ASSESSMENT OF ATTITUDE AND BEHAVIOR OF HEALTH PROFESSIONALS TOWARDS PROVISION OF DRUG INFORMATION SERVICES IN ENUGU STATE

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ABSTRACT

Background: *Access to authoritative and independent information is fundamental for the rational and effective use of drugs. In Nigeria, there is currently very few drug information centres or other source for problem oriented drug information.*

Purpose: *To assess the attitude and behaviour of health professionals (physicians and pharmacists) in Enugu State, Nigeria towards provision of drug information services in the state.*

Methods: *A self-completion questionnaire was administered to 37 doctors and 41 pharmacists in the included hospitals and faculty of pharmacy. A twenty-item question was added to assess the attitude and behaviour of the respondents towards provision of drug information services. Respondents were requested to rate necessity of each item by selecting among "Not Important at all" to "Very Important" (lowest to highest). The instrument was prefaced: "Very important", "Important", "Less important", and "Not important at all". Their attitude and behaviour were expressed in term of item-performance. The percentage item-performance was calculated to reflect the level of necessity of each items; high percentage item-performance of an item correlates with high level of necessity of the item in provision of drug information services and vice versa.*

Results: *Out of 78 questionnaires administered, 67 were retrieved given a response rate of 85.90%. The major sources of drug information currently in use were medical journals (79.1%), medical representatives of drug manufacturers and marketers (71.6%). The drug information areas mostly sought for by the respondent were indication (86.6%), use of drug in special group (77.6%). The attitude and behaviour of health professionals towards provision of drug information services in Enugu state were positive. This study identified three barriers and five facilitators as the major factors affecting provision of efficient and effective drug information services in Enugu state. The major contributors (facilitator (F) and barriers (B)) respectively were high budget allocation to health-care system (F) and lack of team spirit among health professionals (B).*

Conclusion: *This study revealed that health professionals in Enugu state had positive attitude and behaviour to provision of drug information services.*

Key words: *Attitude, Behaviour, Enugu state, drug information services, health professionals, pharmacist.*

Introduction

Drug information is defined as the knowledge of facts acquired through reading, study or practical experience concerning any chemical substance intended for use in diagnosis, prevention or treatment of disease. It covers all types of information provision including subjective and objective information, as well as information gathered by scientific observation or practical experience.

Access to authoritative and independent information is fundamental for the rational and effective use of drugs. Information must be available in a format suitable for health practitioners and relevant to current clinical practice.[1] WHO recognises independent drug information centres as a core component of national programs to promote the rational use of drugs.[2,3] A pharmacist in charge of drug information must set the aims and objectives for the drug information service in terms of:

- What is to be achieved by providing such a service

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- The role of the health personnel in optimising patient care.

A generic aim of a drug information service is to optimise patient outcomes by supporting the quality use of medicines. This is achieved by the provision of up-to-date, accurate, timely and objective information on the appropriate use of drugs and drug therapy, a logical function for a pharmacist.

The scope of service provided in each Drug Information Centres (DICs) must be defined, e.g. oncology drug information only. This can include the activities to be undertaken by the drug information pharmacist such as:

- Monitoring and follow-up of patient therapy and progress
- Specifying who the users of the service are
- Guidelines for provision of information to patients
- Contact numbers of the service, including the hours of operation must be clearly specified and distributed within the environment that the service operates
- Type of service (telephonic/walk-in or both)

Possible other activities/services which can be provided in these centres are:

- Participation in pharmacy and therapeutics committees by preparation of expert material/evaluations
- Publication of bulletins or newsletters
- Preparation of protocols for appropriate drug use or formularies
- Education of pharmacists, interns, pharmacist assistants and other healthcare professionals
- Drug use evaluations
- Participation in drug safety programs
- Therapeutic drug monitoring
- Toxicology service [4,5]

The first Medicines Information Service (then called the Drug Information Service) was established in the UK in 1969, to help with clinical problem-solving related to the use of medicines, and to develop best practice generally in medicines' use. In subsequent years, every major pharmacy department in the country developed similar centres, in response to local demand from secondary and tertiary care. They were and still are staffed by pharmacists who combine substantial clinical expertise with additional specialist qualifications/experience in medicines information. Their particular skill is to link the provision of information with clinical interpretation. They currently handle in excess of half a million enquiries each year, in most cases providing an answer within an hour. The majority of requests still come from doctors and pharmacists in secondary care, but the number from primary care is growing rapidly. [6,7]

