

# CONTEMPORARY WORKFORCE PATTERNS AND HISTORICAL TRENDS: THE PHARMACY LABOUR MARKET OVER THE PAST 40 YEARS

By Karen Hassell, PhD, Richard Fisher, BSc, MRPharmS, Liza Nicholls, MA, and Phillip Shann, MSc

*The pharmacy labour market and the pharmacy workforce is changing. This article describes some of the key demographic and employment changes as well as current patterns. Three "workforce planning" scenarios are also presented to demonstrate what predictions can be made about workforce supply provided that the correct data are available*

National information on pharmacists' work patterns was last published six years ago.<sup>1</sup> Since then, much has been written about the recruitment and retention problems being experienced in the two main employment markets for practising pharmacists. Concerns about an under supply of pharmacists have heightened because of the ever growing disparity between the number of vacancies being advertised and the availability of pharmacists to fill them.<sup>2-6</sup> The growth in prescription volume and in the over-the-counter market, market expansion in the chain and supermarket industry, and the extended roles, which are taking pharmacists out of traditional employment sectors, have all been identified as contributing to an increase in demand for pharmacists.

Opinion nevertheless remains divided about whether or not a shortage of pharmacists exists.<sup>7,8</sup> Assessments about whether changes in the labour market have occurred can only take place if available employment data are good enough for the purpose, and are analysed longitudinally. The lack of a suitable theoretical framework with which to debate supply and demand for pharmacy labour has also hindered serious debate about whether a workforce crisis exists.

This article sets out to describe what is known about the employment patterns of pharmacists in the current labour market. Contemporary patterns are then compared with previous accounts of pharmacists' employment,<sup>1,9-17</sup> changes are highlighted and suggestions made as to what other data would be required in order to undertake satisfactory workforce planning. In doing this we hope to provide a better understanding of the past and present state of the pharmacy labour market and we identify a basic framework for estimating workforce requirements.

## DATA SOURCES

**The Annual Register of Pharmaceutical Chemists** The Medicines Act of 1968 stipulates that it is the duty of the Registrar of the Royal Pharmaceutical Society to maintain a record of all pharmacists and pharmacy premises. Educational qualification is one criterion for admission to the professional

register, and members of the Society are required to pay an annual fee to retain their names on the register, and thus their entitlement to practise. At present, the Society only has an obligation to keep address information on members, but it nevertheless keeps information such as age, gender and date of registration, and has made regular attempts to collect information on members' employment patterns and practices.

Up to and including 2001 these additional data have been collected when members receive a request for payment of their retention fee. Although members are not obliged to return this employment information, in practice a good response rate is usually achieved (78 per cent for the 2001 exercise). All the data are stored on a database at the Society, and are used for operational or research purposes. Although there have been slight variations over the years, the items of information commonly recorded on the registration database are:

- 1 Age
- 1 Gender
- 1 Registration year
- 1 Date of birth
- 1 University where degree attained
- 1 Year degree attained
- 1 Date of registration
- 1 Ethnic origin
- 1 Name, address and postcode
- 1 Principal occupation (main sector of employment)
- 1 Secondary occupation
- 1 Extent of practice (full time, part time, etc)

Most of the information associated with these fields is unproblematic. However, the definition of full-time or part-time working

is somewhat arbitrary in relation to calculating workforce requirements. Until last year, when information was collected on the number of "sessions" pharmacists worked, "extent of employment" has always been based upon the registration fee pharmacists' pay, since most pay either a full-time fee or a reduced fee if they work less than 13 weeks a year. Other fee payment statuses are common though, so extent of employment is not known for large proportions of those on the register.

Some fields have "missing" data for a number of other reasons. First, registered pharmacists are under no obligation to return the annual form that requests employment details, so data held about people who choose not to return the form may not be reliable. Second, like any survey of this nature, there are always individual questions people choose not to answer. Although "missing data" limit the usefulness of the information derived from certain fields, errors made when entering data can also affect the accuracy of data. It is also worth noting that since data collection of employment information takes place once a year, unless members inform the Society of changes in their employment as and when they occur, depending on when analysis of the data takes place important information could be up to a year out of date even for those who do return the employment questionnaire.

The most recent workforce employment questionnaire accompanied the 2001 retention fee exercise (in January 2001). Anonymised employment data held on the database and associated demographic data about all pharmacists on the register in December 2001 were obtained directly from the Society, and downloaded into SPSS PC. The data for 2001 were analysed separately and then compared with historical data taken from published accounts of pharmacists' employment.

