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Medicine information sources used by nurses at the point of care

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Aims

To identify sources of medicine information that nurses use while administering medicines.

Background

Aging population, chronic diseases and advances in pharmaceuticals have given rise to an increasing range of medicines in patient care. In the UK, nearly all patients are given medication as a result of a visit to hospital (Smith 2004). Despite developments in nurse prescribing in the UK over the last decade, nurse prescribers constitute only 10% of all nurses on the register (NMC 2008) and administration of medicines remains an important aspect of most nurses' professional practice. Standards for medicines management require nurses to use their knowledge and exercise professional judgement in the best interests of their patients (NMC 2007). To exercise professional judgment in the administration of medicines, nurses need to be informed by reliable evidence-based information sources. The use of the best available evidence for clinical decisions is also a requirement by the nursing code. Despite this requirement, research into nurses' access and use of drug information in the UK is lacking.

In the UK, there has been only one published study (Hall *et al.* 2003) about drug information use by nurses and it focused on nurse prescribers working in the community. The most commonly used drug information sources were journals, the *British National Formulary* (*BNF*), pharmaceutical representatives and pharmacists. In addition, they found that much drug information was aimed at doctors not nurses. Similar studies in Canada and the USA have shown that nurse prescribers' drug information needs are different from those of non-prescribing nurses. Nurse prescribers (most of whom are either nurse practitioners or specialist nurses) seek information relating to diagnosis and drug therapy and their drug information texts are comparable to those used by physicians (Cogdill 2003, Murphy *et al.* 2006). Non-prescribing nurses on the other hand, mostly work in hospitals and mainly seek information to help them make decisions about patient care. They prefer to consult human sources such as nursing

colleagues, the team leader, a physician or the pharmacist because their information needs are triggered by patient needs which require quick decision-making at the point-of-care (Blythe & Royle 1993, Doran *et al.* 2007). Interestingly, where a text reference was required, hospital nurses preferred using the *Nursing Drug Handbook* to other drug reference books used by physicians or pharmacists (Gettig 2008).

Little is known about access to and use of drug information by nurses to support their drug administration role. The study by Hall et al (2003) is the only UK published study in this area and it does not address hospital nurses' use of drug information. The survey by Gettig (2008) in the USA is informative, but its application to the UK settings is limited because of the differences in health care delivery, nursing training and type of resources used between these two countries. We therefore conducted a short survey to explore sources of drug information used by hospital nurses while administering medicines.

Methods

This was a cross-sectional survey carried out in a hospital in the North of England and involved nurses working in the following wards: general surgical, urology, orthopedics, gynecology, day surgery and the private unit. Convenience sampling was utilised, inviting all qualified nurses working in these areas giving a potential sample of 98. Participation was voluntary and approvals were obtained from the Local Ethics Committee and the research governance department. In addition to their educational background, nursing grades and areas of work, participants were asked to:

1. Indicate whether they received the greatest part of their pharmacology knowledge from pre-registration training, at work or from post-graduate training.

2. Indicate when they last learnt or looked-up pharmacology information of a drug.

3. Give an average time they would normally use to administer medication to 15 patients based on a morning drug round and assuming no interruptions.

4. Mention all the pharmacology information sources they normally used while administering medicines.

Once collected, the data were summarised and analysed using descriptive methods.

Results

Response rate was 43% and the sample (n = 42) comprised one enrolled nurse, 34 staff nurses and seven sisters/charge nurses. Their work experience was normally distributed with a mean of 12.6 years (SD 10.1). There was unequal distribution of participants by departments (17 from orthopaedic wards, 10 from general surgical, eight from gynaecology, six from private ward and one from the day surgery ward). It was previously established that these wards were comparable to each other in the type of medicines that nurses administered; therefore their results could be combined. The qualifications of participants ranged from certificates (n = 13), diploma (n = 19), undergraduate degree (n = 6) and postgraduate degree (n = 4).

The majority of respondents received the greatest part of their pharmacology knowledge in their workplace (n = 38) and only four from their training (two pre-registration and two post-graduate). More than half the participants (n = 23) had looked up the pharmacology of a (new) drug recently (within the last two months) while 19 did this over two months ago. Time taken to administer medicines to 15 patients ranged from 10 to 75 minutes (mean = 42.8, SD 14.6).

