

## DRUG INFORMATION IN NIGERIA PROCESSES AND PROSPECTS\*

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Information about drugs in any society, Nigeria in particular is best obtained from persons who have been trained in the pharmacy profession, the pharmacists. Pharmacy is a knowledge system concerned with the manufacture and appropriate use of drugs in the society. It is a system which renders a health service by concerning itself with knowledge about drugs and their effects especially upon man. Pharmacy generates knowledge about drugs, acquires relevant knowledge from the biological, chemical, physical and behavioural sciences, it tests, organizes and applies that knowledge. Pharmacy translates a substantial portion of that knowledge into products and distributes them widely to those who require them.<sup>(1)</sup> Pharmacy as a profession has given birth to many careers which include:

1. Hospital pharmacy services
2. Community Pharmacy Services or general Pharmacy Practice.
3. Industrial pharmacy services
4. Academics and Research pharmacy practice
5. Miscellaneous

Individuals who have acquired this body of knowledge and are registered by the Pharmacist Board of Nigeria or the Pharmacists Board of Registration in any country they are practising are called pharmacists, they are the drug experts. <sup>(1)</sup>

Drug information becomes essential in our society today because of the challenges facing pharmacists and the pharmacy profession in Nigeria.<sup>(2)</sup> No pharmacist can cope today with the large number of drugs which flood the market, but the pharmacist should be able to know where to find information whenever it is needed either by himself or by some other members of health care team. Every pharmacy should have an up-to-date library with correct pharmacy text books, pharmaceutical journals, literature inserts and official pharmacopoeia.

As a member of the formular committee the pharmacist gives information on the various brands of drugs available in our hospitals and to show cause why one should be preferred to the other.<sup>(3)</sup>

Nigeria is the only country in the world where drugs are openly exhibited in the market stalls and sold to any willing buyer, are sold by anybody who cares to take over the functions of the pharmacist.<sup>(4)</sup> It is in this light that drug information becomes very necessary in our society since the health of the masses is not to be taken for granted.<sup>(5)</sup>

### Processes:

Pharmacy knowledge is disseminated to physicians, nurses, pharmacists and to the general public to the end that drug knowledge and drug products may contribute to the health of individuals and the welfare of the society, hence, drug information provision is a primary function of the pharmacy profession in health care delivery system.<sup>(1)</sup>

A pharmacist like other health care professionals, has very specialized services to perform and there are different methods which can be used to provide these services. The proper use of medications requires that information on drug be available to physicians, pharmacists, nurses and patients. For health professionals in Nigeria most information about drugs is disseminated by the drug industry through its detailing force of medical representatives, through paid advertising or via the Nigerian drug compendium medipharm, Nigerian Drug Index and MIMS. In most cases it is difficult to obtain completely objective information from the industry. The formal drug information service concept has developed as an unbiased source of information for health professionals on various aspects of drug, ranging from theoretical questions about chemistry, and pharmacology, to drug therapy such as adverse effects and cost.<sup>(1)</sup>

The sources of information used in responding inquiries include books and monographs (tertiary literature) information retrieval systems (secondary literature) and articles stored in files and journals (primary literature). These information sources are needed in order to provide rapid and complete answers to the great variety of drug related questions that may be received in the drug information centres. Virtually all formal drug information centres are directed by pharmacists and are based in hospitals on pharmacy schools. Drug information centres can also serve as poison control centres. The invol-

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vement of the clinical pharmacist in poison control activity has contributed to this development, and this will probably increase.<sup>(1)</sup>

So far, there are no organised drug information centres in the country. Few institutions have developed drug bulletin as a means of drug information. A hospital news letter for instance, focuses on any short information about drug relationship to patient. Information is of primary importance to that institution. The pharmacy is responsible for providing the patient and all the staff the comprehensive information about drugs that they may require. The pharmacy department subscribes to several international journals that deal with drugs so that it can furnish opinion on drug-related matters following literature evaluation. Information about new and old drugs should be furnished with respect to compliance should be established especially in the chronic disease situations, like diabetes and hypertension.<sup>(5)</sup>