**Previous published accounts of workforce patterns** As mentioned, brief employment surveys, aimed at describing pharmacists' work patterns, have taken place with previous retention fee collection exercises. Periodically, these data have been described and published in *The Pharmaceutical Journal*.<sup>1,9-17</sup>

*Karen Hassell is senior research fellow and Liza Nicholls and Phillip Shann are research assistants at Manchester University School of Pharmacy. Richard Fisher is IT consultant at the Royal Pharmaceutical Society of Great Britain. Correspondence to Dr Hassell at School of Pharmacy and Pharmaceutical Sciences, University of Manchester, Oxford Road, Manchester M13 9PL (e-mail karen.hassell@man.ac.uk)*

The most recent full account of employment data on pharmacists was published in 1996, analysing 1993 and 1994 data.<sup>1</sup> Data from subsequent years have not been published in full since then, and the Society does not keep retrospective records. Therefore no analysis of trends is possible post 1994.

In this article, data from roughly 10-year intervals are examined, using material available in previous issues of *The Pharmaceutical Journal*.<sup>10,14,17</sup> These accounts were based on similar analyses of register data as was applied to the 2001 data. It is worth noting, however, that data are not always directly comparable because some variables in earlier accounts are based on estimates (for non-response) and do not represent actual figures. It is unclear on what basis estimates were made, so no such extrapolations were applied to the 2001 data. Categories within individual variables sometimes differ across different years, so comparisons are only made where variables are the same.

## FINDINGS

**Registered pharmacists: 2001** In December 2001 there were 44,545 pharmacists on the Register of Pharmaceutical Chemists. However, based on the registered address provided to the Society by the pharmacists, 5,078 (11 per cent) are classified as being "overseas". This means that they have a registered address other than in England, Scotland or Wales and pay an overseas (ie, reduced) retention fee. This, therefore, precludes them from practising in Great Britain. The remaining 39,467 pharmacists are what constitutes, or is referred to as the "home" register, and these are the focus of this paper.

**Gender and age group of pharmacists: 2001** Predictions that women would constitute the majority of pharmacists have been realised, with females representing just over half (51.5 per cent) of the current register.

The largest age group among all pharmacists is those aged 30 to 39 years, who accounting for just over one quarter (27 per cent) of the register (Table 1). Approximately 18 per cent are 60 years or older, and 13 per cent are over 65 years of age.

Women pharmacists are younger than the men. Just over half (53 per cent) are under 40 years, compared with 32 per cent of the men. Conversely, 19 per cent of the men are 65 years or older, compared with only 7 per cent of the women. Over three fifths (64 per cent) of those between 21 and 39 years are female, and almost three quarters (73 per cent) of all those over 65 years are male. Where occupation is known, 84 per cent of those over the "technical" retirement age remain in paid employment, with the largest number (69 per cent) working in the retail sector.

**Sector of employment: 2001** The categories used to describe members' main sector of practice, known as "principal occupation" on the Society's registration database are shown in Table 2. Although there are 39,467 pharmacists with registered addresses in Great Britain, 20 per cent of these work in a

TABLE 1: PHARMACISTS, BY AGE AND GENDER, ON THE 2001 HOME REGISTER

Age	Male		Female		Total		
	No	%	No	%	No	%	Valid %
NK or error	888	4.6	501	2.5	1,389	3.5	—
21–29	2,450	12.8	4,380	21.5	6,830	17.3	17.9
30–39	3,723	19.4	6,486	31.9	10,209	25.9	26.8
40–49	4,087	21.4	4,666	23.0	8,753	22.2	23.0
50–59	3,072	16.0	2,214	10.9	5,286	13.4	13.8
60–64	1,322	6.9	731	3.6	2,053	5.2	5.4
65–69	1,285	6.7	562	2.8	1,847	4.7	4.8
70–79	1,257	6.6	580	2.9	1,837	4.7	4.8
80+	1,058	5.5	205	1.0	1,263	3.2	3.3
Total	19,142	100	20,325	100	39,467	100	100

NK = not known; Valid % = percentage after missing data are removed

field other than pharmacy, are not in paid employment, or their occupation is unknown. This leaves approximately 31,732 pharmacists known to be practising in one of the main sectors of the profession. The principal occupation for most (57 per cent) of these pharmacists is within community pharmacy (this rises to 62 per cent if missing data are discounted). The other main sector of employment, the hospital service, employs around 5,979 pharmacists (15 per cent), and almost 10 per cent work in other pharmacy related occupations.

Employment sector differs quite substantially for men and women (Table 2). Fewer women work in the community sector and a greater proportion work in the hospital sector relative to their proportion in the profession overall; the opposite is true for men.

**Extent of employment: 2001** Based on information collected with the retention fee a distinction is made between working full time (35 hours a week or more) and working part time greater than 13 weeks per year, or working part time less than 13 weeks per year (or two days a week or fewer). The number of hours per week worked is not specified within this current definition of extent of employment. Table 3 identifies these patterns for men and women (missing data are excluded).

