

---

# DOCUMENTATION AND ANALYSIS OF AFTER-HOURS DRUG INFORMATION REQUESTS IN A GENERAL HOSPITAL

Jeffrey Cassar, Lilian M. Azzopardi  
Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta, Msida

Corresponding author: Jeffrey Cassar  
Email: jeffrey.cassar.04@um.edu.mt

## ABSTRACT

**OBJECTIVES** To document, analyse and evaluate drug information (DI) requests received by shift pharmacists during after-hours in the inpatient pharmacy at Mater Dei Hospital.

**METHOD** A documentation tool entitled 'After-Hours DI Documentation Form' was developed for the purpose of recording DI requests received after-hours. A pilot study was conducted using the developed tool, which was validated by an expert panel. Subsequently, DI requests received over a 6-month period were recorded. Data was analysed qualitatively.

**KEY FINDINGS** Results obtained from a total of 65 shifts from a possible 82 were included in the study. A total of 224 DI requests were recorded using the documentation form. From these, 50.4% were received during night shifts and 49.6% during day shifts. Seventy-two percent of all requests were placed by nursing staff. Pharmacists provided information verbally over the telephone in 91.5% of cases. The requester was provided with information within 30 minutes in 99.1% of situations. The majority of requests (88.4%), concerned one type of medication. A total of 240 reference sources were consulted by pharmacists. Textbooks were the most commonly used in 37.5% of cases. Most requests (76.8%) fell within the category of drug administration, drug identification and availability. The 224 requests involved 254 different medications, 53.6% of which were injectable formulations.

**CONCLUSION** The documentation form developed and used during this study can be used to record DI requests received. Measures need to be implemented to increase the use of online sources by pharmacists during the provision of DI.

**KEYWORDS** After-hours, Documentation, Drug Information, Shift Pharmacist

## INTRODUCTION

Mater Dei Hospital (MDH) is an acute, general and teaching hospital which provides pharmaceutical services, including management of drug information (DI) requests, on a 24-hour basis. Pharmacists have been traditionally viewed as the healthcare professionals best-suited to provide DI.<sup>1</sup> During normal working hours, DI services are provided by the Pharmacy Department through a specialised Medicines Information division. During after-hours, DI services, along with other pharmaceutical services, fall under the responsibility of shift pharmacists, who operate on continuous and uninterrupted 12-hour shift schedules from the MDH inpatient pharmacy. The aim of this study was to document, analyse and evaluate DI requests received after-hours as regards their content and management.

## METHODS

Permission for this study was obtained from the Head of Pharmacy Services at MDH. A documentation tool entitled 'After-Hours DI Documentation Form' was developed to record DI requests received after-hours. The tool was based on guidelines published by the American Society of Health-System Pharmacists and the Royal Pharmaceutical Society.<sup>2-4</sup>

The tool was subjected to a pilot study, which consisted of the first 10 DI requests received, and was validated by an expert panel composed of two shift pharmacists, two non-shift pharmacists, two staff nurses and two non-healthcare professionals with a background in education. Information related to the request and information provided to the requester was recorded in this tool. Information included (a) date and time of receipt of the request, (b) personal information of the requester, (c) details of the medication(s), (d) description of request, (e) information provided by pharmacist, (f) source consulted by pharmacist to provide information, (g) classification of request, (h) method used by pharmacist to deliver the information, (i) time taken to respond to request and (j) any other relevant information such as impact on patient care. DI requests received by one group of shift pharmacists were recorded using the tool developed. Documentation took place over a 6-month period.



## DI requests received fell within a vast number of categories, with drug administration being the most frequent and responsible for 113 from a possible 253 categories

### RESULTS

A total of 65 shifts were observed. No DI requests were received during 5 of these shifts. A total of 224 DI requests were received and documented using the developed tool during the 60 studied shifts.

A total of 50.4% of requests were received during night shifts and 49.6% were incurred during day shifts. Nurses placed the most requests (72.3%), followed by medical doctors (23.2%). In the majority of cases (91.5%), DI was provided over the telephone. This information was relayed to requesters within 30 minutes in 99.1% of occurrences. Information on one type of medication was asked in 88.4% of requests.

Pharmacists used a total of 240 references to answer requests. Textbooks were the most commonly used source

(37.5%), with the third edition of the 'Injectable Medicines Administration Guide' published by the Pharmacy Department of the University College London Hospitals being used in 82.2% of these instances (Figure 1).

DI requests received fell within a vast number of categories, with drug administration being the most frequent and responsible for 113 from a possible 253 categories (44.7%) (Figure 2). The requests documented concerned a total of 254 different medications, with drugs of the same active ingredient but different formulation considered to be separate entities. Most requests received were for injectable medications (53.6%) and solid oral dosage forms (30.7%) (Figure 3). Parenteral phytomenadione (vitamin K1) was the medication most commonly associated with DI requests (5.1%). Anti-infective agents, including antibacterial, antifungal and antiprotozoal medication represented 16.5% of all medications for which DI was requested.