A drug information centre can publish newsletters that periodically summarize information on drugs included in the formulary, inform the hospital staff of formulary deletions, discuss new techniques of drug administration and announce new pharmacy service programmes in the hospital. The drug information staff can function as a significant educational resource for medical, nursing, pharmacy, and other staff by presenting lectures, seminars and grand-rounds. They can co-ordinate the documentation of adverse drug reactions in the hospital by working with nurses, ward clinical pharmacists, and the medical staff.<sup>(1)</sup>

Before considering the different areas where drug informations are given in any society Nigeria inclusive, it is appropriate to enumerate some responsibilities that the pharmacist who proffers his services as a drug information specialist (pharmacists) shall be capable of performing and these includes the following respects:

1. He demonstrates professional and technical competence in the evaluation, critical selection, and utilization of the drug literature. He presents with minimum volume of relevant supporting documentation the pertinent information that enables those whom he serves to make independent informed conclusions and decisions.
2. He has a good knowledge of institutional and extramural library facilities, literature utilization and is able to take full advantage of all the resources available to him.
3. He possesses verbal and written communication skills which enables him to contribute effectively to intra- and inter-departmental dialogue relating to pharmacotherapeutic information.

4. He has the capacity for substantial contributions to the continuing education of health professionals.
5. He is actively involved in patient care as a contribution to the quality of the drugs used, and as a monitor of the characteristics and performance of the drug.
6. He is able to give professional advice to sustain the effectiveness of the Pharmacy and Therapeutic committee.
7. He complements and supplements the efforts of his colleagues in the hospital pharmacy who are now trying to marshall the knowledge, skills, scientific and professional judgement necessary to bring more effective health-promoting pharmaceutical services into the mainstream of patient care. Thus he contributes to and is an integral part of clinical pharmacy practice and the education of clinical pharmacy practitioners.
8. He contributes to the drug literature through participation in research activities in the areas of  
(a) Clinical and pre-clinical drug studies.  
(b) surveillance of clinical drug experiences in his institution, and  
(c) Experimentation in professional services.

Although I recognize that there are today few pharmacists who fully meet the performance competence elaborated above, I believe that lesser expertise can neither provide the requisite services within the clinical community nor meet the aspirations of modern pharmacy.<sup>(1)</sup>

## AREAS OF DRUG INFORMATION

### 1. THE PATIENT:

In order for a medication to be fully effective it must be properly prescribed by the physician, properly dispensed by the pharmacist and properly administered by the patient. This chain of responsibilities requires the application of knowledge by each member of the triad. The efficacy of the entire system then hinges upon the actions which will be taken by the patient. We know that many patients are experiencing difficulties with prescribed therapies and the system is not as effective as it could be. At least 30% of all ambulatory patients do not take their medications correctly and one-third of the studies report a noncompliance rate of 5% or higher. <sup>(6-7)</sup> It is believed that one of the major reasons for noncompliance is the patient's lack of knowledge concerning the prescribed medications.<sup>(8-9)</sup> If

patient's needs for drug information are not met, they cannot fulfill their responsibilities. All the care which has been taken to manufacture the drug product, diagnose the medical condition, prescribe and dispense the medication is significantly negated (10)

Now let us try in visualizing a patient receiving a prescription form from the doctor for a medication which he has never taken before. As the physician is explaining the proper method of taking the drug all sorts of questions would be running through his mind. How will this disease affect my life? Will I be able to continue work? He vaguely hears the physician telling him how often to take the drug (in some special cases) and some other information about the therapy. By the time he returns home, it is highly unlikely that he will remember the drug information the physician has given (10) It has been demonstrated that approximately 50% of the statement made by physicians are forgotten almost immediately by patients. (11) In most cases after the patient learns the diagnosis the anxiety increases, but by the time he arrives at the pharmacy he is more relaxed and in a more receptive state to receiving information about the medication. And it is at this point that he is advised on the proper storage of the drug, to take the complete dosage and accurately too, to take food before taking the drug if so indicated. If the drug is a warfarin preparation (an anticoagulant) the patient is usually informed not to take phenylbutazone along with it since this could lead to haemorrhage in the patient (there is an enhanced anticoagulant activity of warfarin by phenylbutazone). Also a diabetic patient on tolbutamide therapy should be informed not to take any thing or other drug that may contain sulphonamide as this will cause hypoglycaemia in such a patient. Patients could be informed that an antibiotic such as Erythromycin should never be given with any fruit juice (erythromycin is a basic drug and in the fruit juice acidic medium it will be hydrolysed thus losing its antibacterial property). Tetracycline should not be taken with foods containing divalent cations or trivalent cations which are found in some foods and antacids so the patient should be advised to take the drug at least one hour after food.