If missing data are excluded around 6 per cent of the register has "no paid employment". Just over two thirds of the register (67 per cent) work full-time, and over a quarter (26.5 per cent) work part time. Although there is a large amount of missing data for this variable these national figures are not dissimilar to findings reported from regional surveys.<sup>18–20</sup>

Table 3 shows the marked difference in participation rates between male and female pharmacists. Not unexpectedly, proportionately more men (77 per cent) than women (59 per cent) work on a full-time basis. The converse, of course, is that more women than men work part-time — 36 per cent compared with 15 per cent of men. Most part-time workers (75 per cent) are women. However, most (58 per cent) of the 1,705 pharmacists not in paid employment are men.

**Number of pharmacists and sector of employment: Trends 1964 to 2001** There has been a relatively steady increase in the overall number of qualified pharmacists on

the home register since the mid-1960s (Table 4), with numbers increasing from 26,629 in 1964 to 39,467 in 2001, representing an increase in numbers of 48 per cent, or a compound annual growth rate of 1.3 per cent in the period. Smoothed trends show the register increasing by approximately 347 per year between 1964 and 2001.

This general increase can be seen across most employment sectors in pharmacy, although in some sectors the increase has not been large. In the same period community pharmacy, for example, has only seen a growth of 13 per cent, while the numbers working in hospital pharmacy have increased by 252 per cent from 1,699 to 5,979 (Table 4).

Patterns of growth across the employment sectors vary when looking at change over just the past 10 years. While the register has grown by 20 per cent since 1991, in the same period community pharmacy has grown by 8 per cent and the hospital sector has increased by 22 per cent. The teaching sector has actually seen a fall of 25 per cent (Table 4). The miscellaneous category "other pharmacy" has seen a much larger increase (172 per cent). The non-pharmacy and non-paid/not known categories have seen increases of 16 per cent and 63 per cent, respectively.

**Gender of pharmacists and occupation: Trends 1964 to 2001** In 1964 women represented just 19 per cent of registered pharmacists. By 2001 they accounted for more than half of the pharmacy workforce, a growth of just over 300 per cent (Table 5). The number of men has declined during the same period by 11 per cent. However, last year's data suggest this trend may have halted, since the number of men on the register showed an increase for the first time since the last analysis of workforce data in 1994 (Table 5).

In 1964, 61 per cent of women worked in community pharmacy compared with 77 per cent of men. By 2001 the proportions dropped to 52 per cent and 61 per cent, respectively, indicating that the dominance of community pharmacy as an employer has fallen in the past four decades, but more so for men than for women. In the mid 1960s women were over-represented in hospital practice and remain so today, and the proportion of men working in the hospital sector was and still is much lower than might be expected based on population norms.

**TABLE 2: PRINCIPAL OCCUPATIONS OF PHARMACISTS ON THE 2001 HOME REGISTER**

Occupation	Male			Female			Total		
	No	%	Valid %	No	%	Valid %	No	%	Valid %
Community	11,674	61.0	68.0	10,645	52.4	56.7	22,319	56.6	62.1
Hospital	1625	8.5	9.4	4,354	21.4	23.2	5,979	15.1	16.6
Industry	969	5.1	5.6	735	3.6	3.9	1,704	4.3	4.7
Wholesaling	67	0.4	0.4	16	0.1	0.1	83	0.2	0.2
Teaching	203	1.1	1.2	74	0.4	0.4	277	0.7	0.8
Other pharmacy	577	3.0	3.4	792	3.9	4.2	1,369	3.5	3.8
Non-pharmacy	415	2.2	2.4	368	1.8	2.0	783	2.0	2.2
Non-paid	824	4.3	4.8	664	3.3	3.5	1,488	3.8	4.1
Working — sector unknown	835	4.4	4.9	1,118	5.5	6.0	1,953	4.9	5.4
Missing data	1,953	10.2	—	1,559	7.7	—	3,512	8.9	—
Total	19,142	100	100	20,325	100	100	39,467	100	100

Valid % = percentage after missing data are removed

**TABLE 3: EXTENT OF EMPLOYMENT, 2001 HOME REGISTER**

Employment	Male		Female		Total	
	No	%	No	%	No	%
Full time	9,560	77.3	8,888	59.0	18,448	67.3
Part time >13 weeks	633	5.1	3,291	21.8	3,924	14.3
Part time <13 weeks	1,180	9.5	2,158	14.3	3,338	12.2
No paid employment	986	7.9	719	4.8	1,705	6.2
Missing data	6,783	—	5,269	—	12,052	—
Total	19,142	100	20,325	100	39,467	100

**TABLE 6: EXTENT OF EMPLOYMENT AND GENDER, 1991 AND 2001**

Employment	1991			2001		
	Male	Female	All	Male	Female	All
Full time	13,480	7,616	21,096	9,560	8,888	18,448
Part time >13 weeks	682	2,222	2,904	633	3,291	3,924
Part time <13 weeks	1,501	2,953	4,453	1,180	2,158	3,338
No paid employment	2,991	1,468	4,460	986	719	1,705
Total	18,654	14,259	32,913	12,359	15,056	27,415

Like on the register as a whole, the proportion of women in community pharmacy is increasing. In 1964 only 3,108 pharmacists in this sector (16 per cent) were female; in 2001 the proportion had increased to 48 per cent (Table 5). Women have always been in the majority in the hospital sector, representing 55 per cent of the hospital pharmacy workforce in 1964, increasing to 73 per cent in 2001 (Table 5).

