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Report of a WHO Consultative Group
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PART I

THE ROLE OF THE PHARMACIST IN THE HEALTH CARE SYSTEM

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WHO CONSULTATIVE GROUP ON THE ROLE OF THE PHARMACIST IN THE HEALTH CARE SYSTEM

New Delhi, 13-16 December 1988

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1. Introduction

The World Health Organization convened a meeting of a consultative group on the role of the pharmacist in the health care system, in New Delhi, at the WHO Regional Office for South-East Asia, from 13-16 December 1988. The objectives of the meeting were:

- to delineate the body of knowledge and expertise upon which the contribution of pharmacists to health care is based;
- to review the contributions of pharmacists to the acquisition, control, distribution and rational use of drugs, and other health-related functions of pharmacists;
- to formulate proposals regarding:
  - necessary developments in undergraduate, postgraduate and continuing education of pharmacists, and in the training of supportive staff;
  - action that is necessary to optimize the use of pharmacists in health care systems;
  - arrangements for monitoring the above developments and action.

The meeting was opened on behalf of Dr H. Nakajima, Director-General of the World Health Organization, by Dr U Ko Ko, Regional Director, WHO Regional Office for South-East Asia, who emphasized that efforts to rationalize health care, to establish priorities for allocation of resources and to upgrade the necessary institutional and other facilities, are without consequence wherever the delivery of services is frustrated by lack of an integrated infrastructure.

Nowhere is the need for this infrastructure more evident in the day-to-day management of patients than in the provision of essential drugs. Indeed, effective medicine can be practised only where there is efficient drug management. This is an axiom that applies with equal validity to both developed and developing countries. Yet, time and again, in less affluent

settings, inadequacies in the provision of primary health care are attributable to shortcomings within the drug distribution chain. Only when the pharmacist has been accepted as a vital member of the health care team can the necessary supporting services be organized with the professionalism that they demand. In highly industrialized countries, accceptance of the need for professionalism in the supply and dispensing of drugs and health appliances has long since been indispensable because of the complexity of modern health care technology. Recently, however, a striving for economy engendered by the ever burgeoning costs of health care within the public sector has lent much credence and immediacy to arguments that a redefinition of the role of the pharmacist could serve the interests of both individual patients and the public at large.

The day-to-day activities of the pharmacist in these two starkly different settings may appear, superficially, to be very different. But, everywhere, the call for pharmaceutical expertise is founded upon the same precepts. Pharmacists are uniquely qualified because:

- they understand the principles of quality assurance as they are applied to medicines;
- they appreciate the intricacies of the distribution chain and the principles of efficient stock-keeping and stock turnover;
- they are familiar with the pricing structures applied to medicinal products that obtain within the markets in which they operate;
- they are the custodians of much technical information on the products available on their domestic market;
- they are able to provide informed advice to patients with minor illnesses and often to those with more chronic conditions who are on established maintenance therapy;
- and not least, they provide an interface between the duties of prescribing and selling medicines and, in so doing, they dispose of any perceived or potential conflict of interest between these two functions.

This inventory of activities identifies the dispensing of medicines as the pivotal responsibility of the pharmaceutical services. This is, without question, destined to remain the case in virtually every national setting. However, the distinctive expertise of the pharmacist provides members of the profession with a suitable background to assume diverse reponsibilities

in both public administration and drug manufacture and supply. The competence of the pharmacist is already proven and evident:

- in the direction and administration of pharmaceutical services;
- in drug regulation and control;
- in the formulation and quality control of pharmaceutical products;
- in the inspection and assessment of drug manufacturing facilities;
- in the assurance of product quality throughout the distribution chain;
- in drug procurement agencies;
- and in national and institutional formulary committees.

In these activities, the pharmacist serves as a member of a multidisciplinary team rather than in an autonomous capacity; but in any particular country the profession can only be an efficiently organized element of the health care system when it has gained representation within the senior ranks of administration in both government and industry, and when pharmaceutical education has become established at university level.

A voice in national administration is of vital importance from the outset, since this not only promotes the potential of the profession and exerts influence upon training curricula and the academic standards required for registration—and for certification of ancillary staff—but also provides the best available assurance that policy considerations, including resource allocation, will be attuned meaningfully to national requirements.

Similarly, the pharmacist has indisputable functions at various levels in national drug registration and regulation. The responsibilities of the regulatory authority are to ensure that all products subject to its control conform to acceptable standards of quality, safety and efficacy; and that all premises and practices employed to manufacture, store and distribute these products comply with requirements to assure the continued conformity of the products to these standards, until such time as they are delivered to the end user. A small regulatory authority will rarely, if ever, undertake independent, comprehensive assessments of the safety and efficacy of individual products. In this case, the administrative and technical responsibilities that fall within its ambit are largely of a pharmaceutical nature and they are directed primarily to quality assurance.

In the last analysis, however, wherever pharmacy establishes its roots as a profession, it is within the health care institutions and in the community itself that pharmacists will serve in greatest numbers and with the most immediate effect on patient welfare. Pharmacists' specialized knowledge of the management and properties of medicines in an increasingly sophisticated health care environment brings them closer to prescribing doctors as a source of independent information about therapeutic options and about the consequences – both positive and negative – of treatment. It also brings them closer to patients in the community as readily accessible dispensers not only of medicines but also of health-related information. Their basic training should aim to confer upon them competence to offer skilled advice on the treatment of minor illness and the adoption of healthy lifestyles, and it should endow them with the insight necessary to recognize when the best interests of the patient are served by prompt referral to a medical practitioner.

2. Manpower Imbalances in Pharmacy

Throughout the Third World, wherever there are severe shortages of medical services there are corresponding shortages of pharmaceutical services and of pharmacists, and most of the people have no access to basic life-saving drugs. At the same time, medicinal drugs, many of which are useless or dangerous and unnecessary, are available in extensive open, unregulated markets. In some of the more advanced developing countries, the ratio of pharmacists to population is relatively high in urban areas but extremely low in rural areas. In general, however, ratios of less than 1:100 000 are common and some countries have very much lower ratios. Within countries, ratios may vary from 1:12 000 in the capital city to 1:700 000 or less in the provinces, reflecting, and associated with, the shortage and maldistribution of professional health manpower in general, and the very low levels of socioeconomic development. This must be compared with an average ratio of around 1:2300 in the industrialized countries.

