



Identification of acceptable standards for pharmaceutical care practice among hospital pharmacists in South-Western Nigeria

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Abstract

Involvement of Pharmacists in designing practice standards for pharmaceutical care and effective implementation of agreed practice standards will assure optimal and proper outcomes in pharmacy practice. The purpose of this study was to identify standards of pharmaceutical care that are practicable and applicable in the hospital settings. A cross-sectional survey was carried out between March and June 2008 among Hospital pharmacists working in 2 cities in South-Western Nigeria. Using a questionnaire modified from fifty –two standards suggested by the Delphi Panel of Pharmaceutical care experts, information was obtained on feasibility, relevance, current application and intention to apply standards of pharmaceutical care. Response rate was 47.93%. Average positive response \pm standard deviation for the parameters were; Feasibility 62.23% \pm 8.89%, Relevance 62.76% \pm 7.25%, currently applied 41.6% \pm 19.69% and intention to apply 11.32% \pm 6.67%. Twenty seven and 47 standards were found to be both feasible and relevant based on 60% and 50% average positive responses respectively and there was no significant difference between the average positive responses of being feasible and relevant (P=0.1028). The most accepted standard based on feasibility was ‘the pharmacist should be prepared to re evaluate and modify therapeutic plans on subsequent patient visit and consult with necessary physician(s)’ 46(79.3%). Thus pharmaceutical care standards that can be implemented in hospital settings were identified. However there is still a suboptimal level of intention to practice these standards.

Keywords: Pharmaceutical care; Practice standards; Hospital settings; South-Western Nigeria.

Introduction

Pharmacy service in hospitals traditionally has been oriented to serve patient areas from a single, central core pharmacy, more frequently than not, the pharmacy has been isolated physically from routine and direct patient care activities, thereby presenting problems both of distribution and communication (Oliver, 2006). This

traditional orientation has evolved over time. The traditional role of hospital pharmacists in drug analysis and drug compounding broadened to a patient-oriented approach during the sixties and seventies with the adoption of clinical pharmacy concept (Vreel, 1990). Hence hospital pharmacists, in addition to the supply and control of medication within hospitals, also provide a

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wide range of special services, such as drug information, sterile medicines, radio pharmacy, oncological, ward pharmacy and clinical services. They work closely with other health professionals to optimize drug therapy and patient care management (AGCAS, 2008).

Pharmaceutical care is defined as the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the patient's quality of life. Those outcomes are: i) cure of a disease: ii) elimination or reduction of a patient's symptomatology iii) arresting or slowing of a disease process; or iv) preventing a disease or symptomatology (Hepler and Strand 1990).

The practice of pharmaceutical care is intended to meet a need in the health care system that has arisen due to the increase in complexity of drug therapy and the significant level of drug-related morbidity and mortality associated with drug use (Berenguer *et al.*, 2004). As a subset of healthcare, pharmaceutical care is a necessary element of healthcare, and should be integrated with other elements (Nahata, 2000).

Pharmaceutical care may be manifested in a variety of economic and organizational settings –from private solo or group practice as an employee of a corporation, from outpatient care to inpatient intensive care. The fundamental goals, processes and relationships of pharmaceutical care, however exist independent of the practice setting, although the specific content of the standards may vary from setting to setting (Hepler and Strand, 1990).

The introduction and acceptance of clinical pharmacy into the practice of Pharmacy in Nigeria in the 1980s led some hospital pharmacists to be involved in clinical activities including drug information service and unit dose dispensing. However unlike many developed countries the involvement of pharmacists in Nigeria in the application of the emerging roles has not been impressive.

Although pharmaceutical care has become a preferred mode of practice, most pharmacists in Nigeria still hardly offer significant patient oriented services (Erah, 2003).

After almost two decades, patient oriented pharmacy practice in our hospitals and community pharmacies has suffered from poor staffing, infrastructure, willingness of the pharmacists to add new evolving roles to their duties, lack of proper coordination of activities, resistance of physicians, lack of proper training for pharmacists, failure of many hospital and community pharmacies to adopt the practice and lack of self confidence. These are also frequently compounded by the continuous resistance of some medical doctors against patient oriented pharmaceutical services, particularly in hospital wards (Erah, 2003) as well as lack of standards for pharmacists to conform to in daily practice (Desselle and Rappaport 1997). It must be noted that achieving the full practice demands a number of skills, knowledge and accepted practice standards (Farris and Schopflocher 1999).

The application of practice standards that are practicable can result in enhancement of clinical, economic and humanistic outcomes of patient care (van Mill and Tromp, 1996; Odedina *et al.*, 1996). Hence for pharmacists in Nigeria with emphasis on hospital pharmacists to apply /deliver optimal pharmaceutical care, they should adopt practice standards that provide meaning to the term and enable a holistic view of patient care. Erah and Nwazuke (2002) stated that the fifty two standards suggested by the Delphi Panel of Pharmaceutical care experts (Desselle and Rappaport, 1997) opens a lead way for the identification of standards that can effectively be applied.