#### Extent of employment: trends 1991 to 2001

Data on the extent to which pharmacists are employed are not always comparable across different years because of the different definitions attached to the parameter at different times. Since the same definition was used in 1991 and 2001 only these two years are compared here. Some caution is required when interpreting Figures 1 and 2 and comparing data from the years shown however, since there is a high volume of missing data from the "extent of employment" parameter in 2001 and the "extent of employment" parameter in 1991 was estimated, having been corrected for non-respondents.

If the data in Table 6 can be relied upon, they appear to indicate that the number of women working full-time and working part-time but greater than 13 weeks a year has increased since 1991 by 17 per cent and 48 per cent, respectively, while there has been a general reduction in the number of women working less than 13 weeks a year or not working at all (27 per cent and 51 per cent, respectively).

Almost the opposite is occurring among male pharmacist, with the numbers working full time and not working at all dropping. These patterns are consistent with patterns identified in previous accounts of pharmacists' working patterns.<sup>10</sup>

#### DISCUSSION

*Recasting the workforce debate* That the register has increased in size is clear. Since 1964 the compound annual growth rate has been 1.3 per cent; growth since 1991 has been closer to 2 per cent. To put this in some sort of context the number of general practitioners (excluding GP retainers) in England rose on average by 1 per cent per year between 1991 and 2001, while the overall NHS workforce has increased by 0.9 per cent.<sup>21</sup> Growth in the number of pharmacists is clearly keeping up with and exceeding what is happening elsewhere.

Growth in absolute numbers, however, does not equate to a gain in labour supply. Labour supply is a function of the number of people in work or available to work and their participation rate. Women's greater propensity for part-time working will clearly have an impact on overall participation rates, as Elworthy's work on women pharmacists who graduated in the 1950s and 1960s identified.<sup>22,23</sup> Gender-related participation rates are changing, however. Data presented here indicate that more and more women are working full-time, while the number of men working full-time is declining. Research has also shown that participation

**TABLE 4: PRINCIPAL OCCUPATION OF PHARMACISTS ON THE HOME REGISTER, 1964–2001**

Occupation	1964	1972	1981	1991	2001
Community	19,696	17,750	17,820	20,643	22,318
Hospital	1,699	2,680	3,600	4,886	5,979
Industry	2,064	1,370	1,295	1,500	1,704
Wholesaling	—	250	115	60	83
Teaching	—	280	408	368	277
Other pharmacy	1,203	450	457	503	1,369
Non-pharmacy	—	1,000	429	677	783
Non-paid or NK	*1,600	*3,003	*4,379	*4,276	6,953
Total	26,629	26,810	28,503	32,913	39,467

\* In these years, this entry refers to just those who are not in paid employment, since corrections were made for non-respondents; NK = not known

**TABLE 5: GENDER AND OCCUPATION OF PHARMACISTS ON THE HOME REGISTER, 1964–2001**

Year	Men	Women	Total
<i>1964</i>			
Community	16,588	3,108	19,696
Hospital	759	940	1,699
All	21,565	5,064	26,629
<i>1972</i>			
Community	14,570	3,170	17,750
Hospital	990	1,690	2,680
All	20,010	6,800	26,810
<i>1981</i>			
Community	12,706	5,114	17,820
Hospital	1,422	2,178	3,600
All	19,185	9,432	28,617
<i>1991</i>			
Community	11,947	8,696	20,643
Hospital	1,651	3,235	4,886
All	18,654	14,259	32,913
<i>2001</i>			
Community	11,674	10,645	22,319
Hospital	1,625	4,354	5,979
All	19,142	20,325	39,467

rates vary among different groups of women, with some ethnic minority women pharmacists returning to the workforce more quickly after having children and working full-time rather than part-time compared with white women pharmacists.<sup>24</sup>

Of course, despite these changes it is still the case that women have a lower participation rate compared with men, with 36 per cent and 15 per cent, respectively, working less than full-time. This may equate to a large shortfall in labour supply, but also has implications for employment policies. It may be the case that some women are not returning to work full-time because

