



# **A Report on Basic Prescribing Rates in Older People Using QRESEARCH**

*An analysis using QRESEARCH  
for the Department of Health*

Authors:	
Professor Julia Hippisley-Cox	Professor of Clinical Epidemiology and General Practice
Professor Mike Pringle	Professor of General Practice
Ronan Ryan	Research Fellow/Program
Institution	University of Nottingham
Report reference number	DH 8
Report version number	2.0
Final submission date	June 2004
QRESEARCH Database version	QRESEARCH Pilot (43 practices)
Funding body	Department of Health
Web link	<a href="http://www.qresearch.org">http://www.qresearch.org</a>
Acknowledgments	QRESEARCH is a not-for-profit partnership between the University of Nottingham and EMIS. We acknowledge the contribution of EMIS and to the practices which contribute data
Copyright	© QRESEARCH 2007, all rights reserved
Terms of usage	These reports can be used for personal education, research, health service planning and private study. Materials should not be further copied, photocopied or reproduced, or distributed in electronic form. Any material which is referenced should refer to QRESEARCH and the database version. Any use or distribution for commercial purposes is expressly forbidden and may constitute an infringement of the University's copyright and may lead to legal action.

# 1. TABLE OF CONTENTS

<b>1. TABLE OF CONTENTS.....</b>	<b>2</b>
<b>2. EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>3. SPECIFICATION.....</b>	<b>3</b>
<b>4. OBJECTIVES .....</b>	<b>4</b>
<b>5. METHOD .....</b>	<b>5</b>
1.1 Numerators for rates .....	5
1.2 Denominators for rates.....	5
1.3 Inclusion criteria for practices .....	5
1.4 Confidence intervals.....	5
<b>6. COMPARATIVE DATA.....</b>	<b>6</b>
<b>7. RESULTS .....</b>	<b>6</b>
<b>8. DISCUSSION .....</b>	<b>10</b>

## 2. EXECUTIVE SUMMARY

This report is the first element in a group of analyses concerning prescribing in older people (aged 60 years and over). It demonstrates three key findings:

- The QRESEARCH database is consistent with comparative data and with expected trends and findings. This reinforces our growing confidence in the accuracy and completeness of the data in QRESEARCH.
- Older people average, overall, nearly 3 prescriptions a month and the 85 to 89 year group average over 4 prescriptions a month.
- There is a trend for increased prescribing with a 39% increase over the six years from 1998 to end of 2002.

## 3. SPECIFICATION

In this section we provide the full text of the specification for the elderly prescribing topic. This report however, concentrates on the first section – basic prescribing rates in elderly people.

### GENERAL SPECIFICATION FOR ELDERLY PRESCRIBING

“We would like to have a broad picture of medicine use by older people, in a report accompanied by some more detailed background tables. Below we have set out the main questions and the issues that need to be considered.

For each aspect of prescribing we look at below, we would ideally like to see in the report, where appropriate:

1. rates per patient treated by age,
2. rates per population by age,
3. some measure of variation between practices,
4. an indication of how the aspect has changed over time,
5. some analysis of how sensitive the aspect is to the parameters of the question, and
6. a discussion of any issues raised.

Explicit versions of the detailed background tables are given in the Excel workbook ‘*Q-Research older people tables.xls*’; these contain the core information that we would hope to see. Please do not feel constrained by the form of these tables, if they seem inappropriate given the data. For example in the tables we have assumed that the most

recent data available is for 2003 but this might not be true. In addition, if you feel that further background tables would be useful, we would be glad to see them.

In this report we are only looking at prescribing for those people aged 60 and over. At a later stage we are likely to want to compare prescribing for older people with that for the population as a whole. As a validation of Q-Research, we have agreed 'looking at the number of prescriptions per 1000 population by SHA' and the latter data should be available from the fully scoped validation of this. We do need to think about this scoping further.

When looking at rates, the ideal denominator would seem to be patient years at risk. This will presumably be a function of registration and leaving dates for patients. We would welcome your views on how we could best do this, given that patients may go away to hospital for an extended time, for example. How much of a problem might this be?

A useful reference in this area is the National Service Framework (NSF) for Older People, which looks at a variety of themes, many of them relating to medicines management, as explained in the 'Medicines and Older People' booklet (at <http://www.doh.gov.uk/nsf/pdfs/medicinesbooklet.pdf>).

## **SPECIFICATION FOR THIS REPORT**

“We would like to find out how the basic prescribing rate varies by age, in a table giving the prescribing rates per patient year at risk and by treated patient year at risk, for 2003, by 5 year age bands (see Table 1a).”

