

CONTINUED EDUCATION

RESPONSIBILITIES OF A CLINICAL PHARMACIST — REALITIES IN NIGERIA

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Abstract

This article will attempt to discuss the responsibilities of a clinical pharmacist, to expose to Pharmacists in practise the way they can utilize their clinical pharmacy training, to inform the academicians on the need to apply practical approaches to the teaching of clinical pharmacy courses, and to inform the health care administrators about the potentials of a clinical pharmacist so that they can better utilize the expertise of this professional for the overall well being of the patient.

Responsibilities of a Clinical Pharmacist —

Clinical Pharmacy is that branch of Pharmacy which deals with the practical applications of the academic clinical science discipline and embraces studies in Physiology, Pathology, Pharmacology and Clinical medicine and their relationship with therapeutic agents. The Clinical Pharmacist is in constant consultation with the Physician, Nurse and the Laboratory Technologist. Many articles have dealt exclusively on the necessity of Clinical Pharmacy curriculum in Nigerian Pharmaceutical institutions^{1,2}. It is interesting to note that most schools of Pharmacy now offer Clinical Pharmacy courses in their curriculum and the objectives of this branch of Pharmacy are being vigorously pursued in the classrooms. May be it will be worthwhile to suggest to the Pharmacy institutions to use an additional fifth year to expose the students to the practical aspects of Clinical Pharmacy including a 3-month externship programme. The extent of practice regarding this branch of Pharmacy by the graduates from these institutions remains a mystery.

By virtue of his training, the pharmacist can work in a hospital or retail pharmaceutical setting depending on his preference. He can utilize his acquired knowledge in any of the health institutions. The presence and expertise of the pharmacist is necessary at all levels of Health care. In the rural areas, the pharmacist can provide vaccines and other drugs needed to ensure the success of the primary health care system. Storage conditions and effectiveness of the drugs, and dosing problems are solved by Pharmacist in these areas. Moreover his expertise is particularly needed in the hospitals (both government and private hospitals or clinics). Some intravenous admistures, for example, oncologic medications which require adequate care, and extemporaneous compounding can only be done by a Pharmacist who is the trained expert. In addition, he can give information to the medical staff concerning new drugs or new indications of old drugs and he can attend to drug-related matters. His presence will result in better treatment for the patient as he can advise the physician on substitute drugs or better drugs to administer in special circumstances. For example, he may advise the physician to add Carbidopa^(R) to a regimen of Levodopa^(R) so as to increase the amount of Levodopa that crosses the blood brain barrier in patients with Parkinson's disease.

A clinical pharmacist performs the normal duties of compounding, dispensing and counseling on drugs to his patients. In addition, he can perform simple tests like urine tests (for diabetes), take patient's blood pressure and be certified in Cardiopulmonary resuscitation (CPR). The latter is essential since he is a member of the health care

team. Suppose he is in an area where he happens to be the only health professional present and a friend or relation suddenly slumps down and collapses, those around will expect him to do something before the arrival of the ambulance or medical doctor. With CPR training, he can apply this procedure either alone or with the help of another trained person. The following three steps can be followed to apply CPR:

- 1) He can ensure adequate air space by moving people back so crowding the patient is avoided, and then check if the patient is breathing.
- 2) If the patient is not breathing, he artificially breathes air into the mouth or nose (mouth to mouth or mouth to nose). If he breathes into the mouth, he must use his thumb and index finger to close the nostril and vice versa.
- 3) He simultaneously depresses the rib cage above the heart without breaking the ribs using both palms to allow the blood to flow from the left ventricle into the body circulation so as to reduce tissue death. Alone, he can breathe in twice and depress fifteen times. With a partner, one can breathe in once, while another depresses the rib cage five times. He must watch to see when the patient starts to breathe by himself so he can stop. Furthermore, when the ambulance van arrives, pure oxygen can be given to the patient. This procedure has saved many lives where it is practised. CPR should be mandated for every pharmacist.