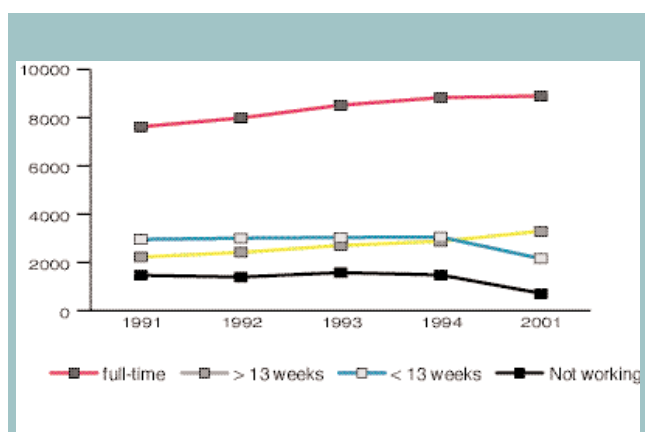


Figure 1: Work patterns of female pharmacists, 1964–2001

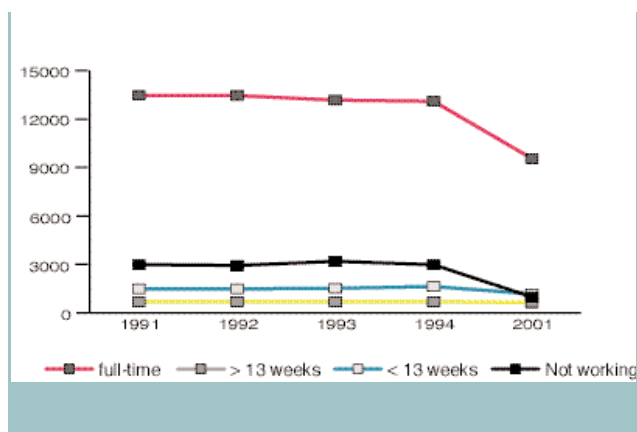


Figure 2: Work patterns of male pharmacists, 1964–2001

employers are not providing flexible enough working conditions.<sup>25</sup>

Participation rates are down to zero in some instances, for example, in the case of pharmacy graduates choosing not to train as pharmacists. The evidence base for this is difficult to find, but some commentators have put this attrition rate as high as 15 per cent.<sup>8</sup> While maintaining registration of the Society a proportion of trained pharmacists will choose not to work at all, reducing the labour supply further. Depending on the parameter used it appears that between 3 per cent and 6 per cent of registered pharmacists are not in paid employment. Although not large (2 per cent), the increase in the number of pharmacists still on the register but working in non-pharmacy employment may also be significant because it is likely to represent a drain on the labour supply overall. Just over 10 per cent of qualified pharmacists on the register work overseas, effectively removing themselves from the UK labour force, however temporarily. What proportion of these could later form part of the UK labour supply is unknown.

The increase in the miscellaneous “other pharmacy” category is worthy of further comment here. Although not reflected in the figures currently available from the Society it is likely that this category reflects the growing importance of the primary care sector as an employer of pharmacists.<sup>26,27</sup> Although there is recent evidence to suggest that many pharmacists who move into this new employment market maintain some involvement in community and hospital practice,<sup>26</sup> the extent to which they work outside the two principal employment markets creates competition for labour and consequently affects the supply side of the labour market.

The data presented here indicate the extent to which the labour supply may also be affected by age. A significant proportion of the home register is no longer of working age. Almost 20 per cent of the male pharmacists are 65 years or over, and 11 per cent of the females are over 60 years. Some academics have gone on record to say that pharmacists are increasingly taking early retirement<sup>3</sup> but again the evidence base to support this view is limited. Many of the pharmacists over 60/65 years do still contribute in some way to the workforce, but

the extent and patterns of their contribution probably merit more attention.

#### *A framework for calculating labour supply?*

Although the Society has made regular attempts to collect employment-related information about registered pharmacists, the degree to which the information is used to make predictions about workforce supply and demand has been limited. It may be useful, therefore, to consider exactly how the data that have been presented here can be used for workforce planning.

Taking community pharmacy as an example, Figure 3 illustrates how factors such as gender, age and participation rates cannot be ignored when considering workforce requirements. Although there are 22,319 pharmacists on the register who record their occupation as being in community pharmacy, only 10,168 (5,897 and 4,271 males and females, respectively) are of working age and work full-time. This goes up to 10,742 full-time pharmacists if people over 60/65 years are included. In terms of the part-time labour force there are 3,773 part-time community pharmacists of working age (21–60/65 years), of whom 81 per cent are women. If post-retirement age part-time pharmacists are included, the figure goes up to 5,119.

Using data from the register relating to the supply of pharmacists presented earlier in this article, with data on the number of pharmacies and their opening hours, which give an indication of the demand for community pharmacists, it is possible to estimate whether workforce shortages do exist in this sector. Three different scenarios are outlined in the Panels. The assumptions behind the figures used in the calculations are described below.

