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# **A national survey of hospice pharmacists and a comparison with international models**

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# A national survey of hospice pharmacists and a comparison with international models

## Abstract

**Background:** Pharmacists can contribute to improved patient outcomes, improve medicine knowledge, reduce drug costs and minimise errors. However, their role within hospice-based services is not well described.

**Objective:** To explore the role of pharmacists within UK hospices.

**Methods:** An online survey and follow-up telephone contact of pharmacists working in UK hospices assessing pharmacist provision, duties, communication, medicine sourcing and training.

**Results:** Eighty-nine responses were received from 82 hospices (response rate 50%). Pharmacists had a role in 75% of hospices providing between 6.6 minutes and 5.5 hours of pharmacist support per bed per week. The most frequent duty reported was provision of medicines information to the clinical team. Access to patient records varied considerably: 13% had full read and write access to GP records whilst 29% had no access. Job-specific training had not been received by 36% of respondents and 47% reported training needs including basic training in palliative care.

## **Conclusions**

Three-quarters of UK hospices have pharmacy provision although this falls below recommended levels in the majority. Hospice pharmacists lack access to training and records. Medicines sourcing from hospice is variable and could provide opportunities for efficiencies with further research.

## **Keywords**

Hospices, pharmacists, palliative care, education, records.

## **Introduction**

The role of the pharmacist in any sector is as an expert in medicines and their involvement can improve patient outcomes, improve medicine knowledge, reduce drug costs and minimise errors<sup>1-5</sup>. There are few, if any, care environments where this input is not appropriate, yet despite an established role in the multidisciplinary team (MDT) in hospital settings, it is unclear whether pharmacists are yet to have an entrenched position in the hospice palliative care team<sup>5-7</sup>.

Hospice care is one way of providing palliative care and the first hospice was opened by Cicely Saunders in London in 1967<sup>8</sup>. Hospices have become increasingly common around the world and they support 225,000 people in the UK each year with much of this care being delivered in patient's homes<sup>9</sup>. Most hospices are privately run by charities and rather than being in healthcare groups like hospitals or healthcare areas, they are often managed independently. Funding in the UK is mostly through charity fundraising with only around a third of hospice money (although this varies) coming from the government and a similar charity funding model is commonplace around the world<sup>9,10</sup>. The evolution of hospices in isolation has led to many different models of care being adopted across the different hospices as well as varying routes to accessing medicines.

1 Models of hospice care around the world vary greatly and there is little access to palliative care outside  
2 Europe, North America and Australia leading to inequitable access to care and medicines <sup>11</sup>. There is  
3 a paucity of evidence regarding the role of Hospice Pharmacists (HPhs) and how many hospices have  
4 access to pharmacist advice. A survey of Polish hospices found that HPhs provided regular medicines  
5 advice to the MDT and organised medicines supply (in most of the 57% of hospices which had  
6 pharmacist input) although there was very little patient contact <sup>12</sup>. A similar study in Ukraine found  
7 that there was no current role for HPhs within the palliative care team although many doctors thought  
8 that there should be <sup>13</sup>. A multi-centre survey across Canada and Australia found that most hospices  
9 surveyed employed pharmacists and they were important members of the MDT with the most  
10 common duty reported as discharge medication review <sup>14</sup>. A case study of the palliative care  
11 multidisciplinary team in China had no mention of the role of the pharmacist and two other studies  
12 concerning training needs for the palliative care workforce also had no mention of pharmacists <sup>15-17</sup>.  
13 One of these studies did however report inconsistencies in palliative care training across  
14 undergraduate training courses and professions <sup>16</sup>. The European Association of Palliative Care (EAPC)  
15 atlas of palliative care describes developments in palliative care across Europe and none of these  
16 included the contribution pharmacists could make to the effective provision of palliative care <sup>18</sup>. The  
17 American Society of Health System Pharmacists (ASHP) acknowledges that the pharmacist's place as  
18 an essential member of the palliative care MDT has been traditionally overlooked, however they set  
19 out guidelines with details of essential and desirable roles <sup>19</sup>. If pharmacists are to effectively  
20 contribute to palliative care, their level of training should be appropriate <sup>19</sup>. As the role is currently  
21 poorly defined, it is unclear whether current HPhs are adequately trained to provide services.

