Exploring the experiences and opinions of hospital pharmacists working 24/7 shifts

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ABSTRACT

Objectives The expansion of out-of-hours pharmacy services results from a drive to improve patient care and promote integration into the wider healthcare team. However, there has been little attempt to explore these intended outcomes as well as the potential problems arising from working out of hours. The aim of this study was to explore the experiences and views of pharmacists who work shifts as part of a 24/7 pharmacy service.

Methods Semistructured interviews with shift-working pharmacists were conducted. Data were analysed using a framework approach.

Results Pharmacists described the positive impact they had on patient safety by ensuring the prompt supply of time-critical medicines and their proactive role in preventing adverse drug events. Pharmacists' on-site presence and attendance at handover promoted integration into the wider team and facilitated unplanned interventions. However, requests for non-urgent supplies were a source of frustration. Disparity of pharmacists' perceptions of senior support demonstrated a need to explore communication further and the importance of non-technical skills, such as communication in service provision. Shift work appeared to be a double-edged sword for work–life balance, preventing participation in regular hobbies, but providing flexibility. Service improvements could include technician support, greater feedback provision and improved ordering processes.

Conclusions Overall, pharmacists believed the shift service exhibited numerous advantages over a traditional remote on-call service, particularly in improving aspects of patient safety and integration into the wider healthcare team. Clarity of the service scope and development of non-technical skills are areas for improvement and development.

INTRODUCTION

The provision of 24/7 hospital services is a major ambition of England's National Health Service (NHS). This policy shift has been driven by research that reports significantly increased mortality rates for patients admitted over the weekend compared with a weekday.[1 2] Although the basis of this research has been questioned,[3] the 7-day services programme aims to ensure 'patients that are admitted as an emergency, receive high quality consistent care, whatever day they enter hospital'.[4]

Traditionally, within UK hospitals, pharmacy services are provided on site during 'office hours', 09:00–17:00. Outside of these core hours, an on-call service is provided by the vast majority of acute hospital pharmacies.[5] This means that a pharmacist is available to answer calls from other healthcare professionals regarding medication queries or supply requests; they do this from home, travelling to the hospital if required.[5] However, across England, there is a wide variation in the extent and nature of out-of-hours pharmacy services.[6]

A limited pharmacy service out of hours can lead to omitted doses, delayed discharges and inadequate transfers of care.[7] This 'variation' in service provision prompted NHS England to put forward its recommendations for the transformation of hospital pharmacy services. This report recognised the work of some Trusts such as the Manchester University Trust (MFT) (previously Central Manchester University Hospitals NHS Trust), which had implemented a 24-hour shift-working system. This service was introduced because of increasing workload demands and the belief that the traditional on-call service had the potential to compromise patient safety and staff well-being—staff would work a 7.5-hour shift followed by a 16-hour on-call shift.[8] The shift service comprised 16 pharmacists (bands 6 and 7)[i] rotating through late shifts finishing at 21:00 or 22:30 and overnight shifts starting at 20:30 and finishing at 08:45.

The new 24/7 service was designed to provide the on-call services as a designated night shift and include the reactive 'on-call' element of the service, but also a proactive service was developed. This proactive service was designed around the acute medical admissions unit and medical handover meetings. It allowed activities that would traditionally be completed the next day to be completed earlier, ensuring patients received a more timely pharmacist review and allowing specialist staff to focus on the more complex clinical needs of the patient the following day rather than routine assessments. This service also provided greater prescribing support for junior medical staff out of hours.

While there is plentiful literature regarding both medical and nursing teams working overnight, there is a dearth of research exploring pharmacists who work in this way. Yet understanding the experiences and views of those on the front line of service delivery would be useful to those interested in developing their clinical pharmacy services and also to those who are considering taking on such a role in hospitals that offer similar services. We know, for

[i]Within England's NHS, there is an overall staff pay structure with clearly defined pay bands. Newly qualified hospital pharmacists usually start at band 6, and can progress through the bands and in some cases reach band 9 (eg, a chief pharmacist overseeing the management of the hospital pharmacy). Each band reflects the qualifications, experience and the particular duties that each band has in the organisation.

example, that other healthcare professionals find that working shifts can be physically testing,[9] but that it also provides flexibility.[10] Whether pharmacists hold similar views is unknown.