*Number of community pharmacies and their opening hours* In 2001 there were 11,616 community pharmacies in England, Wales and Scotland.<sup>28</sup> Roughly 4,000 are thought to belong to major multiple pharmacies.<sup>8</sup> Opening hours in independent and small chain pharmacies are likely to be 9am to 6pm five days a week, and 9am to noon on a Saturday,<sup>20</sup> the equivalent of 48 hours per week. Pharmacies that belong to multiples are likely to be open longer (supermarket pharmacies are thought to be open between

80 and 90 hours), but robust evidence on opening hours for these pharmacies is difficult to find. In view of the lack of higher quality data, and to err on the side of caution, workforce supply calculations in each of the three scenarios are based on the assumption that the average opening hours for pharmacies in multiples are 60 hours a week, against 45 hours a week for independents and small chains.

*Number of hours worked by pharmacists* The definition of full-time or part-time working is by no means straightforward, and likely to be far less simplistic and less crude than the definition currently used by the Society suggests. Although typical “full-time” work in other sectors of the profession is between 35 and 40 hours per week,<sup>20</sup> evidence suggests that the working patterns of community pharmacists vary far more.<sup>19,20</sup> In a study in the West Midlands region, Blenkinsopp *et al*<sup>20</sup> found, for example, that 29 per cent of community pharmacists worked between 31 and 40 hours per week, 30 per cent worked between 41 and 50 hours a week, with 10 per cent working more than 50 hours and the remainder fewer than 31 hours. Another, earlier study of community pharmacists in the UK found that 52 per cent were working between 41 and 50 hours per week and 8 per cent worked more than 50 hours a week.<sup>29</sup>

Again, in view of the lack of generalisable evidence surrounding community pharmacists’ working hours, each of the three scenarios assume that full-time community pharmacists work an average 40-hour week and part-time community pharmacists work a 20-hour week.

*The scenarios* Scenario 1 takes all pharmacists on the register within working age (21 to 60/65 years) who recorded community pharmacy as their sector of employment. What can be provided by the current workforce, assuming working hours as specified in Table 2, is cover for 482,180 hours (or 12,055 full-time equivalent pharmacists). Based on the number of hours community pharmacies are (theoretically) open (582,720) this equates to a shortfall of 2,514 full-time equivalent (FTE) pharmacists. This figure is reduced to 1,267 FTEs if working pharmacists over the retirement age are included (scenario 2). Of course, the

## Scenario 1: All working age community pharmacists

	No of units	No of hours per week opened	Total hours	No of FTE pharmacists needed
<b>Demand</b>				
Independent pharmacies	7,616	45	342,720	8,568
Multiple pharmacies	4,000	60	240,000	6,000
Total			582,720	14,568
<b>Supply</b>				
Full-time pharmacists	10,168	40	406,720	10,168
Part-time pharmacists	3,773	20	75,460	1,887
Total			482,180	12,055
<b>Shortfall</b>				<b>2,514</b>

*Assumptions made in scenario 1: (i) working age is 21–60/65 years, (ii) full-time pharmacists work an average 40 hour week and part-time pharmacists work an average 20 hour week, (iii) independent pharmacies are open an average 45 hours a week and multiples and supermarkets are open an average 60 hours a week*

## Scenario 2: All working community pharmacists

	No of units	No of hours per week opened	Total hours	No of FTE pharmacists needed
<b>Demand</b>				
Independent pharmacies	7,616	45	342,720	8,568
Multiple pharmacies	4,000	60	240,000	6,000
Total			582,720	14,568
<b>Supply</b>				
Full-time pharmacists	10,742	40	429,680	10,742
Part-time pharmacists	5,119	20	102,380	2,560
Total			532,060	13,302
<b>Shortfall</b>				<b>1,267</b>

*Assumptions made in scenario 2: (i) all pharmacists who are on the register, regardless of age, and who say they work in community pharmacy, (ii) full-time pharmacists work an average 40 hour week and part-time pharmacists work an average 20 hour week, (iii) independent pharmacies are open an average 45 hours a week and multiples and supermarkets are open an average 60 hours a week*

## Scenario 3: Community pharmacists, all working, plus missing estimates

	No of units	No of hours per week opened	Total hours	No of FTE pharmacists needed
<b>Demand</b>				
Independent pharmacies	7,616	45	342,720	8,568
Multiple pharmacies	4,000	60	240,000	6,000
Total			582,720	14,568
<b>Supply</b>				
Full-time pharmacists	12,108	40	484,320	12,108
Part-time pharmacists	6,485	20	129,700	3,243
Total			614,020	15,351
<b>Surplus</b>				<b>783</b>

*Assumptions made in scenario 3: (i) all pharmacists who are on the register, regardless of age, and who say they work in community pharmacy, (ii) full-time pharmacists work an average 40 hour week and part-time pharmacists work an average 20 hour week, (iii) independent pharmacies are open an average 45 hours a week and multiples and supermarkets are open an average 60 hours a week, (iv) assumes that 50 per cent of the missing data for principal occupation are community pharmacists and 50 per cent are working full time, the rest part time*

shortfall would also be reduced if the average hours worked is greater than the 40 and 20 hours used in this formula.

