

## SHORT REPORT

# Medical and nursing staff highly value clinical pharmacists in the emergency department

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Despite the potential impact that emergency pharmacist (EPH) programmes could have on medication safety and quality of care in the emergency department (ED), very few programmes exist. This descriptive survey study aimed to assess staff perceptions of an EPH programme. A random sample of medical and nursing staff in an academic medical centre ED with a dedicated EPH programme received a 26-item survey (82% return rate). 99% of respondents felt the EPH improves quality of care, 96% feel they are an integral part of the team, and 93% had consulted the EPH at least a few times during their last five shifts. Staff felt that the EPH should be available for consults, attend resuscitations, and check orders. This study reinforced the value of many specific duties of the EPH programme and found that doctors and nurses overwhelmingly favour the presence of an EPH in the ED, frequently seek their advice, and feel they improve quality of care. Staff acceptance is clearly not a barrier to implementation of this programme.

Studies have shown that clinical pharmacists have a significant impact on patient safety in intensive care units and inpatient wards.<sup>1–4</sup> Reports of clinical pharmacists practising in the emergency department (ED) have existed for decades,<sup>5</sup> but very few (1–3%) EDs in the USA utilise dedicated clinical pharmacists.<sup>6</sup> Recently, experts and influential organisations have called for the increased use of emergency pharmacists (EPH).<sup>7</sup>

A potential roadblock to implementation of an EPH programme is the perception that physician and nursing staff might be unlikely to seek or accept the services of an emergency pharmacist. Although several authors have reported on the role of the EPH,<sup>5–9</sup> no recent reports have examined the perceived value of this role from the perspective of emergency physician and nursing staff.

This study is part of a larger research effort (supported by the US Agency for Healthcare Research and Quality) to evaluate the use of emergency pharmacists in the emergency department. Work is under way to study outcomes such as the impact on quality measures and adverse events in the ED. The study reported here is intended to address one perceived barrier by investigating whether the EPH role is accepted by ED staff. Specifically, this study aims to assess ED nursing and provider staff acceptance of the EPH as a member of the emergency care team, and their perceptions of the value of specific EPH functions.

## METHODS

This is a descriptive survey study of staff members in a US academic medical centre/trauma centre ED with 93 000 annual visits. The EPH is a doctor of pharmacy-prepared, residency trained clinical pharmacist based in the ED who provides consultations to providers and nurses, reviews medication orders, attends resuscitations, and assists with rapid preparation of urgent medications.<sup>9</sup>

**Table 1** General perceptions

	Overall n = 75 No. (%; 95% CI)	Providers n = 33 No. (%; 95% CI)	Nurses n = 42 No. (%; 95% CI)
<i>"How many times in your last 5 shifts in the ED during which an emergency pharmacist was on duty, have you consulted the emergency pharmacist? (select one)"</i>			
Multiple times per shift	18 (24%; 15% to 35%)	6 (18%; 7% to 35%)	12 (29%; 16% to 45%)
At least once per shift	30 (40%; 29% to 52%)	14 (42%; 25% to 61%)	16 (38%; 24% to 54%)
A few times	22 (29%; 19% to 41%)	12 (36%; 20% to 55%)	10 (24%; 12% to 39%)
Not at all	5 (7%; 2% to 15%)	1 (3%; 0% to 16%)	4 (10%; 3% to 23%)
<i>"Which of the following do you think is most important in maximising the emergency pharmacist's contribution to medication safety? (select one)"</i>			
Attend medical and trauma resuscitations	27 (36%; 25% to 48%)	11 (33%; 18% to 52%)	16 (38%; 24% to 54%)
Order review	7 (9%; 4% to 18%)	2 (6%; 1% to 20%)	5 (12%; 4% to 26%)
Being available for consult	35 (47%; 35% to 59%)	18 (55%; 36% to 72%)	17 (40%; 26% to 57%)
Staff education	6 (8%; 3% to 17%)	2 (6%; 1% to 20%)	4 (10%; 3% to 23%)
Patient education	0 (0%; 0% to 5%)	0 (0%; 0% to 11%)	0 (0%; 0% to 8%)
<i>"Which of the following types of orders should the emergency pharmacist check before they are administered? (select all that apply)"</i> **			
All orders	9 (12%; 6% to 22%)	3 (9%; 2% to 24%)	6 (14%; 5% to 29%)
Urgent orders	30 (40%; 29% to 52%)	14 (42%; 25% to 61%)	16 (38%; 24% to 54%)
Non-urgent orders	2 (3%; 0% to 9%)	1 (3%; 0% to 16%)	1 (2%; 0% to 13%)
High risk medications	64 (85%; 75% to 92%)	29 (88%; 72% to 97%)	35 (83%; 69% to 93%)
Rarely used medications	56 (75%; 63% to 84%)	25 (76%; 58% to 89%)	31 (74%; 58% to 86%)

\*Multiple answers given by several respondents.