The intention of expanded pharmacy services is ultimately improved patient care and better integration into the wider healthcare team, yet beyond describing and quantifying service provision[5] and use out of hours,[11] there has been little attempt to explore these intended outcomes from the perspective of the pharmacist.

The aim of this study was to explore the experiences and views of pharmacists who work shifts as part of the MFT 24/7 pharmacy service.

METHODS

Design

We carried out an exploratory qualitative study using face-to-face semistructured interviews with pharmacists.

Recruitment

All 16 pharmacists employed by the Trust to implement the 24/7 service were emailed a participant information leaflet and an invitation to take part in an interview.

Data collection

Two of the authors (AF and MM) conducted the interviews using a semistructured interview schedule. This schedule was designed based on the literature and included advantages and disadvantages of the service, perceived impact on patient care, the pharmacists' role within the wider team, impact on work–life balance and suggestions for improvement. Interviews were audio-recorded and transcribed verbatim.

Data analysis

Thematic framework analysis was used to analyse the data, providing a systematic approach to processing data.[12] This process involved familiarisation with the data by reading and rereading of the interview transcripts, identification of a thematic framework in which the key issues, themes and concepts are included, application of the framework to the data, that is, indexing and charting of the data to include summaries of participants' views and experiences, and finally mapping and interpretation of the data so that the range and nature of the topic of interest are explained.[12]

RESULTS

Thirteen of the 16 pharmacists delivering the shift service at MFT were recruited to take part, 11 of whom were band 7 senior specialised pharmacists, while the remaining 2 were band 6 junior-grade pharmacists.

The analysis centred on six key themes: patient safety and medicines optimisation, relationships and teamwork, service use, support, work–life balance, and service development.

Patient safety and medicines optimisation

All pharmacists discussed the positive impact that this service had on improving medication safety for patients. Most pharmacists made reference to their ability to perform medicines reconciliations overnight, meaning that patients' regular medications could be supplied promptly and reducing the number of omissions. Such promptness was particularly pertinent for critically timed medications:

> …we can catch people on admissions and if you're there doing an accurate drug history…you can reduce things like critical meds being missed, interactions, people being prescribed inappropriate antibiotics… (Pharmacist 7)

Pharmacists also discussed how they could make prompt interventions to prevent serious adverse drug events by checking the clinical appropriateness of newly prescribed medications. One specific example was given by a pharmacist who intervened to prevent a substantial overdose of anticoagulant to a patient:

> …I've really genuinely saved patients from harm or in some cases death…One of the things I've intervened on overnights is heparin infusions where a patient has been given ten times the amount they are supposed to be and actually started to bleed. I stopped the infusion the second I realised that was happening… (Pharmacist 5)

Another perceived positive of the service was the ability for regular pharmacists to hand over high-risk patients to the night shift pharmacist, providing previously unavailable reassurance so that the safety of such patients would be monitored:

> I got handed over someone who was on a heparin infusion and their renal function was so poor that they needed it checking quite often then it was quite nice that the pharmacist was able to hand over to another pharmacist. (Pharmacist 2)

Physical presence on the wards and the ability to read medical notes as well as speak to patients were recognised as key benefits of being present overnight on-site. Pharmacists felt this enabled them to have a better understanding of the reason for a patient's admission to hospital, what medications the patient was taking and therefore how to best optimise medications.

> What you'd want to do as a pharmacist is read notes-you want to know background-you know that you need to think about the patient holistically and to know that, you need to read everything that's going on with their situation… (Pharmacist 4)

Although pharmacists discussed the positive impact on patient safety, some were concerned that there might be an increased potential for dispensing errors during the supply process because they were involved in every stage of the process, without the safety barrier of a second check:

> …You are completely on your own you're doing everything; you're clinically checking something, you're dispensing, if something needs supplying, you then might have to be accuracy checking it. You're doing every stage of the process. I think the risk of making an error in that scenario where you're making supplies; it's probably higher… (Pharmacist 13)

Relationships and teamwork

All of the pharmacists interviewed believed that being present on-site had positive implications for teamwork. There was a perceived improvement in working relationships with other members of the multidisciplinary team, including nurses and doctors, which otherwise may not have been achieved while working from home:

> …you get to build a good rapport with like the nurses and the doctors and they get to know you as well because, you know you're on there all the time…I think it's better for working relationships, I've definitely got to know more, particularly FY1s. (Pharmacist 1)

It was thought that being present on-site facilitated better communication between healthcare professionals:

> …I find communication is a lot better if you're actually talking to somebody, rather than relying on a telephone conversation… (Pharmacist 13)

Attendance at handover meetings was key to engendering positive interprofessional relationships:

> We attend the night-time hospital handover meetings…it's a big type MDT type meeting where everyone can see your face and they know you're there so they're more happy to speak with you and ask you questions. (Pharmacist 4)

By being present on-site, pharmacists had access to greater resources, enabling them to respond to queries from the wider team in a timely manner and assisting in achieving the overall ward teams' objectives. Some pharmacists believed that being present on-site overnight was *"more efficient in terms of giving clinical input"* (Pharmacist 1).