Also the patients need information as to following the actual dosage indicated and in case of further information on points not clear as to why some drugs will need to be taken for such a long duration their physician or pharmacist should be consulted. The majority do not, they simply interpret the prescription label instructions. I recalled an experience with three girls in the same room with me sometime last month, one of them came to the room with some tetracycline capsule with the label: "Take 1 capsule

every 6 hours". None of them indicated that they would take the capsules every 6 hours around the clock. They all said (including the patient) that they would not take a night-time dose because they considered the "day" as being 18 hours of working time. They divided the time into three six-hour periods and omitted the 4th dose. Patients definitely need more information than what appears on the prescription label.

From the light of the above, and in order to assure that a medication is administered for optimal benefits, patients need the following information:

#### (a) Method of Administration:

Many patients fail to respond to a therapeutic regimen simply because they have not administered the medications correctly. For example, if a beclomethasone inhaler had been prescribed to help prevent an asthmatic attack, a demonstration of the correct method of administering the drug as well as assembling and cleaning the apparatus will aid patient understanding and compliance. The need to shake the canister before use should be stressed since this is one of the most common omissions made by patients. The simple method of immersing the inhaler in water in order to determine the amount of active ingredient remaining in it could also be explained to him. (12-16)

#### (b) Precautions to be Taken:

Information should be given to patients about specific foods, alcoholic beverages and nonprescription drugs that they should avoid while taking the prescribed drug. They should also be told of any precautionary measures that can be taken to avoid these interactions. For example, because of the relationship of isotretinoin to vitamin A, patients receiving this new therapy for severe recalcitrant cystic acne should be advised not to take vitamin supplements containing vitamin "A" in order to avoid addictive toxic effects.

Contra-indications to the use of a drug in pregnancy and breast feeding should also be explained. Women of child bearing age should be advised to use appropriate birth control measures during therapy and with some drugs for several weeks after the medication has been discontinued (to prevent teratogenicity). The teratogenic effects of some drugs on sperm have been reported and similar warnings for male patients may be necessary in the future as more information becomes available.

Information concerning the side effects of some drugs should also be given and every effort must be taken in order not to frighten the patient, instead, those side effects which occur most commonly and can be managed by the Patient should be routinely discussed. For instance before dispensing tablets of Chloroquine or Nivaquine to a patient you should try and enquire from the patient if he is allergic to the quinines or not and hence the inclusion of an anti histaminic drug if not included in the prescription. Another example is that of minocycline which may cause dizziness and the patient should be advised to exercise caution while driving an automobile or operating electrical equipment until his response to the drug has been determined <sup>33</sup>.

### C. Length of Therapy and Renewal Procedure

The Patient should be told how long to continue the therapy. If a renewal is necessary, the procedure should be explained. Many unnecessary problems occur during treatments because patients have not been told why it is important to continue taking the medication after they begin to feel better, some patients, especially those on long-term therapy, feel that they should "give their bodies rest from drugs from time to time." This was demonstrated by a patient with tuberculosis who never took his drugs on Sundays<sup>(17)</sup>

Patients should be educated generally on drugs. The information must be practical since the patient needs information to help him complete the therapy as easily and safely as possible. Such information should be concise since it has been demonstrated that the degree of comprehension and retention of information is inversely proportional to the amount of information <sup>(18)</sup>. It is essential that such information is presented in such a manner that the patient will understand. During the consultation, a verbal and/or written "contract" may help reinforce the patient's responsibility.