The great shortage of pharmacists in developing countries, especially in government health services, is part of a general health manpower problem—of a numerical and qualitative imbalance between need (and demand) and supply. The adoption of a rational policy on essential drugs necessarily requires the development of a rational pharmacy manpower policy in the context of a general policy on health services and manpower development. As an interim measure, until their production of pharmacists and pharmacy technicians can meet their needs, many developing countries must depend to a greater or less extent on manpower substitution, allocating to non-pharmacist health personnel (medical, nursing, or community health workers) certain functions performed by pharmacists and pharmacy technicians in developed countries. To ensure that such substitution achieves its purposes, pharmacists are needed in management/administrative/education roles, to provide organization, supervision, support and training to those pharmacists and non-pharmacist health workers providing the essential pharmaceutical services to the public. They are needed also to man crucial posts in government concerned with quality control of imported and locally manufactured drugs, local manufacture of drugs, regulation of drugs, legislation concerned with pharmacy,

formulating and advising on drug policy, and in general assuring the operation of national essential-drug programmes.

The principal professional categories of pharmacists are:

- community and hospital pharmacists,
- specialists in the various scientific aspects of pharmacy,
- occupational specialists, mainly industrial pharmacists engaged particularly in pharmaceutical technology and research, and
- teachers, and managers and administrators of pharmaceutical services and systems.

Pharmacy technicians or aides perform a variety of tasks according to the countries in which they are employed, in principle under the supervision of licensed pharmacists. Other health professional and non-professional personnel may be allocated (or delegated) pharmaceutical functions, especially in developing countries, in order to assure essential drug needs. Other categories, who are not considered professional pharmacists, such as druggists and herbalists, may be permitted to sell non-prescription drugs.

Imbalance with regard to categories of manpower takes the form mainly of an excess of generalist, or community (retail), pharmacists in the market-economy countries, compared with the other categories, such as hospital pharmacists (especially in the smaller hospitals), industrial pharmacists concerned with technology and research, and pharmacists in government services responsible for administration of pharmaceutical services. In some developing countries with a growing pharmaceutical industry (Egypt, India and Pakistan, for instance), pharmacy graduates are attracted to industry rather than to community and hospital pharmacy, both of which are areas of manpower shortage in those countries.

3. The Knowledge and Expertise of Pharmacists

The contribution of pharmacists to health care is based, in most countries, upon a body of knowledge and expertise acquired from a university degree (or equivalent) education, followed by a formally designated period of supervised pre-registration practical experience. In several countries, the commonest qualifications are diplomas, and these are are not equivalent to degrees. Basic professional education is reinforced by a professional obligation to observe both statutory and professional measures related to control of safety and quality of drugs and procedures, and increasingly by continuing education, which in some places is required as a condition of continuing registration or licensure.

From their basic education and pre-registration training, students acquire a broad understanding of the scientific principles and techniques of the pharmaceutical sciences and the ability to keep pace throughout their careers with developments in medicine and pharmacy. Their knowledge and expertise extends to all aspects of the preparation, distribution, action and uses of drugs and medicines, and they should have acquired sufficient scientific discipline of mind to enable them to be efficient self-learners and to benefit from continuing education, as well as to enable those who wish to continue their studies to undertake postgraduate training or research.

4. The Scope of Pharmacy and the Functions of Pharmacists

With the development of specific and potent synthetic drugs, the emphasis of the pharmacist's responsibility has moved substantially towards the utilization of scientific knowledge in the proper use of modern medicines and the protection of the public against dangers that are inherent in their use.

Pharmacists are employed in regulatory control and drug management, community pharmacy, hospital pharmacy, the pharmaceutical industry, academic activities, training of other health workers, and research. In all these fields, their aim is to ensure optimum drug therapy, both by contributing to the preparation, supply and control of medicines and associated products, and by providing information and advice to those who prescribe or use pharmaceutical products.

4.1 *Regulatory control and drug management*

Health and drug policy

Each ministry of health has a section dealing with pharmaceutical affairs. In view of the importance of drugs in government health services, and of the related expertise within the pharmaceutical section, it is important that the pharmaceutical affairs section should have equal prominence with other sections of the ministry. Pharmacists in administration participate in formulating health and drug policies, particularly those on the selection, procurement and distribution of drugs. They serve as sources of information for health care professionals and the public, and participate in the preparation of pharmacopoeias and other official documents. They cooperate with educators and the professional body of pharmacists in establishing and modifying the curricula of schools of pharmacy and continuing education programmes. In some countries, pharmacists have roles in environmental health control and in control of the quality of food and of cosmetics and medical devices.

Pharmacists do not perform these functions in all countries. A prerequisite to their widespread adoption is the involvement of pharmacists with the appropriate expertise in the determination and implementation of national health policy, which provides the context for policies related to drugs and pharmacy. In view of the special knowledge and expertise of pharmacists, they should be given the responsibility at a senior level for the determination and implementation of policy on drugs and pharmacy manpower and for the drafting and administration of legislation. Pharmacists in such senior positions should preferably have postgraduate training and a qualification in public health.

In some countries, potent medicines and related products may be supplied or dispensed by non-pharmacists and without the supervision or control of pharmacists. For the safety of the public, such transactions should be performed or supervised by pharmacists, to ensure the supply of correct medicines of acceptable quality.

In some countries the management of drug procurement and supply, and drug control, registration and enforcement, do not meet satisfactory standards. To achieve acceptable standards, pharmacists with suitable postgraduate training should be appointed to senior positions, and standards should be assured by comprehensive pharmaceutical legislation and its effective enforcement.

Management

Government-employed pharmacists are responsible for drug management, which includes the selection of essential drugs, the determination of drug requirements, the procurement and distribution of drugs and their rational use, as well as the design and use of information systems. Also, they collect and collate data required by their national government agencies and by international bodies, such as the International Narcotics Control Board.

Administration

In some countries, tenders for the import and supply of drugs are awarded to non-pharmaceutical businesses. The management of such businesses is not capable of applying professional standards and is influenced solely by commercial considerations. Procedures for inviting, accepting and awarding tenders for the supply of pharmaceuticals should be separate from those for non-professional commercial tenders, and should be managed by pharmacists.

Educational policy

Pharmacists cooperate with educators in establishing and implementing policies with regard to undergraduate and continuing education, in-service training, and other aspects of manpower development.