Also the developing countries have recognized the need for independent drug information and DICs.[8,9] The increase in number of centres in developed countries plateaued in the beginning of the 1990s, most probably due to availability of computerized drug information systems, catering for the need of basic prescribing-related information.[6] Drug Information centres have broadened their activities into more sophisticated areas of drug therapy consultation and pharmacovigilance as well as prescribing research and feedback provision [10,11] and have also concentrated more on accuracy of the information provided and quality of their service.[12]

Some West African countries, including Nigeria, have only started planning the drug information services. In Nigeria, there is currently very few drug information centres or other source for problem oriented drug information. General drug information is mainly gotten from medical journals, medical representatives of drug manufacturers and marketers, reference books and internets, which

make information retrieval and processing cumbersome and time consuming for ever inquisitive and busy health providers in Nigeria. Computerized drug information is not even readily available in some tertiary care facilities. The purpose of this study stemmed from the above issues, to assess the attitude and behaviour of health professionals (physicians and pharmacists) in Enugu State, Nigeria towards provision of drug information services in the state.

METHODS

Setting

The study was carried out in Enugu State of Nigeria. Enugu state is in the South Eastern Nigeria. It is made up of seventeen (17) local government areas and it has a population of 3,257,298.[13] It is located between latitudes $5^0 56'$N and $7^0 05'$N and longitudes $6^0 53'$E and $7^0 55'$E.[14]

This investigation was carried out from June to October, 2009 in four health facilities and Faculty of pharmaceutical sciences in Enugu state. Health care facilities included one tertiary health facilities and 3 secondary hospitals. The parameters assessed were the attitude and behaviour of health professional towards provision of drug information services. Barriers and facilitators of providing drug information services were also examined. The health professionals were asked to tick against factors that are likely to affect or promote drug information services in Enugu state.

Sample

A self-completion questionnaire was administered to 37 doctors and 41 pharmacists in the included hospitals and faculty of pharmacy. Most of the doctors included were from public hospitals while most of the pharmacists were in academia. Intern pharmacists and house officers were excluded (newly graduated pharmacist and medical doctors respectively receiving one year mandatory training

before being licensed). Respondents were briefed on the purpose of the study and oral consent was obtained from them.

All respondents were assured of confidentiality and anonymity. They were asked to put the questionnaire in the envelope provided and hand it to researcher. Completed copies of the questionnaire were retrieved on follow-up visit after two days.

Survey Instrument

Items included in the questionnaire covered functions, areas, requirements, barriers and facilitators of drug information service/centre. Included were the demographic data of the respondents. A twenty-item question was added to assess the attitude and behaviour of the respondents towards provision of drug information services. Respondents were requested to rate necessity of each item by selecting among ''Not Important at all'' to ''Very Important'' (lowest to highest). The instrument was prefaced: ''Very important'', ''Important'', ''Less important'', and ''Not important at all''. Their ratings were expressed as the attitude and behaviour of the respondents towards provision of drug information services which were embodied in the questions. Their attitude and behaviour were expressed in term of item-performance. The item-performance is the percentage of respondents that selected both ''Very important'' and ''Important'' in each item. The percentage item-performance was calculated to reflect the level of necessity of each items; high percentage item-performance of an item correlates with high level of necessity of the item in provision of drug information services and vice versa.

A pilot study was conducted using 10 medical doctors and 17 pharmacists to ascertain the validity and reliability of the instrument. After the pre-test, the instrument was slightly modified to enhance the quality of data collection and analysis.

Analysis of data

The completed questionnaires were sorted and entered into version 14 of Statistical Package for the Social Sciences (SPSS Inc. Chicago) and Microsoft 2007 Excel package for analysis. Descriptive statistics on the sample characteristics and questionnaire items were computed.

RESULTS

Out of 78 questionnaires administered, 67 were retrieved given a response rate of 85.90%. Non responders (9 medical doctors and 2 pharmacists) were asked reasons for their non participation and reasons given ranged from lack of time to lack of interest.

