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Availability and Utilization of Drug Information Center, Drugs and Therapeutic Committee and Standard Treatment Guidelines in the management of HIV/AIDS patients at Public Hospitals in a North-Central State, Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

Abstract

Introduction: Nigerian National Drug Policy has targets with regards to institutionalization of Drug Information Center (DIC), Drugs and Therapeutic Committee (DTC) and Standard Treatment Guidelines (STGs). Inadequate availability and utilization of these supporting policies/documents affect quality of healthcare.

Objective: This study examined the availability and utilization of DIC, DTC and STGs in the management of HIV/AIDS patients at public hospitals in a North-Central State, Nigeria.

Methods: This qualitative multi-center study involved in-depth interviews of eligible 10 prescribers and 7 dispensers who provided healthcare to HIV/AIDS patients in eligible public hospitals with the aid of structured interview guide. The interviews were audio-taped, verbally transcribed, analyzed and developed into ethnographic summary.

Results: Among the prescribers, STGs was the most available and utilized supporting policy/document. Less than 50% of the prescribers had DTC and DIC available in their institutions, less than 50% utilized DTC while only one prescriber utilized the available DIC. Only 10% of the prescribers had and utilized all three (STGs, DTC and DIC). Also, STGs was available to and utilized by all the dispensers. However, only 14.3% of the dispensers had DTC and DIC available in his institution and utilized them. Reasons for utilization/non-utilization of DIC, DTC, and STGs were awareness of availability, patient workload and documentation workload.

Conclusion: Availability and utilization of STGs are optimal. However, availability and utilization of DIC and DTC in the management of HIV/AIDS patients in Public Hospitals are below optimal. There is need for improved availability and institutional mechanisms to ensure their utilization.

Keywords: Availability, Utilization, Drug Information Center, Drugs and Therapeutic Committee Standard Treatment Guidelines, HIV/AIDS Patients

INTRODUCTION

Antiretroviral medicines have revolutionized the prognosis of HIV/AIDS from being an inherently untreatable infection to a controllable, chronic disease within 30 years of introduction (Broder, 2010; Mahungu *et al.*, 2009; Weiss, 2008; May *et al.*, 2006). To ensure the appropriate use of these medicines in the management of HIV/AIDS patients, it is important that there are availability and utilization of supporting policies/documents as required by the Nigerian National Drug Policy (NNDP). Some of the targets of the NNDP include institutionalization of Drug Information Center (DIC), Drugs and Therapeutic Committee (DTC) and Standard Treatment Guidelines (STGs) (Federal Ministry of Health, Nigeria, [FMOHN] 2005). Adequate availability and utilization of these supporting policies/documents affect quality of healthcare.

Objective and specific drug information is essential to appropriate use of medicines. While access to quality medicine is a human right (Zakus *et al*., 2010), the use of these medicines would be beneficial only if adequate and proper information needed for the appropriate use is available (Johnson and Kasilo, 1997). Without the right information, the highest quality medicine could be useless or harmful. Information is needed by prescribers, dispensers and patients. Prescribers and dispensers need information about generic and branded names of medicines, their indications and contraindications for use. Information about the drug dose, dosage regimen, precautions, drug interaction, adverse drug reaction and treatment of overdose are also needed by the prescribers and dispensers. Additionally, patients need basic information about the usage of prescribed and self-care medicines. The public also expects useful, comprehensive and objective drug information (Johnson and Kasilo, 1997). Adequate information about side effects, adverse drug reactions and drug interactions of antiretroviral medicines and non-antiretroviral medicines is essential for successful management of HIV/AIDS patients. For example, nevirapine causes severe skin rashes, Steven-Johnson syndrome (SJS) (Singh et al. 2011; Jain et al 2008; Namayanja et al. 2005) toxic epidermal necrolysis (TEN) dress syndrome (drug rash, oesinophilia and systemic symptoms [Gill *et al*., 2013]); and hepatotoxicity (Wood 2005) which could be life threatening. To reduce the frequency of adverse effects a 2-week dose escalation approach is used. If rashes are observed the dose of NPV should not be increased until the rashes resolved (FMOHN, 2010). In addition, zidovudine-induced haematological toxicity such as severe macrocytic anaemia is life threatening (Agarwal *et al*., 2010; Ejeligu *et al*., 2014) while efevirenz has neurological and neuropsychiatric side effects such as acoustic and visual hallucinations, insomnia, unusual dreams and dizziness (Hinsch et al. 2014; Apostolova et al, 2015). Lipodystrophy which is disfiguring and stigmatizing (Alcorn and Smart, 2006), bleeding hemophiliacs and metabolic abnormalities resulting in development of hyperglycemia and clinical diabetes mellitus are associated with the use of protease inhibitors (Flint *et al*., 2009; Carr, 2000; Pansel, 2000). Availability and utilization of a functional DIC can aid detection and prevention of adverse drug reactions (ADRs) and medication errors. Thus, appropriate medicine use is promoted.