Regulatory and enforcement agencies

Pharmacists are employed by regulatory agencies concerned with the approval, registration and quality control of drugs, cosmetics and medical devices, and with enforcement agencies, including customs departments, that control the distribution of drugs through licit and illicit channels, and as inspectors of the manufacture, importation, distribution and sale of drugs.

Professional registration authorities

Pharmacists are prominently engaged in agencies, such as boards of pharmacy, that establish criteria for the registration of pharmacists or licensing requirements, register pharmacies and pharmacists, and monitor the way pharmacies are operated and the professional conduct of pharmacists.

International agencies and professional bodies

Pharmacists employed in these bodies perform a variety of technical and administrative functions in professional bodies and in drug- and health-related agencies, e.g., the World Health Organization, the International Narcotics Control Board, the United Nations Division of Narcotic Drugs, the United Nations Commission on Narcotic Drugs, the United Nations Fund for Drug Abuse Control, Interpol, national pharmacopoeial committees, and pharmaceutical societies.

4.2 *Community pharmacy*

Community pharmacists are the health professionals most accessible to the public. They supply medicines in accordance with a prescription or, when legally permitted, sell them without a prescription. In addition to ensuring an accurate supply of appropriate products, their professional activities also cover counselling of patients at the time of dispensing of prescription and non-prescription drugs, drug information to health professionals, patients and the general public, and participation in health-promotion programmes. They maintain links with other health professionals in primary health care.

Today, an increasingly wide range of new and analogous products are used in medicine, including high-technology biological products and radiopharmaceuticals. There is also the heterogeneous group of medical devices,

which includes some products analogous to medicines, some of which demand special knowledge with regard to their uses and risks (e.g., dressings, wound management products, etc.).

Pharmacists have progressively undertaken the additional task of ensuring the quality of the products they supply.

The main activities of community pharmacists are described below.

Processing of prescriptions

The pharmacist verifies the legality, safety and appropriateness of the prescription order, checks the patient medication record before dispensing the prescription (when such records are kept in the pharmacy), ensures that the quantities of medication are dispensed accurately, and decides whether the medication should be handed to the patient, with appropriate counselling, by a pharmacist. In many countries, the community pharmacist is in a unique position to be fully aware of the patient's past and current drug history and, consequently, can provide essential advice to the prescriber.

Care of patients or clinical pharmacy

The pharmacist seeks to collect and integrate information about the patient's drug history, clarify the patient's understanding of the intended dosage regimen and method of administration, and advises the patient of drug-related precautions, and in some countries, monitors and evaluates the therapeutic response.

Monitoring of drug utilization

The pharmacist can participate in arrangements for monitoring the utilization of drugs, such as practice research projects, and schemes to analyse prescriptions for the monitoring of adverse drug reactions.

Extemporaneous preparation and small-scale manufacture of medicines

Pharmacists everywhere continue to prepare medicines in the pharmacy. This enables them to adapt the formulation of a medicine to the needs of an individual patient. New developments in drugs and delivery systems may well extend the need for individually adapted medicines and thus increase the pharmacist's need to continue with pharmacy formulation. In some countries, developed and developing, pharmacists engage in the small-scale manufacture of medicines, which must accord with good manufacturing and distribution practice guidelines.

Traditional and alternative medicines

In some countries, pharmacists supply traditional medicines and dispense homoeopathic prescriptions.

Responding to symptoms of minor ailments

The pharmacist receives requests from members of the public for advice on a variety of symptoms and, when indicated, refers the inquiries to a medical practitioner. If the symptoms relate to a self-limiting minor ailment, the pharmacist can supply a non-prescription medicine, with advice to consult a medical practitioner if the symptoms persist for more than a few days. Alternatively, the pharmacist may give advice without supplying medicine.

Informing health care professionals and the public

The pharmacist can compile and maintain information on all medicines, and particularly on newly introduced medicines, provide this information as necessary to other health care professionals and to patients, and use it in promoting the rational use of drugs, by providing advice and explanations to physicians and to members of the public.

Health promotion

The pharmacist can take part in health promotion campaigns, locally and nationally, on a wide range of health-related topics, and particularly on drug-related topics (e.g., rational use of drugs, alcohol abuse, tobacco use, discouragement of drug use during pregnancy, organic solvent abuse, poison prevention) or topics concerned with other health problems (diarrhoeal diseases, tuberculosis, leprosy, HIV-infection/AIDS) and family planning. They may also take part in the education of local community groups in health promotion, and in campaigns on disease prevention, such as the Expanded Programme on Immunization, and malaria and blindness programmes.

Domiciliary services

In a number of countries, the pharmacist provides an advisory as well as a supply service to residential homes for the elderly, and other long-term patients. In some countries, policies are being developed under which pharmacists will visit certain categories of house-bound patients to provide the counselling service that the patients would have received had they been able to visit the pharmacy.

Agricultural and veterinary practice

Pharmacists supply animal medicines and medicated animal feeds.

4.3 *Hospital pharmacy*

Hospitals and other institutions and facilities, such as outpatient clinics, drug-dependency treatment facilities, poison control centres, drug information centres, and long-term care facilities, may be operated by the government or privately. While many of the pharmacist's activities in such facilities may be similar to those performed by community pharmacists, they differ in a number of ways. Additionally, the hospital or institutional pharmacist:

- has more opportunity to interact closely with the prescriber and, therefore, to promote the rational prescribing and use of drugs;
- in larger hospital and institutional pharmacies, is usually one of several pharmacists, and thus has a greater opportunity to interact with others, to specialize and to gain greater expertise;
- having access to medical records, is in a position to influence the selection of drugs and dosage regimens, to monitor patient compliance and therapeutic response to drugs, and to recognize and report adverse drug reactions;
- can more easily than the community pharmacist assess and monitor patterns of drug usage and thus recommend changes where necessary;
- serves as a member of policy-making committees, including those concerned with drug selection, the use of antibiotics, and hospital infections (Drug and Therapeutics Committee) and thereby influences the preparation and composition of an essential-drug list or formulary;
- is in a better position to educate other health professionals about the rational use of drugs;
- more easily participates in studies to determine the beneficial or adverse effects of drugs, and is involved in the analysis of drugs in body fluids;
- can control hospital manufacture and procurement of drugs to ensure the supply of high-quality products;

- takes part in the planning and implementation of clinical trials.