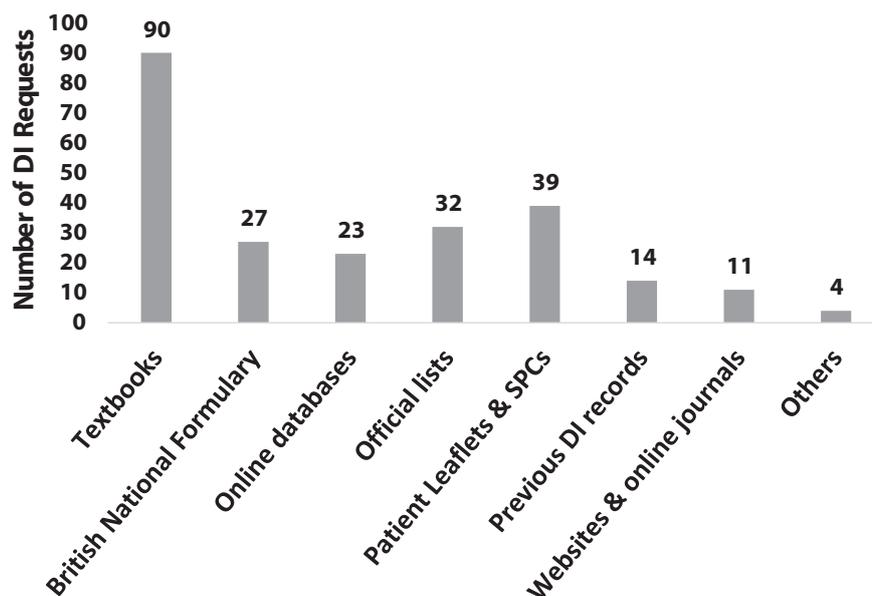


Figure 1: Reference sources used to respond to DI requests

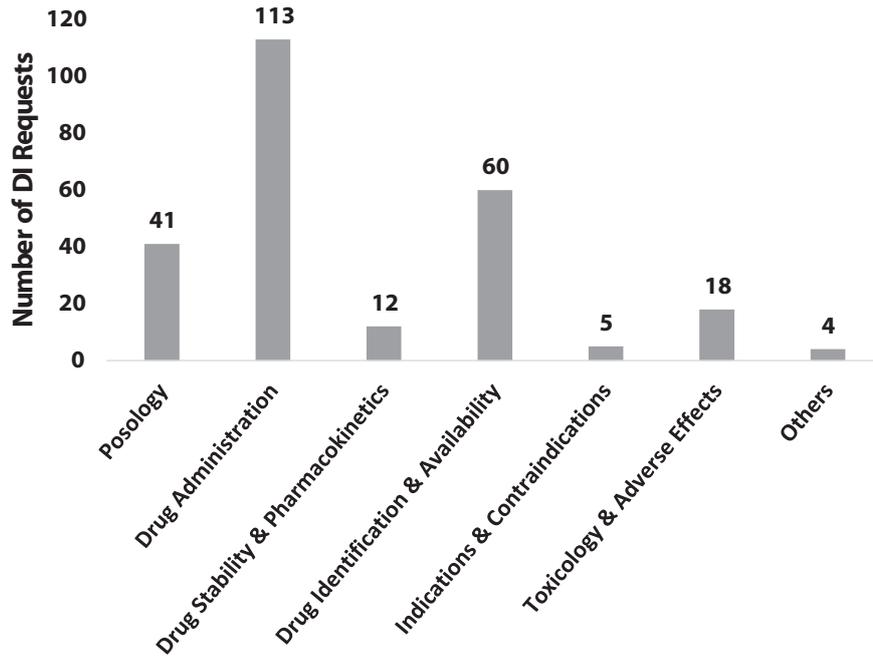


Figure 2: Categories of DI requests

## DISCUSSION

The developed documentation tool can be used by shift pharmacists to record DI requests received after-hours. This is important since in the vast majority of situations, DI was provided to requesters over the telephone and not in writing and the form would provide documentation of the request. Documentation provides accountability, can be analysed by auditors to identify possible improvements

to the system and can serve an important role in the judgement of medico-legal disputes should these arise in the aftermath of supplying DI.<sup>3</sup> It will provide statistical proof of high workloads which is evident in the case of day shifts where results showed an almost equal number of DI requests as night shifts, despite consisting of less after-hours.<sup>5</sup> It is recommended that the documentation tool is converted to an online format which will improve retrieval of information and allow real time recording of requests.

