Sources of information on the use of medicines utilized by resident doctors in a tertiary health care facility in Nigeria

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Abstract

Background: The use of quality information is an essential element in ensuring rational pharmacotherapy and limiting the harmful effects of medicines. This study evaluates the available sources of information utilized by doctors undergoing training in a tertiary health care facility.

Methods: The study was carried out at the University of Benin Teaching Hospital, Benin City, Nigeria – a 730 bed tertiary health care facility. Questionnaires were distributed to 120 junior and senior resident doctors during a general meeting of residents. Information sought included their demographic characteristics, the sources of information, category and frequency of request, frequency of utilization of the hospital drug information services among others

Results: The response rate was 99.2 % (119/120) – 91 junior and 28 senior residents with a practice time of 0.17 to 17 years (median(IQR) 1.5(1-6) The most frequent sources of information utilized were Monthly Index of Medical Specialties MIMS 73(61.3%), British National Formulary BNF 59(49.6%) and senior colleagues 53(44.5%). The reasons for seeking information included clarification of dosage requirements 112(94.1%), adverse drug reactions 97(81.5%), precautions 95(79.8%) and indications for use 86(72.3%). Of interest, is the finding that 100(84.0%) of doctors had not visited the hospital's drug information centre. Twenty five percent (25.2%) of doctors admitted to significant influence of pharmaceutical detailers' gifts on their prescribing habits.

Conclusion: The study suggested a less than optimal utilization of objective information sources by doctors practicing in this low resource setting.

Keywords : Drug information services, Physicians, Nigeria

Highland Med Res J 2017;17(2):81-85

Introduction

The use of quality information is an essential element in ensuring rational pharmacotherapy and limiting the harmful effects of medicines[1]. In this era of evidence based medicine and best practices it is even more imperative to be abreast of the developments relating to drug use. There are a plethora of new pharmaceutical medicines being introduced into the market and the in-depth knowledge of the drug is therefore of utmost importance. Furthermore, for each new drug, it is important for the clinician to be familiar with the results from the clinical trials and available research literature to enable a better understanding of the medicine and it's subsequent use[2,3].

Clinicians are in need of literature that is concise, accessible, easily understood and current[4]. The information needs of the clinician regarding drug information has been shown to range from dosing, indications, adverse reactions, drug interactions, risks of hypersensitivity, age related dosing as well as recommended medicines for particular diseases[5,6], Others include poisoning, overdose and its management[5,6].

Findings in low resource settings highlight the inadequacy of information sources which consequently undermine the quality of care[7]. An earlier study by Isah et in 1998 in same facility highlighted the deficient state of information sources and use and also showed a tendency towards the use of commercial sources of drug information[8]. This led to the establishment of a Drug and Poison Information Centre (DPIC) in the hospital following the results of that study.

The centre has a Clinical Pharmacologist, a full time pharmacist attached to it, reference books to aid searches and serves all the departments of the hospital. The DPIC disseminates information to the health care workers on issues that pertain to drug use, distributes and collects adverse drug reaction reporting forms and collates cases of poisoning. The services of this centre are freely accessible to all staff. This study was aimed at evaluating the sources of drug information currently utilized by doctors undergoing training in a tertiary health care facility with a functional drug information centre.

Materials and Methods

This study was carried out at the University of Benin Teaching Hospital a – a 730 bed tertiary health care

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facility located in Benin-City Southern Nigeria. It has a physician complement of about 700 and offers training of interns, residents in the different clinical specialties as health care facilities for patients from the surrounding states.

Semi –structured questionnaires were distributed to 120 junior and senior residents at an ordinary general meeting of the residents in the hospital in 2010. The study was explained to the participants that participation was voluntary; consent was then obtained from the respondents. The questionnaires had no identifiers and the data obtained was anonymised to preserve privacy of the respondents. Ethical approval was obtained from the University of Benin Teaching Hospital ethics and research committee.