4.4 *Industrial pharmacy (the pharmaceutical industry)*

Statutory provisions in some countries may require that certain positions be held by pharmacists. The main activities of industrial pharmacists are described below.

Research and development

Pharmacists contribute to research, and their expertise in formulation development is of particular relevance to the biological availability of active ingredients.

Manufacture and quality assurance

The pharmacist's broad knowledge of the pharmaceutical sciences ensures an integrated approach to quality assurance (including good manufacturing practice) through the validation of the various stages of production and the testing of products before release.

Drug information

The pharmacist has the knowledge and expertise to provide detailed information on medicines to members of the health professions and the public. Also, pharmacists provide an information service within the company.

Patent applications and drug registration

The pharmacist is ideally qualified to understand and collate the diverse information required for patent and authorization submissions.

Clinical trials and post-marketing surveillance

The pharmacist has the knowledge of drugs and health care provision required to facilitate collaboration between companies, health professionals and governments in relation to clinical trials and surveillance.

Sales and marketing

The pharmacist, whose professional ethics demand a concern for the interest of patients, can make a contribution to proper marketing practices related to health care and to the provision of appropriate information to health professionals and the public.

Management

The inclusion of pharmacists in all levels of management promotes an ethical approach within management policies.

4.5 *Academic activities*

Academic pharmacists engage in education, pharmaceutical practice, and research in schools of pharmacy. These three aspects of academic activity are interrelated, and at the same time connected with manpower planning and management. Undergraduate, postgraduate and continuing education require the educators to have expertise in the various pharmaceutical sciences, but, in view of the professional and vocational goals of pharmacy education and the necessary interaction of education and research with service, the academic staff must also include a substantial component of pharmacists with appropriate postgraduate education.

4.6 *Training of other health care workers*

Training provided by pharmacists may include efforts to optimize drug therapy, by promoting the rational use and storage of drugs and methods of reducing drug abuse, and is directed to medical and other prescribers or suppliers of drugs, including community health workers who handle drugs. Pharmacists with training responsibilities should receive some training in the planning and management of training programmes in relation to the educational and health goals being served.

5. Pharmacy Manpower Development for Health Care Systems

It should be the objective of all countries to have a full pharmaceutical service of the highest standard. Hence the goal of pharmacy manpower development should be to make pharmacy a graduate profession. The circumstances of some countries do not yet permit this goal to be fully achieved, but, meanwhile, minimum acceptable standards should be established, based on university degree curricula, but of shorter duration.

Manpower development for health services has three components: planning, production (education and training), and management. The purpose of planning is to determine qualitative and quantitative requirements for staff; production is concerned with the education of the various types of staff required, in the numbers specified by the plan; and management utilizes and monitors staff, and provides feedback so that all three components can continuously adjust to the changing needs of health systems.

5.1 *Manpower planning*

Health manpower planning is part of health planning. It links the health care system with the educational system—the institutions and training programmes that prepare manpower for the health care system. Pharmacy manpower planning should be part of health manpower planning and health planning as a whole—especially so, since in very many countries it is concerned with building up a seriously undermanned but essential component of health services.

Governments, schools of pharmacy, and professional pharmacy associations need to collaborate in the assessment of the current pharmacy manpower supply, needs, skills and roles in their countries, and in making projections for the future. For such planning, sound baseline data are essential, with reference to the numbers of practising pharmacists by age and sex, occupation and specialty, geographical area, qualification, etc., and also with reference to the number of students who are expected to enter the profession, and to other pharmacy personnel who are not pharmacists.

National authorities should determine their pharmacy manpower requirements, quantitative and qualitative, and make realistic projections of manpower supply, in the context of their health manpower requirements and national health policy.

From an assessment of the current manpower situation, planners can forecast medium- and long-term requirements, as regards competencies and numbers. Manpower requirements can also be derived from health system targets, including: qualitative needs; levels of skills, competencies, and range of tasks; composition of health teams and complementarity of tasks; and distribution of staff within a country. Where there are acute shortages of pharmacists, manpower planning will need to concentrate, in the short term, on filling posts in drug regulation, control and procurement, and in hospital pharmacy. In countries with few or no pharmacists, interim arrangements are necessary to ensure that patients can obtain essential medicines; but every effort should be made to produce an adequate supply of professionally trained pharmacists.

Manpower planning should be related also to the two other aspects of manpower development: (i) education and training, to ensure acceptable standards of education, related to the needs of health care systems; and (ii) manpower management, including employment conditions, incentives for work in underserved areas, and continuing education.

One of the tasks of pharmacy manpower planners in developing countries is to indicate ways in which, (i) training institutions and organizations in developed countries can best serve the needs of developing countries; and (ii) training institutions of developing countries can cooperate in meeting the manpower needs of their own and other developing countries.

By providing data on needs, costs and consequences, planners inform and influence policy-makers.

5.2 *The pharmacist in the health team*

At all levels of health care, the provision of care is multiprofessional. The health care team, which is inevitably concerned with the use of drugs, must therefore include a pharmacist. This has been adequately demonstrated in the team approach to clinical care in hospitals and health centres.

In 1985, a WHO Expert Committee (*1*) on health manpower requirements for the achievement for health for all stated that:

"The pursuit of health for all through the primary health care approach will require the redefinition of the roles and functions of all categories of health personnel including those of physicians, nurses and other health professionals, such as dentists, pharmacists, sanitary engineers, etc., who will have to accept membership in, and if justified, leadership responsibility for, the health team."

The Expert Committee stated that a health team:

"...is a group of persons who share a common health goal and common objectives, determined by community needs, towards the achievement of which each member of the team contributes, in a coordinated manner, in accordance with his/her competence and skills, and respecting the functions of others."

"If the health-team concept is to become a reality, each member of the health team must contribute to and benefit from its functioning. Instead of being viewed as performing specialized tasks within the narrow confines of their past professional training, health professionals must assume new leadership tasks, including the supervision and provision of continuing education to other members of the team, as well as relating to them in the spirit of equality in the achievement of a common objective."

Clearly, therefore, pharmacy manpower planning should take place in an integrated, multiprofessional framework.