In their survey conducted in 2002, only 18.2% of 119 pharmacists practicing in Nigeria (Benin City) stated that they applied most of the 52 suggested practice standards obtained from round one discussion by the

Delphi panel of pharmaceutical care experts in their settings. This study was done among pharmacists working in all pharmacy settings. Also Pharmacists Council of Nigeria recently published a four part Compendium of minimum standards of assurance for pharmaceutical care in Nigeria (PCN, 2005) to guide optimal pharmacy practice.

Despite the increasing awareness of Nigerian pharmacists about these practice standards, key challenges still exist in their practicability and applicability in respective practice settings. Hence this study seeks to identify practice standards that are practicable and applicable in the hospital settings in Southwestern Nigeria. The specific objectives are -to identify the standards that are feasible, relevant, currently being applied and intended to be applied, to determine standards that are both feasible and relevant at the same time based on the 60% positive response and to determine the most accepted standard/s for the 4 parameters.

Experimental

Location: This study was carried out in Abeokuta and Ibadan of Southwestern Nigeria. Abeokuta is the capital of Ogun State with a population of 3,728,098. Hospitals in Abeokuta where pharmacists work include Federal Medical Centre, State Hospital Sokenu Abeokuta, Oba Ademola Maternity Hospital and Neuropsychiatric Hospital, Aro Abeokuta, among others. Ibadan is the capital of Oyo State and the largest city in Africa (Oyo State Diary 2006). Oyo State is one of the most urbanized states in the Federation. Hospitals in Ibadan where pharmacist work include University College Hospital Ibadan, Adeoyo Specialist Hospital, Adeoyo Maternity, Jericho Nursing Home, Jericho Chest Clinic, Jericho General hospital among others.

Study design: A non randomized cross-sectional survey was conducted using hospital pharmacists working in Abeokuta or Ibadan.

Population: The target population was the entire pharmacists working in the hospitals in Abeokuta and Ibadan. The list of registered pharmacists working in hospitals in Ogun and Oyo states was retrieved from the Pharmacists Council of Nigeria (PCN) List of Registered Pharmacists (PCN 2006). A total of 208 registered pharmacists (2006) in Ogun State and 49 in the hospital setting in Abeokuta and 292 registered in Oyo State and 72 hospital pharmacists in Ibadan formed the target population.

Sampling and sample size: A conducive consecutive method of sampling was used to select the pharmacists. A total of forty nine (49) hospital pharmacists for Abeokuta and 72 pharmacists for Ibadan giving a total sample size of 121 respondents formed the sample size.

Inclusion criteria: Every hospital pharmacist who was approached and was willing to fill the questionnaire were included as part of the sample.

Instruments and methods of data collection: A pretested self administered questionnaire was used for collection of data. The first part of the instrument was based on four questions on socio demographic characteristics of the respondents including age, gender, highest qualification and years of professional experience. The second part of the questionnaire was constructed based on the 52 suggested practice standards (Appendix 1) obtained from round one discussion by the Delphi panel of pharmaceutical care experts (Desselle and Rappaport 1997). Some of the questions were modified to simpler formats to suit or make it appropriate for the pharmacists. Standard numbers 38 and 44 were adjusted to suit Nigerian environment (Medwatch report was changed to NAFDAC's ADR report for no. 38, and

special support and educational group cited as example was the Talabi centre for Diabetes Studies. The Pharmacists were requested to indicate in the questionnaire whether or not each of the standards were feasible, relevant, being currently applied or intend to apply it, with sub options based on “Yes” for respondents accepting the practice standards, “No” for respondents who disagree with the identified practice standards and don’t know for respondents who were uncertain about the practice standards.

The questionnaires were administered to the pharmacists in their offices with oral explanation of the method of responding. The purpose of the study was discussed with some of the participating pharmacists and educating them on the format and how to indicate their desired responses in the appropriate spaces provided in the questionnaire in order to prevent errors in the responses. The copies of the questionnaire were left with the pharmacists who voluntarily accepted to participate in the study and retrieved either instantly or at an appointed date after self completion of the questionnaires, within a period of two weeks after one or two visits. Their phone numbers were obtained on the first visit as a form of contact. Reminder calls were made until the questionnaires were filled. Those who were unable to fill the questionnaires by the third visit were considered as non respondents because of time considerations.

Statistical analysis: Completed questionnaires were coded for easy reference. The responses were fed into Microsoft Excel for easy sorting and doubly checked to ensure accurate data entry. All data were then analyzed descriptively using SPSS version 12. Standards which had $\geq 60\%$ positive response proportion were judged as feasible and relevant as has been done in previous studies (Desselle and Rappaport 1997), (Erah and Nwazuo 2002). Further analysis was

also done with Graph pad. A p value of < 0.05 was interpreted as significant.

Limitation: Unwillingness to fill questionnaires.

Ethical issues: Permission was sought and obtained from the Ministry of Health (Pharmaceutical Services Division) for Ogun and Oyo State and verbal consent was sought and obtained from the pharmacists before commencement of the study.