Information sought included demographic characteristics of the resident doctors, category and frequency of drug information requests regarding drug choices for indication, dosage requirements, drug interactions and adverse reactions. Management of adverse drug reactions, clinical case management as well as management of poisoning was also sought.

Furthermore, impression of information obtained from pharmaceutical detailers and utilization of the hospital's Drug and Poison Information Centre (DPIC) was also sought from the residents.

Data analysis: The data were analysed using the Statistical Package for Social Sciences version 16 (IBM Chicago) and presented descriptively. Multiple responses were accepted from participants.

Results:

A total of 119 of the 120 residents who were contacted responded to the survey with a response rate of 99.2%, the last respondent did not complete the survey and was therefore excluded from the analysis. There was a Male: Female ratio of 2.7:1 (87/32) .

The number of junior residents were 91 (76.5%) and senior residents were 28 (23.5%). The age ranged from 22-45 years (mean±SD:30.4±4.8). The duration of practice ranged from 0.17 to 17 years ((Median)IQR: 1.5(1-6))

The most frequent sources of information utilized were Monthly Index of Medical Specialties MIMS 73 (61.3%), British National Formulary BNF 59 (49.6%) and senior colleagues 53 (44.5%) as shown in Figure 1.

Most of the doctors 49 (41.1%) sought these information only when needed. Other frequency of seeking information were monthly in 20 (16.8%), 2-3 times weekly in 30 (25.2%) and 13 (10.9%) daily. The reasons for seeking information included clarification of dosages 112(94.1%), adverse drug reactions 97(81.5%), precautions 95(79.8%) and indications for use 86 (72.3%) as indicated in Table 1

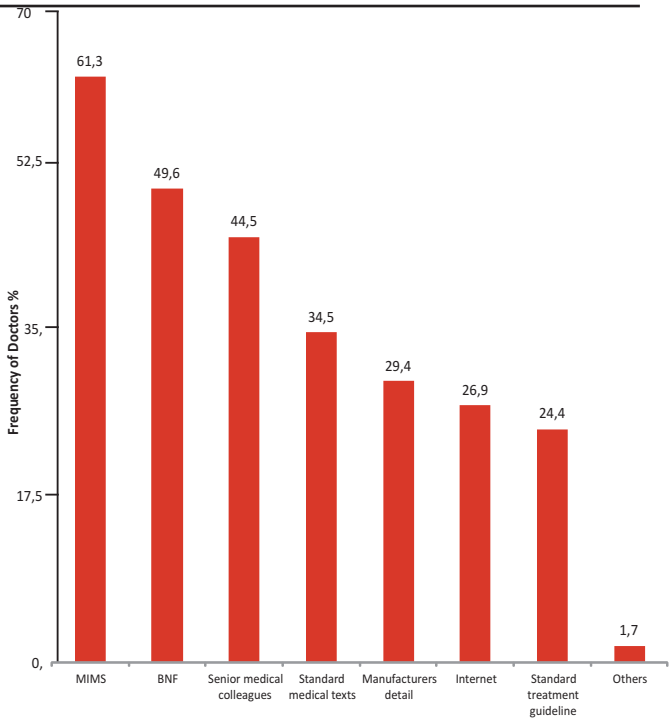

Figure 1. Sources of information commonly utilised by the resident doctors at University of Benin Teaching Hospital

Proportions of the types of information sough by resident doctors at the University of Benin Teaching Hospital, Benin –City.