22 The aims of this study are therefore;

- 23 • To explore the provision of HPh cover and their role in UK hospices.
- 24 • To determine models of hospice access to medicines.
- 25 • To evaluate current training provision and needs.

26

## 27 **Methods**

28 Ethics approval was granted by the University of Leeds School of Medicine Research Ethics committee  
29 on 14<sup>th</sup> January 2020 (MREC 19-021). An internet-based survey using the tool Online surveys<sup>®</sup> was  
30 developed using the aims of the study and was informed by two previous studies (see Appendix 1) <sup>12</sup>,  
31 <sup>14</sup>. The survey included a mixture of multiple choice and free-text responses and was piloted by two  
32 pharmacists and two non-pharmacists; appropriate changes were made based on feedback.

### 33 *Setting, participants and recruitment*

34 Total population sampling was carried out and all 198 UK adult hospices were approached.  
35 Children's hospices were excluded as their provision is to children with life-limiting conditions (and  
36 their whole families) over many years. This is in contrast to the care offered by adult hospices which  
37 is usually for patients within the last year of life. The survey was promoted and distributed in several  
38 ways.

- 39 1. The Association of Supportive and Palliative Care Pharmacists (ASPCP) distributed the survey  
40 to their 200 members (working in hospice, hospital and community sectors).
- 41 2. Hospice UK shared a list of 196 UK hospices with publicly available contact details and the  
42 survey details (and covering email from the researcher ZE) were shared with all hospices and

1 shared in the hospice leaders bulletin. Any hospices where emails came back as  
2 undeliverable were contacted directly for an email address.  
3 3. The survey was shared via social media using Twitter and Facebook by the researcher through  
4 a pharmacist group and followers from the industry.

5 Participation was voluntary and consent was inferred by survey completion. The survey was  
6 anonymous although the first half of the postcode was requested to allow for follow up of non-  
7 responders and detection of duplicates. It was requested that only the pharmacist should complete  
8 the survey and multiple pharmacists in the same hospice indicated their own hours and the total  
9 pharmacist hours for their hospice. It was acceptable for participants to miss out questions should  
10 they wish, and no incentives were offered for completion. Data were collected in January and February  
11 2020. Two reminders were sent by email at week 2 and 4. The researcher's contact details were shared  
12 to enable unsolicited response data to be gathered. Each hospice who had not yet responded received  
13 a telephone call during the study period requesting their pharmacist status (yes - they had a  
14 pharmacist or no - they did not). It was assumed that any response associated with a hospice had a  
15 positive pharmacist status. Pharmacists who worked at multiple sites were instructed to complete the  
16 survey separately for each site to reflect the different hours and duties of each site.

#### 17 *Data analysis*

18 Survey responses were collated into Excel spreadsheets by the research team. Free-text responses  
19 were grouped coded thematically and added to any multiple-choice responses gained. Data are  
20 summarised descriptively using frequency counts and medians (inter quartile range). Respondents  
21 were categorised into one of three equal, data-driven tertials based on the total number of pharmacist  
22 hours at each hospice: low (2-7.5 hours/week), medium (8-18.75 hours/week), high (19-67.5  
23 hours/week). P values are derived from chi-squared test and Kruskal Wallis test as appropriate for the  
24 data using STATA 15 (StataCorp. 2017. Stata Statistical Software: Release 15. College Station, TX:  
25 StataCorp LLC.).

26

#### 27 **Results**

28 Ninety-three survey responses were received from 198 invited hospices. Four respondents were  
29 excluded (2 from children's hospice and 2 from non-pharmacists) leaving 89 respondents from 82  
30 different hospices.

31 Pharmacy status was confirmed (using the telephone follow-up and the completed surveys) in 185  
32 hospices. One hundred and forty-nine (75%) UK hospices have pharmacy provision, 36 (18%) had no  
33 provision and the remaining 13 (7%) were unknown. Results of the survey are shown in Table 1. On  
34 telephoning the non-responding hospices many administration and clinical staff were unaware of  
35 whether they had a pharmacist or how to contact them if they had.

