary heart disease patients with ACE contraindications (persistent)	25th	75th
01-Jan-02	16	122,019	0.0	0.0	0.0
01-Apr-02	18	123,088	0.0	0.0	0.0
01-Jul-02	21	123,893	0.0	0.0	0.0
01-Oct-02	27	124,430	0.0	0.0	0.0
01-Jan-03	38	125,422	0.0	0.0	0.0
01-Apr-03	46	125,752	0.0	0.0	0.0
01-Jul-03	52	126,264	0.0	0.0	0.0
01-Oct-03	73	126,344	0.0	0.0	0.0
01-Jan-04	193	126,393	0.0	0.0	0.0
01-Apr-04	295	126,270	0.0	0.0	0.0
01-Jul-04	403	126,044	0.0	0.0	0.0
01-Oct-04	463	125,496	0.0	0.0	0.0

Table 25: Trends in practice median % of CHD patients with ACE contraindications (expiring)

Start of quarter	Total coronary heart disease patients with ACE contraindications (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with ACE contraindications (expiring)	25th	75th
01-Jan-02	244	122,019	0.0	0.0	0.0
01-Apr-02	347	123,088	0.0	0.0	0.0
01-Jul-02	462	123,893	0.0	0.0	0.0
01-Oct-02	692	124,430	0.0	0.0	0.0
01-Jan-03	1,059	125,422	0.0	0.0	0.0
01-Apr-03	1,397	125,752	0.0	0.0	0.0
01-Jul-03	1,889	126,264	0.0	0.0	0.0
01-Oct-03	2,570	126,344	0.3	0.0	0.0
01-Jan-04	4,023	126,393	1.2	0.2	0.2
01-Apr-04	5,793	126,270	2.1	0.6	0.6
01-Jul-04	7,482	126,044	2.8	1.1	1.1
01-Oct-04	8,998	125,496	3.7	1.5	1.5

Table 26: Trends in median practice % CHD patients with A2 antagonist contraindicators (persistent)

Start of quarter	Total coronary heart disease patients with with A2 antagonist contraindicators (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with A2 antagonist contraindicators (persistent)	25th	75th
01-Jan-02	0	122,019	0.0	0.0	0.0
01-Apr-02	0	123,088	0.0	0.0	0.0
01-Jul-02	0	123,893	0.0	0.0	0.0
01-Oct-02	0	124,430	0.0	0.0	0.0
01-Jan-03	0	125,422	0.0	0.0	0.0
01-Apr-03	1	125,752	0.0	0.0	0.0
01-Jul-03	3	126,264	0.0	0.0	0.0
01-Oct-03	7	126,344	0.0	0.0	0.0
01-Jan-04	64	126,393	0.0	0.0	0.0
01-Apr-04	109	126,270	0.0	0.0	0.0
01-Jul-04	155	126,044	0.0	0.0	0.0
01-Oct-04	200	125,496	0.0	0.0	0.0

Table 27: Trends in practice median % of CHD patients with A2 antagonist contraindicators (expiring)

Start of quarter	Total coronary heart disease patients with with A2 antagonist contraindicators (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with A2 antagonist contraindicators (expiring)	25th	75th
01-Jan-02	6	122,019	0.0	0.0	0.0
01-Apr-02	7	123,088	0.0	0.0	0.0
01-Jul-02	9	123,893	0.0	0.0	0.0
01-Oct-02	10	124,430	0.0	0.0	0.0
01-Jan-03	13	125,422	0.0	0.0	0.0
01-Apr-03	16	125,752	0.0	0.0	0.0
01-Jul-03	34	126,264	0.0	0.0	0.0
01-Oct-03	77	126,344	0.0	0.0	0.0
01-Jan-04	960	126,393	0.0	0.0	0.0
01-Apr-04	2,533	126,270	0.2	0.0	0.0
01-Jul-04	4,242	126,044	0.6	0.0	0.0
01-Oct-04	5,794	125,496	0.9	0.0	0.0

Table 28: Trends in median practice % CHD with exercise test decline code

Start of quarter	Total coronary heart disease patients with exercise test decline code	All patients with CHD	Practice median % of all coronary heart disease patients with exercise test decline code	25th	75th
01-Jan-02	1	122,019	0.0	0.0	0.0
01-Apr-02	1	123,088	0.0	0.0	0.0
01-Jul-02	1	123,893	0.0	0.0	0.0
01-Oct-02	1	124,430	0.0	0.0	0.0
01-Jan-03	1	125,422	0.0	0.0	0.0
01-Apr-03	1	125,752	0.0	0.0	0.0
01-Jul-03	1	126,264	0.0	0.0	0.0
01-Oct-03	1	126,344	0.0	0.0	0.0
01-Jan-04	3	126,393	0.0	0.0	0.0
01-Apr-04	7	126,270	0.0	0.0	0.0
01-Jul-04	22	126,044	0.0	0.0	0.0
01-Oct-04	31	125,496	0.0	0.0	0.0