Information sought	n (%)
Dosages	112(94.1)
Adverse reactions	97(81.5)
Precautions	95(79.8)
Indications	86(72.3)
Drug interactions	85(71.4)
Mechanism of action	72(60.5)
Management of Clinical cases	71(59.7)
Management of adverse reactions	51(42.9)
Management of poisoning	37(31.1)

Table 2: Sources of information and the choice of drugs and related pharmacological effects by resident doctors at the University of Benin Teaching Hospital

Information Source	Indication n(%)	Dosage n(%)	Mechanism of Action n(%)	Precautions n(%)	ADR n(%)	Drug interaction n(%)
MIMS Africa	31(26)	43(36)	21(17.6)	36(30.3)	36(30.3)	27(22.7)
BNF	23(19.3)	32(26.9)	16(13.4)	28(23.5)	32(26.9)	29(24.4)
STG	5(4.2)	12(10.1)	6(5.0)	6(5.0)	7(5.9)	6(5.0)
Textbook	14(11.8)	12(10.1)	18(15.1)	8(6.7)	10(8.4)	12(10.1)
Manufacturers details	6(5.0)	6(5.0)	4(3.3)	11(9.2)	8(6.7)	8(6.7)
Snr Colleagues	2(1.6)	5(4.2)	1(0.8)	3(2.5)	3(2.5)	1(0.8)
Internet	6(5.0)	6(5.0)	7(5.9)	7(5.9)	9(7.6)	7(5.9)
Others	6(5.0)	5(4.2)	3(2.5)	4(3.3)	4(3.3)	2(1.6)

Multiple choices were accepted.
Abbreviations: ADR- Adverse drug reactions, MIMS Africa- Monthly Index of Medical Specialties. STG- Standard Treatment Guideline, BNF- British National Formulary, Snr- Senior Collaegues,

In further analysing which of these resources were used more commonly regarding drug choices for indication, dosage requirements, drug interactions, adverse reactions; Forty three (36.1%) of the respondents relied on Monthly Index of Medical Specialties(MIMS) Africa for dosage requirements while 31(26%) relied on it for information regarding drug indication. However, to access drug interactions, a slightly higher proportion 29(24%) preferred the British National Formulary (BNF). The StandardTreatment Guideline was found to be useful in selecting dosage requirement by 12(10.1%) of the respondents. Table 2

Standard medical texts were preferred by the residents in the management of clinical cases 22(18.5%) while the Monthly Index of Medical Specialties(MIMS) Africa was preferred in the management of Adverse Drug Reactions (ADR) 13(10.6%) and cases of poisoning 9(7.6%)respectively.

Table 3: Sources of information regarding patient management by resident doctors at the University of Benin Teaching Hospital, Benin-City.

Source of information	Clinical Case Management n(%)	Adverse Drug reaction management n(%)	Poisoning n (%)
MIMS Africa	12(10.1)	13(10.6)	9(7.6)
BNF	12(10.1)	11(9.2)	9(7.6)
STG	4(3.3)	3(2.5)	3(2.5)
Textbook	22(18.5)	11(9.2)	9(7.6)
Manufacturers details	2(1.6)	2(1.6)	2(1.6)
Senior colleagues	8(6.7)	5(4.2)	2(1.6)
Internet	9(7.6)	7(5.9)	6(5.0)
Others	10(8.4)	6(5.0)	6(5.0)

Abbreviations: MIMS Africa- Monthly Index of Medical Specialties Africa, STG- Standard Treatment Guideline, BNF- British National Formulary.

Thirty doctors (25.2%) admitted that reception of pharmaceutical detailers' gift may have a significant influence on their prescribing habits, However, 87(73.1%) feel the information obtained from manufacturers detailers is biased favoring the manufacturers and should be cross-checked with other sources.

Only seventeen residents (14.3%) had visited the Drug and Poison Information Centre (DPIC) of the hospital, with 7/17(41.2%) of them visiting the centre to either obtain or report an adverse drug reaction. Other reasons for visiting the centre included request for drug availability by 3/17 (17.6%) residents, mechanism of action, dosage formulations, route of drug by 3/17 (17.6%) residents as well inquiries into drug effectiveness and safety of particular drugs in pregnancy. Furthermore 13(76.5%) of the doctors found the information obtained at the DPIC helpful. A hundred(84%) doctors had not visited the hospital's drug information centre.