The detail results of demographic and drug information data of the respondents, the attitude and behaviour of the respondents towards provision of drug information services and barriers and facilitators of providing efficient and effective drug information services in Enugu state are presented in Table 1, Table 2 and Figure 1 respectively.

Table 1: Demographic and Drug Information Data of the Respondents
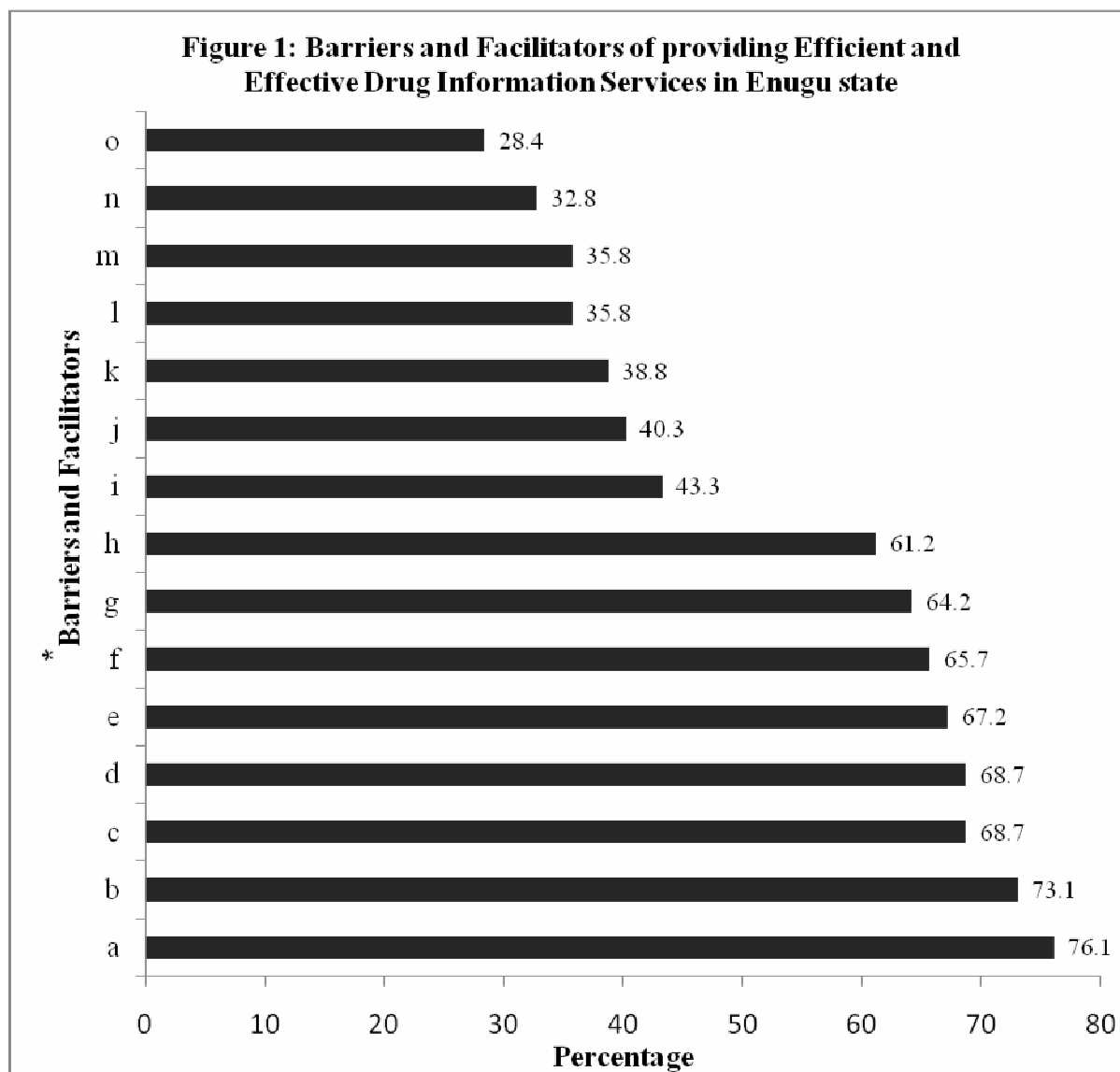
Characteristics	Data
Age (mean)	43.0
Sex (% of male)	61.2
Marital Status (% of married)	62.7
Affiliation (%)	
Medical Doctor	41.8
Pharmacist	58.2
Years of Practice (%)	
1-10	17.9
11-20	46.3
>20 years	35.8
Sources of drug information currently in use by the respondents in descending order of their utilization (%)	
Medical journals	79.1
Medical representatives of manufacturers or marketers	71.6
Emdex	67.2
BNF	55.2
Conferences	46.3
Internets	41.8
Specialty handbooks	37.3
Compendia	32.8
Medical dictionary	13.4
State Agency of Medicines	7.5
Areas of drug information that are mostly sought for in descending order of their importance (%)	
Indications	86.6
Use in pregnancy, use during breast feeding, use in the elderly, use in patients with renal and hepatic disease, use in diabetes and diseased state	77.6
Contraindications	73.1
Efficacy	67.2
Adverse reactions	64.2
Drug interaction	58.2
Pharmacological action	56.7
Optimum dosage	49.3
Mechanism of action	47.8
Pharmacokinetics	47.8
Overdosage	37.3
Mode of administration	34.3
Storage,	34.3
Strategies to promote adherence in chronic conditions.	23.9
Excipients	22.4
Cost	17.9
Pricing, availability and affordability data	14.9
Package size,	11.9
Manufacturer data	7.5
Information about herbal medicines and food supplements	6.0