Also adequate information should be given to the patient on nonprescription drugs. Escalating health care costs are prompting many consumers to self medicate minor symptoms for which they previously would have sought medical attention. However, many people are not aware of the precautions that should be taken with nonprescription drugs. They do not read the warning labels and even if they did, many of the instructions are written at a level that cannot be understood by lay public <sup>(19)</sup>. Awareness of the need for obtaining professional advice before taking nonprescription drugs is very low.

Patients also need more information about the health care accessories they are purchasing in

pharmacies. The importance of home diagnostic kit should also be emphasised.

## 2. CLINICAL SETTING

To have a definite impact on patient care, the pharmacist must truly be the drug expert. He must have a strong understanding of pharmacology and toxicology, Pharmaco-kinetics and pharmacotherapeutics and be able to relate principles to the patients pathophysiologic process. Knowledge is the only possession the Pharmacist has of lasting value, and his sole responsibilities are to communicate, to share and utilize these in patient care in the Clinical setting<sup>(20)</sup>.

Information in the clinical setting is not all restricted to drugs of course. Of equal if not primary importance, is information about the patient. It should be recognised, however, that drug information per se is of little value if it is not relevant to the case at hand. It is imperative, therefore, to have a knowledge of the patient and disease and one of the ways to do this is to compose a patient profile. A profile is a sketch, an outline, it is also a vivid biography. It gives information needed to be able to make an intelligent assessment of the patients status or perhaps a decision in the course of therapeutic management. A medication profile proves facts about the patient, physical and physiological, including current diagnosis. It will indicate who the attending physician is and to which teaching service the patient is assigned. It will, of course, include all drugs ordered for the patient, their dosage and interval of administration, whether or not a regular schedule or just one dose, when they were started and when they were stopped. The various diagnostic procedures and clinical laboratory tests should also be included, especially if they have any potential in the resolution of the therapeutic plan for the patient. With such a document the patient begins to come into focus and is something more than just a statistic in a hospital census. At this point there is a personal, direct involvement with an observation of the patient.

Drug information is essential also in Clinical Pharmacy in obstetrics and gynaecology. A lot of disasters have been incurred by both mother and fetus during pregnancy because in early pregnancies the placenta does not act as a barrier between mother and fetus thus the fetus was vulnerable to the agents to which it was exposed. The thalidomide episode of the early 1960s was one of such tragedies. Equally important to the pregnant woman is the dissemination of information on self medication and use of common substances such as caffeine, nicotine and alcohol because of the tremendous amount of drugs used during pregnancy in our society in addition to

concoctions from traditional medicine men and women. Here the Pharmacist's role as a drug informant is two fold. First, he gives information on potential hazards of ingestion of drugs and drug substances if it is not supervised; for example, in the first trimester nicotine and smoking should be avoided because this leads to the birth of small babies. Androgens and Estrogens should be avoided if possible for they can cause masculinization, labial fusion and clitoral enlargement, the antibiotic streptomycin causes 8th nerve damage, micromelia, hearing loss and multiple skeletal anomalies. Secondly, the Pharmacist must impress upon these patients that anything ingested may be a drug including caffeine, cigarette smoking, alcohol and even aspirin could be hazardous. This last point becomes crucial since many patients associate the word "drug" only with prescribed medication without understanding that most over-the-counter drugs and some common substances are also drugs. To this end, it is important that pharmacists participate in Antenatal clinics in order to utilise their expertise to maximum in this specialised area of health care (20).

### 3. THE GOVERNMENT

The government could be well informed on the proper storage conditions of drugs imported into the country and are delayed at the ports for further investigation before distribution, for example, the vaccines. Vaccines should actually be stored at a maximal temperature of 4°C to retain their potency. These vaccines on arriving at the airport are transported to the cold room in Oshodi before being distributed to the states and to the final consumers—the patients. Poor storage of these vaccines could be detrimental. For example, sometime ago there was power failure in the hospital (at the Ibadan Teaching Hospital) and this brought down the storage temperature of these Vaccines. This, of course affected the potency of the vaccines under storage.