Although nurses looked for drug information from several sources, the *BNF* was the most referenced source (95%) followed by consulting the pharmacist (57%), nursing colleagues (31%), doctors (24%) and patient information leaflets (24%). Types of information sources used by nurses and their frequencies

are summarised in table 1. The Sum of responses exceeds 42 because respondents mentioned more than one source. When these resources were categorised as either text-based or human sources, it was clear that nurses relied greatly on human sources second to the BNF.

Table 1: Type of information sources

Text based-sources			Human sources		
	frequency	percentage		frequency	percentage
BNF	40	95.2	Pharmacists	24	57.1
PILs	10	23.8	Nursing colleagues	13	31.0
Internet	5	11.9	Doctors	10	23.8
Journal	4	9.5			
Hospital formulary	4	9.5			
Textbook	2	4.8			
MIMS	2	4.8			
Total	67	159.5*		47	111.9*

BNF = British National Formulary, PILs = Patient information leaflets, MIMS = Monthly Index of Medical Specialties.
* Sum of percentages exceed 100% because respondents mentioned more than one source

Conclusions

The findings support the view that most nurses learn pharmacology at the workplace through self-directed learning and practical experience rather than formal training. Being the key learning environment, workplaces need to be equipped with adequate and accessible resources to support nurses in their medicine administration role. With the exception of the BNF (which is a reliable source of drug information), nurses appear to rely heavily on human sources (doctors, other nurses and pharmacists) for drug information. Pharmacists have been regarded as a reliable source of drug information, but their services in most hospitals are limited to weekdays and normal office working hours. Although consulting other nurses or doctors may provide situation-specific answers, information from human sources is not likely to be critically assessed and may not necessarily be evidence based. When nurses need drug information in the complex clinical environment, access and time is of the essence and it is not surprising that they tend to consult human sources which give them quick and

concise answers. Unfortunately, human sources are not necessarily authoritative and their availability is variable, both of which factors limit their efficiency as a support to drug administration.

Usefulness of information

The results reveal that nurses use several sources of drug information. Using the available data, it was not possible to test whether the time taken to administer medicines was correlated to drug information-seeking or other factors. The search for drug information from several sources while administering medicines is not efficient and nurses need accurate, reliable and concise text-based resources in either print or electronic format. Shaughnessy et al (1994) developed a formula for usefulness of medical information:

$$\text{Usefulness of information} = \frac{\text{Relevance X Validity}}{\text{Work to access}}$$

Applying the formula to the usefulness of drug information for nurses, it follows that information will be most useful to nurses if:

1. It is comprehensive and addresses knowledge needs of nurses for drug administration such as drug groups, mechanism of action, indications for use, contraindications, normal dosage, normal routes and methods of administration, side effects, important drug interactions and patient teaching points.

2. It contains accurate and up-to-date drug information.

3. The effort required to access it is kept to a minimum (it should be readily available at the point-of-care) so that nurses do not need to leave their patients.

Limitations

This was a small-scale explorative survey whose results cannot be conclusive. The main objective was to identify drug information sources that nurses use to support their medicine administration. The survey was conducted on surgical wards of one hospital therefore the results may not be generalisable to all settings. In addition, due to the voluntary nature of the survey, the sample appeared to be self-selecting and nurses with little experience were under-represented. Finally, the survey explored the drug information sources used by nurses but did not address the extent and circumstances in which particular sources were used. Future studies need to recruit larger samples, utilise mixed methods and use powerful analytical methods such as structural equation modelling to inform adequately about different situations that nurses access drug information.

Relevance to clinical practice

This paper reports sources of information that nurses use to support their drug administration. Most nurses reported learning about medicine administration in their workplaces. Provision and promotion of credible sources of drug information in the clinical settings is one way of helping nurses to support their medication-related decisions and therefore enabling them to be accountable for their actions.

Contribution

Study design: MN & RJN; data collection and analysis: MN & RJN and manuscript preparation: MN & RJN.

Conflict of interest

The authors declare that they have no conflict of interest in the conduct of this study.

Sponsor

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