Table 2: Attitude and behaviour of the respondents towards provision of drug information services in Enugu state

Items	*N=67	Item Performance
Provision of drug information services will enhance health professionals' job satisfaction and competence	64	81.3
The primary function of a drug information centre is to respond to enquiries on therapeutic drug use.	67	73.1
The centre must have access to the principal medical and pharmaceutical journals.	66	72.7
Provision of drug information services will improve patients' quality of life	67	71.6
To facilitate the optimum use of available resources, standard operating procedures should include an approach to categorising enquiries and maintaining search patterns for common types of questions.	67	68.7
Drug information centres should have a role in programs which monitor adverse drug reactions (Pharmacovigilance)	63	68.3
Information must be dependable, timely, and of the highest possible standard.	65	67.7
The staff should be capable of critically assessing the medical literature and information from industry and media sources and they should also interpret the results in terms of relevance to local practice.	64	67.2
Drug information centres should be involved in research activities.	64	67.2
Drug information centres should be organised on a cooperative model involving a multi-disciplinary team.	64	65.6
Since patient care is the primary focus, drug information practitioners must have adequate clinical training and experience to complement their information retrieval skills.	67	64.2
Health professionals should support the establishment of DICs	67	62.7
Provision of DIS will improve the image of health professionals in the state	67	62.7
The professional staff should include a full-time clinical pharmacist or a clinical pharmacologist.	67	56.7
A poisons information centre should provide a public health service through educational programs to reduce the incidence of poisoning.	67	56.7
A drug information centre should have an independent source of income and status guaranteeing its stability and objectivity.	66	54.5
Assessment of therapeutic drugs is an important function of a drug information centre.	65	53.8
Provision of toxicology information is also part of functions of DICs.	66	51.5
Every enquiry should be handled within a reasonable period of time and at a level appropriate to the nature of the enquirer.	67	46.3
Patient-related drug information should be part of activities of DICs.	67	43.3

*Number respondents reporting may be less than 67 due to non response to questions

	*Barriers (B) and Facilitators (F) in descending order
a	High budget allocation to health-care system (F)
b	Legislative bill to mandate establishment of DICs may help (legal backing) (F)
c	Government commitment (F)
d	Participation of private and non- governmental organization may help DIS (F)
e	Lack of team spirit among health professionals (B)
f	Continuity in policy implementation of previous government by their successors (F)
g	Lack of transparency and accountability in running government affair (corruption) (B)
h	Lack of drive and motivation from health professionals (B)
i	Lack of fund to run DICs (B)
j	Lack of will power from health professionals (B)
k	Fear that provision of DIS may increase patients' treatment cost (B)
l	Inadequate professional and technical personnel (B)
m	DIS is sophisticated and complex (B)
n	DIS is time and energy consuming (B)
o	Low or no compelling need for DIS (B)