Service use

Pharmacists described how the reactive service was being used by doctors and nurses. Clinical queries were received frequently from most junior doctors (foundation year 1 and year 2), and such calls provided a sense of professional satisfaction for the pharmacist:

> … Junior doctors will bleep more than seniors…if it is a doctor it is a clinical question and they're generally quite nice to come across. It's like woo they actually needed me (laughs). (Pharmacist 8)

Pharmacists discussed how the majority of calls to the on-call service came from nurses regarding the supply of medicines. Commonly they felt that nurses were using the service to obtain supplies of non-urgent medicines, which was perceived to be an inappropriate use of their time:

> you get calls for alendronic acid to be supplied when it's not due for another two days and it's just a waste of time… (Pharmacist 5)

There was also a perception that there had been an increase in supply requests out of hours because a pharmacist was available on site. Some requests were thought to be unnecessary work as day staff should order routine supplies during regular pharmacy opening hours when a full pharmacy team is available. This made the team feel as though they were being used inappropriately, resulting in dissatisfaction:

> The night nurses kind of go around count CDs [controlled drugs] and realise they are depleted or not in stock. So we get the order in the middle of the night when we are supposed to be on admissions seeing patients. (Pharmacist 5)

This misuse of the service was difficult for pharmacists to handle as they described some staff as very demanding, leaving the shift-working team feeling they have no choice but to give them what they want whether it is essential or not:

> … we have been told we can say no we don't need that, we can leave that for the day team but some people just turn up and put you in a bit of a position. (Pharmacist 7)

Variations in what pharmacists did and did not supply could potentiate this issue:

> If us is as a team aren't all doing exactly the same thing…you might get back, 'well I called about something last week and whichever pharmacist supplied it'. (Pharmacist 13)

Despite descriptions of nurses' inappropriate use of the service for non-urgent supplies, pharmacists described the important support that they provided with nurses' administration queries.

Support

Support while working in the service was explored during each interview. Most described the support provided by other shift workers. A WhatsApp group set up by the shift workers was used to pose clinical questions to each other if they were struggling with a particular query:

> …We do actually support each other quite well…we have a little WhatsApp group and because we all don't sleep particularly well you can generally send a text and a couple of people will reply so you can bounce ideas off people that way… (Pharmacist 5)

However, pharmacists' views of senior support varied. One pharmacist felt isolated:

> …there is nobody for you to call. You would just be calling someone unofficially, just asking for their advice…you're just going to have to hope that the person you ring is nice and will answer their phone… (Pharmacist 2)

Others described how they had support, but one person highlighted their reluctance to use this: "… do I really want to wake this person up for that particular query even though if they say yeah if you get stuck you can ring us so it is hard…" (Pharmacist 6)

Conversely, there were those who felt entirely supported by seniors:

> We have a good team here, you can call your seniors, even if it's in the middle of the night, we have everybody's telephone numbers, and you can call. (Pharmacist 13)

Pharmacists felt that greater support on the ground and feedback would be beneficial to improve the service and allow development of their clinical skills. All out-of-hours queries are logged on an electronic system, On-Call Manager, which can then be checked the following day by the regular specialist pharmacist in the area from which the query related. A couple of pharmacists expressed dissatisfaction as they felt they were not getting enough feedback on their responses to out-of-hours queries:

> We rely heavily on feedback and I think this has been created and nobody has really checked it to see if we need help… (Pharmacist 4)

A desire for greater feedback and hence the opportunity to learn from their experience was felt to be important for professional development:

> I would make it compulsory for pharmacists to be checking the on-call log the next day and be giving us the feedback…because if you do wrong one day and somebody doesn't tell you, you are going to carry on doing that until somebody tells you differently… (Pharmacist 2)