As a basic principle in manpower planning, pharmacists must be involved whenever potent medicines are supplied. Where this is still not yet possible, owing to shortages of pharmacists, planning must provide for interim arrangements such as the use of pharmacy support staff working according to procedures determined by pharmacists, and as far as possible with regular monitoring by pharmacists.

5.3 *Undergraduate education in pharmacy*

The education and training of pharmacists should be based on their attainment of educational objectives that correspond to the professional tasks relevant to the country concerned, and to their roles, functions and responsibilities in health teams. The learning experiences, and the methods of evaluating the knowledge, skills and attitudes involved in satisfactory practice performance, must be relevant to the components of professional competence. The design and management of the curriculum should apply the curricular principles of continuity, sequence and integration so that

students may progressively master the necessary professional skills at the expected levels of performance, by their repeated performance at increasingly complex levels.

Schools of pharmacy should review their methods of curriculum planning and assessment in the light of these principles of curriculum management. This review would need to take account of the constraints on current university education in different countries; the relationship of professional practice-based training to university education; and the politics, economics and customs of the country concerned. Students, pharmacy practitioners, and other concerned parties have important contributions to make in the planning and management of curricula.

To maintain the relevance of undergraduate education to changing patterns of practice, curricula should be kept under regular review by academic pharmacists, together with pharmacists from all aspects of practice and other concerned parties, such as health administrators and specialists in curriculum management and evaluation.

In common with most health professional education, pharmacy education programmes, while often indicating the relevance of topics to practice, need to do more towards helping students achieve competence in the application of knowledge in practice; this would involve the linking of knowledge, skills and attitudes in professional problem-solving.

Over the last 30 years the amount of teaching related to the action and uses of drugs and medicines has been increased significantly, and this has been further enhanced by the strong movement in many courses towards clinical pharmacy teaching. However, the increase in pharmacology teaching has had to compete with the demands from other aspects of the programme without any corresponding increase in the length of curricula and without any notable revision of methods of designing and managing curricula.

Courses in pharmacy law, ethics and practice make a vital contribution to the roles of pharmacists in the rational use of drugs and in the prevention and management of drug abuse.

5.4 *Undergraduate education related to the pharmacist's role in the rational use of drugs*

Traditionally, pharmaceutical courses have been divided into four subject areas – namely pharmaceutics, pharmaceutical chemistry, pharmacognosy and pharmacology – and schools of pharmacy have been organized

accordingly. However, the academic foundation for pharmacy practice demands an integrated approach to the teaching of those four traditional subjects. This can be encouraged by designing the course to include the three elements of pharmaceutical sciences described below. This would mean the integration of substantial parts of the teaching in each of the three subject areas with corresponding parts in the others. By doing so, schools of pharmacy would enable students to appreciate more readily the relevance of the pharmaceutical sciences to the practice of pharmacy.

Chemical and physical properties of drugs

The structure and properties of chemical substances of natural and synthetic origin used in medicine, their relevant stereochemistry and biological activities; relevant physico-chemical aspects, including chemical kinetics and thermodynamics; quality control by physical, chemical and biological techniques.

Pharmaceutical aspects of medicines

Physical and physico-chemical properties of substances used in medicine and their application in the formulation and production of medicinal products; the influence of formulation on the biological availability of substances; the evaluation of products and pharmaceutical processes with particular reference to uniformity, quality and stability of products; the principles of sterilization and of aseptic procedures; immunological products; microbiological aspects of the contamination and preservation of pharmaceutical products; radiopharmaceuticals; surgical dressings; the dispensing and storage of medicines.

The action and uses of drugs and medicines

Human and mammalian physiology and biochemistry as a basis for the understanding of the pharmacology of drugs, including experimental pharmacology and biological methods of measurement of activity; chemical, physical, biochemical and biological aspects of the action of drugs in man and animals; plant biology in relation to natural sources of drugs and medicines and in relation to pesticides; microbiology in relation to immunology, disease and chemotherapy; the presentation, uses and adverse reactions of drugs and medicines, including some opportunities to observe and study the clinical effects of drugs on diseases; an understanding of the principles of disease processes; medical terminology; sources of information on drugs and medicines.

The emphasis placed on the topics included in these three elements of the degree course will vary with educational needs, objectives, resources, and

developments in health care, but the three elements should receive approximately the same emphasis. However, the growing importance of the pharmacist's role in promoting the rational use of drugs by patients, and in advising other health professionals, must be reflected in the teaching of pathology and therapeutics related to both community and hospital pharmacy.

A fourth element in the pharmacy course should deal with national legislation related to pharmacy, and introduce the subject of international control mechanisms. A specialized part of the course should be devoted to professional ethics, which should at the same time permeate the entire course. While the entire course should be seen to be relevant to practice, there should be two units or modules devoted to the rational use of drugs and the prevention of misuse and abuse, and to the application of pharmaceutical sciences to aspects of practice.

Additionally, pharmacy students should be made aware of their countries' general health policies and strategies, particularly for the control of their principal public health problems, such as malaria, leprosy, tuberculosis and AIDS, and for the care of mothers and children, including family planning.

Besides the principles of the pharmaceutical sciences—the main purpose of a pharmacy degree course—some subjects associated with pharmaceutical practice can be introduced; these are, mainly, behavioural sciences, and communication and educational techniques, with particular reference to health education of the public. Pharmacists practice within the social environment of their country and in relation to the behaviour and attitudes of health professionals and those of the public. Another important element of the undergraduate course must therefore be designed to assist students acquire the awareness and understanding of professional and other kinds of social behaviour that influence the practice of pharmacy, by means of a grounding in the principles, methods and applications of the social and behavioural sciences. In Denmark, for example, this is called "social pharmacy" and is an obligatory part of the curriculum.

These aspects of education have become particularly relevant as the emphasis on manipulative techniques has been superseded by the pharmacist's advisory function. Their introduction at this stage will provide the basis for further training and experience during the preregistration period and the early years of professional practice. Principles of management could be introduced also in the undergraduate curriculum, as a basis for later training in drug management.

In relation to all aspects of the pharmacy programme there should be a module dealing with the general principles of the rational use of drugs. This should be introduced early in the undergraduate programme and should be designed to introduce students to the basic competencies—the clusters of knowledge, attitudes and skills—for performing the pharmacist's several roles related to the rational use of drugs, including advising physicians and patients, monitoring of prescribing, reporting of adverse drug reactions, advising on drug interactions in relation to individual patients and within national schemes, and the training of other health professionals. These basic competencies should be gradually expanded and strengthened throughout the remainder of the course. In Great Britain, the relating of academic knowledge to practice situations normally occurs in the final undergraduate year and the pre-registration year.