Figure 1: Barriers and Facilitators of providing Efficient and Effective Drug Information Services in Enugu state

DISCUSSION

Demographic characteristics and response rate

The results revealed that the respondents were mainly pharmacists, married men with professional experience of between 11 to 20 years (Table 1). This results contrast the report of similar study done in Estonia[15] which reported that 82% were physicians and 18% pharmacists, and more than half (59%) of respondents in that study had 20 years or more years of professional experience. The difference in demographic characteristics might be attributed to dissimilar sites of study. This study incorporated a pharmacy school which is predominantly staffed with pharmacists unlike the Estonia study that was done in hospitals. Analysis of non-respondents showed that 81.8% of them were medical doctors; this implied that pharmacists in Enugu state were far more interested in issues concerning drug information than the medical doctors. This is supported by their positive attitude and behaviour that ''the professional staff should include a full-time clinical pharmacist or a clinical pharmacologist'' (Table 2). Therefore, it is baseless to compare attitude and behaviour of the pharmacists and doctors in this study.

The sources of drug information currently in use by the respondents

More than half of the respondents indicated that they were currently using medical journals (79.1%), medical representatives of drug manufacturers and

marketers (71.6%), Emdex (67.2%) and BNF (55.2%) as their sources of drug information. Medical representatives of drug manufacturers and marketers were identified as main information sources in Estonia study also[15]. Only 41.8% of the respondents had access to the internet (Table 1), this situation underscored the need for effective and efficient drug information system or centres that will cater for majority of the health professionals. This is supported by the positive performance of items related to this. Most of the respondents believed that the drug information centre must have access to the principal medical and pharmaceutical journals (72.7%) see Table 2.

The centre should maintain its own library of commonly used resources. Additional books and other publications should be accessible in hardcopy or electronically from external sources. Data can be extracted from textbooks, databases, data sheets, reports and scientific journals. Information from previous enquiries can also be used. An adequate literature search requires an understanding of available sources and their limitations, and training in the use of indexing terms and functions. Access to the full text of medical and pharmaceutical journals is necessary to assess the value and relevance of research.

Areas of drug information that are mostly sought for

The drug information areas mostly sought for by the respondent were indication (86.6%), use of drug in special group (77.6%), contraindication (73.1%), efficacy (67.2%), adverse reaction (64.2%), drug interaction (58.2%) and pharmacological action (56.7%). The seeking behaviour of the respondents in other areas was less than 50% (Table 1).

Therapeutic advice is important area of drug information. Therapeutic advice includes factors such as efficacy, optimum dosage, interactions, adverse effects, mode of administration, effects of other disease states, and strategies to promote adherence in chronic conditions. All health providers require information resources for therapeutic decision support, implementation and monitoring of outcomes. People receiving medication need instructions for use of prescribed and over-the-counter medicines. Additional information may be necessary for high-risk groups (e.g. paediatrics, geriatrics, pregnancy and breastfeeding) and in some diseases (e.g. diabetes, kidney and liver dysfunction). Strategies to promote adherence include once-daily dosing, and drug selection and dosing to minimise adverse effects.

The drug information area least sought for was information about herbal medicines and food supplements (Table 1). This might be due to imminent dangers associated with herbal remedies. The world health organization (WHO) noted that inappropriate use of traditional medicines or practices can have negative of dangerous effects and advised that further researches are needed to ascertain the efficacy and safety of several medicinal plants and practices used in traditional medicine system. In order to meet these growing needs and challenges which have arisen due to widespread use of traditional medicines, WHO has developed some strategies to tackle them.[16]

Attitude and behaviour of the respondents towards provision of drug information services

The attitude and behaviour of health professionals towards provision of drug information services in Enugu state were positive. Only two items out of the twenty items had item-performances that were less than 50%. This can be seen in items' performances, greatest number of the respondent believed that provision of drug information services will enhance health professionals' job satisfaction and competence (81.3%) while least number of them believed that patient-related drug information

should be part of activities of DICs (43.3%) see Table 2.

It is important that many centres offer patient-related drug information as their primary activity. This requires an adequate understanding of disease states and therapy. It also requires access to appropriate resources for rapid support in situations where response time is an important factor in delivering optimum therapy.