Results

Of the 121 copies of questionnaire distributed to the hospital Pharmacists, only 58 Pharmacists completed and returned the questionnaire giving a response rate of 47.93%. The age, sex, highest qualification and years of professional experience distribution of the responding pharmacist are given in Table 1. The highest proportion 19(32.8%) were aged between 25-29 years and majority 33(58.9%) had B.Pharm as their first degree in pharmacy. The highest proportion had 6-10 years of post qualification experience.

The number of items of the practice standards based on the parameters and average positive proportion is shown in Figure 2 and the average response of the respondents to the 52 suggested standards is shown on Table 2.

1. Feasibility: Based on feasibility, the average positive response was 62.23%. Thirteen items of the suggested practice standards had a positive response proportion of higher than 70%. This is shown in Table 3. The most accepted standard based on feasibility was “*The pharmacist should be prepared to re-evaluate and modify therapeutic plans on subsequent patient visits and consult with necessary physician(s)*” 46(79.3%). Majority of the items 21(40.38) fell between 60-69% proportions while 3 items had less than 50% positive response for feasibility.

2. *Relevance*: Based on relevance, the average highest positive response was 66.77%. Nine items had positive response proportion of higher than 70%. This is shown on Table 4. Majority of the items 30(57.69%) had positive response proportion of 60-69% with two standards being the most accepted, these are “*Pharmacists should secure access to online medical libraries and medical literature as well as product literature and handouts from pharmaceutical companies.*” 44(75.9%) and “*The pharmacist shall allow a specific amount of time for patients who wish to make appointments to discuss their care/care plans, health or drug therapy*” 44(75.9%). Two items had positive response proportion of less than 50%. Twenty seven (27) practice standards were both feasible and relevant based on 60% positive response proportion. This is shown in Table 5. Six items were found not to be both feasible and relevant at the same time (indicated in Appendix 1 with a plus (+) sign). There was no significant difference between the average positive response for feasibility and relevance. (P=0.1028)

3. *Being currently applied*: Based on being currently applied, the average highest positive response was 41.6%±19.69%, confidence interval 36.11%-47.09%. Only 13 items (25%) had positive response proportion of 60% and above. This is shown on Table 6. Other items 35(67.3%) were below 50% on currently being applied. The most accepted standard based on currently being applied was “*The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy (e.g. asking “How’s your arthritis? How are you feeling?”)*” 44(75.9%)

4. *Intends to apply*: Majority of the respondents gave no response for the standards listed with an average “no response” response rate of 66.3%. Only 7

items had positive response rate of 20-30%. This is shown on Table 7. The most accepted standard based on intends to apply was “*The pharmacist shall provide a written continuity of care report when a patient visits a new health care provider or new health care institution.*” 15(25.9%).

Discussion

The need for the pharmacists to agree on a standardized approach by which individual pharmacists will provide pharmaceutical care to patients cannot be overemphasized. The involvement of pharmacists in any setting in developing practice standards for pharmaceutical care to which they can adhere and upon which they may ultimately be evaluated is relevant (Desselle and Rappaport, 1997). This study aimed to identify pharmaceutical care practice standards that are practicable, by Pharmacist working in hospitals in two major cities in southwestern Nigeria. The response rate for this study was below average contrary to that of a study by Erah and Nwazuoke (2002) in Benin City. This could have been due to lack of time and heavy workload on the part of the pharmacists and narrowing down to only hospital pharmacists. On the level of education, majority of the respondents held only a first degree in Pharmacy; this is similar to results obtained from the study in Benin City (Erah and Nwazuoke, 2002).

Based on feasibility the most accepted standard was “*The pharmacist should be prepared to re-evaluate and modify therapeutic plans on subsequent patient visits and consult with necessary physician(s)*”. This standard is vital since a therapeutic care plan is a course of action for helping a patient achieve a particular health related goal and when the situation warrants the pharmacist review the plan and desirable outcomes with the patient’s other health care provider (Rovers, Currie et al., 2003).

TABLE 1: Socio Demographic Characteristics of Respondents N=58

Characteristics	Frequency	Percentage	
Age (years)	20-24	8	13.8
	25-29	19	32.8
	30-34	13	22.4
	35-39	14	24.1
	≥40	4	6.9
	No response	1	1.7
Gender	Female	28	48.3
	Male	29	50.0
	No response	1	1.7
Highest qualification	B.Pharm	33	58.9
	Pharm D	-	-
	M.Sc.	18	31.0
	FPCPharm	1	1.7
	Others	4	6.9
	No response	2	3.4
Years of professional experience	1-5	16	26.9
	6-10	20	34.5
	11-15	12	20.7
	16-20	5	8.6
	>20	2	3.4
	No response	4	6.9

TABLE 2: Average responses of respondents to the 52 suggested practice standards.