Regarding Drugs and Therapeutics Committee (DTC), it is one of the institutionalized mechanisms aimed at promoting, implementing and monitoring the use of medicines (FMOHN, 2005). A functional DTC ensures the safe and effective use of medicines in each health facility or area under its jurisdiction (World Council of Churches, 2006). It consists of relevant healthcare providers of different disciplines that are involved in different aspects of drug management and use. The DTC brings together relevant healthcare providers that work together in the developing and implementing appropriate medicine policies in hospital settings thereby improving the healthcare delivery (World Health Organization, [WHO] 2003). DTC has the goal of ensuring that patients are provided with the best possible cost-effective quality care through determination of what medicines will be available, the cost and the usage. The objectives of the DTC are to: develop and implement efficient and cost-effective formulary system, consistent standard treatment protocols, a formulary list and formulary manual and ensure the usage of only efficacious, safe, cost effective and good quality medicines. The DTC also ensures best possible drug safety which is achievable through drug use, monitoring, evaluating and reporting with consequent prevention of potential adverse drug reactions (ADRs) and medication errors. Another objective of the DTC is to develop and implement interventions aimed at improving medicine use by prescribers, dispensers and patients (WHO, 2003).

Concerning Standard Treatment Guidelines (STGs), they are proven and effective strategies to promote appropriate use of drugs (WHO, 2003). STGs are systematically developed statements that help practitioners to make decisions with regards to appropriate treatment of specific clinical conditions (WHO, 2003). They are usually based on good clinical evidence. They also provide a standard or yardstick of satisfactory diagnosis or treatment against which actual treatments can be compared (World Council of Churches, 2006). Thus, appropriate prescription of medicines can be monitored and audited. (WHO, 2003). Often these guidelines reflect the consensus on the optimal treatment options within a health facility or health system. The information contained in the guidelines is disease centered emphasizing the common diseases and complaints with corresponding treatment options. They assist in the standardization and rationalization of appropriate treatment (World Council of Churches, 2006). For instance, National Treatment Guidelines for HIV/AIDS specified a change in HIV treatment policy in which dual-therapy is no more recommended due to development of resistance (FMOHN, 2007). Also, 2010 National Treatment Guidelines for HIV/AIDS specified that Stavudine has been phased out from the list of ARVs recommended for the treatment of HIV due to its toxicity (FMOHN, 2010).

Previous studies in hospitals showed availability and utilization of DIC by different healthcare professionals