Scenario 3 differs in that it assumes that 50 per cent of the registered pharmacists for whom principal occupation is unknown (n=5,465) are community pharmacists (ie, n=2,732) with 50 per cent working an average 40-hour week, and 50 per cent working a 20-hour week. If this were the case a shortfall does not exist.

### CONCLUSION

This analysis of workforce data has, we hope, highlighted the need to consider the demographic characteristics of those in the labour pool and their availability for work. For workforce planning, a focus on the absolute size of the register can be misleading: for example, although the register recorded a pharmacy workforce of 44,545 in December 2001, the fact is that a smaller number (31,732) were known to be working in a pharmacy-related occupation, and only 18,448 were known to be working full-time. In the largest employment sector, community pharmacy, only 10,742 were known to be working full-time.

The analysis has also highlighted the uneven quality of data currently held about the pharmacy workforce. However, even accepting that the quality of the employment data currently available may not be as good as it should be, it would appear safe to conclude a number of things in relation to the pharmacy workforce: that the workforce is growing in absolute terms, that growth is uneven across different employment sectors, that there are more women in pharmacy than ever before, that men and women have different employment patterns, that the extent to which pharmacists work has changed in the last 40 years, and that new employment markets are taking pharmacists away from the more 'traditional' sectors of employment.

Despite these "facts", however, a definitive answer as to whether a workforce shortage exists remains elusive. There is clearly a big difference between the best-case scenario described above (ie, a surplus of 783 FTE community pharmacists) and the worst case (a shortage of 2,514 FTE community pharmacists). Conservative estimates were used in the calculations; for example, the figures for the number of community pharmacists made no distinction between those based in stores and those who assume non-store based, regional manager positions. In reality the number who provide dispensing and other pharmaceutical services are likely to be lower than those used in the scenarios. Again, conservative estimates were used in relation to the opening hours of pharmacies. Many pharmacies are likely to be open well in excess of the 60 hours per week figure used in the calculations. The calculations also do not take account of the need that will exist in some pharmacies for more than one pharmacist.

Whatever the reality is, the simple framework used here for calculating labour supply and demand has served to highlight

the need for reliable and good quality data. It also gives some indication of what data would be required to undertake a more sophisticated analysis: information on the extent of employment, in the form of number of hours per week worked, would avoid the imposition of a definition of full-time and part-time working and allow analysts to calculate average hours worked for different groups of pharmacists. More accurate data are required on the opening hours of community pharmacies, and account needs to be made of prescription volume, since two pharmacies with the same opening hours with completely different levels of dispensing are likely to have different labour requirements. Clearly this demand-level data are pertinent only to the community sector: different types of data would be required to enable adequate workforce planning for other sectors within pharmacy.

At this macroeconomic level these sorts of data are useful and undoubtedly form the building blocks of any debate about workforce requirements. However, accurate data

on student admissions and attrition rates, data on exit and retirement rates from the profession, as well as re-entry rates, and information at a locality and sector level will enable far more sophisticated workforce planning. Other fundamental knowledge, for example about the experiences, motivations and expectations of the workforce, and information on workload and service provision, will also be just as important to consider, since these issues will impact on job

satisfaction and the propensity pharmacists will have for staying in or leaving the pharmacy labour market.

**ACKNOWLEDGEMENT** The secondary research on which this paper is based formed part of a larger registration database review undertaken by the authors on behalf of the Royal Pharmaceutical Society of Great Britain.