PARAMETER	% positive response Mean±SD	% No response Mean±SD	%Don't Know Mean±SD	%No response Mean ±SD
Feasibility	62.23%±8.89%	8.53%±5.72%	5.17%±3.41%	25.1%±5.24%
Relevance	62.76%±7.247	4.99±2.822	3.94±2.408%	29.08±5.886
Being currently applied	41.6 ±19.698	20.66 ±10.205	7.71± 3.771	30.28± 9.773
Intends to apply	11.32 ±6.671	5.89± 3.106	16.76± 8.024	66.33 ±14.214

TABLE 3: Items of the suggested standards with positive response proportion of higher than 70% based on feasibility.

Standards	No.	%
The pharmacist should be prepared to re-evaluate and modify therapeutic plans on subsequent patient visits and consult with necessary physician(s)	46	79.3
Follow-up appointments should be arranged within reasonable time, preferably within 7-14 days of initial patient visit to assure positive outcomes (i.e. compliance, efficacy of drug regimen, avoidance of adverse reactions or drug interactions).	44	75.9
The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.	44	75.9
The pharmacists should make efforts to optimize therapy and minimize effects by staying updated on common and newly discovered adverse effects by staying updated on common and newly discovered adverse effects and drug interactions particularly with specific high risk patients.	43	74.1
The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy (e.g. asking "How's your arthritis? How are you feeling?")	43	74.1
The pharmacist will use large enough print on prescription labels to make them easily readable for patients in addition to frequently changing ribbons to ensure label readability.	43	74.1

Pharmacists who are made aware of adverse drug experiences by patients will complete a med watch report as part of FDA's voluntary reporting program for ADRs.	42	72.4
The pharmacist will check each refill prescription for compliance (overuse, under use, misuse, etc) to assure positive outcomes.	42	72.4
The pharmacist evaluates ever prescription to detect any potential prescribing errors and intervenes when necessary.	42	72.4
The pharmacist maintains open and effective channels of communication with other health care providers for the benefit of the patient, mainly for the resolving of a potential or actual drug related problem.	41	70.7
The pharmacist shall devise a standard system of data collection of all necessary medical and personal information from each patient, including: prescribing physician(s), medication history, medical condition and diagnoses, allergies and other data that would assist in detecting potential medical or drug related problems.	41	70.7
When communicating with the patient, the pharmacist should use the open ended question, "What questions do you have about this medication?" to address concerns and ensure patients understand their drug regimen.	41	70.7
The pharmacist shall exhibit competence and knowledge concerning the impact of OTC drugs and outcomes of disease state (e.g. use of niacin in type II diabetics).	41	70.7

TABLE 4: Items of the suggested standards with positive response proportion of higher than 70% based on relevance.

Standards	No.	%
The pharmacist shall allow a specific amount of time for patients who wish to make appointments to discuss their care/care plans, health or drug therapy.	44	75.9
Pharmacists should secure access to online medical libraries and medical literature as well as product literature and handouts from pharmaceutical companies.	44	75.9
The pharmacist will check each refill prescription for compliance (overuse, under use, misuse, etc) to assure positive outcomes.	43	74.1
The pharmacist will use large enough print on prescription labels to make them easily readable for patients in addition to frequently changing ribbons to ensure label readability.	43	74.1
The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.	43	74.1
The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.	42	72.4
The pharmacist will ask on each refill prescription the following question, ' what problems are you having with this medicine? Or similar open ended question.	42	72.4
The pharmacist should be prepared to re-evaluate and modify therapeutic plans on subsequent patient visits and consult with necessary physician(s)	41	70.7
When communicating with the patient, the pharmacist should use the open ended question, "What questions do you have about this medication?" to address concerns and ensure patients understand their drug regimen.	41	70.7

TABLE 5: Items of the suggested standards with positive response proportion of $\geq 60\%$ based on Feasibility and Relevance

Practice Standards	Feasible No (%)	Relevant No (%)
S1- The pharmacist shall devise a standard system of data collection of all necessary medical and personal information from each patient, including: prescribing physician(s), medication history, medical condition and diagnoses, allergies and other data that would assist in detecting potential medical or drug related problems.	41(70.7)	36(62.1)
S3The pharmacist should be prepared to re-evaluate and modify therapeutic plans on	46(79.3)	41(70.7)