Work–life balance

The majority of pharmacists believed there were some positive aspects to working as part of this shift patterned service. Benefits relating to work–life balance included time off during the working week and more flexible working patterns:

> …I quite like that you get the days off to compensate. It's quite nice being off on a mid-week where you can get things done…It is quite nice to have that freedom and flexibility… (Pharmacist 8)

However, almost all pharmacists discussed some negative impacts working on-site overnight had on their work–life balance. The long night shifts were disruptive of a regular sleeping pattern and the majority of the pharmacists interviewed found working within the 24/7 service very tiring:

> Disadvantages of being on site is that it messes up your sleep pattern and social life. I go home and I sleep maximum 4 hours in a row and I can't go back to sleep. (Pharmacist 6)

Some believed that this fatigue could impact their decision-making:

…I do worry sometimes that I'm going to miss something that I would normally have picked up on… (Pharmacist 4)

Half of the pharmacists interviewed commented that they believed this pattern of work meant they were unable to commit to hobbies and had reduced social contact when they worked on-site overnight:

You lose your weekends and you lose your evenings-I did a lot of sport before I did this and obviously some of those things were things where you needed to go every single week and now I just can't… (Pharmacist 2)

Service development

Pharmacists were probed as to how the service could be improved. Most frequently pharmacists discussed how dissemination of a clear description of the service and its purpose to ward-based teams would decrease its inappropriate use:

…it'd be nice just for the hospital to have a better understanding of what we are here for…then we'd have a lot more time to focus on the clinical bleeps… (Pharmacist 7)

Another suggestion to reduce inappropriate use of pharmacists' time out of hours was to screen the calls to the team as *"there is no filter…"* (Pharmacist 11) or to provide a separate number.

To enable pharmacists to focus on the clinical aspect of work, pharmacists described how they would like to see an accuracy checker on the team:

…we just need more people on the ground. An accuracy checker who could dispense would be my preference… (Pharmacist 9)

The importance of management soliciting feedback from pharmacists was highlighted during interviews. Listening to and taking on board suggestions was important for motivation of the shift-working team:

they [pharmacy management] welcome our feedback…Which is quite good for motivation as well because you want to work somewhere you want to feel you're being respected and they are taking note of what you're saying. (Pharmacist 7)

DISCUSSION

This paper provides a rich qualitative insight into the perceptions and experiences of shift-working pharmacists. Such information is useful and provides insights for those who might be considering the development of a similar service.

Overall pharmacists were very positive about working as part of a pharmacy 24/7 shift service. Pharmacists perceived that their on-site presence led to the prevention of medication errors, optimisation of medicines and the improved safety of patients, all of which are key elements of the NHS's standards for 7-day services. Pharmacists felt their presence enhanced their relationships with the wider healthcare team—one of the ambitions of NHS England is to better integrate clinical pharmacy professionals into the multidisciplinary team (MDT),[7] and this service goes some way to achieve this objective.

The service provides a more effective 'reactive' role when responding to the typical on-call queries as pharmacists were on site with access to resources and importantly the patients themselves. However, the service at MFT is not a residency service but a defined shift, and with the incorporation of proactive duties this meant that pharmacists' skills were being fully used. This proactive work was thought by the pharmacy service to provide the greatest benefit to patients, ensuring the safety of prescribed medicines and the continuation of time-critical medicines.

Despite this, there were aspects of the service which pharmacists felt could be improved. The perceived inappropriate use of the service by nursing staff was a particular issue and one that has been described at other NHS Trusts.[11] Although the pharmacy team can refuse these requests, it is difficult for them to do so. A study of junior doctors found that communication with nurses, and in particular saying no to non-urgent requests, was a key non-technical skill in out-of-hours work, and recommended that training for healthcare staff using simulation or role-play may help.[13] Further research could explore the non-technical skill requirements of pharmacists so as to ensure training focuses on clinical aspects of out-of-hours service provision and those skills that optimise the delivery.

A possible lack of understanding of the scope of the service by nursing staff resulted in more routine supply activity than planned. There had been communication of the service scope at the outset of implementation, but with a high turnover of nursing staff and the frequent use of agency staff it is understandable that this message was sometimes lost. New ways of accessing the service such as an electronic ordering system to replace the bleep, a pharmacy portal with information about ordering medicines or the screening of calls are being investigated.

