

EAHP Survey 2010 on hospital pharmacy in Europe: Part 1. General frame and staffing

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In 2010, the European Association of Hospital Pharmacists (EAHP) conducted its fourth survey on hospital pharmacy practice in Europe. 4748 heads of pharmacy were contacted in all member states through a network of national coordinators. 1283 hospital pharmacies from 30 countries answered the questionnaire with an overall response rate of 27.0%. The average number of beds served by one pharmacy had not changed since 2005 but there was a decrease in complete and an increase in partial hospitalisation. Pharmacists (27%) and qualified technicians (32%) make up 60% of the total staff. The number of pharmacists/100 beds varies from 0.24 (Bosnia and Herzegovina) to 4.35 (UK). Only a few countries did not experience shortages of pharmacists and technicians. European hospital pharmacy staffing (pharmacists and pharmacy technicians) remains, on average, low compared with the USA and has not grown significantly since 1995. Therefore, it can be problematic to make direct comparisons between hospital pharmacy services in the USA and Europe.

Introduction

The pan European survey on hospital pharmacy practice is an important source in understanding the future challenges and needs for development in Europe. In 2002, the European Association of Hospital Pharmacists (EAHP) General Assembly, in Portorož, Slovenia, decided to run the survey every 5 years. In 1995, 18 countries participated, in 2000, 16 countries, in 2005, 22 countries and in 2010, 30 countries participated.

The 2010 survey was based on a questionnaire with 87 questions covering the following major topics:

1. General frame and staffing
2. Procurement and distribution
3. Production and quality assurance
4. Clinical services
5. Patient safety
6. Education and research.

Methods

A total of 4748 heads of pharmacy were contacted in all member states through a network of national coordinators. The role of the national coordinators (NC) was to provide the contact addresses of the heads of the hospital pharmacies and then motivate them to take part in the survey, as well as facilitating completion of the questionnaire. In countries where the language barrier was

significant, NC translated the questionnaire and thus improved the response rate and number of correct answers.

The collected data were analysed by country (30 European countries), by size of the hospital (number of beds—12 groups), by type of hospital (seven groups) and also in comparison with previous EAHP surveys.^{1,2} Where appropriate, we also compared the results with the American Society of Health System Pharmacists (ASHP) National Survey 2011.³ We performed only descriptive analysis of the data but further investigation will be performed in the future.

Results

The average response rate was 27.0% (1283/4748). As not all of the questions were answered in the questionnaires, we also calculated a weighted response rate, which is the ratio between the total number of answered questions and the total number

of questionnaires sent out in that country, multiplied by 87 (total number of questions). The total weighted response rate was 16.7%.

Response rates varied substantially across the member states. The highest response rate was achieved in FYROM (Former Yugoslav Republic of Macedonia) where all hospital pharmacies answered the questionnaire (table 1). Very good response rates above 50% were also found in Austria, Croatia, Estonia, Latvia, Luxembourg, Slovakia and Slovenia. The poorest response rates were in France, Lithuania, Poland and the UK.

Each single question was answered by a median of 960 (74.8%) of the 1283 responding pharmacists (minimum 64 (5.0%), maximum 1168 (91.0%)). The number of responding pharmacists to a specific question is indicated as n (number) and all results (in %) are related to the n of the single question.

Table 1 Response rates by country

Country	Response rate (%)	Weighted (%)	Country	Response rate (%)	Weighted (%)
Austria	84.4	71.2	Italy	39.0	30.9
Belgium	27.0	15.6	Latvia	75.7	56.4
BiH	40.0	30.5	Lithuania	10.9	5.8
Bulgaria	30.4	23.6	Luxembourg	100.0	68.6
Croatia	81.5	53.8	Netherlands	24.7	11.2
Czech Republic	61.2	40.1	Norway	56.3	33.9
Denmark	63.6	49.2	Poland	15.1	6.0
Estonia	90.0	67.7	Portugal	41.7	28.6
Finland	33.1	18.8	Serbia	56.3	33.5
France	5.0	1.5	Slovakia	93.5	74.6
FYROM	100.0	72.3	Slovenia	92.0	67.2
Germany	30.8	19.5	Spain	26.8	13.7
Greece	24.2	17.9	Sweden	50.0	33.3
Hungary	44.4	35.7	Switzerland	57.5	38.9
Ireland	63.6	35.4	UK	34.5	8.8

BiH, Bosnia and Herzegovina; FYROM, Former Yugoslav Republic of Macedonia.