36 We estimate the total number of hospices which could have had pharmacist provision to be 162: 149  
37 confirmed and 13 non-responders. Therefore, we estimate our response rate to be 51%: 82/162.

38 Eighty-five responses were from single site hospices and seventy-five HPHs worked as the sole  
39 pharmacist in the hospice. The local NHS trust was the most common employer (74%), with fewer HPHs  
40 employed by the hospice itself (13%) and other organisations.

**Table 1 Results of the hospice pharmacist survey with data categorised into low, moderate and high pharmacist time per week**

**Table 1 Results of the hospice pharmacist survey with data categorised into low, moderate and high pharmacist time per week**

Variable	All (n=89)	Total pharmacist time per hospice per week			P value
		Low (2-7.5 hours) N=33 (37.1%)	Moderate (8-18.75 hours) N=30 (33.7%)	High (19-67.5 hours) N=26 (29.2%)	
Number of hospice sites*					0.327‡
1	85 (95.51)	33 (100)	28 (93.3)	24 (92.3)	
2	3 (3.47)	0	2 (6.7)	1 (3.85)	
3	1 (1.12)	0	0	1 (3.85)	
Beds					0.637†
Min-Max	7-48	8-32	8-34	7-48	
Median (IQR)	16 (12-19)	16 (10-20)	15 (12-18)	16 (12-21)	
Mean (SD)	16.74 (7.66)	16.03 (6.54)	15.97 (9.69)	18.54 (9.69)	
Number of pharmacists*					0.001‡
1	75 (80.9)	32 (96.97)	25 (83.33)	15 (57.69)	
2 or more	17 (19.10)	1 (3.03)	5 (16.67)	11 (42.31)	
Respondent hrs per week					0.0001†
Min-Max	2-37.50	2-7.5	3.5-18.75	3.5-37.5	
Median (IQR)	10 (4-18.75)	4 (3-6)	13 (8-16)	24 (20-30)	
Mean (SD)	12.92 (9.92)	4.47 (1.83)	12.17 (4.84)	24.53 (8.93)	
Total pharm hrs per week					0.0001†
Min-Max	2-67.5	2-7.5	8-18.75	19-67.5	
Median (IQR)	12 (6-20)	4 (3-6)	14 (10-17)	36.25 (25-37.5)	
Mean (SD)	16.19 (13.99)	4.59 (1.79)	13.47 (3.73)	34.06 (12.27)	
Pharm hrs per bed per week					0.0001†
Min-Max	0.11-5.54	0.11-0.75	0.44-1.88	0.59-5.54	
Median (IQR)	0.63 (0.40-1.56)	0.25 (0.1-0.44)	0.97 (0.56-1.21)	1.88 (1.56-3.13)	
Mean (SD)	1.12 (1.11)	0.33 (0.17)	0.96 (0.44)	2.31 (1.33)	
Employer*					0.384‡
Local NHS Trust	65 (73.86)	23 (69.71)	21 (72.41)	21 (80.77)	

