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24-hour shift-working system piloted for junior pharmacists

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New patients are reviewed 24 hours a day

A 24-hour shift-working system for junior pharmacists has been introduced in Derby Hospitals NHS Foundation Trust. This article looks at how this system has led to improved clinical pharmacy services within the trust

The traditional resident pharmacist out-of-hours service at Derby Hospitals NHS Foundation Trust has been changed to a 24-hour shift-working system. This article looks at the advantages and disadvantages of both systems and offers advice on overcoming the obstacles caused by the introduction of a true 24-hour shift system. The drivers for extended hours pharmacy services and modernisation of NHS services as a whole are also explored.

Background

During the 1980s and 1990s the pharmacy departments at the Derbyshire Royal Infirmary (DRI) and the Derby City General Hospital (DCGH) operated a traditional on-call residency system with basic grade pharmacists. This well-established residency aimed to ensure that safe, effective and appropriate drug therapy was available 24 hours a day. It primarily provided a supply function and clinical advice out of hours. The residency also enabled the continuation of daytime pharmacy services, such as a pharmacist attendance at cardiac arrest calls and the manufacture of urgent intravenous products.

In 1998 the two hospitals merged into one 1,100 bedded acute trust. In 2001 the following factors prompted a complete review of out-of-hours pharmacy services:

- The increasing demands placed on the on-call services
- Increasing concerns about maintaining the safety of the out-of-hours service
- Increasing concerns about the excessive hours being worked by on-call pharmacists
- The impact of the European Working Time Directive 1998 (EWTD)

In response to these factors a shift-working system for junior pharmacists was developed. This also allowed us to redesign the pharmacy service in light of several other issues that were challenging hospital pharmacy departments, namely:

- How to review patients as soon as possible after admission
- How to ensure patients were supplied with the appropriate medicines 24 hours a day, seven days a week
- How to integrate pharmacy staff fully with medical and nursing staff
- How to ensure the pharmacy department could respond rapidly to urgent requests for ready-to-use intravenous products

The pharmacists' overnight shift was incorporated into their standard weekly hours of work (ie, they work throughout the night — not just on-call). The overnight service was redesigned to include two visits to the medical admissions unit (MAU) to review newly admitted patients. This enabled us to comply further with recommendations that newly admitted patients are reviewed as soon as possible after admission, making sure a patient's medicines are appropriate and available early in their stay, and to address the reality that 50 per cent of the prescribing in an acute hospital occurs out of hours.[1]

Resources

Following the development of a business case, funding was secured from the trust for the additional staffing required to operate the shift system. This included:

- Four additional basic grade pharmacist posts (bringing the total to 16)
- Continued availability of a comprehensive second on-call back-up service (an experienced clinical pharmacist and an experienced aseptic services pharmacist were always available for advice and sickness cover)
- Technicians working shifts until 11pm on each site assisting with the supply of medicines (including urgent aseptic products) for patients being discharged, admitted or attending accident and emergency

Implementation

Phase one of the shift model was introduced in November 2000. This involved having a single pharmacist working at one site (DRI)

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overnight to provide a service to both hospitals. The overnight shift pharmacist maintained the existing roles of the resident pharmacist and supplemented these with regular visits to MAU and other wards. Guidance was provided on other tasks which could be continued overnight if all the ward work was complete, such as formulary and medical information work.

Nine pharmacists worked a "one in nine" shift pattern that started with two blocks of nights (four nights then three nights) and a total of seven days off in the first fortnight. Only pharmacists based at the DRI site worked night shifts; those at the DCGH site worked shifts of which the latest finish time was 11pm.

Advantages

There are many advantages to the 24-hour shift system, for the pharmacists, other health care staff and the patients:

Reduced hours and compliance with the EWTD Shift working pharmacists no longer have to work excessive hours. Previously, the average number of nights covered by each pharmacist was one in seven. This has now been reduced to one in 11. Similarly, the longest continuous time on duty has been reduced from 28 hours to 12 hours and the mean number of hours worked per week has decreased from 53 hours to 37.5 hours. Whether it is a busy or a quiet night no longer affects the amount of sleep deprivation the resident has to endure. This prevents the excessive fatigue (and associated risk of error)[2] often seen in traditional residency services. This remains true even in times of staff shortage. If the pharmacists have to work extra night shifts to cover vacant posts or sickness, their average weekly hours remain at 37.5.

Integration with other hospital staff With an average of 60–70 patients coming through MAU every 24 hours, there is never a shortage of patients to review overnight. Carrying out normal clinical duties on MAU overnight enhances integration with the medical and nursing staff. True partnership, working with the multidisciplinary team admitting patients, is facilitated.

24-hour provision of the clinical pharmacy services The ability for a clinical pharmacist to review newly admitted patients 24 hours a day would not have been possible without the swap to a shift working system. The overnight service to MAU allows us to:

- Ensure that the patient's therapy is appropriate early in their stay
- Ensure patients have an adequate supply of the correct medicines early in their stay (hence facilitating the discharge process)
- Avoid the heavy MAU morning work-load dealing with overnight admissions
- Avoid the heavy MAU Monday work-load dealing with weekend admissions

Also, by working on site in the hospital all night, the pharmacist is able to respond faster to urgent requests such as the cardiopulmonary resuscitation (CPR) bleep and the need for urgent intravenous antibiotics.