Table 29: Trends in median practice % CHD patients with flu vaccination contraindications (persistent)

Start of quarter	Total coronary heart disease patients with flu vaccination contraindications (persistent)	All patients with CHD	Practice median % of all coronary heart disease patients with flu vaccination contraindications (persistent)	25th	75th
01-Jan-02	7	122,019	0.0	0.0	0.0
01-Apr-02	8	123,088	0.0	0.0	0.0
01-Jul-02	9	123,893	0.0	0.0	0.0
01-Oct-02	8	124,430	0.0	0.0	0.0
01-Jan-03	9	125,422	0.0	0.0	0.0
01-Apr-03	9	125,752	0.0	0.0	0.0
01-Jul-03	10	126,264	0.0	0.0	0.0
01-Oct-03	18	126,344	0.0	0.0	0.0
01-Jan-04	21	126,393	0.0	0.0	0.0
01-Apr-04	30	126,270	0.0	0.0	0.0
01-Jul-04	48	126,044	0.0	0.0	0.0
01-Oct-04	74	125,496	0.0	0.0	0.0

Table 30: Trends in median practice % CHD patients with flu vaccination contraindications (expiring)

Start of quarter	Total coronary heart disease patients with flu vaccination contraindications (expiring)	All patients with CHD	Practice median % of all coronary heart disease patients with flu vaccination contraindications (expiring)	25th	75th
01-Jan-02	3,027	122,019	0.0	0.0	0.0
01-Apr-02	3,030	123,088	0.0	0.0	0.0
01-Jul-02	3,125	123,893	0.0	0.0	0.0
01-Oct-02	4,235	124,430	1.0	0.0	0.0
01-Jan-03	4,376	125,422	1.2	0.0	0.0
01-Apr-03	4,366	125,752	1.1	0.0	0.0
01-Jul-03	4,592	126,264	1.6	0.0	0.0
01-Oct-03	7,187	126,344	4.6	0.9	0.9
01-Jan-04	7,913	126,393	5.1	1.3	1.3
01-Apr-04	8,153	126,270	5.2	1.7	1.7
01-Jul-04	8,937	126,044	5.8	2.9	2.9
01-Oct-04	12,547	125,496	9.2	5.7	5.7

Table 31: Trends in median practice % CHD patients with BP recording exception codes in 15/12

Start of quarter	Total coronary heart disease patients with BP recording exception codes in 15/12	All patients with CHD	Practice median % of all coronary heart disease patients with BP recording exception codes in 15/12	25th	75th
01-Jan-02	0	122,019	0.0	0.0	0.0
01-Apr-02	0	123,088	0.0	0.0	0.0
01-Jul-02	0	123,893	0.0	0.0	0.0
01-Oct-02	0	124,430	0.0	0.0	0.0
01-Jan-03	0	125,422	0.0	0.0	0.0
01-Apr-03	0	125,752	0.0	0.0	0.0
01-Jul-03	0	126,264	0.0	0.0	0.0
01-Oct-03	0	126,344	0.0	0.0	0.0
01-Jan-04	0	126,393	0.0	0.0	0.0
01-Apr-04	0	126,270	0.0	0.0	0.0
01-Jul-04	0	126,044	0.0	0.0	0.0
01-Oct-04	1	125,496	0.0	0.0	0.0

Table 32: Trends in median practice % CHD patients with maximal antihypertensive therapy

Start of quarter	Total coronary heart disease patients with maximal antihypertensive therapy	All patients with CHD	Practice median % of all coronary heart disease patients with maximal antihypertensive therapy	25th	75th
01-Jan-02	1	122,019	0.0	0.0	0.0
01-Apr-02	1	123,088	0.0	0.0	0.0
01-Jul-02	2	123,893	0.0	0.0	0.0
01-Oct-02	2	124,430	0.0	0.0	0.0
01-Jan-03	4	125,422	0.0	0.0	0.0
01-Apr-03	6	125,752	0.0	0.0	0.0
01-Jul-03	13	126,264	0.0	0.0	0.0
01-Oct-03	48	126,344	0.0	0.0	0.0
01-Jan-04	396	126,393	0.0	0.0	0.0
01-Apr-04	863	126,270	0.0	0.0	0.0
01-Jul-04	1,215	126,044	0.3	0.0	0.0
01-Oct-04	1,551	125,496	0.5	0.0	0.0