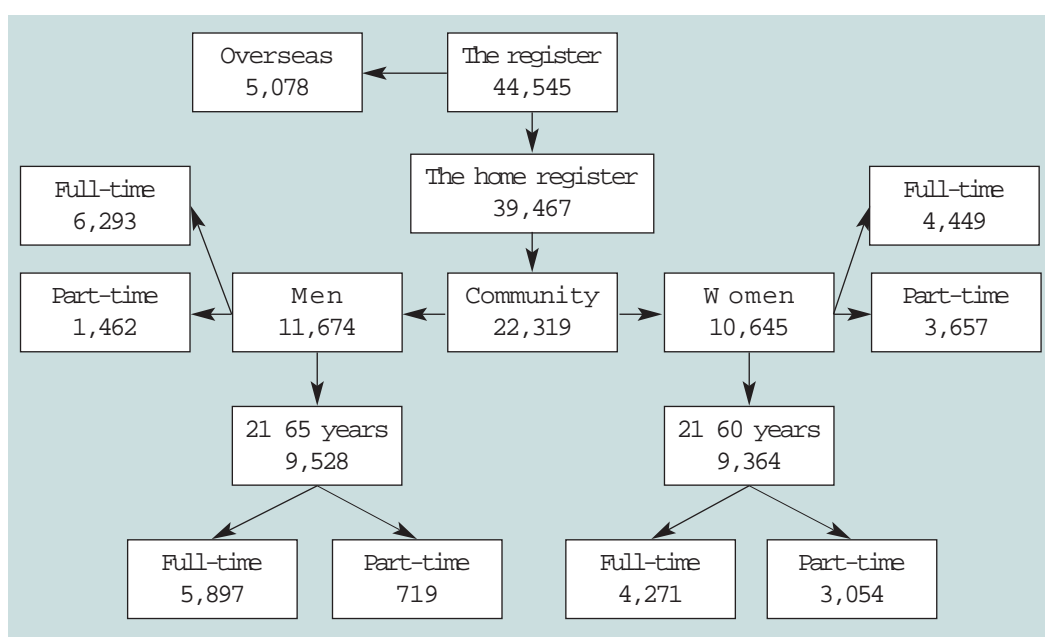


Figure 3: Labour supply in community pharmacy, 2001

## REFERENCES

- Survey of pharmacists, 1993 and 1994. *Pharm J* 1996;256:784-6.
- Buisson J. Andrew Murdock: Pharmacy's recruitment crisis must be tackled. *Pharm J* 1999;262:229-30.
- Rees J. Is early retirement creating a problem? *Pharm J* 1997;258:132.
- Survey suggests hospital manpower shortage. *Pharm J* 1996;256:853.
- Tredree R. Recruitment trends in the UK. London: St George's Healthcare NHS Trust; 1997.
- Green GB. Institute of Pharmacy Management International 12th pharmacy personnel, salary and recruitment survey. West Sussex: IPMI; 2002.
- Almond M. Pharmacists — surplus or shortage? *Pharm J* 1997;258:337.
- Dove W, Caldwell, I. New challenges: manpower. *Pharm J* 1999;263:491-3.
- Survey of pharmacists 1988-90. *Pharm J* 1991;246:621-5.
- Survey of pharmacists 1991-92. *Pharm J* 1995;255:684-6.
- Survey of pharmacists 1987. *Pharm J* 1987;238:685-6.
- Survey of pharmacists. *Pharm J* 1969;203:613-6.
- Survey of pharmacists 1985. *Pharm J* 1986;236:265-6.
- Manpower survey 1981. *Pharm J* 1982;228:130-3.
- Manpower survey 1977. *Pharm J* 1977;219:462-4.
- Manpower survey 1972. *Pharm J* 1972;209:228-31.
- Pharmaceutical manpower in GB — 1964. *Pharm J* 1964;193:124-6.
- Symonds S. Part-time work in community pharmacy — a bridge, a trap or a balance? *Pharm J* 2000;264:144-7.
- Symonds S. Work-coping and home-coping: achieving a balance in part-time community pharmacy. *Int J Pharm Pract* 2000;8:10-19.
- Blenkinsopp A, Boardman H, Jesson J, Wilson K. A pharmacy workforce survey in the West Midlands: (1) Current work profiles and patterns. *Pharm J* 1999;263:909-13.
- Department of Health. Statistics for General Medical Practitioners in England: 1991-2001. Available at: <http://www.doh.gov.uk/public/sb0203.htm>. Updated February 2002; accessed 28 May 2002.
- Elworthy PH. Work pattern of women pharmacists graduating in 1953. *Pharm J* 1988;240:11-16.
- Elworthy PH. The work pattern of women pharmacists, 1966 to 1983. *Pharm J* 1986;237:218-24.
- Hassell K. A historical and comparative account of ethnic minority group participation in the pharmacy profession in the United Kingdom. PhD thesis. University of Manchester; 1997.
- Lewis S, Lewis J. The work-family challenge. London: Sage; 1996.
- Blenkinsopp A, Boardman H, Jesson J, Wilson K. A pharmacy workforce survey in the West Midlands: (3) Primary care pharmacists. *Pharm J* 2001;266:684-7.
- Mullen R, Hassell K, Noyce PR. Opportunities in primary care: analysis of Pharmaceutical Journal job advertisements. 7th HSR and Pharmacy Practice Conference; Volume of Abstracts page 39; Nottingham, 19/20th April 2001. University of Nottingham, University Park, 2001.
- Department of Health. General Pharmaceutical Services in England and Wales 1991-92 to 2000-01. Available at: <http://www.doh.gov.uk/public/sb0134.htm>. Updated March 2002; accessed 31 May 2002.
- Willett VJ, Cooper CL, Noyce PR. The impact of working long hours on employed community pharmacists. *Pharm J* 1997;258:17.