Another important informational need of the government is the adverse effects of going nuclear. Nigeria going nuclear in years to come has been an object of debate for a very long time now. Many governments have begun to plan for nuclear disaster and the state of emergency that will follow. It is my belief that a pharmacist would be morally wrong to become involved in such planning. The build up of nuclear weapons by many countries in recent years can only substantiate suggestions that a major armed conflict will lead to nuclear destruction. Any organisation involved in the promotion of health care must investigate the consequences of nuclear war which is the biggest single threat facing mankind at the present time. Some idea of the effect of a nuclear

war can be got from an investigation of the effect of a one mega-ton nuclear airburst over a city with a population of 500,000 people. A one mega-ton bomb is equal to one million tons of TNT, devastation from an air-burst is approximately 30% more than that from a ground burst.

"Even the present health care facilities would not be able to cope with the combination of ordinary health problems injuries, fall out, psychological disturbances and epidemics, face the post holocaust health care system". It is worth considering that nuclear bombs in store today can be much bigger than one mega-ton. The bomb that fell on Hiroshima was 0.02 mega-ton.

There can be no note for the pharmacist in a nuclear war and it must be the duty of Pharmacy Organisations, national and international to actively support nuclear disarmament (21).

### 4. THE PUBLIC

Drug information can be made available when a pharmacist is called upon to give advise or talks on topics related to drugs to any group of people like secondary school students, women's groups, parent-teachers' association, church organisations and professional groups<sup>(3)</sup>.

Also information on the use of chemicals in pests and insects control should be made adequate to the public. The International Agency for Research on Cancer have found that the chemical constituent of several insecticides and other pest killers in Nigeria cause cancer. Dr. Opeyemi Ogunleye of Adeoyo State Hospital, Ibadan told the guardian that the shortage of adequate information on the banned and restricted chemicals in this country would render any control or monitoring effort almost useless<sup>(22)</sup>.

### PROSPECTS

The rapid development of drug research has produced more effective and specific drugs which also is accompanied by higher risks for side effects when misused. More is also known about the properties of the drugs we use today. Further, the practice of self medication and people's awareness of their own health have increased. This demands better information from the Pharmacist to the public about the properties and use of drugs. This is also gives the Pharmacist a given place in the educational system — to influence a good drug behaviour already among school children. The Pharmacist is aware and has knowledge of other ways, than the strict scientific one, that people use to cure disease. With an understanding attitude and with relevant information given, people will trust the health care and not criticise indiscriminately the modern drugs (211)

Although an opportunity exists for the Pharmacist in our society to fulfill a drug information role, he has not adequately performed this function. This failure could be attributed to either inadequate training of the Pharmacist for this role or the failure of the Pharmacist to face up to the challenges of his profession. With the introduction of clinical pharmacy in the curricular of our Pharmacy Schools, the importance of establishing this role is paramount and access to a formal drug information service is vital. In the absence of a formal drug information centre which provides drug information service in a health institution, it becomes imperative that the Pharmacist must provide the service. A drug information service is an important back-up service for clinical pharmacists on the patient units of a hospital. Clinical Pharmacists receive questions from other health professionals, and they in turn, can consult with the drug information Pharmacist for assistance or come to the centre to retrieve the desired information themselves.<sup>(1)</sup>

Pharmaceutical educators are urged to join forces with the clinically experienced drug information specialist who can assist in curriculum restructuring to meet the needs of a higher order of professional practice. With a conviction in the need for newer dimensions of clinical services, and with resolute determination to meet its collective responsibilities in the extraction of maximum benefits of drug therapy in patient care, Pharmacists should resolve to bring reliable and unbiased drug information services to operate effectively in the interest of rational therapeutics.<sup>(1)</sup>

There is definitely a future in the Pharmaceutical industry in Nigeria. Every Pharmacist in Nigeria must rise to the challenges of our time. The research Pharmacist would have to look more closely into his microscope, and make the discovery of that elusive cure of all drugs from our herbs.

### CONCLUSION

Information about drugs and drug usage must be a part of the pattern of Pharmacy service. Medical Science and public health disciplines have a sharp appetite for information and there is a continuing and constant use of information in available forms. The Pharmacist can satisfy this demand and is in a position to do so. It can be done by creating an "environment of information" so that "Pharmacy" and "information" are thought of in the same context. Be assured, if an information gap is allowed to develop to a vacuum, some other enterprising group will respond to the need, and the Pharmacist will be on the outside looking in.

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