Moreover, a clinical pharmacist, by virtue of his pharmaceutical training in the Pharmacy School should be famil-

lar with the levels of the different laboratory tests such as blood chemistry and electrolyte analyses like Potassium, Sodium and so on. These are essential to his accurate evaluation and detection of the side effects of drugs and will aid in the advice given to the physician for patient's overall improvement.

Furthermore, a Clinical Pharmacist will be available for consultations on drugs being taken by a patient. The doctor on his part must rely on, and trust the advice given by this professional and utilize his expertise so as to make an accurate assessment and ensure the health of his patient. The Pharmacist should counsel the patients about to be discharged from the hospital on the need to stick to the drug regimen prescribed by the physician. For bigger hospitals or teaching hospitals, the clinical pharmacist will be able to write simple computer programmes of instruction concerning new drugs or new indications of old drugs to medical personnel. Some articles have been written on the different beneficial effects of installing computers in hospital or retail pharmacies^{3,4}. Simple programmes can be inserted to use in calculating serum creatinine, creatinine clearance, loading and maintenance doses of the various drugs with narrow therapeutic indices so that effective dosing with minimal side effects are obtained.

Furthermore, the Clinical Pharmacist can be given the opportunity to order for serum peak and rough levels of some drugs with narrow therapeutic indices as required and to change the dosage regimen as per his calculation. He must notify the Physician immediately of any adverse change in the patient which is as a result of the administered drug. The Clinical Pharmacist can keep patient profiles so as to be able to monitor what his patients are on at any particular time and monitor compliance on the part of the patient. This is beneficial, when geriatric patients with low basic metabolic rate and reduced renal clearance levels are considered. The Pharmacist will still be able to give these drugs, monitor compliance, watch for adverse drug reactions through pa-

tient's complaints, and contact the physician of any problems. Pharmacists in both retail and institutional settings should keep patient profiles.

In addition, the Clinical Pharmacist can practise some form of Clinical Pharmacognosy. He must learn to prepare simple concoctions or decoctions needed by his patients. This is particularly beneficial to most rural dwellers who depend on their natural surroundings and ancestral beliefs to ensure adequate health. Since Clinical Pharmacognosy deals with the application of some scientifically proven herbal remedies against certain ailments, only a trained expert can prepare these remedies *aseptically*. This is one area that has not been totally explored by Pharmacists. In the early days, pharmaceutical chemists (Ph.C.) prepared extracts of official crude drugs such as *Atropa belladonna* extract B.P., *Cascarea sagrada* extract B.P. et cetera using the Pharmacopoeial monographs as reference for standardizing the extracts. Furthermore, traditional medical practitioners (TMP'S) prepare extracts which they give their patients who are mostly rural dwellers. Over the years, scientific research has proven the claims of some of the herbs used by TMP's⁵ and the African Pharmacopoeia (AP volumes I and II) which came out recently gave standards for some of these herbs. Therefore, Pharmacists, either in retail or hospital institutions should be able to prepare and dispense these remedies to patients who want them. For example, leaves of *Bridelia ferruginea* can be used for diabetes; and *Sterculia* species leaves can be made into a concoction in water and used for hypertension⁵ and so on. These pure, sterile extracts can be used as supplements or replacements to conventional therapy as deemed fit by the physician. Studies can be done to establish whether or not there is long term side effect. The physicians have to be aware of these new remedies so that in conjunction with the other members of the health care team, they can give the patient the best treatment available. This will be a realistic practice for pharmacists as the materials are available locally.

The Pharmacist should also be involved in Family Planning activities. He should be a source of information for the medical staff and members of the public concerning the different family planning methods, and the different types available for each method, for example the different oral contraceptive pills (Ovral^(R), Norgestrel^(R), Ortho-Novum 1/50^(R), LoOvral^(R)), different condoms (Encare^(R), Pleasure^(R)) and so on. He can advice patients on when, how and what type of effects to expect when these methods are used. Pharmacist should be trained so that they can be of help to families in their neighbourhood. This training should also be mandatory for every pharmacist.