(Ashnef *et.al.,* 2018; Peter *et al.*, 2017; Alamri *et al.*, Enterzari-Maleki *et al.*, 2014; Mudigubba *et al., 2013;* Jeevangi *et al.*, 2012; Rajanandh *et al.*, 2011; Mallayasamy *et al.,* 2008; Beena and Rao 2005). With reference to DTC (Pharmacy and Therapeutic Committee [PTC]), Lozano-Blázquez et al. (2014) showed its availability and high utilization in a secondary care hospital. Weeks and Brooks (1996) also showed that 92% of respondents in another study had DTC in their hospital. Additionally, Saravanan and Krishnan (2016) reported that 16.1% of physicians said that their institution had DTC. Regarding STGs, low availability (56%) and underutilization were reported by Mashalla *et al.* (2016) and Keiffer (2015) respectively. A study showed that 47.1% of physicians had read a recent version of STG while 46.1% said they were able to adhere to the current STG (Saravanan and Krishnan, 2016). In addition, treatment adherence to STG in private and public primary health facilities were 49.6% and 58.9% respectively (Makwi, 2017) while 30% of respondents possessed a copy of STG in another study (Hassan *et al.*, 2017). However, none of these studies focused on both the prescribers and dispensers involved the management of a disease condition. In addition, only one of the studies conducted over 20 years ago, used qualitative study method. Paucity of information on qualitative study of the availability and utilization of supporting policies/documents in the management of HIV/AIDS patients in Public Hospitals attracted concerns.

This study examined the availability and utilization of Drug Information Center (DIC), Drugs and Therapeutic Committee (DTC) and Standard Treatment Guidelines (STGs) in the management of HIV/AIDS patients at Public Hospitals in a North-Central State, Nigeria.

METHODOLOGY

Study Location

This multi-center study was conducted in seven (7) public hospitals that provided healthcare to adult HIV/AIDS patients. The hospitals comprised a teaching hospital, a specialist hospital, three general hospitals, a cottage hospital, a comprehensive health center. They were all located in six (6) local government areas representing the 3 Senatorial Districts of Kwara State: Kwara Central, Kwara North and Kwara South. Kwara State was created on 27th May 1967 and has 16 Local Government Areas (Kwara State Ministry of Planning and Economic Development, 2010). Kwara State has population projection of 2,748,100 million based on the 2006 National population census (National Population Commission of Nigeria, 2015). The state is in the North-Central geopolitical zone of Nigeria and is the gateway between the Southern and Northern parts of Nigeria.

As at time of the study, there were ten public hospitals located in eight Local Government Areas (LGAs) of Kwara State, that provided health care for adult HIV/AIDS patient namely, Edu, Ilorin West, Ilorin East, Ilorin South, Offa, Oyun, Irepodun and Kaiama LGAs. However, the public hospitals in Oyun and Kaiama LGAs had low HIV/AIDS patient enrolment on Antiretroviral Therapy (ART) which had two and one patients respectively.

Ethical approval

The ethical approval for this study was granted by the Ethical Review Committees of the University of Ilorin Teaching Hospital (UITH), Ilorin and Kwara State Ministry of Health (ERC 1163 and MOH/KS/EU/777/41 respectively). Relevant cooperation and assistance of the various heads of the departments were sought and obtained. Voluntary informed consent of the prescribers and dispensers were obtained (verbally recorded) before inclusion into the study. Confidentiality of the data and information obtained was ensured. Research ethics such as freedom to decline or consent to participate in the research and anonymity were observed.

Study Design

The study design was qualitative cross-sectional research which involved: in-depth interviews of 10 eligible prescribers (Physicians and Nurses) and 7 eligible dispensers (Pharmacists and Pharmacy Technicians) who provided healthcare to HIV/AIDS patients in the eligible study sites.

Inclusion criteria

The inclusion criteria were: Public hospitals that provided healthcare for adult HIV/AIDS patients and had more than 20 HIV/AIDS patient enrolment on Antiretroviral Therapy (ART); Prescribers who were focal persons in the HIV Treatment Centers who provided healthcare for HIV/AIDS patients and gave voluntary informed consent to participate in the study and Dispensers who were focal persons in the HIV Treatment Center who provided healthcare for HIV/AIDS patients and gave voluntary informed consent to participate in the study.

Exclusion Criteria

The Exclusion Criteria were: Prescribers who provided healthcare for HIV/AIDS patients but had spent less than one year in the HIV treatment center and Dispensers who provided healthcare for HIV/AIDS patients but had spent less than one year in the HIV treatment center.