Variable	All (n=89)	Total pharmacist time per hospice per week			P value
		Low (2-7.5 hours) N=33 (37.1%)	Moderate (8-18.75 hours) N=30 (33.7%)	High (19-67.5 hours) N=26 (29.2%)	
Hospice	11 (12.50)	2 (6.06)	4 (13.79)	5 (19.23)	
Wholesaler	6 (6.82)	5 (15.15)	1 (3.45)	0	
Community Pharmacy	4 (4.55)	2 (6.06)	2 (6.90)	0	
CCG	1 (1.14)	1 (3.03)	0	0	
Independent Hospital	1 (1.14)	0	1 (3.45)	0	
Medicine Source*					0.193‡
Hospital 100%	39 (45.35)	14 (46.67)	12 (40)	13 (50)	
Mix – Predominantly Hospital	15 (17.44)	4 (13.33)	4 (13.33)	7 (26.92)	
Community Pharmacy	12 (13.95)	5 (16.67)	6 (20)	1 (3.85)	
Mix – Predominantly Community Pharmacy	8 (9.30)	3 (10)	3 (10)	2 (7.69)	
Wholesaler	5 (5.81)	4 (13.33)	1 (3.33)	0	
Mix – Predominantly Wholesaler	6 (6.98)	0	4 (13.33)	2 (7.69)	
Mix (unclear preference)	1 (1.16)	0	0	1 (3.85)	
Proportion time spent sourcing medicines					0.224†
Min-Max	0-80	0-50	0-50	0-80	
Median (IQR)	10 (5-15)	5 (0.5-10)	10 (5-20)	10 (2-20)	
Mean (SD)	11.64 (13.81)	8.03 (9.69)	13.33 (13.41)	14.24 (17.79)	
Level of access to GP records*					0.005‡
None	26 (29.21)	15 (45.45)	7 (23.33)	4 (15.38)	
Read only (partial)	52 (58.43)	17 (51.52)	15 (50)	20 (76.92)	
Read and Write	11 (12.36)	1 (3.03)	8 (26.67)	2 (7.69)	
Level of access to hospital records*					0.734‡
None	35 (39.33)	13 (39.39)	14 (46.67)	8 (30.77)	
Read only (partial)	30 (33.71)	11 (33.33)	10 (33.33)	9 (34.62)	
Read and Write	24 (26.97)	9 (27.27)	6 (20)	9 (34.92)	
Years Qualified					0.212†
Min-Max	1.5-48	4-40	1.5-48	4.5-37	
Median (IQR)	20 (10-29)	20 (10-30)	22.5 (15-32)	19.5 (10-25)	
Mean (SD)	20.52 (10.63)	20.06 (10.89)	23.25 (11.44)	17.96 (8.85)	
Years as hospice pharmacist					0.248‡

Variable	All (n=89)	Total pharmacist time per hospice per week			P value
		Low (2-7.5 hours) N=33 (37.1%)	Moderate (8-18.75 hours) N=30 (33.7%)	High (19-67.5 hours) N=26 (29.2%)	
0-1	22 (24.72)	10 (30.30)	3 (10)	9 (34.62)	0.153‡
1-2	12 (13.48)	5 (15.15)	6 (20)	1 (3.85)	
2-4	12 (13.48)	6 (18.18)	4 (13.33)	2 (7.69)	
4-8	10 (11.24)	3 (9.09)	3 (10)	4 (15.38)	
8+	33 (37.08)	9 (27.27)	14 (46.67)	10 (38.46)	
Clinical diploma					
No	22 (24.72)	6 (18.18)	6 (20)	10 (38.46)	
Yes	67 (75.28)	27 (81.82)	24 (80)	16 (61.54)	

\*data are presented as number (proportion)

IQR= Interquartile Range.

† Kirswall Wallis equality of populations rank test

‡ Chi<sup>2</sup>



1 *Medicines sourcing*

2 Medicines were often obtained from multiple sources (Table 1). Hospices with low and medium  
3 pharmacist provision were more likely to source medicines entirely from wholesalers or community  
4 pharmacies rather than hospitals.