subsequent patient visits and consult with necessary physician(s)		
S5 Follow-up appointments should be arranged within reasonable time, preferably within 7-14 days of initial patient visit to assure positive outcomes (i.e. compliance, efficacy of drug regimen, avoidance of adverse reactions or drug interactions).	44(75.9)	36(62.1)
S6 The pharmacist will check each refill prescription for compliance (overuse, under use, misuse, etc) to assure positive outcomes.	42(72.4)	43(74.1)
S8 Pharmacists should secure access to online medical libraries and medical literature as well as product literature and handouts from pharmaceutical companies.	39(67.2)	44(75.9)
S9 The pharmacist should regularly run reports on their patients to see if they are getting timely refills and visiting physicians on a scheduled basis and intervene where appropriate.	36(62.1)	37(63.8)
S10 The pharmacist evaluates every prescription to detect any potential prescribing errors and intervenes when necessary.	42(72.4)	37(63.8)
S11 The pharmacist shall make conscious effort to provide oral patient counseling with each prescription that includes direction for use, indication, drug class, side effects, storage requirements and what to do in case of missing a dose(s), in addition to providing a hard copy of this information.	39(67.2)	37(63.8)
S12 The pharmacist maintains open and effective channels of communication with other health care providers for the benefit of the patient, mainly for the resolving of a potential or actual drug related problem.	41(70.7)	39(67.2)
S13 The pharmacist documents the results of each patient encounter and intervention.	35(60.3)	35(60.3)
S14 The pharmacist will assess and maintain a record of each patient's appropriate vital signs (i.e. blood pressure for hypertensives) to compare for future evaluation.	38(65.3)	36(62.1)
S15 When communicating with the patient, the pharmacist should use the open ended question, "What questions do you have about this medication?" to address concerns and ensure patients understand their drug regimen.	41(70.7)	41(70.7)
S16 The pharmacist will ask on each refill prescription the following question, ' what problems are you having with this medicine? Or similar open ended question.	38(65.5)	42(72.4)
S18 The pharmacist will use large enough print on prescription labels to make them easily readable for patients in addition to frequently changing ribbons to ensure label readability.	43(74.1)	43(74.1)
S19 The pharmacist should appropriately use technicians and other support staff personnel in clerical and dispensatory functions to create more time for patient interaction and patient care activities.	38(65.5)	36(62.1)
S24 The pharmacist should attempt to professionalize pharmacy's product mix towards health-related items, such as products for nutrition and fitness and medical accessories.	35(60.3)	35(60.3)
S25 The pharmacist shall instruct all patients that have a disease that can be monitored and will discuss with these patients how to monitor them (diabetic blood glucose monitors, cholesterol test, peak flow meters, etc.).	38(65.5)	39(67.2)
S28 Pharmacists shall have an area of private consultation available to patients.	38(65.5)	40(69.0)
S29 Each pharmacist shall procure a certain amount of hour of continuing education on topics to enhance their abilities to document, intervene and follow up on patients.	36(62.1)	36(62.1)
S30 Pharmacist should be actively involved in support of associations and practice group who promote the ideals of pharmaceutical care.	37(63.8)	35(60.3)
S31 Pharmacist shall promote the concept of pharmaceutical care to patients, physicians, benefit managers and insurance companies.	37(63.8)	35(60.3)
S38 Pharmacist who are made aware of adverse drug experiences by patients will complete a med watch report as part of FDA's voluntary reporting program for ADRs.	42(72.4)	40(69.0)
S40 The pharmacist should take active role in all aspects of patient wellness.	40(69.0)	40(69.0)
S45 The pharmacist shall exhibit competence and knowledge concerning the impact of OTC drugs and outcomes of disease state (e.g. use of niacin in type II diabetics).	41(70.7)	36(62.1)
S50 The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.	44(75.9)	43(74.1)
S51 The pharmacists should make efforts to optimize therapy and minimize effects by	43(74.1)	40(69.0)

staying updated on common and newly discovered adverse effects by staying updated on common and newly discovered adverse effects and drug interactions particularly with specific high risk patients.		
S52The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy (e.g. asking How's your arthritis?, How are you feeling?)	43(74.1)	39(67.2)

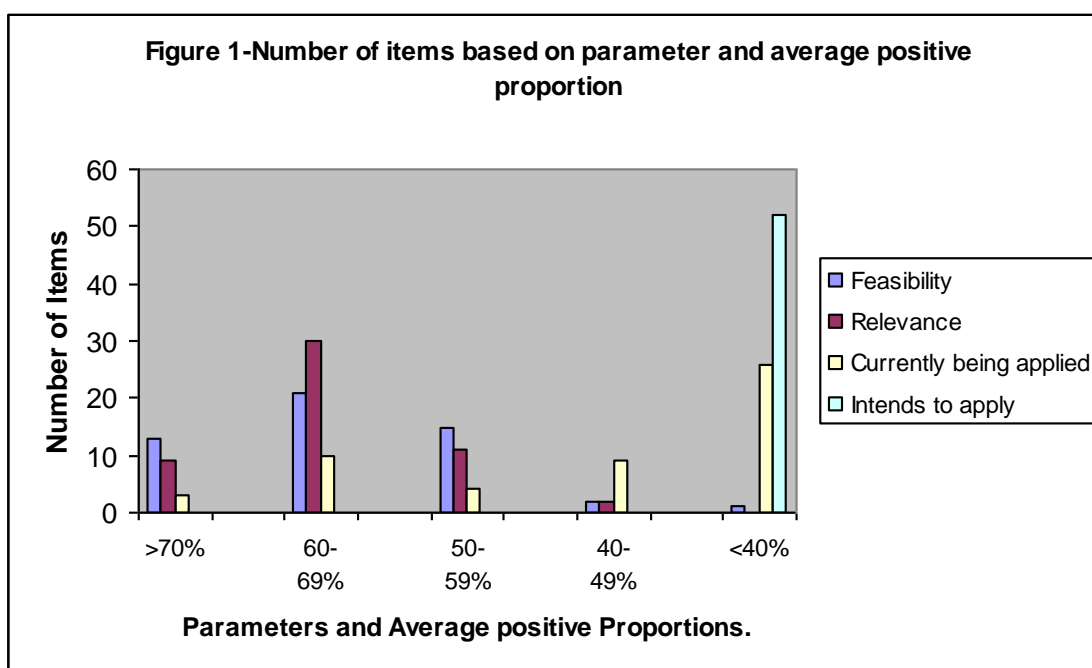
TABLE 6: Items of the suggested standards with positive response proportion of 50% and above based on currently being applied