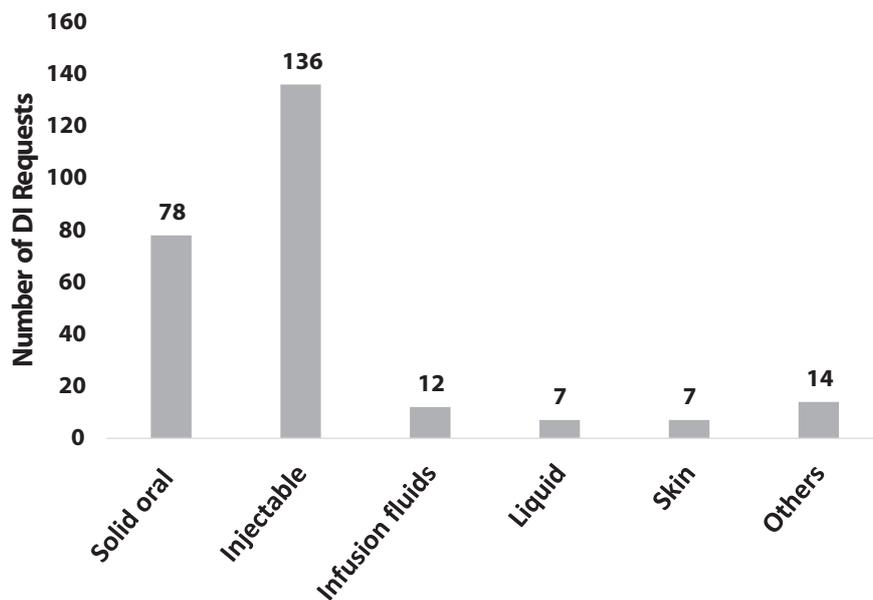


Figure 3: Dosage formulations of drugs in DI requests



## The developed documentation tool can be used by shift pharmacists to record DI requests received after-hours

Nurses made the most use of DI services after-hours, possibly accounting for the high amount of requests that fell within the category of drug administration, drug identification and availability since at MDH such responsibilities fall under the role of nursing personnel. The most commonly used reference textbook by pharmacists was related to the subject of drug administration. The majority of medications on which DI was requested were of a parenteral nature, which require more expertise to administer when compared to other dosage formulations. At the time the study was carried out, a drug administration guidebook was being developed by the Pharmacy Department at MDH. This study has shown the importance of such a reference guide since it would address the needs of nursing staff. Implementation of a knowledge database or an intranet DI website could reduce the amount of DI requests to shift pharmacists which could be addressed through this document being made available to nurses. Pharmacists may thus have more time to dedicate to clinically-centred requests.<sup>6-7</sup>

Use of textbooks by shift pharmacists to provide DI could give rise to problems. Textbooks carry the burden of not having automatic updates and there needs to be constant monitoring to ensure that latest editions are available.<sup>2</sup> Drug dosage regimens and clinical indications change frequently and by the time that printed textbooks are made available, the information may have already become outdated.<sup>8</sup> Textbooks limit the system to the site of the pharmacy since pharmacists would need to return to the pharmacy to consult the printed material before providing DI. Although online resources were in some instances used by shift pharmacists, it is still recommended that measures are taken to increase their use by, improving the computer system and increasing the number of user-friendly online DI databases. The main limitation of this study was that DI requests were recorded from one shift group. The requests were recorded from all days of the week including Sundays and Public Holidays since the shift system was uninterrupted. This ensured a wider pool of data and therefore increased the validity of results obtained.

## CONCLUSION

After-hours DI requests can be documented using the research tool developed. The majority of DI requests were related to drug administration. Increasing availability of online reference sources is recommended to ensure access to up-to-date information and flexibility of provision of service from pharmacists who are not restricted to operate from the pharmacy department in the hospital.

## References

1. Blacow NW. Role and value of drug information centres. *Proc R Soc Med.* 1977;70:250-2.
2. American Society of Health-System Pharmacists (ASHP). ASHP guidelines: Minimum standard for pharmacies in hospital. *Am J Health-Syst Pharm.* 2013;70:1619-30.
3. Ghaibi S, Ipema H, Gabay M. ASHP guidelines on the pharmacist's role in providing drug information. *Am J Health-Syst Pharm.* 2015;72:573-7.
4. Royal Pharmaceutical Society (RPS). Professional standards for hospital pharmacy services: Optimising patient outcomes from medicines [Online]. London (UK): RPS; July 2014:1-33 [cited 2016 Feb 5]. Available from: URL: [www.rpharms.com/support-pdfs/rps---professional-standards-for-hospital-pharmacy.pdf](http://www.rpharms.com/support-pdfs/rps---professional-standards-for-hospital-pharmacy.pdf)
5. Ho SS, Kwan FK, Lui AC. Pharmacy-based drug information services in Hong Kong hospitals. *Am J Health-Syst Pharm.* 1998;55:1164-6.
6. Costerison EC, Graham AS. Developing and promoting an intranet site for a drug information service. *Am J Health-Syst Pharm.* 2008;65:639-43.
7. Bastholm-Rahmner P, Eiermann B, Korkmaz S, Gustafsson LL, Gruven M, Maxwell S, et al. Physicians' reported needs of drug information at point of care in Sweden. *Br J Clin Pharmacol.* 2011;73(1):115-25.
8. Paparella S. Drug information resources: Essential but may be error prone. *J Emerg Nurs.* 2010;36(3):250-2.