Assessment of therapeutic drugs is an important function of a drug information centre. Educational activities are important to support the quality use of drugs. Providing information to health professionals and the public is part of continuing health education. A drug information centre can also support national and regional authorities responsible for drug use programs. Training graduate and undergraduate students is an important aspect of overall clinical training. Healthcare practitioners need to understand the scope and functions of drug information centres in order to utilise the services they offer.

Drug information centres should be involved in research activities including pharmaco-epidemiology, e.g. drug utilisation studies and pharmacovigilance. The nature of enquiries received can be used to plan educational programs within the centre or provided to organisations responsible for improving the quality of drug use. Specialist centres should also assess the quality and relevance of commonly used information resources.

Drug information centres often have a role in programs which monitor adverse drug reactions. Enquiries about a potential adverse reaction can lead to reports of suspected reactions and research may be required to assess the likelihood that a drug has contributed to a reaction or for subsequent patient management. Some centres may serve as adverse drug reaction monitoring sites for hospitals or regions. Centres with regional responsibilities

should be a member of the WHO Programme for International Drug Monitoring.[17]

Most countries have one or more dedicated poisons information centres. However, there may be economic or personnel advantages in combining a drug information service with a toxicology service. Toxicology services provide information and advice on the diagnosis and treatment of poisonings. Suitable information should be available to health professionals and the general public. Personnel need to be specifically trained in toxicology. They must be able to respond to requests for information on the acute management of poisoning and know when to refer potentially severe cases. Toxicology services are best located within hospitals where there is liaison with clinicians who treat patients with poisoning. This provides an opportunity for staff to enhance their clinical understanding of poisoning and its management.

A poisons information centre should also provide a public health service through educational programs to reduce the incidence of poisoning. Centres should systematically collect data on the circumstances leading to poisonings and the outcome of specific cases. This can form the basis for research in the epidemiology of human toxicology. Drug information centres should be organised on a cooperative model involving a multi-disciplinary team.

The activities of the drug information centre should be carefully documented. Standard forms or electronic databases can facilitate recording of enquiries. An effective retrieval system is essential to locate previous enquiries, monitor workload and categorise the types of enquiries received. It can also facilitate quality assurance programs based on analysis of selected enquiries and failed deadlines. The recording process should provide secure, long-term storage and the confidentiality of enquirers should be respected.

Barriers and facilitators of providing efficient and effective drug information services

This study identified three barriers and five facilitators as the major factors affecting provision of efficient and effective drug information services in Enugu state.

These major contributors (barriers and facilitator), from highest contributor to lowest contributor ranged from 76.1 to 61.2%. High budget allocation to health-care system (F), Legislative bill to mandate establishment of DICs may help (legal backing) (F), Government commitment (F), Participation of private and non- governmental organization may help DIS (F), Lack of team spirit among health professionals (B) Continuity in policy implementation of previous government by their successors (F) Lack of transparency and accountability in running government affair (corruption) (B) Lack of drive and motivation from health professionals (B) see Figure 1. Other minor contributors ranged from 43.3 to 28.4%.

Funding of health sector was identified as the major contributing factors that could facilitate provision of drug information in Enugu state. Lack of team spirit among the professionals was identified as major barriers affecting provision of drug information services in the state. There is urgent need for government to allocate adequate resources to health sector. There is also need to improve on identified barriers and promote the identified facilitator by governments, private and non-governmental organizations. The health professionals in Enugu state should develop a team spirit irrespective of differences in fields of specialization and adopt T-E-A-M (Together everybody achieves much) as their watchword.

CONCLUSION

This study revealed that health professionals in Enugu state had positive attitude and behaviour to provision of drug information services.

The supply of drugs to a community must be balanced by access to impartial information which supports national healthcare priorities. Drug information is essential to the use of drugs. Inappropriate use is a waste of precious resources and increases the risk of avoidable drug-related toxicity.

Governments should recognise this requirement and provide financial support for organisations which offer independent drug information to healthcare workers and the general community.

Pharmacists and other healthcare workers in state should develop a team spirit to actualized public confidence towards provision of high quality drug information services. Adequate pharmaceutical education and clinical training is required for pharmacists to provide drug information services. Drug information centres will support the functions of healthcare professionals to deliver high quality drug use.

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