Standards	Number	%
The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy(e.g. asking How's your arthritis?, How are you feeling?)	46	79.3
The pharmacist evaluates ever prescription to detect any potential prescribing errors and intervenes when necessary.	44	75.9
Pharmacist who are made aware of adverse drug experiences by patients will complete a NAFDAC 'S voluntary reporting program for ADRs	43	74.1
The pharmacist shall make conscious effort to provide oral patient counseling with each prescription that includes direction for use, indication, drug class, side effects, storage requirements and what to do in case of missing a dose(s), in addition to providing a hard copy of this information.	40	69.0
When communicating with the patient , the pharmacist should use the open ended question,' what questions do you have about this medication?' to address concerns and ensure patients understand their drug regimen.	40	69.0
The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.	40	69.0
The pharmacists should make efforts to optimize therapy and minimize effects by staying updated on common and newly discovered adverse effects by staying updated on common and newly discovered adverse effects and drug interactions particularly with specific high risk patients.	40	69.0
The pharmacist will ask on each refill prescription the following question,' what problems are you having with this medicine? Or similar open ended question.	39	67.2
The pharmacist shall exhibit competence and knowledge concerning the impact of OTC drugs and outcomes of disease state(e.g. use of niacin in type II diabetics).	38	65.5
The pharmacist should take active role in all aspects of patient wellness.	37	63.8
Pharmacists will utilize patient weight to determine and assure proper dosages of medications for children(<12 years old or 40kg weight)	36	62.1
The pharmacist should include written instructions to each patient on how to administer specialty products (i.e.- ear drops,, ophthalmic drops and ointments, rectal suppositories, inhalers, injections, etc.)	36	62.1
The pharmacist maintains open and effective channels of communication with other health care providers for the benefit of the patient, mainly for the resolving of a potential or actual drug related problem.	35	60.3

TABLE 7: Items of the suggested standards with positive response proportion of 20-30% based on intends to be applied

Standard	No	%
The pharmacist shall provide a written continuity of care report when a patient visits a new health care provider or new health care institution.	15	25.9
When potential problems are identified, a therapeutic plan should be formulated with the patient that becomes part of his /her permanent record. This plan should be thoroughly discussed with the patient in addition to providing a hard (written) copy of the plan.	14	24.1

The pharmacist will make an effort to meet the major prescribers in the area to explain pharmaceutical care and let them know how she/he can help their patients with its implementation.	14	24.1
The pharmacist should be actively involved with seeking and developing a relationship with a computer company that embraces the concept of pharmaceutical care and consistently develops new software to facilitate it.	14	24.1
The pharmacist shall devise a standard system of data collection of all necessary medical and personal information from each patient, including: prescribing physician(s), medication history, medical condition and diagnoses, allergies and other data that would assist in detecting potential medical or drug related problems.	13	22.4
The pharmacist shall obtain access to each patient's lab test including diagnostic , heart rate , blood pressure, weight, blood sugar, cholesterol, etc where appropriate to record in patients record and assess trends to determine the impact of drug therapy.	13	22.4
The pharmacist shall follow up via telephone with each patient started on a new antibiotic after 24/72 hour of treatment to check for allergic reactions and therapeutic effect.	12	20.7



APPENDIX 1

1. The pharmacist shall devise a standard system of data collection of all necessary medical and personal information from each patient, including: prescribing physician(s), medication history, medical condition and diagnoses, allergies and other data that would assist in detecting potential medical or drug related problems.
2. When potential problems are identified, a therapeutic plan should be formulated with the patient that becomes part of his /her permanent record. This plan should be thoroughly discussed with the patient in addition to providing a hard(written) copy of the plan.
3. The pharmacist should be prepared to re-evaluate and modify therapeutic plans on subsequent patient visits and consult with necessary physician(s)
4. The pharmacist should document each care plan and also document those occasions when a care plan is not deemed necessary.
5. Follow-up appointments should be arranged within reasonable time, preferably within 7-14 days of initial patient visit to assure positive outcomes(i.e. compliance, efficacy of drug regimen, avoidance of adverse reactions or drug interactions).