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EAHP Survey 2010

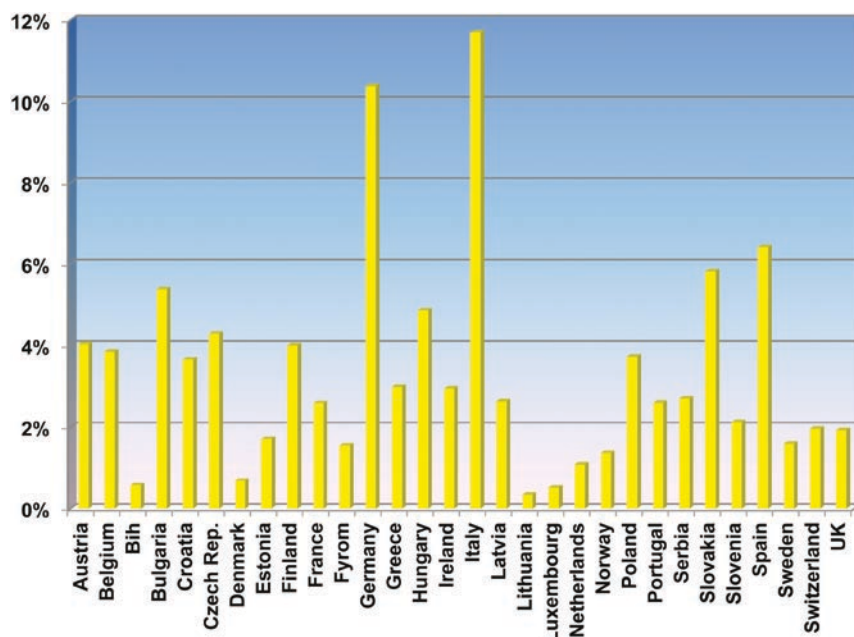


Figure 1 Contribution (%) of single countries to the total number of responses. Percentages are weighted on the basis of answered questions. BiH, Bosnia and Herzegovina; FYROM, Former Yugoslav Republic of Macedonia.

Table 2 Distribution of hospital pharmacies by number of beds served (n = 1139)

Type of pharmacy by No of beds served (complete and partial hospitalisations)	No of pharmacies	% of all pharmacies	No of beds served in total	% of total beds
1-49	15	1.3	544	0.1
50-99	53	4.7	3888	0.5
100-199	168	14.7	24985	3.1
200-299	124	10.9	30434	3.8
300-399	138	12.1	47456	5.9
400-599	184	16.2	90629	11.3
600-799	126	11.1	85463	10.7
800-999	73	6.4	65706	8.2
1000-1499	137	12.0	166701	20.8
1500-2000	55	4.8	93700	11.7
>2000	66	5.8	192437	24.0

The highest total number of responses was achieved in Italy (117=39.0% of pharmacies) and Germany (130=30.8%). The contributions of each respective

country to the total n (1233 hospital pharmacies=100%) are displayed in figure 1. Percentages are weighted on the basis of the answered questions.

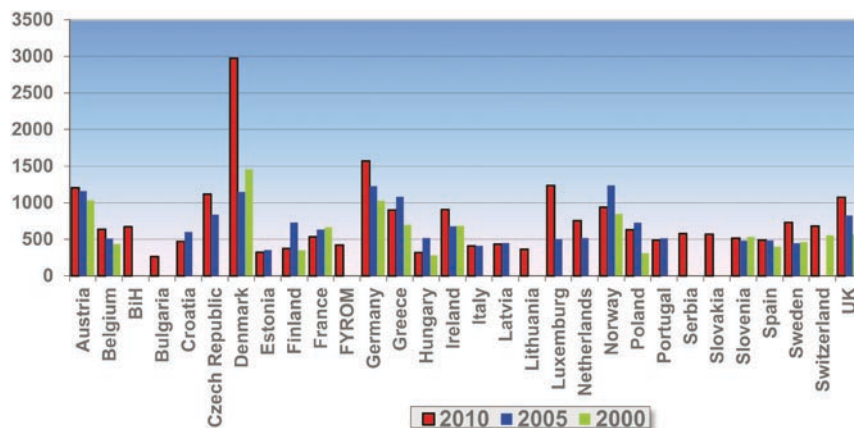


Figure 2 Average number of beds served by one pharmacy by country (n = 1139). BiH, Bosnia and Herzegovina; FYROM, Former Yugoslav Republic of Macedonia.