As highlighted by the participants, the service may have also benefited from having support from technicians and dispensers overnight to deal with the supply function of the work. This approach would make better use of pharmacists' time, allowing them to focus on the proactive clinical tasks that will likely have the greatest impact on patient care. It would also alleviate fears regarding safety as there would be second checks on medicine supplies. However, such an approach is limited by available funding.

Fatigue and its potential impact on cognition was discussed by participants. To avoid accumulated fatigue associated with night shifts and its associated health risks,[14] the current rota has no more than two night shifts in a row, in line with current thinking.[15] A shift rota also needs to be flexible to allow staff to participate in non-work-related activities. Poorly designed shift rotas can impact on performance[16] and staff satisfaction.[17] This demonstrates the importance of a well-designed rota that takes into account the needs of staff.

Although pharmacists when joining the team receive training including who to contact if they need further help, there were clear differences among the pharmacists as to the perceived accessibility of senior support. Currently, pharmacists are directed to contact (via telephone) a member of the most appropriate team; for example, if they have an adult critical care query, then they will contact a member of the adult critical care pharmacy team. A senior second on call was considered but decided against because of the highly specialist nature of MFT services. It was also felt adding in another tier would add an additional cost and that most complex queries would need to be answered by the relevant specialist anyway. What is clear from these data is the variation in confidence or conviction to contact the specialist out of hours. This reluctance to seek support is echoed in the literature regarding on-call junior doctors, with the suggestion that team training techniques might go some way to alleviate such problems.[13,18] Dealing with clinical isolation is another key non-technical skill reported as important for providing out-of-hours care[13] and a skill that may need to be more closely considered as the prevalence of shift services increase in line with NHS transformation plans. Further research should explore this concept, but there is a definite need to have clear lines of support

in place especially for most junior pharmacists. The notion of peer support was encouraging, and although pharmacists were physically isolated from other members of the shift team overnight they felt that they had support through the medium of instant messaging. Being part of a supportive team is important, and junior doctors who have such social support reported good morale, which in turn protected them from intense workloads.[16]

It has been suggested that other staff working out of hours, for example, trainee medical staff, have reduced on-the-job learning opportunities and find self-study more difficult.[16] In our study pharmacists expressed discontent regarding the feedback they received in relation to on-call queries and the lack of opportunities to learn from their decisions. Encouraging senior specialist pharmacists to review On-Call Manager and feedback is important, but current pressures are a barrier to consistent and timely feedback. However, such feedback is important to engender clinical pharmacy knowledge among shift-working pharmacists.

Participants discussed the impact of night shifts on work–life balance. As described with other healthcare professionals, working night shifts provided some flexibility to carry out daytime activities but also impacted their ability to do other things outside of work.[10 16] Despite difficulties maintaining a work–life balance, junior doctors have reported that working shifts enhances career development and helps in developing confident decision-making skills.[16] Further work could elucidate whether the job enrichment felt by junior doctors[16] is mirrored by pharmacists working in this way.

In a large hospital with high demand, this shift-based service is perceived to be a safer and more efficient way of working. Future work could explore wider healthcare staff views as well as evaluate clinical outcomes.

Study limitations

Limitations of this study relate to its qualitative design and include the restricted generalisability of findings due to the small number of participants from a single study site. However, due to the novel nature of the service, there are few comparable pharmacy services in the UK from which a larger sample could be taken.

To reduce the impact of social desirability bias, which can emerge when using qualitative interviews, participants were offered a choice of interview location to enable them to speak freely. Interviews were conducted by AF and MM who were not part of the hospital team.

CONCLUSION

The addition of a 24-hour service at MFT is perceived to exhibit numerous advantages over a traditional remote on-call service, particularly in improving aspects of patient safety and regarding integration into the wider healthcare team. Clarity of the service scope and support are areas for improvement and future development.

What this paper adds

What is already known on this subject

- Limited pharmacy services out of regular hours can lead to omitted doses, delayed discharges and inadequate transfers of care, and may leave junior medical staff with little support.
- To reduce such problems the Manchester University Foundation Trust pharmacy department has implemented a 24/7 shift service.
- To date, no research has explored the views of pharmacists delivering a clinical pharmacy shift service, and such information is valuable in order to improve and develop such services elsewhere.

What this study adds

- A detailed description of a novel 24-hour shift service provided in a large teaching hospital.
- An insight into the views of pharmacists working overnight and at weekends and the advantages and disadvantages of this working pattern.
- Useful information for those seeking to develop or implement their own shift-working service.

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