Staff development Although these shift working posts are undoubtedly challenging, junior pharmacists gain experience, knowledge and develop generic managerial skills (eg, personal effectiveness, time management, multidisciplinary team working, prioritisation and diplomacy skills) in a way that non-shift-working pharmacists may not.

Formalised communication The night shift worker is unable to hand over issues to the daytime team, therefore a formal communication system is in place. All calls are logged in our intranet-based on-call database and reviewed each morning by the relevant directorate pharmacist.

Disadvantages

It is important to note the disadvantages to having an increased complement of phar-

macists, notably the increased amount of management time spent on recruitment and retention issues as well as increased education and training requirements (there are 16 shift working pharmacists in post, all on two year fixed-term contracts).

Subjectively we have found that there appears to be a finite length of time for which pharmacists are prepared to work shifts (two years). This time frame fits nicely with the University of Derby clinical pharmacy diploma but it may be shorter than the average time spent as a resident pharmacist at other hospitals.

Missed education and training The dedicated nightshifts mean that pharmacists miss ward-based training or teaching for that week. Diploma tutorials and examinations may also be missed depending on what time of day they are held.

Reduced face-to-face communication As the night shift worker is not physically seen by their manager or other senior staff, face-to-face meetings are not possible until the night shifts and subsequent days off are over (e-mail and feedback via the on-call database are the only viable routes of communication).

Restrictions on annual leave Although the shift pattern allows planning for months in advance it does lack a degree of flexibility. Annual leave is usually taken in weeks of "office hours" working rather than weeks of night shifts. Shift workers organise swaps between themselves for holidays, etc. We have found it difficult to plan shift patterns and rotas when pharmacists swap across our two sites. This has improved in phase two of the shift-working system now that staff on both sites contribute to night cover.

CPR cover out-of-hours From 11pm the overnight shift worker based at the DRI is the only pharmacist working for both sites. This means that he or she is physically unable to attend cardiac arrest calls at the DCGH site overnight.

Unrealistic expectations of staff A routine 24-hour service has shifted the expectation of nursing and other staff within the trust. The knowledge that the pharmacist is on-site and working all night has led to requests that were not seen as much with the traditional on-call residency. Some staff within the trust expect the same service throughout the night as is delivered during the day. This 24-hour supermarket "open all hours" syndrome has been described before.[3]

There is now a clear protocol/decision tree for contacting the pharmacist out-of-hours and work with the "hospital at night" project[4] should help to manage and minimise unnecessary calls.

There is also sometimes a feeling among day staff (both pharmacy and ward-based) that it does not really matter if they do not finish a task during the day because there is someone working later who will sort it out for them. Work received during the day should be completed during the day and we aim for shift workers only to be dealing with new work received during their shift period.

Phase two

A number of amendments have been made to the original shift model since its introduction:

Linking both sites The linking of rotas at both sites now allows the overnight shift to be done by pharmacists currently working at the DCGH site, as well as those based at the DRI site. This has resulted in a fairer system with pharmacists at both sites spending roughly equal amounts of "office hours" time at work (minimising missed ward-based teaching and diploma tutorials).

Separate blocks of night shifts The block of three nights with days off then four nights, with days off, were initially in consecutive weeks. This meant that the pharmacist missed daytime ward visits and training for two consecutive weeks. In phase two they have been separated in the nine-week rota pattern to reduce the impact of missing daytime activities.

Handover The handing over of information to the overnight pharmacist at 8pm became increasingly difficult because this was often a busy time of the evening. Hence, in phase two we incorporated a 30-minute handover time into the shift pattern.

Conclusion

The introduction of a shift working system has enabled us to review new patients 24 hours a day. There have been significant benefits to the trust (eg, ensuring rapid review and supply of patients' medicines) and to junior pharmacists (eg, gaining invaluable experience professional and managerial skills). We have successfully reduced the excessive hours of work of our junior pharmacists and now comply fully with the EWTD.

We have learnt that despite having clear objectives for the out-of-hours service and being able to measure its impact both qualitatively and quantitatively, these criteria alone do not guarantee its success. Managing the expectations of everyone who provides or uses the service is of vital importance, otherwise it is easy to create an environment where people expect the same level of service 24 hours a day. What is possible with a whole department is not possible with one or two staff overnight.

References

1. Slee A, Farrar K. What are normal working hours for a hospital pharmacy? Pharmaceutical Journal 1998;260:923–25.
2. Alberti K. Medical errors: a common problem. BMJ 2001;322:501–02.
3. Lippett S. Resident Pharmacy — super-pharmacy or pharmaceutical torment? Hospital Pharmacist 2002;9:129–30.
4. Findings and recommendations from the hospital at night project. London: The Modernisation Agency;2004.