The majority of hospitals (n=1102) in Europe are publicly owned (81%). Private hospitals (10%) and church affiliated hospitals (4%) are less frequent. Of all of the hospitals, 79% (n=1168) were general hospitals (teaching=36%, non-teaching=43%). Hospital pharmacies from psychiatric (5%), oncology (3%), geriatric (2%) and ophthalmic hospitals (0.4%) also participated in the study.

One hospital pharmacy serves a median of 410 complete hospitalisation beds in Europe (n=1139, average 606 beds) and the distribution was fairly homogeneous for hospitals with between 100 and 1500 beds (table 2). From the perspective of total number of beds served, small hospitals (<300 beds) covered only 7.5% and very large ones (>1.500 beds) 35.7% of the total beds.

There were significant differences between countries in relation to the average number of beds served by one hospital pharmacy (only complete hospitalisations, figure 2). The largest numbers were in Denmark (2974), Germany (1566), the UK (1310), Lithuania (1249), Austria (1203) and the Czech Republic (1115). Comparisons with the survey from 2000 and 2005 (figure 2) showed that in most of the countries there was a trend towards increasing the number of beds served, which was probably caused by the closing and merging of pharmacies.

The average number of beds served by a single hospital pharmacy (complete and partial hospitalisations) increased between 2000 and 2010, from 648 to 708 beds (median 2010=427). While complete hospitalisations decreased, partial hospitalisations had an upward trend, showing a shifting in hospital services to day care.

The major groups of staff in hospital pharmacies (ie, full time equivalents (FTE)) were qualified pharmacy assistants/ technicians (PT, 32%), followed by pharmacists (27%), non-qualified pharmacy assistants (14%) and administrative staff (8%). Prescriptionists (bachelor of pharmacy) are employed in some north European countries but play only a minor role (1%).

The average number of pharmacists/100 beds (FTE in complete + partial hospitalisations) was 1.1 (median 0.9) but there were large differences across Europe (figure 3).

The country with the highest ratio was the UK (4.35) and Bosnia and Herzegovina had the lowest (0.24). In terms of total staff/100 beds the highest ratio was also in the UK (12.59) and the country with the lowest ratio was Lithuania (1.45). The average across Europe was 3.8 (median 3.5).

The number of pharmacists and PT (FTE) classified by the number of hospital

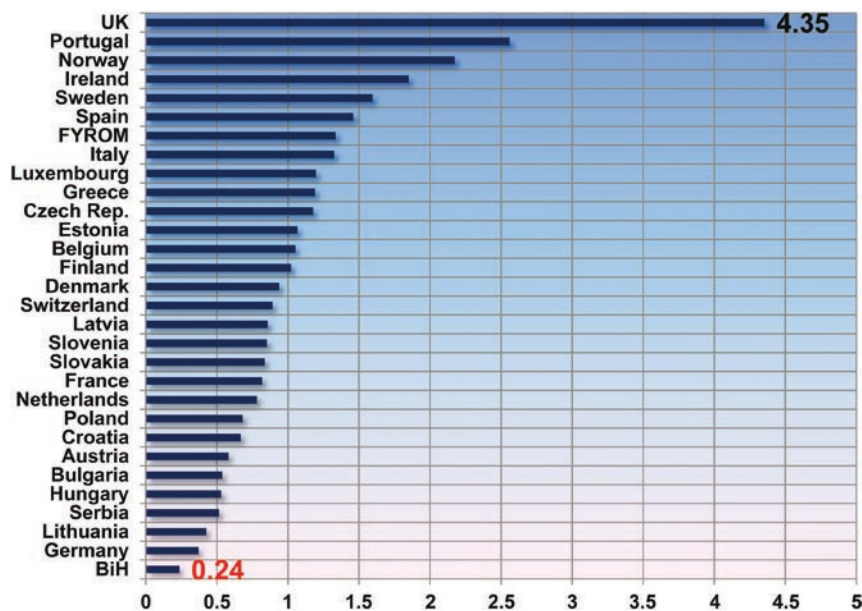


Figure 3 Pharmacists/100 beds (full time equivalents complete + partial hospitalisations) (n = 1024). BiH, Bosnia and Herzegovina; FYROM, Former Yugoslav Republic of Macedonia.