We further sought to find out if the respondents had ever reported an adverse drug reaction to the DPIC and found that only 21(17.6%) had ever reported an ADR to the DPIC. In synthesising reasons proffered to improve adverse drug reaction reporting in the hospital, most of the respondents 39 (32.8%) would prefer that an increased awareness of the ADR reporting be made, easier reporting processes 16 (13.4%), increased pharmacovigilance activities organized 14 (11.8%), patient education 7 (5.9%), and some 3 (2.5%) would expect remuneration if they reported an ADR to the DPIC.

Discussion

This study which was a follow up study carried out 12 years after an initial study[8] that offered an insight into the sources of drug information utilized by junior doctors in a teaching hospital setting. It is expected that in the era where rational drug use is being actively promoted, the need to ascertain the correct and unbiased sources of information is essential to the physicians[1]. The utilization of the Monthly Index of Medical Specialties (MIMS) Africa as the main source of drug information consulted by the junior doctors remains the same despite the 12 years separating these two studies. The use of the British National Formulary (BNF) however seems to be a close second indicating easier access to other printed materials from other countries. In other related studies the main sources of information used by doctors included BNF, a compendium of pharmaceuticals and specialties, colleagues and drug promotional materials[9,10]. It is worthy of note that the MIMS is a pharmaceutical industry sponsored publication and it is mostly given free of charge to the doctors albeit irregularly unlike BNF and standard texts which have to be purchased. In all, for information regarding the pharmacological action of a drug, the MIMS was highly used.

The use of manufacturers detailing material in searching for drug information was found to be prominent in this study with 29.4% of the respondents resorting to this source for information. However, the respondents also maintained that they feel the information thus obtained is biased and should be cross-checked with other sources. The absence of an updated University of Benin Teaching Hospital formulary as well as a Nigerian national formulary may have contributed to this trend. There is therefore a need to encourage the development and regular review of such objective sources of drug information in order to avoid biases that are associated with the use of pharmaceutical company sponsored publications.

In comparison with the earlier study[8] interestingly the proportion of junior doctors (25% in both studies) who could be influenced by the gifts from the pharmaceutical companies remained approximately the same. This may suggest that education of the doctors against undue influence during drug detailing may not be yielding much benefits as seen in other studies that suggested that drug detailing may adversely influence doctors prescribing practices[10-13].

In using standard medical texts, the understanding needs to be made that the information presented in the books may lag behind the publication often times there is need to update such information[14]. Medical information on the world wide web has grown exponentially over the years and in Nigeria with increasing internet access due to increasing capacity of the network providers as well as the availability of personal computers, laptops and smartphones. This also reflected in the proportion of doctors who accessed the internet for drug information. However, due to the relative ability of virtually anyone to put information on the internet[15], it remains imperative to define the sources of information obtained from the internet.

Also in the period since the last study[8], the Federal Ministry of Health of Nigeria had presented the Standard Treatment Guideline (STG) in managing medical diseases, this booklet which was compiled by various professionals in different fields in Nigeria in 2008 was disseminated to doctors in Nigeria[16]. This accounted for the proportion of doctors who preferred the STG as one of their sources of drug information. The use of this document indicates that physicians practicing in Nigeria desire educational resources that are reflective of their setting. The education of doctors on the uses of the STG documents as a therapeutic tool needs to be promoted by relevant authorities. There still appears to be an under utilization of the DPIC, however it is noteworthy that most of the respondents who visited the centre obtained useful information, this underscores a need for more sensitization of the centre and increased awareness of the usefulness of the centre to the healthcare workers. Drug information centers have been shown to improve patient safety through their ability to access current information and provide such to patients and health care workers responsibly and in good time[5].

The findings of this study must be interpreted within the limitations of the study. This study was a single institutional study hence we cannot generalize our findings to all physicians in Nigeria. The nature of the study also introduces the element of recall bias from the respondents, Finally, we are unable to assess the effect of the sources of information on the quality of practice of the respondents. Despite the foregoing, this study provides data on an increasingly important aspect of medicine; information sourcing. Our findings provide opportunities for intervention in the training of junior physicians.