## **4. OBJECTIVES**

**Objective 1** To determine the prescribing rates per 1,000 patient years, by age

**Objective 2** To determine the prescribing rates per 1,000 treated patient years, by age

**Objective 3** To measure variation between practices

**Objective 4** To determine trends in prescribing rates over time

## **5. METHOD**

### **1.1 Numerators for rates**

The numerator for prescribing rates are the number of prescription items issued in the analysis year. In QRESEARCH, each item prescribed is listed separately in the medication table contained within the database. The medication table contains the ID of the individual preparation, the number of tablets, the identifier of the clinician and the issue date. If a prescription contained 5mg and 10mg tablets of a particular drug, this is regarded as two prescription items for this analysis. We have included both private and NHS prescriptions.

### **1.2 Denominators for rates**

We have calculated two different rates for each item based on two different denominators.

(a) Patient years at risk for registered population.

This is the sum of the number of days each patient was registered with a QRESEARCH practice, divided by the number of days (365.25) in the year.

(b) Treated patient years at risk for registered population.

This is the same as patient years at risk, but includes only those patients who received one or more prescription items in the year.

### **1.3 Inclusion criteria for practices**

We only included practices in this analysis if EMIS had been installed for the whole of the year in question.

### **1.4 Confidence intervals**

We calculated confidence intervals using STATA (version 8.2) and based on poisson distribution.

## 6. COMPARATIVE DATA

PACT data for items prescribed in general practice in England and dispensed in the community in 2002, from the Prescription Pricing Authority. This was supplied on 19 April 2004. A copy of the data provided is included in the accompanying Excel workbook “DoH Report 8 tables.xls”

## 7. RESULTS

The full tables can be found in the accompanying Excel workbook ‘Report 8 tables.xls’.

The results in this report concentrate on prescriptions issued to patients aged 60 and over during 2002. However, as a basic validation we have compared the total number of items dispensed in England from PACT for 2002 with an estimate using QRESEARCH prescribing rates for patients of all ages.

There were 607,814,128 items prescribed in general practice in England and dispensed in the community in 2002 (PACT).

On the QRESEARCH pilot database of 43 practices, there were 3,208,993 prescription items and 260,530 patient years at risk (for patients of all ages). The QRESEARCH projection would give 610,461,249 items (95% CI 609,793,519 to 611,129,705) for patients of all ages. This is comparable to PACT although as expected, it is slightly higher due to uncashed prescriptions.

Table 1A shows the prescribing rate per 1000 patient-years and the prescribing rate for treated patients at risk by five year age band for patients aged 60 and over during 2002

Overall on the pilot version of the QRESEARCH database there were 1,892,827 prescription items issued to patients aged 60 or over giving a prescribing rate of 33,901 items per 1000 patient years (95% CI 33,853 to 33,949).

When patients who had at least one prescription item during 2002 were included in the analysis as the denominator, (ie treated patients) the rate was higher at 38,441 per 1000 treated patient years (95% CI 38,387 to 38,496).

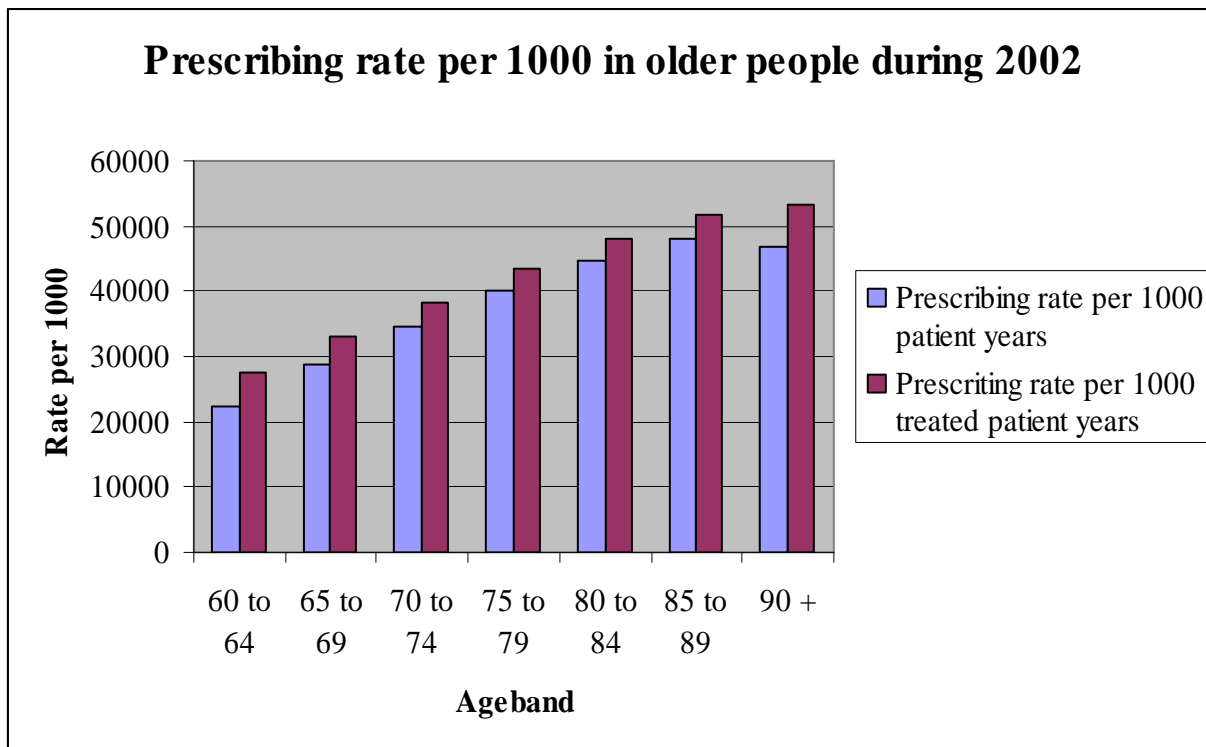
As expected the both prescribing rates increase with each five year age band. The prescribing rate per 1000 patient years in patients age 85 to 89 was more than twice as high as the rate in patients aged 60 to 64. This is shown graphically in chart 1