Sampling

All public hospitals that provided health care for adult HIV/AIDS patients and had more than 20 HIV/AIDS patients enrolment on Antiretroviral Therapy (ART) were purposively sampled for this study. Additionally, 10 eligible prescribers (Physicians & Nurses) and 7 eligible dispensers (Pharmacists & Pharmacy Technicians) who were focal persons in HIV Treatment Centers were purposively sampled for in-depth interviews.

The study instruments were in-depth interview guides designed by the researchers adapted from those of previous studies (Williams *et al.* 2016), assessed by 4 scholars (2 clinical pharmacists, 2 epidemiologists with medical background) and pre-tested at Civil Service Hospital Ilorin.

Data Collection

In-depth interviews of the prescribers and dispensers were conducted at a time convenient to the interviewees. The interviews were on three (3) major themes: availability of Drug Information Center (DIC), Drugs and Therapeutic committee (DTC) and Standard Treatment Guidelines (STGs); utilization of DIC, DTC and STGs and reasons for utilization/non-utilization of DIC, DTC and STGs. The interviews were audio-taped and notes were taken. The duration of the data collection was April to July 2013 (4 months).

STATISTICAL ANALYSIS

The audio-taped interviews were transcribed verbatim. The transcriptions were analyzed and developed into ethnographic summary with illustrative quotes (Okeke *et al., 2006*, Williams *et al.* 2016*;* Williams *et al.* 2017a*;* Williams *et al.* 2017b).

RESULTS

The Prescribers comprised 7 males and 3 females, age ranged 30 - 51 years, had 6 - 30 years, post qualification work experience duration in the hospital and years of contact with HIV Treat Center ranged 1-14 years. The Dispensers on the other hand, comprised 5 males and 2 females, age ranged 40 - 50 years and had 13 - 26 years post qualification work experience duration in the hospital and years of contact with HIV Treatment Center ranged 3 - 7 years.

Prescribers

Theme 1: Availability of DIC, DTC and STGs in the management of HIV/AIDS patients

DIC was available to four of the 10 prescribers. However, only 1 of these prescribers was aware of the availability of DIC. Also, DTC was available to four of the 10 prescribers. Regarding STGs, they were available to all the prescribers. According to the respondents,

"STGs, DIC and DTC are all available in this healthcare facility" (P1)

"STGs, and DTC are available in this hospital but there is no DIC" (P2)

"STGs, and DTC are available. However, I do not have any information on availability of a DIC in this hospital" (P3)

"I am sure of the availability of "STGs, and DTC. With regards to DIC, I am not sure" (P4)

"There are no DIC and DTC. But there is STGs" (P5)

"STGs are available but DIC and DTC are not available" (P6)

"I have STGs. Drugs and Therapeutic Committee (DTC) is not available but we have Management Team comprising doctors, pharmacists, nurses, laboratory staff and management representatives that discuss the management of the HIV /AIDS patients. Drug Information Centre (DIC) is also not available" (P7)

"STGs are available. There are no DIC and DTC. However, there is a patient care team that meets to review and resolve patients' cases who are no responding to treatment" (P8)

Theme 2: Utilization of DIC, DTC and STGs, in the management of HIV/AIDS patients

Only 1 prescriber utilized DIC, 4 of the prescribers utilize DTC, while all the prescribers used the STGs as guide for prescription of medicines in the management of HIV/AIDS patients. According to some respondents,

"Latest drug information can be obtained from the DIC. Information about the occurrence of side effects affect practice. The DIC is a source of side effect updates and alerts. Drug information with regards to product expiry and availability affect my practice. Also, the STGs are very important because they make for uniform approach to solving a problem irrespective of the location. The national guidelines are taken from international guidelines. They are very good because they make us 'think' globally but 'act' locally. Without the guidelines one cannot share experience, research and publish findings since whatever issues encountered will remain at the rudimentary level" (P1);

"I have been empowered with regards to management of HIV/AIDS patients through use of the STGs and DTC" (P3);

"I have benefitted from the use of STGs and DTC. My knowledge, clinical practice and relationship with patients have improved. They have aided me in rational or appropriate prescribing" (P4);

"The STGs are the source of the trainings I had and they help in appropriate prescribing" (P5);