I will like to stress that Clinical Pharmacy practise has not really started in this country. Some suggestions that could lead to successful revolution in Clinical Pharmacy education and practice in Nigeria may include:-

1. Curriculum studies of certain basic medical science courses should be reviewed and outlined rather than load students with complex and disjointed courses in basic pharmaceutical sciences which they can only memorize to pass. In the first year, physiology I & II can be taught. The second year should be devoted for Pathology — that bears relevance to general medical practise (Clinical medicine). This course should include the effects of drugs on the levels of the different laboratory tests. For example, administration of some aminoglycosides (Amikacin or Gentamicin) to a normal adult may increase the serum creatinine which may signify kidney damage (nephrotoxicity). The third and fourth years can them devote attention on the practice of Clinical Pharmacy. The student pharmacists should be made to spend at least 5 — 8 hours a week in the hospital (Table I). The student physician at the wards are also encouraged to interact with the student pharmacist. Both should report to the instructor. Elective courses such as Gerontology, Public Health, and Human relations should be offered to prepare the professionals for what is happening on the field.

Table I

	<i>Courses</i>	<i>Units</i>
1st year	Physiology I & II	6
2nd year	Pathology	3
3rd year	Clinical Pharmacy	3
	Clinical medicine	2
4th year	Professional Practise/ Externship	6—7

2. For the above objective to be achieved, the physicians, especially the old ones, have to change their way of thinking and be broad-minded of other professions. In as far as the well-being of his patient is paramount, the physician should be willing to work and accept advice from other experts in the health field. Members of the health care team, particularly the physicians should be exposed to what the present-day pharmacist can do.

3. Most of our health leaders (Ministers) are always Doctors. They should keep abreast of the changes in the other health profession rather than only in their field. This will make them broad-minded and will make them encourage developments in other health professions for the overall well-being of the patient. The leaders in Pharmaceutical services must also be equipped to keep abreast of new developments in Pharmacy so as to be able to give sound advice to health leaders.

4. Depending on the financial situation of the system, computer education can be demonstrated and/or taught to students. This is not a priority and financial situation of the faculty/hospital should be considered before embarking on this kind of system.

5. Students should be assigned to a hospital patient of clinical significance and at the end of the course the student should present a paper on the patient. The paper will deal with diagnosis, approach to treatment by the physician, medication errors and interactions, nurse notes on patient's progress and relevance of his advice on overall patient's health.

6. A model pharmacy shop should be established near the Pharmacy School or at a suitable location where students come in for extern or even intern hours of experience. The lecturers will act as pharmacists and can be assisted by Youth corpsers. The pharmacy shop should be licensed by the Pharmaceuticals Board. In addition, it should be able to supply to hospitals and outpatients their prescription needs, that is, intravenous preparations, dispensing, extemporaneous compounding and counseling can be preformed. This will give the outgoing graduants confidence to perform the same functions on their own. In addition, it will enable the Lecturers keep abreast of the new pharmaceutical products on the market and instruct students on a professional basis.

7. The approved institutions for training of intern pharmacists should be monitored. In most of these institutions, some of these interns do nothing more than count pills. They should be exposed to other areas of practice like pharmacy management, preparation of IV admixtures (in hospitals), extemporaneous compounding, and counseling, so as to put to practical use, all they've learnt in School. Standards should be established for all approved areas of internship. For example, in retail institution, the intern may be left unsupervised for three-four hours on weekdays and all day on weekends towards the end of his internship. This will increase his confidence. There should be a standard program for the 12-month internship period and an instructor, chosen from the Pharmacy School staff, who gets a report concerning the intern every three months and ensures that the intern is exposed to all aspects of the Pharmacy profession.

In conclusion, Clinical Pharmacy must be taken seriously by all the members of the health care team. The Physician on his part should put more trust and dependence on his pharmacist rather than do it alone. The pharmaceutical companies should involve the academic staff of the pharmacy schools on their new products for clinical testings in our teaching hospitals. The nurses

should make their progress notes accessible to student pharmacists and Clinical Pharmacists must be able to give valuable advice or suggestion to doctors concerning their patients. The Government should be broad-minded in their approach to attaining health-for-all in 2000 A.D. and beyond by providing adequate funding to make these proposals a reality.

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