Independent reviews of pharmacy in recent years, including the Nuffield Foundation inquiry into pharmacy in the United Kingdom (2) have highlighted the advisory role of the pharmacist *vis-à-vis* health professionals and patients. Many schools have introduced courses on interpersonal and communication skills. All schools need to introduce modules dealing with the principles of communication, written and oral, and providing for learning and evaluation methods by which students may acquire and develop these skills.

An understanding of national pharmaceutical legislation and of its underlying philosophy will continue to be an important objective of pharmacy programmes. In the context of international control, all students should learn the concept of, and appreciate the reasons for, international control mechanisms.

More important, however, undergraduate education must at all times inculcate high standards of professional conduct. This will ensure that pharmacists can supplement the minimum legal requirements by standards of conduct which ensure that the greatest possible help and protection is given to the public in relation to the supply and use of drugs.

A satisfactory standard of pharmaceutical education, which is a prerequisite for a satisfactory pharmaceutical service to satisfy legitimate public needs, depends upon a sufficiency of suitably qualified academic staff, and an adequate provision of equipment, textbooks and other learning materials. Government strategies should provide for, and give priority to, these resources, as they are the foundation of the pharmacist's contribution to the cost-effective use of quality medicines.

The pharmacy board, or the registration authority, may also be involved in establishing acceptable minimum standards for the structure, facilities, and equipment of schools of pharmacy, including laboratory and other educational facilities and equipment.

5.5 *Postgraduate education and research*

Schools of pharmacy have traditionally offered postgraduate education in pharmaceutical sciences, usually involving research. This should be continued in order to support specialist development in practice. In addition to postgraduate education in technical subjects, schools should offer courses related to specialized aspects of practice.

Pharmaceutical education in schools of pharmacy should be supported by substantial research activity, and it should be an objective of each school that members of the academic staff have a research commitment. Traditionally research has been concerned with the pharmaceutical sciences. Today there is an increasing need for research into aspects of pharmacy practice. The recent major inquiry in the United Kingdom (2) commented on the lack of data about pharmacy practice that should be available as the basis for future development of policy. Research into practice conducted by schools of pharmacy, involving collaboration between academic and practising pharmacists, could provide such information and therefore should be encouraged.

Research: health services and manpower

In addition to research in the pharmaceutical sciences, schools of pharmacy are, increasingly, concerned with research into pharmacy practice and the use of drugs in therapeutics including in some countries the evaluation of traditional medicines. This research may include investigations into prescribing practices, patterns of drug usage, the monitoring of adverse reactions, the pharmacists' advisory role, computerized data handling, health economics, legislation, and the various aspects of abuse and non-rational use of drugs. This type of research is particularly relevant to promoting the rational and proper use of drugs, and to the planning, and the objectives, methods and evaluation, of undergraduate and continuing education.

Practising pharmacists are taking part in health-systems research, and this is to be encouraged as a means of providing databases for future development. In view of the close professional collaboration between physicians and pharmacists, collaborative research projects on the rational use of drugs are particularly indicated. The experience and the results benefit physicians, pharmacists and patients alike. Many such projects are undertaken

within the hospital/institutional environment, but schools of pharmacy can do much to promote similar projects between community pharmacists and general medical practitioners.

The main purpose of manpower research is to improve decision-making in health manpower development, i.e., the planning, production and management of manpower (*1*, pp. 73-76).

5.6 *Manpower management*

The purpose of health manpower management is to ensure that those who are trained to provide health care services are used to the best effect in the health system. Without proper management, expensively trained health personnel are wasted. A manpower management system provides mechanisms for the employment, retention, support and development of health personnel (*3*). Some of the key elements of health manpower management are shown in Table 1.

Table 1. Some of the key elements of health manpower management[a]

Main objective	Elements
Employing	Job description Establishment controls Recruitment procedures Personnel records and data base Induction Distribution of personnel Utilization of support staff
Retaining	Career structures Promotion procedures Living and working conditions Pay and incentives
Supporting	Supervision Communication and consultation Collective representation Continuing education (updating of skills) Logistic support
Developing	Performance appraisal Continuing education (new skills)

[a]Source: Reference (*7*, p. 59).

5.7 *Continuing education as an aspect of manpower management*

Continuing education is part of the support and development functions of manpower management, concerned with both the updating of skills and the acquisition of new skills.

Learning does not cease at the point of graduation. Pharmacists, like all other health workers, need to keep up with new knowledge and new technology and adapt to the new needs of health-care services and of communities. Opportunities for continuing education need to be offered to pharmacists throughout their careers. It should be an objective of the undergraduate programme that students acquire the skills and the habits of independent learning, by making them responsible for their own learning and for evaluating their own progress. This enables them later to determine their own continuing-education needs and to become efficient life-long learners.

The continuing education of pharmacists should be part of a national system of continuing education of all health manpower, and concerned with both health service needs and career development. It should be closely related to practice problems, needs and circumstances, as well as to the educational needs and aspirations of the pharmacists.

A systematic approach to continuing education should be based on sound educational planning and learning techniques, with a substantial component of problem-solving related to pharmacy practice, and on the evaluation of educational programmes and activities for their impact on professional practice and the health of the community. Such education should be planned jointly by practising and academic pharmacists, as well as pharmacists in different administrative positions; and they should call on the support of educational specialists skilled in relating curriculum planning and management to educational needs of health care personnel and the health care needs of communities, and skilled also in programme evaluation.

Professional pharmaceutical associations and government health departments have a particular responsibility for ensuring the provision of comprehensive courses, and should systematically involve academic pharmacists, pharmacy practitioners and representatives of other, related disciplines in the planning of continuing education.

Because they are the main repository of expanding pharmaceutical knowledge, schools of pharmacy must consider the continuing education of their

graduates and other practising pharmacists, in the application of this knowledge in health care, as one of their major roles.

In a number of countries, continuing education is being developed in a problem-solving, practice-related form that involves various categories of health professionals in a team format. The involvement of academic pharmacy staff with training in education, in devising this type of continuing education can be a useful means of ensuring the relevance of continuing education to the needs of practitioners of public health. Also, such involvement at the continuing education stage can be of great benefit to undergraduate curriculum development, in pharmacy as in other health care professions.