6. *The pharmacist will check each refill prescription for compliance (overuse, under use, misuse, etc) to assure positive outcomes.*
7. *The pharmacist shall obtain access to each patients lab test including diagnostic , heart rate , blood pressure, weight, blood sugar, cholesterol, etc where appropriate to record in patients record and assess trends to determine the impact of drug therapy.*
8. *Pharmacists should secure access to online medical libraries and medical literature as well as product literature and handouts from pharmaceutical companies.*
9. *The pharmacist should regularly run reports on their patients to see if they are getting timely refills and visiting physicians on a scheduled basis and intervene where appropriate.*
10. *The pharmacist evaluates ever prescription to detect any potential prescribing errors and intervenes when necessary.*
11. *The pharmacist shall make conscious effort to provide oral patient counseling with each prescription that includes direction for use, indication, drug class, side effects, storage requirements and what to do in case of missing a dose(s), in addition to providing a hard copy of this information.*
12. *The pharmacist maintains open and effective channels of communication with other health care providers for the benefit of the patient, mainly for the resolving of a potential or actual drug related problem.*
13. *The pharmacist documents the results of each patient encounter and intervention.*
14. *The pharmacist will assess and maintain a record of each patient's appropriate vital signs(i.e. blood pressure for hypertensives) to compare for future evaluation.*
15. *When communicating with the patient , the pharmacist should use the open ended question, 'what questions do you have about this medication?' to address concerns and ensure patients understand their drug regimen.*
16. *The pharmacist will ask on each refill prescription the following question, ' what problems are you having with this medicine? Or similar open ended question.*
17. *The pharmacist will regularly update all of the information in the patient's permanent pharmacy record.*
18. *The pharmacist will use large enough print on prescription labels to make them easily readable for patients in addition to frequently changing ribbons to ensure label readability.*
19. *The pharmacist should appropriately use technicians and other support staff personnel in clerical and dispensatory functions to create more time for patient interaction and patient care activities.*
20. *The pharmacist shall obtain from patients information regarding their use of any OTC medication with each visit and maintain this as part of their permanent pharmacy records.*
21. *The pharmacist will make an effort to meet the major prescribers in the area to explain pharmaceutical care and let them know how she/he can help their patients with its implementation.*
22. *The pharmacist should be actively involved with seeking and developing a relationship with a computer company that embraces the concept of pharmaceutical care and consistently develops new software to facilitate it.*
23. *The pharmacist should strive to carry all products necessary to carry out a patients drug therapy (i.e. nebulizers for asthma patients)*
24. *The pharmacist should attempt to professionalize pharmacy's product mix towards health-related items, such as products for nutrition and fitness and medical accessories.*
25. *The pharmacist shall instruct all patients that have a disease that can be monitored and will discuss with these patients how to monitor them(diabetic blood glucose monitors, cholesterol test, peak flow meters, etc.).*
26. *The pharmacist should be actively involved in the promotion of community health and conduct seminars on health issues and disease management that include lifestyle modification, goal setting and outcomes management.*
27. *The pharmacist shall allow a specific amount of time for patients who wish to make appointments to discuss their care/care plans , health or drug therapy.*
28. *Pharmacists shall have an area of private consultation available to patients.*
29. *Each pharmacist shall procure a certain amount of hour of continuing education on topics to enhance their abilities to document, intervene and follow up on patients.*
30. *Pharmacist should be actively involved in support of associations and practice group who promote the ideals of pharmaceutical care.*
31. *Pharmacist shall promote the concept of pharmaceutical care to patients, physicians, benefit managers and insurance companies.*
32. *The pharmacist shall follow up via telephone with each patient started on a new antibiotic after 24/72 hour of treatment to check for allergic reactions and therapeutic effect.*

33. [†]The pharmacist shall contact geriatric patients by telephone every three months to ensure compliance with cardiac and antihypertensive medications.
34. [†]The pharmacist shall be actively involved in the determination of drug product formulary for their patients.
35. Pharmacist should participate as principal investigators for IND (investigational new drugs) and for proposed new indication of drugs.
36. Pharmacists will utilize patient weight to determine and assure proper dosages of medications for children (<12 years old or 40kg weight)
37. The pharmacy staff will phone patients who did not pick up new prescriptions within 1 day and refill prescriptions within three days after they have been filled to help ensure patients get their prescribed medications.
38. Pharmacists who are made aware of adverse drug experiences by patients will complete a med watch report as part of FDA's voluntary reporting program for ADRs.
39. A compounding log will be prepared for each batch of compounded product prepared which will include lot numbers of ingredients, dates of preparation and expiration, quantities used and preparer's initials.
40. The pharmacist should take active role in all aspects of patient wellness.
41. [†]The pharmacist shall be the patients advocate with regard to social, economical and psychological barriers to drug therapy.
42. [†]The pharmacist should check for the most economical, therapeutic alternative for any medication and relay this information to the prescriber.
43. The pharmacist should include written instructions to each patient on how to administer specialty products (i.e. ear drops, ophthalmic drops and ointments, rectal suppositories, inhalers, injections, etc.)
44. [†]The pharmacist shall provide information to patients on special support and/or educational groups (such as the Multiple Sclerosis Society, American diabetes association, Vital Interest program etc)
45. The pharmacist shall exhibit competence and knowledge concerning the impact of OTC drugs and outcomes of disease state (e.g. use of niacin in type II diabetics).
46. The pharmacist shall triage the patients OTC requests to determine if their problem requires referral, OTC treatment or other supportive treatment and make individualized product recommendations for appropriate OTC requests.
47. The pharmacist shall document OTC recommendations on patient profile.
48. The pharmacist shall monitor the outcomes of OTC recommendations by a follow up appointment or phone call.
49. The pharmacist shall provide a written continuity of care report when a patient visits a new health care provider or new health care institution.
50. The pharmacist shall ensure that complete prescription information is provided for patients unable to personally pick up their medications in addition to making a conscious effort to maintain updated medication profiles for these patients.
51. The pharmacists should make efforts to optimize therapy and minimize effects by staying updated on common and newly discovered adverse effects by staying updated on common and newly discovered adverse effects and drug interactions particularly with specific high risk patients.
52. The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy (e.g. asking How's your arthritis?, How are you feeling?)