5 *Interdisciplinary communication*

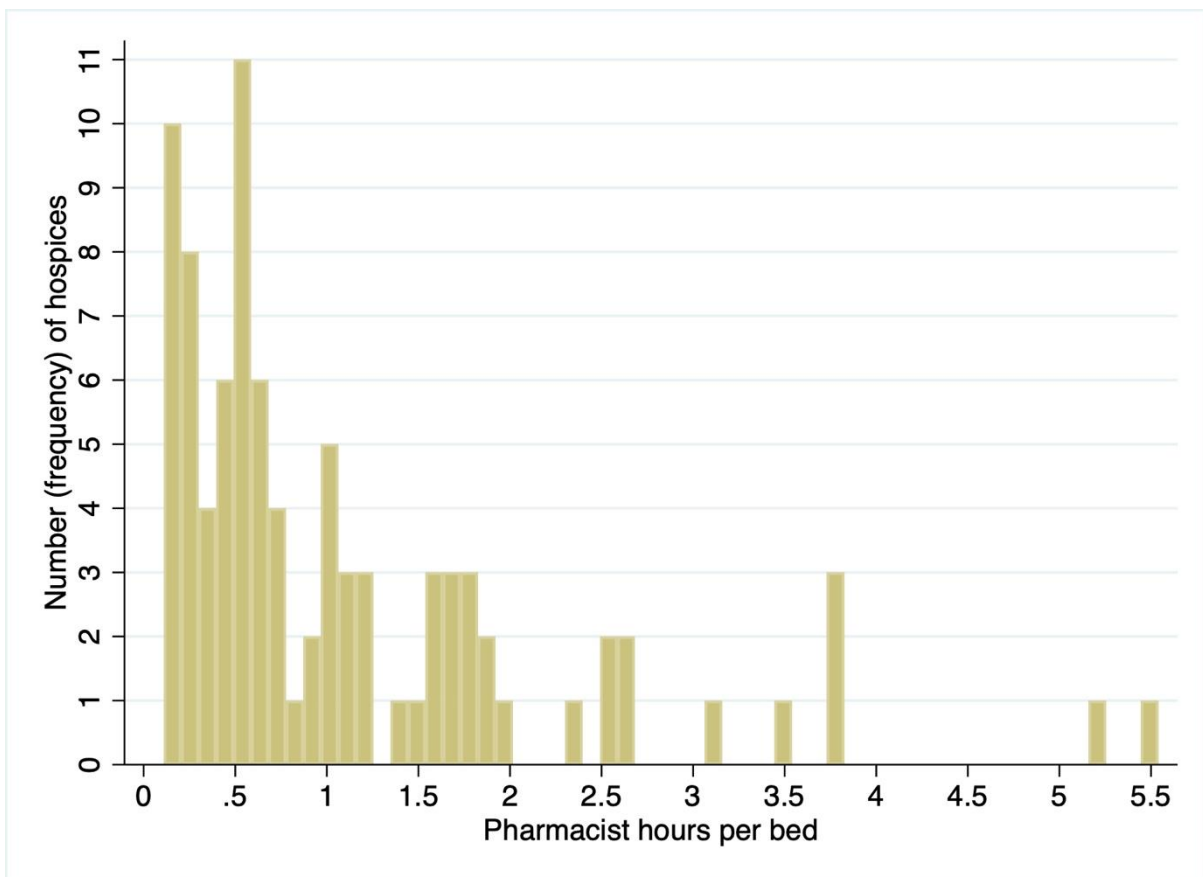
6 Sixty-three (71%) of pharmacists have partial or full access to primary care records and twenty-six  
7 (29%) have no access. Pharmacists working the fewest hours in hospices were least likely to have  
8 access to records.

9 *Working hours*

10 Respondents indicated that their hospices had between 2-67.5 hours a week of pharmacist time  
11 (median 12, IQR 6-20). When this was adjusted for bed numbers, HPh cover ranged from 6.6 minutes  
12 to 5.5 hours per bed per week (Figure 1).

13

14 **Figure 1 Histogram showing the distribution of pharmacist hours per bed per week.**



15

16 *Duties*

17 Respondents reported a total of 914 duties (Figure 2). The most common duty was providing  
18 medicines information to the therapeutic team (indicated by 94% (n=84) of respondents) closely  
19 followed by medicines reconciliation, medicines supply and sourcing.

20

1 **Figure 2 Frequency of duties of pharmacists working in hospices**



2

3 **Training**

4 Fifty-seven respondents (64%) reported having had training in palliative care. Respondents reported  
 5 between one and four different forms of training (mean 1.4). Twelve (17%) had some sort of  
 6 qualification in palliative care.

7 Forty-two (47%) respondents reported having training needs many of which were pharmacist specific  
 8 predominantly a basic palliative care course, symptom control and a recognised palliative care  
 9 pharmacy qualification. Three participants said that any additional training would be restricted by time  
 10 or expense.