**Table 1a: prescribing rate for older people per 1000 patient-years and per 1000 patient years for treated patients by age in 2002**

	60-64	65 -69	70-74	75-79	80-84	85-89	90 +	60+	LCL	UCL
Prescription items per 1000 patient-years	22,350	28,866	34,583	40,038	44,714	48,063	46,705	33,901	33,853	33,949
Prescription items per 1000 treated patient-years	27,611	32,975	38,323	43,529	48,107	51,742	53,357	38,441	38,387	38,496
Patient years	13,016	11,551	10,301	8,743	6,768	3,522	1,933	55,834		
Treated patient years	10,536	10,112	9,296	8,042	6,291	3,272	1,692	49,239		
Prescription items	290,898	333,431	356,255	350,052	302,631	169,277	90,283	1,892,827		

Source: QRESEARCH pilot database, downloaded 23<sup>rd</sup> October 2003

Chart one: Prescribing rate per 1000 for older people during 2002 in the QRESEARCH pilot database





The next table (Table 1b) shows inter-practice variation in prescribing per 1000 patient-years and how this has changed over the past 6 years. The median prescribing rate in 1998 was 24,158 (95% CI 22,252 to 28,718) rising to 34,569 in 2003 (95% CI 30,751 to 42,121). This is equivalent to a 45% rise in prescribing rates over 6 years.

**Table 1b** Inter-practice variation in prescribing (prescription items) per 1000 patient-years at risk in QRESEARCH pilot practices, people aged 60 and over, by year

Year	Patient years	Number of prescription items	Median practice rate	P25	P75
1998	32,306	799,446	24,158	22,252	28,718
1999	41,769	1,079,599	25,492	22,916	28,878
2000	49,143	1,427,347	27,399	24,688	34,106
2001	49,935	1,591,966	30,201	27,117	36,560
2002	55,835	1,892,827	32,538	29,652	39,702
2003 (part-year*)	44,406	1,598,085	34,569	30,751	42,121

Source: QRESEARCH pilot database

\* Results for 2003 are based on the period 1 January to 30 September only.

The comparable rates for treated patients are shown in table 1c and show a similar rise of approximately 49% over the same period.

**Table 1c** Inter-practice variation in prescribing (prescription items) per 1000 treated patient-years at risk in QRESEARCH pilot practices for people aged 60 and over, by year

Year	Patient years	Number of prescription items	Median practice rate	P25	P75
1998	27,766	799,446	27,754	26,689	32,346
1999	35,670	1,079,599	29,780	27,012	33,112
2000	42,947	1,427,347	32,063	29,299	39,400
2001	43,986	1,591,966	35,157	32,131	40,402
2002	49,239	1,892,827	37,309	33,812	43,580
2003 (part-year*)	38,78	1,598,085	41,206	36,132	47,103

Source: QRESEARCH pilot database

\* Results for 2003 are based on the period 1 January to 30 September only.

## 8. DISCUSSION

The primary purpose of these reports is to validate the QRESEARCH database; the secondary purpose is to offer analyses that are informative.

In terms of validation of the QRESEARCH database, the proximity of the PACT total of community prescriptions and the number extrapolated from these 43 practices is highly reassuring. The small discrepancy is in the direction expected, with some prescriptions not being dispensed. The pattern of increasing prescribing numbers and rate with increasing age band is as expected; as is the 45% increase in prescribing for older people over the six years from 1998.

In terms of information from these analyses, it is clear that a significant percentage (59% of 3,208,993 scripts in 2002) of all scripts are for people aged 60 years or more. Each older person averages 34 prescriptions per year, or just under 3 per month. When those who receive no prescriptions are excluded, the remainder average over 38 prescriptions a year, over 3 per month. The highest cohort for prescriptions is the 85-89 years group, with, on average, over 4 prescriptions per month.

Each year since 1998 the rate for prescribing to this group has increased by between 6 and 10%. The inter-practice variation has remained stable over this time, suggesting that systematic factors (such as deprivation, geography, health needs, practice prescribing culture) are the determinant, rather than changes in data quality.