**Table 2** Staff responses to survey instrument items regarding the role of the emergency pharmacist

Questions	Type of staff	Mean score*	Agree or strongly agree		Neutral	Disagree or strongly disagree	
			n (%)	95% CI		n (%)	95% CI
The presence of an emergency pharmacist improves quality of care in the ED	Providers (33)	1.2	33 (100)	89 to 100	0 (0)	0 to 11	0 (0)
	Nurses (42)	1.2	41 (98)	87 to 100	1 (2)	0 to 13	0 (0)
	All (75)	1.2	74 (99)	93 to 100	1 (1)	0 to 7	0 (0)
The emergency pharmacist is an integral part of the ED team	Providers (33)	1.2	32 (97)	84 to 100	1 (3)	0 to 16	0 (0)
	Nurses (42)	1.2	40 (95)	84 to 99	1 (2)	0 to 13	1 (2)
	All (75)	1.2	72 (96)	89 to 99	2 (3)	0 to 9	1 (1)
I make more use of a pharmacist when they are located in the ED as opposed to when I have to call the pharmacy	Providers (33)	1.2	33 (100)	89 to 100	0 (0)	0 to 11	0 (0)
	Nurses (42)	1.5	37 (88)	74 to 96	4 (10)	3 to 23	1 (2)
	All (75)	1.3	70 (93)	85 to 98	4 (5)	1 to 13	1 (1)
It is helpful to me when the emergency pharmacist checks orders before they are carried out	Providers (33)	2.0	23 (70)	51 to 84	8 (24)	11 to 42	2 (6)
	Nurses (42)	1.9	32 (76)	61 to 88	6 (14)	5 to 29	4 (10)
	All (75)	2.0	55 (73)	62 to 83	14 (18)	11 to 29	6 (8)
The presence of the emergency pharmacist during trauma and medical resuscitations enhances my ability to deliver safe, quality care to patients	Providers (33)	1.2	32 (97)	84 to 100	1 (3)	0 to 16	0 (0)
	Nurses (42)	1.4	35 (83)	69 to 93	7 (17)	7 to 31	0 (0)
	All (75)	1.3	67 (89)	80 to 95	8 (10)	5 to 20	0 (0)
The emergency pharmacist is valuable as a patient educator	Providers (33)	2.0	20 (61)	42 to 77	13 (39)	23 to 58	0 (0)
	Nurses (42)	1.7	35 (83)	69 to 93	5 (12)	4 to 26	2 (5)
	All (75)	1.8	55 (73)	62 to 83	18 (24)	15 to 35	2 (3)
The emergency pharmacist is a valuable teaching resource	Providers (33)	1.5	19 (58)	39 to 75	1 (3)	0 to 16	13 (39)
	Nurses (42)	1.4	27 (64)	48 to 78	0 (0)	0 to 8	15 (36)
	All (75)	1.4	46 (61)	49 to 72	1 (1)	0 to 7	28 (37)
<i>Paediatrics only: questions answered only by participants who work in the paediatric ED</i>							
A mandatory review by the emergency pharmacist of all routine orders (ie, non-emergent) for patients <1 year old or <10 kg would improve medication safety	Providers (21)	2.3	14 (67)	43 to 85	4 (19)	5 to 42	3 (14)
	Nurses (10)	2.4	6 (60)	26 to 88	3 (30)	7 to 65	1 (10)
	All (31)	2.4	20 (65)	45 to 81	7 (23)	10 to 41	4 (13)
Implementing a mandatory review (described in #25) is desirable to me	Providers (21)	2.8	8 (38)	18 to 62	9 (43)	22 to 66	4 (19)
	Nurses (10)	2.9	3 (30)	7 to 65	5 (50)	19 to 81	2 (20)
	All (31)	2.8	11 (36)	19 to 55	14 (45)	27 to 64	6 (19)

\*Mean score is calculated based upon the following scale: 1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree.