11

12 **Discussion**

13 This UK HPh survey shows large variation in provision in UK hospices with some evidence of clinical  
 14 input and many pharmacists having training needs. Three-quarters of UK hospices had access to  
 15 pharmacist support, internationally second only to Canada<sup>12, 14 20</sup>. HPhs surveyed had an average

1 experience of 21 years in pharmacy with 37% of pharmacists being in their HPh role for 8 years or  
2 more. The majority of HPhs were employed by the local NHS trust with a smaller proportion employed  
3 by the hospice itself, a wholesaler or a local community pharmacy.

#### 4 *Strengths and Limitations*

5 This is the first paper of its kind examining UK HPh provision and provides the first indication of service  
6 provision and duties. The size of the hospice was calculated using the number of beds, however, many  
7 operate using day therapy and hospice at home type services as well as in-patient so the true need for  
8 pharmacist provision may not be clear.

9 Reliability may be affected as non-response bias is possible (as is common when using the survey  
10 method) as we do not have information about those who did not respond<sup>30</sup>. It would be interesting  
11 to explore how needs of patients and staff are met in hospices without pharmacist provision in future  
12 studies. It is likely that pharmacists who did not respond will be those less affiliated with the hospice  
13 (such as those based in community pharmacy and hospital) as they will be less integrated into the  
14 hospice team and invitation emails may not have been passed on. It is also likely that non-responders  
15 will be more likely to work shorter hours and that their hospice work may not be the main part of their  
16 role if they are not members of the ASPCP. The survey aimed to explore the role of the pharmacist  
17 within the hospice and the authors deem the results to have validity<sup>31</sup>.

18 A large range of pharmacist hours per bed was found with most pharmacists providing less than one  
19 hour per bed pharmacist support. Australian guidelines recommend an equivalent of 1.52 pharmacist  
20 hours per palliative care bed and a further Australian study recommends 2.23 hours making the UK  
21 provision far below recommended levels<sup>21,22</sup>.

22 Duties reported were similar to those in other developed countries with the most common being  
23 medicines information provision as reported in all international studies<sup>12-14, 23</sup>. Clinical input of  
24 pharmacists was seen in the form of various duties including medicines reconciliation. This has been  
25 found to improve symptom control in palliative patients although limited access to patient records  
26 was reported which would make this difficult<sup>24</sup>. Effective and safe clinical input would require access  
27 to patient records but it is unclear whether pharmacists working in any country have routine and full  
28 access to patient records<sup>12-14,19</sup>. There was little evidence of HPhs providing educational interventions  
29 for either inpatients or outpatients however this may be a product of the time HPhs have to provide  
30 the service. Educational interventions by pharmacists has been found to show promise in patients  
31 with cancer pain and potentially reduce pain intensity<sup>24</sup>.

32 The lack of awareness of the pharmacist on telephoning hospices was apparent from both the non-  
33 clinical and the clinical teams. Opportunities to contribute to MDT working are likely to be reduced  
34 with limited service hours and a priority for sourcing medicines. Participation in team meetings and  
35 ward rounds was seen more commonly in Canada where 73% thought it was a core duty<sup>14</sup>.

36 Although most of our sample were involved in education for the MDT, and levels were higher than  
37 elsewhere, a third reported having no training<sup>14</sup>. Respondents reported a need for basic and  
38 pharmacist specific opportunities. It is widely acknowledged that there is a need for training for  
39 palliative care pharmacists both in knowledge and communication skills<sup>7, 25-27</sup>

40 Although the predominant source of medicines provision for hospices was hospitals, a significant  
41 proportion was sourced through community pharmacies. Medicine costs are not transparent and due  
42 to local, national and regional discounts along with dispensing fees, it is likely that medicines sourced

1 from community pharmacies are associated with a greater cost than those sourced from hospitals <sup>28</sup>,  
2 <sup>29</sup>. This is an area for future research.

3

#### 4 **Conclusions**

5 Most UK hospices have access to pharmacy support however much of this falls below recommended  
6 levels. UK HPhs carry out multiple clinical duties despite having limited access to patient records. Many  
7 pharmacists reported a lack of training and there was an appetite for pharmacist specific palliative  
8 care training in the sector. Sources of hospice medicines vary, and this could have cost implications  
9 for hospices and may provide opportunities for future savings.

10

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