Table 3 Distribution of pharmacists and qualified technicians (full time equivalents) by number of beds served in complete and partial hospitalisations (n = 1006)

Type of pharmacy by No of beds served (complete + partial hospitalisations)	Average pharmacists FTE	FTE pharmacists/100 beds	Average qualified technicians FTE	FTE technicians/100 beds
1-49	0.8	2.3	0.4	1.1
50-99	1.3	1.7	0.7	1.0
100-199	1.9	1.2	1.3	0.9
200-299	3.4	1.2	4.5	1.2
300-399	3.7	1.1	4.3	1.2
400-599	4.4	0.9	4.7	1.0
600-799	6.4	0.9	6.0	0.9
800-999	7.9	0.9	7.6	0.8
1000-1499	10.5	0.9	12.5	1.0
1500-2000	10.4	0.6	16.0	0.9
>2000	19.8	0.7	29.1	1.0

FTE, full time equivalents.

beds served in complete and partial hospitalisations is displayed in table 3.

The number of pharmacists and PT increased, as expected, from small to large hospitals (range 0.8 to 19.8 FTE for pharmacists and 0.4 to 29.1 for PT) while the ratio of pharmacists and PT/100 beds was fairly constant. The ratio of pharmacists was quite narrow (0.6–2.3) with the trend towards a decrease with an increase in the number of beds served. These data were similar in the group of PT (range 0.8 to 1.2).

The survey also showed that there were shortages in pharmacists as well as in PT. The most striking shortages in pharmacists were in Greece, Serbia, Bosnia and Herzegovina, Hungary, the UK and Italy. The shortages in PT were high in Greece, Bosnia and Herzegovina, the UK and The Netherlands.

Limitations

There are some limitations in our survey: The response rate varied substantially from country to country and did not reflect the weight of the population of that country in Europe. Some countries had response rates less than 10% (France, Lithuania, Poland, the UK) and thus their results are only a rough overview of the practice.

Language barriers may have created bias of responding pharmacists and some of the questions may have been misunderstood by non-native English speakers.

An important bias comparing the data of the 2010 survey with those of 2000 and 2005 is the fact that the enlargement of the EU to eastern countries and their high response rates added a substantial number of responses based on quite a different practice, as evident by analysing the data by country.

Thus average values for Europe in the 2010 survey were not fully comparable with the previous ones, and some developments have to be considered with caution.

Discussion

The results of the 2010 survey on hospital pharmacy practice in Europe are reliable because of the good response rate by most countries, with only a few having an unacceptable response rate. The data from France, Lithuania, Poland and the UK should be interpreted with caution. Nevertheless, we can still have an overview of pharmacy practice in Europe: on average, a hospital pharmacy in Europe is providing hospital pharmacy services to a hospital with 606 beds with complete hospitalisations. The average number of hospital pharmacists in these hospital pharmacies is 4.7 (0.9 pharmacists for 100 beds) and 5.5 PT (1.0 PT/100 beds). On average, since 2005, we have seen only a small increase in the number of beds served for complete and partial hospitalisations, as well as in the number of staff. Therefore, it is interesting to look at the development of services in terms of increasing efficiency.

Comparing staffing in hospital pharmacies in Europe and the USA highlights some important differences: a hospital pharmacy in USA has, on average, 19-fold the pharmacists in Europe (17.5 to 0.9 FTE/100 beds complete hospitalisations).³ Similar differences can also be observed for PT: in USA, on average, 15-fold greater numbers (1.0 to 15.0 PT FTE/100 beds complete hospitalisations). Even taking into account the different educational systems between the USA and Europe—which could have different staffing as a consequence—direct comparisons between hospital pharmacy services in the USA and Europe are problematic.

Competing interests None.

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