**Table 3** Staff responses regarding specific emergency pharmacist functions

"I find the emergency pharmacist to be useful in the following situations"	Type of staff	Mean score*	Agree or strongly agree		Neutral		Disagree or strongly disagree
			n (%)	95% CI	n (%)	95% CI	n (%)
Selection of the appropriate antibiotic	Providers (33)	1.5	30 (91)	76 to 98	3 (9)	2 to 24	0 (0)
	Nurses (42)	1.8	33 (79)	63 to 90	9 (21)	10 to 37	0 (0)
	All (75)	1.6	63 (84)	74 to 91	12 (16)	9 to 26	0 (0)
Selection of other medications (ie, advice regarding which is most appropriate)	Providers (33)	1.5	31 (94)	80 to 99	2 (6)	1 to 20	0 (0)
	Nurses (42)	1.5	39 (93)	81 to 99	3 (7)	1 to 19	0 (0)
	All (75)	1.5	70 (93)	85 to 98	5 (7)	2 to 15	0 (0)
Consultation regarding medication interactions	Providers (33)	1.5	30 (91)	76 to 98	3 (9)	2 to 24	0 (0)
	Nurses (42)	1.2	42 (100)	92 to 100	0 (0)	0 to 8	0 (0)
	All (75)	1.3	72 (96)	89 to 100	3 (4)	1 to 11	0 (0)
Consultation regarding medication use in pregnancy	Providers (33)	1.7	29 (88)	72 to 97	4 (12)	3 to 28	0 (0)
	Nurses (42)	1.5	37 (88)	74 to 96	5 (12)	4 to 26	0 (0)
	All (75)	1.6	66 (88)	78 to 94	9 (12)	6 to 22	0 (0)
Consultation regarding toxicology	Providers (33)	1.9	24 (73)	54 to 87	8 (24)	11 to 42	1 (3)
	Nurses (42)	1.4	39 (93)	81 to 99	3 (7)	1 to 19	0 (0)
	All (75)	1.6	63 (84)	74 to 91	11 (15)	8 to 25	1 (1)
Making medication decisions based on medication pricing	Providers (33)	2.1	23 (70)	51 to 84	7 (21)	9 to 39	3 (9)
	Nurses (42)	2.2	22 (52)	36 to 68	18 (43)	28 to 59	2 (5)
	All (75)	2.2	45 (60)	48 to 71	25 (33)	23 to 45	5 (7)
Making medication decisions based on medication efficacy	Providers (33)	1.6	30 (91)	76 to 98	3 (9)	2 to 24	0 (0)
	Nurses (42)	1.5	37 (88)	74 to 96	5 (12)	4 to 26	0 (0)
	All (75)	1.6	67 (89)	80 to 95	8 (11)	5 to 20	0 (0)

\*Mean score is calculated based upon the following scale: 1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree.

A 26 item survey instrument was developed from previously obtained qualitative data and published literature.<sup>10</sup> Five point Likert scales were used where appropriate (1 = "strongly agree" and 5 = "strongly disagree").

Fifty per cent of all ED nurses and providers, including attendings, fellows residents, and midlevel providers (nurse practitioners and physician assistants), were randomly selected to receive an email request to participate. A web-based survey was used and the resulting data were electronically imported to a database.

### Statistical methods

Response rates and demographic data were analysed using descriptive statistics. "Agree" and "strongly agree" responses were combined into a single "agree" category; descriptive statistics and confidence intervals around the proportions were calculated using Stata 7.0 (College Station, Texas, USA).

### RESULTS

Ninety-one of 182 eligible staff members were randomly selected to receive survey instruments; 82% were returned (42 nurses, 33 providers). Respondents had a mean 7 years' experience in the study ED, 54% of providers and 74% of nurses were female, and 41% work at least part of their clinical time in the paediatric area. Results are presented in tables 1–3. Respondents felt the EPh improves quality of care and is an integral part of the team, and most had consulted the EPh at least a few times during their last five shifts.

### DISCUSSION

The results of this study reveal overwhelmingly that the EPh role is highly valued and often utilised by staff, and is perceived to improve patient safety and quality of care.

These results have important implications for ED and hospital leadership teams who are considering implementing an EPh programme. While some may worry that resistance from physicians and nurses could be a barrier to implementation, this study clearly demonstrates that the EPh is highly valued and sought out by ED providers and nurses in an established programme.

Our findings support specific duties of the EPh which have been suggested in previous reports.<sup>5, 9</sup> For example, respondents felt that high risk and rarely used medications should be checked by a pharmacist when possible. Respondents who care for children felt that a mandatory review of certain medication orders for children would improve medication safety. Almost all respondents felt that the EPh was helpful with medical and trauma resuscitations, review of medications, for consultation, and as a patient educator.

This study supports the principle of physically locating the EPh in the ED. Respondents reported that they tend to consult with the pharmacist more often than they would if the pharmacist were remotely located. Furthermore, certain valued duties, such as patient education, checking orders, and attendance at resuscitations are not possible from a remote location.

Limitations of this study include the fact that it is from a well established EPh programme, so may not be easily generalised to EDs in non-academic centres or with new programmes. However, our findings support that, once established, staff will value the programme.

This study found that doctors and nurses in this academic ED overwhelmingly support the presence of an EPh, regularly seek their advice, and feel that they improve patient safety and quality of care. The results reinforce the value of many specific duties of this EPh programme, and demonstrate that staff acceptance should not be a barrier to implementation of an EPh programme.

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