"The STGs guide our prescribing in the management of the patients. I have personally benefitted from their use. The STGs guide me in adequate treatment of the patient. They prevent my deviating from plans or format. They also help in knowing when and how to initiate antiretroviral therapy without needless rush thereby reducing workload" (P6);
"STGs make diagnosis and prescribing easier, help me in making quick decision thereby saving time, eliminate cost of healthcare due to wrong diagnosis and prescription; and reducing patient workload" (P7);
"The STGs enhance good clinical practice, improve the quality of patient care, help to identify the challenges encountered in patient management and switching patients to the appropriate line of treatment". (P8)

Theme 3: Reasons for utilization/non-utilization of DIC, DTC, STGs in the management of HIV/AIDS patients

Reasons for utilization/non-utilization of DIC, DTC, and STGs included prescriber's awareness of the availability of DIC, DTC and STGs, prescribers' attitude and motivation, prescribers' workload, training and retraining of prescribers. According to the respondents,

"Lack of update of prescribers, prescribers not motivated to use them and absence of local content in the national guidelines" (P1);
"Availability and awareness of availability of DIC, DTC and STGs (P3; P8); a positive attitude to self-empowerment with regards to management of HIV/AIDS patients" (P3); patient workload, training and retraining of staff and motivation/commitment of the prescribers also affect their use" (P8).
"Availability of DIC, DTC and STGs (P5, P6) the Physicians' access to these policies/documents" (P5); and patient workload affect their use" (P6).

Dispensers

Theme 1: Availability of DIC, DTC and STGs in the management of HIV/AIDS patients

DIC and DTC were available to only one (1) dispenser. However, STGs were available to all the dispensers. According to the respondents,

"DIC, DTC and STGs are available in this healthcare facility" (D1); and
"There are no DIC and DTC. STGs are available." (D2 – D7)

Theme 2: Utilization of DIC, DTC and STGs in the management of HIV/AIDS patients

Only 1 dispenser utilized DIC and DTC while all dispensers utilized STGs. According to the respondents,

"DIC, DTC and STGs make the work of the dispenser very efficient and easy. For instance, the STGs help the dispenser in the understanding and interpretation of the prescription; and confirming the therapeutic appropriateness of the prescribed medicines" (D1). Other responses were
"STGs have helped to harmonize drug treatment given to patients. They also serve as the basis for evaluating the efficiency of the treatment schedules. They make the dispensing process easier; help me in confirming the therapeutic appropriateness of the prescribed medicines thereby improving the quality of patient care. They help in improving therapeutic outcome. A case in point is the delivery of HIV negative babies by HIV positive mothers due to strict adherence to the STGs on prevention of mother to child transmission" (D2)
"The STGs have helped me to be more effective in dispensing. Prescription error can be easily identified and discussed with the prescriber. The STGs are sources of continuous education. (D3).
"The STGs are very useful in reducing misuse of drugs. They make the job easier since the STGs provide standard operational procedures (SOP) for both prescribing and dispensing" (D5).
"The STGs help me to know the contraindications associated with the patients' drugs and they are counselled on what should be avoided" (D7)

Theme 3: Reasons for utilization/non-utilization of DIC, DTC, STGs in the management of HIV/AIDS patients

Reasons for utilization/non-utilization of DIC, DTC, and STGs in the management of HIV/AIDS patients included:

"Awareness of availability of policies/documents, attitude towards their usefulness and patient work load" (D1);
"patient workload, availability and accessibility of DIC, DTC and STG affect their use" (D2)
"Patient workload, documentation workload and availability of DIC, DTC and STGs" (D3).
"Availability, awareness of their availability and attitude of pharmacists towards their use". (D4)

DISCUSSION

DIC was available in only 1 public hospital that provided healthcare to adult HIV/AIDS patients. It was available to 4 of the prescribers. In addition, DIC was available to only one (1) dispenser. These findings are not in line with the NNDP stipulations: establishment of drug information units in all public health institutions to ensure acquisition and dissemination of current and accurate drug information (FMOH, 2005). Also, the finding of this study on availability of DIC is different from those of

Ashnef et al. (2018) and Alamri et al (2017) in which DIC availability was 100% in all the healthcare institutions.