In some parts of the world, it has already been decided that pharmacists can maintain their registration or licence to practise only by participating in specified programmes of continuing education, measured by the time they give to it. In most countries, while participation is still voluntary, it is a responsibility of both professional bodies and schools of pharmacy to encourage pharmacists to participate, provided the quality and relevance to practice of the continuing education are assured. Government departments with responsibility for the provision of health services can also assist participation by being associated with, or partly responsible for, the planning and organization of continuing education for health care teams, and providing support and meeting some of the expenses involved. Also, they are in a position to assure relevance to the current and prospective needs of health care services that are financed by public funds.

The means used to maximize the participation of pharmacists in continuing education should include the introduction of career development and, where possible, financial incentives; a flexible approach to learning should be adopted that takes account of the participants' circumstances and learning styles, and ensures relevance and applicability to pharmaceutical practice. Learning methods should encompass a wide range of educational techniques and technology, including non-residential and residential group programmes, and distance-learning programmes using written, audiovisual, and electronic methods.

The following are among the roles and functions of pharmacists that need to be strengthened and supported:

- advising on the properties of all medicines, including advice on drug pharmacokinetics, and adverse drug reactions and interactions;

- advising and educating on the proper use of medicines;
- monitoring of products sold directly to the public, of prescription trends, and of the selection, management, and procurement of drugs by government and local purchasing agents;
- development and drafting of legislation for controlling the manufacture, distribution and supply of drugs;
- training, supervision and guidance of community health workers with pharmacy tasks.

In developing countries, pharmacists, as members of district health teams, could provide domiciliary services concerned with the control and treatment of such priority health problems as malaria, tuberculosis, leprosy, blindness, diarrhoeal diseases, and AIDS, and with maternal and child health services and family planning.

6. Monitoring of Pharmacy Manpower Development

Any plan or programme for systematic and sustained improvement in a service should include a monitoring and evaluation component to measure progress.

National strategies for attaining health for all will normally provide for the monitoring of pharmacy manpower development and pharmacy services in the framework of health systems and manpower development (HSMD).

Among indicators of coverage by primary health care suggested by WHO are:

- the existence of a selected list of essential drugs;
- the availability of such drugs at the primary health care facility whenever they are needed throughout the year.

With regard to manpower, WHO has suggested as indicators:

- the population ratio to pharmacists;
- the ratio between various types of health worker, such as doctors to nurses or to other categories of health workers; and
- the number of schools that have revised or reformed their curricula to adapt them to the needs of health for all and primary health care.

Manpower planning includes the setting of targets, and the selection of indicators of achievement and progress. These are necessarily country-specific.

The pharmacy profession, through its regulatory bodies, should institute its own arrangements for monitoring its manpower development, either independently or in cooperation with national authorities. This would mean, first, stating the manpower goals and defining the targets to be reached by a given time. With regard to manpower development, monitoring would

be applied to planning, production and management of manpower, and to the interaction of these three elements. It would be concerned with, for instance, whether there are national, systematic means of taking into consideration all the variables that affect, and are changing, the nature and scope of pharmacy. Monitoring should investigate whether educational planning reflects the expanding role of pharmacists in health care teams—for example, their increasing community advisory and educational role. It should examine the use of continuing education to correct manpower imbalances, e.g., to introduce or support changes in pharmacy practice, and also the possibilities of providing incentives to attract pharmacists to unserved or underserved communities or to undermanned specialties. It asks how the continuing-education needs of pharmacists are determined, and how the impact of continuing education on pharmacy practice and community health is evaluated. In developing countries where pharmacists are in short supply the profession in cooperation with government can monitor the extent to which pharmacists at central and district levels accept responsibility for the training, supervision and guidance of non-pharmacist community health workers with certain pharmacy tasks.

7. Recommendations

7.1 *The scope of pharmacy and functions of pharmacists*

Regulatory control and drug management—central pharmaceutical administration

The division of the ministry of health concerned with pharmaceutical services should have a position within the organizational structure comparable with that of other divisions.

Legislation

All countries should enact drug legislation, which should be periodically updated and strictly enforced.

Pharmacists with appropriate expertise should be involved in the formulation of new drug legislation and in the revision and updating of existing legislation, as well as in all aspects of the enforcement of regulations.

Procurement, storage and distribution of drugs

The management of drug procurement, storage and distribution should be the responsibility of pharmacists, and adequate facilities should be provided.

Drug information

Pharmacists in government should be encouraged and given support to establish national drug information systems concerned with all aspects of the nature and use of medicines. The information should be produced in a way suitable for dissemination to health professionals and the public. Such systems should be linked with hospital information systems, as regards both receiving and transmitting information.

Quality control laboratory

The establishment of a national, drug quality-control laboratory is essential to the assurance of the quality, safety and efficacy of medicines available to the public. Pharmacists with additional training in all aspects of quality control should be in charge of this service.

Community and hospital pharmacy

The consultative group had before it the draft report and recommendations of a meeting organized by the WHO Regional Office for Europe, held in Madrid in October 1988 (*4*). Many of the recommendations of that meeting, with regard to community and hospital pharmacy, were largely identical with those that this group wished to set forth. They are therefore reproduced below, with minor changes to set them in a global perspective.

1. Physicians and pharmacists within communities and hospitals should work together to establish common approaches to the choice of medicines to be used, and the role of the pharmacist in advising the physician and other health care professionals should be developed in community care as well as in hospitals.

2. The pharmacist should play a central role in the provision of advice and information to patients and the general public on the use of medicines, and the pharmacist should cooperate effectively with prescribers to ensure a common approach to patients in the provision of advice and information.

3. Pharmacists should participate in a multidisciplinary approach to promotion of the rational use of medicines.

4. Pharmacists should adequately inform patients and the general public about unwanted effects of medicines, and should monitor such unwanted effects and their consequences in collaboration with other health care professionals and the appropriate authorities.

5. Pharmacists should continue to contribute to the promotion of healthy lifestyles and to the prevention of illness by, *inter alia*, participating in screening activities, such as for example, blood pressure measurement and determination of blood sugar.

6. Pharmacists should provide appropriate and adequate services and levels of support to the community through, for example, domiciliary services, services to nursing homes and aspects of primary health care.