Conclusion

The study suggests a less than optimal utilization of objective information sources by doctors practicing in this low resource setting. These findings call for an urgent attention on the need to improve information sources and use so as to enhance rational pharmacotherapy and safe use of medicines.

Acknowledgements

The authors wish to thank the management of the University of Benin Teaching Hospital as well the junior doctors who participated in this research. We also acknowledge the Chief Pharmacist and pharmacists in the Drug and Poison Information Centre UBTH.

Conflicts of Interest: The authors declare no conflicts of interest regarding this work.

Funding: The study was self funded.

Contributions: All authors contributed equally to the conceptualisation, analysis and write up of this work. Dr. A. Olowofela did the data collection.

References

1. World Health Organization. Promoting Rational Use of Medicines: Core Components-WHO Policy Perspectives on Medicines No.5. Geneva; 2002.
2. Alper B, Hand JA, Elliott S, et al. How much effort is needed to keep up with the literature relevant for primary care. J Med Libr Assoc. 2004;92(4):429-437.
3. The Cochrane Library. Cochrane Library. http://www.cochranelibrary.com/about/about-the-cochrane-library.html. Accessed October 14, 2015.
4. Formoso G, Rizzini P, Bassi M, et al. Knowledge transfer: what drug information would specialist doctors need to support their clinical practice? Results of a survey and of three focus groups in Italy. BMC Med Inform Decis Mak. 2016;16(1):115.
5. Rajan M, Sreedhar, Khan S, Thiyagu R, Rao P. Information Seeking Behaviour Of Clinicians In a Semi Urban Town In Southern India. J Clin Diagnostic Res. 2008;2(2):1069-1073.
6. Clarke MA, Belden JL, Koopman RJ, et al. Information needs and information-seeking behaviour analysis of primary care physicians and nurses: a literature review. Heal Inf Libr J. 2013;30(3):178-190.
7. Pakenham-Walsh N, Bukachi F. Information needs of health care workers in developing countries: a literature review with a focus on Africa. Hum Resour Health. 2009;7(1):30.
8. Isah AO., Isah EC. Drug information sources utilised by junior hospital doctors in Nigeria. Natl Postgrad Med J. 1998;5(1):23-27.
9. Gharibyar H, Sharif Y, Qawasme K Al, Fahmy S. Physicians' Perception of Drug Information Resources in

the Emirate of Abu Dhabi-UAE. Pharmacol Pharm. 2013;4(1):52-56.
10. Oshikoya KA, Oreagba I, Adeyemi O. Sources of drug information and their influence on the prescribing behaviour of doctors in a teaching hospital in Ibadan, Nigeria. Pan Afr Med J. 2011;9:13.
11. Akande TM, Aderibigbe SA. Influence of drug promotion on prescribing habits of doctors in a teaching hospital. Afr J Med Med Sci. 2007;36(3):207-211.
12. Akoria OA, Isah AO. An evaluation of doctors' prescribing performance in Nigeria. Pakistan J Med Sci. 2009;25(4):533-538.
13. Ijoma U, Onwuekwe I, Onodugo O, et al. Effect of Promotional Strategies of Pharmaceutical Companies on Doctors' Prescription Pattern in South East Nigeria. Onwuekwe I, ed. TAF Prev Med Bull. 2010;9(1):1-6.
14. Davies K. UK doctors awareness and use of specified electronic evidence-based medicine resources. Inform Health Soc Care. 2011;36(1):1-19.
15. World Health Organization. Medical Products and the Internet: A Guide to Finding Reliable Information - Regulatory Support Series No. 008: Geneva; 1999.
16. Federal Ministry of Health. Standard Treatment Guideline. Abuja, Nigeria: 2008.