Regarding utilization of DIC, only 1 of the prescribers (25%) utilized it. The non-utilization of DIC by 3 of the prescribers (75%) despite being available was due to lack of awareness of the availability. Creating awareness of the availability of functional DIC among prescribers could have resulted in the DIC utilization. In addition, the DIC that was available to only one (1) dispenser was utilized. The sub-optimal utilization of DIC is not in line with the NNDP stipulations. Moreover, the DIC utilization by the Physicians obtained in this study is also lower than that obtained in studies by Peter *et al* (2017) and Alamri et al. (2017). The low availability and utilization of DIC is of serious concern since availability and utilization of DIC are crucial to prevention of drug therapy problems. For example, reflecting on the enormity of the harm done to a patient placed on stavudine, ARV monotherapy or dual therapy, underscores the importance drug information that are provided by DIC. Stavudine is no longer included in the list of ARVs recommended for the treatment of HIV due to its toxicity (FMOHN, 2010) while ARV monotherapy and dual therapy are no longer recommended ARV treatment regimen due to development of resistance.

Concerning availability and utilization of DTC, only 4 of the prescribers and 1 dispenser had and used it. These are below optimal requirements of NNDP (FMOH, 2005). This is of serious concern since quality of care of the HIV patients could be affected. This could jeopardize the attainment of the strategies of the Nigerian national drug policy: establishment of DTC that is responsible for the selection of drug use in the institution, based on the National Essential Drug List; monitoring of utilization of therapeutic guidelines and overall drug use; and monitoring rational use of drugs (FMOH, 2005). The findings of this study on availability of DTC (25%) is lower than that of Weeks and Brooks (1996) in which 92% of respondents in a national survey of DTC had DTC in their hospitals but higher than that obtained by Saravanan and Krishnan (2016) in which only 16.1% of physicians said that their institution had DTC. Nonetheless, the finding of this study is similar to that Lozano-Blázquez et al. (2014) in that the prescribers who had DTC utilized it in patient care.

The most available and utilized supporting policy/document by the prescribers and dispensers are the STGs. There were 100% availability and utilization of STGs. This is not surprising since STGs are necessary for the therapeutic efficacy and economic efficiency of medication use. This finding is in line with the NNDP target for the attainment of its goals and objectives (FMOH, 2005). This finding is however in contrast with the finding of Hassan *et al*. (2017) in which access to and utilization of STGs are low (30%). The finding on utilization of STGs from this study is also higher than that obtained by Makwi (2017) in which treatment adherence to STG in private and public primary health facilities were 49.6% and 58.9% respectively. The contrast could be due to the training given to the prescribers and dispensers who provide healthcare to HIV/AIDs patients. The STGs guided the practice of the prescribers. One of the reasons given by the participants for the utilization of the STGs is accessibility. This is in line with finding of Keiffer (2015) in which accessibility is one the facilitators to the utilization of clinical practice guidelines. This has positive epidemiological, medical, social and economic implications. These include good treatment outcomes, decreased transmissibility of the HIV and HIV related opportunistic infections with consequent decreased disease burden; increased quality of healthcare for and quality of life of these HIV/AIDS patients; and of public confidence in the healthcare system.

LIMITATION OF THE STUDY

Only the prescribers and dispensers who were focal persons in the HIV treatment centers participated in the in-depth interviews. Other prescribers and dispensers in the HIV treatment centers were not interviewed. Despite the study is multicenter, it was limited to only one state in North-Central Nigeria and thus the findings in this study may not be generalizable to other states within and outside the region.

CONCLUSION

Availability and utilization of standard treatment guidelines (STGs) in the management of HIV/AIDS patients in public hospitals in Kwara State, Nigeria are optimal. However, availability and utilization of Drug Information Center (DIC) and Drugs and Therapeutic Committee (DTC) are sub-optimal. There is need for improved availability of DIC and DTC and institutional mechanisms to ensure their utilization.

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