Based on relevance the most accepted standards were "Pharmacists should secure access to online medical libraries and medical literature as well as product literature and handouts from pharmaceutical companies" and "The pharmacist shall allow a specific amount of time for patients who wish to make appointments to discuss their care/care plans, health or drug therapy". In establishing times to follow up with patients, the type of

disease state and the specific patient's risk factors should be weighted heavily (Rovers, Currie *et al.*, 2003). The importance of access to online medical libraries and medical literature cannot be overemphasized, since they act as a valuable source for vital information. Also securing medical literature, journals and articles for improved learning has been recommended (Desselle and Rappaport 1997). Web sites like Medline and

Medscape are available free on the internet, so hospital pharmacists should take advantage of this and access information that would enhance their practice.

Combining feasibility and relevance of the Delphi 52 practice standards revealed that only 27 practice standards are practicable in these hospital settings using 60% as the minimum positive responses, however with 50% as the minimum positive responses, 47 standards were found to be practicable, the same number as obtained in Era's study, though with different items of standards. The average positive response based on currently being applied in this study as found to be higher than the value obtained by Erah and Nwazuoke (2002). This may be because this study was based only on hospital settings that may be in the fore front of pharmaceutical care practice.

The most accepted standard based on "currently being applied" was "The pharmacist should maintain a caring, friendly, responsible relationship with patients while taking a sincere interest in their health and drug therapy(e.g. asking How's your arthritis?, How are you feeling?)" .This could be due to the ease of application of this practice standard in hospital settings since a caring and friendly relationship with the patient simply involves empathy and pharmacists have been identified as caring professionals(FIP1997). The pharmacist is also the most accessible to the patient and has a wide range of functions as health professionals due to the care they show (PCN2005). This relationship is very essential to the practice of pharmaceutical care and it is the alliance /partnership formed between the pharmacist and the patient for the purpose of optimizing the patients medication experience since it is based on trust, commitment and authenticity

The most accepted standard based on "intends to apply" was "The pharmacist shall provide a written continuity of care report

when a patient visits a new health care provider or new health care institution." 15(25.9%). Despite the wide acceptance of most of the standards as being feasible and relevant, majority of the respondents gave a "no response" to options provided in the intend to apply column. This could be due to perceived barriers to applying such standards. Such barriers may include lack of time (Ramaswamy-Krishnarajan and Hill 2005); lack of private area of consultation (Amsler *et al.*, 2001); poor remuneration for services (Rovers, Currie *et al.*, 2003); and attitude of the superintendent pharmacist (Berger and Grimley 1997).

The low positive response obtained for current application and intention to apply are similar to findings by Erah and Nwazuoke (2002) and those of Ramaswamy-Krishnarajan and Hill (2005) but contrary to a previous study in the Netherlands where it was observed that the pharmacists engage in many pharmaceutical care activities such as patient counseling, health promotion, disease prevention and communication with other health care professionals(FIP 1998).

There are a number of successful research projects into the effects of pharmaceutical care described in literature providing sufficient evidence that pharmacist can improve outcomes of therapy and thus improve the quality of life for the patients. For this improvement to occur in developing countries like Nigeria, time would be needed for pharmacists and other health care professional to embrace the concept and introduce pharmaceutical care into their practice settings, in spite of the low response on current application. Adoption of practice standards may stimulate pharmacists to provide pharmaceutical care and gradually it will become an operational statement in the hospitals. Achieving the full practice demands a number of skills, knowledge and accepted practice standards (Farris and Schopflocher, 1999).

Conclusion

From the results obtained in this study, hospital pharmacists in the study location stated that majority of the 52 Delphi Panel standards are both feasible and relevant. However only a few of them were currently applying a few of the standards and another few intended to apply other standards. This low level of application of standards impacts negatively on practice outcomes. This calls for formal collaborative training programs for pharmacists and other health professionals, and endorsement of agreed practice standards by other healthcare practitioners. It is also important to identify and resolve other barriers to practice so as to enhance practice outcomes. There is need for a nation wide study involving pharmacists in different practice settings to review the practicability and applicability of available practice standards.

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