7. To meet changing needs, there should be progressive adaptation of the legal requirements relating to the equipment, size, functioning, staffing and distribution of pharmacies.

Community pharmacy

8. Government policies should provide for pharmacists in both the public and the private sectors to be adequately remunerated for their advisory services, as well as for their supply functions.

9. Pharmacists' expertise should be used in the quality assurance and distribution of products similar to medicines and of medical devices.

10. The extemporaneous preparation of medicines to meet individual needs should be maintained and developed in accordance with guidelines for good manufacturing and distribution practices.

11. Pharmacists should have responsibility for checking prescriptions to ensure that they are clear and in accordance with legal requirements, and also for ensuring that prescriptions are dispensed in accordance with prescribers' intentions.

12. Pharmacists should maintain adequate documentation resources in their pharmacies and have access to necessary information from central information systems.

13. Pharmacists should communicate and cooperate effectively with the other members of the health care team.

14. Pharmacists should continue to develop their advisory service in response to symptoms which are described by members of the general public, by referring such persons for medical advice when appropriate, and in other cases providing suitable advice with or without the sale of a medicine.

15. Pharmacists should develop their role in the supply and/or control of animal medicines and medicated animal feeds.

16. Pharmacists should provide their professional advisory service, associated with the dispensing or sale of medicines, in a quiet area within the pharmacy.

17. Pharmacists should actively participate in national health programmes such as family planning, tuberculosis control, diarrhoeal disease control, EPI, leprosy, malaria, blindness and AIDS.

Hospital pharmacy

18. Clinical pharmacy should be promoted as a hospital discipline to, *inter alia*, ensure rational use of drugs and reduction of costs.

19. Hospital pharmacists should play an active part in patient care by making their expertise available to other disciplines and departments.

Industrial pharmacy

1. The pharmaceutical industry should employ pharmacists for tasks in departments for which pharmaceutical responsibility is crucial—for example, quality assurance services, marketing, clinical trials, and post-marketing surveillance.

2. The pharmaceutical industry should employ pharmacists in various departments and at various management levels.

3. The industry should employ properly trained pharmacists in the area of drug marketing and promotion in order to maintain high professional standards, in accordance with ethical criteria, in the promotion of drugs and medical devices.

Academic activities

1. The membership of academic faculties should be suitably balanced with regard to pharmacists and other scientists. In view of the professional and vocational nature of pharmacy education, the majority of the academic staff should consist of pharmacists with appropriate postgraduate education and qualifications.

2. The undergraduate pharmacy course should adequately cover the principles of national health and drug policies.

3. Faculties and schools of pharmacy should ensure that:

- academic staff are committed to research;

- that they are competent teachers – preferably with training in education, concerned with curriculum planning and design in relation to health service and community needs, the management and evaluation of curricula, and the assessment of student performance and competence; and
- that they remain in touch with pharmacy administration and practice – as educational resources and by research.

Training other health care workers

Pharmacists should participate in training of medical and other health personnel, including community health workers.

Research

Methods of drug-utilization research should be developed in community and hospital pharmacy, and collaboration promoted with other health professionals, and between pharmacists in practice and those in schools and faculties of pharmacy.

The health care team

Pharmacists should be members of health care teams and their roles in the team should be recognized, including those in district health systems. In district health systems based on primary health care, the pharmacist should be a member of the district health management team.

International agencies

1. The report has demonstrated the integral place of the pharmacist within all aspects of health care related to the use of quality drugs, disease prevention and health promotion. It is therefore essential that pharmacists be adequately represented on the staff of international health agencies

7.2 *Pharmacy manpower development for health care systems*

Manpower planning

1. Each country should prepare pharmacy manpower plans in the context of health manpower planning and health planning as a whole, taking into account the objectives of its health system.

2. Pharmacists holding senior positions in government, professional associations, and schools of pharmacy should collaborate with experts in

manpower planning in devising and monitoring pharmacy manpower development plans.

3. In countries with an acute shortage of pharmacists, manpower plans should give priority to filling positions in drug regulation and control, procurement and distribution of medicines, and hospital pharmacy.

Undergraduate education

1. Countries that have not already done so should move towards a university degree education for pharmacists as quickly as possible, and meanwhile should establish minimum acceptable standards for the qualifications of pharmacists.

2. In all aspects of undergraduate education, relevance to the practice of pharmacy should be maintained and clearly indicated; and the learning process and methods of evaluation should be related to the components of professional competence and to the principles of high standards of professional conduct.

3. Pharmacy undergraduate courses should devote approximately the same amount of time to the three elements of pharmaceutical sciences, described on page 20, with appropriate additional emphasis given to pathology and therapeutics as they relate to the practice of community and hospital pharmacy.

4. One element of the pharmacy course should deal with national legislation related to pharmacy and provide an introduction to international control mechanisms, professional ethics, and the application of pharmaceutical sciences to practice, particularly in relation to the rational use of drugs and their misuse and abuse.

5. Apart from its specific pharmaceutical elements, the undergraduate course should also be designed to enable students to acquire an acceptable level of competence in interpersonal and communication skills and in the applications of the behavioural sciences to health care practice, and to practise according to the requirements of national health care policies and strategies.

6. Governments and other regulatory authorities should give priority to the provision of properly qualified academic staff, which should include a majority of pharmacists; to collaboration with pharmacy schools in other

countries; and to the provision of equipment and learning materials commensurate with satisfactory pharmaceutical education.

7. All schools of pharmacy should have a significant level of research activity involving members of the academic staff and related to pharmacy practice as well as to pharmaceutical sciences.

Postgraduate education and research

1. Schools of pharmacy should continue to offer postgraduate courses in the pharmaceutical sciences, as well as courses related to specialized aspects of practice.

2. The academic staff in schools of pharmacy should have a substantial research commitment within the pharmaceutical sciences, and in collaboration with pharmacy practitioners should develop research into the various aspects of pharmacy practice.

Continuing education

1. Continuing education programmes should always be related to the competency needs of pharmacy practice and should include problem-solving related to pharmacy practice.

2. A systematic approach should be adopted for planning and evaluating continuing education programmes. It should be based on strategies determined by professional pharmacy associations and government health departments, and include a multiprofessional approach which would link schools of pharmacy with practising pharmacists and other health care practitioners in the planning of programmes.

3. National authorities should make every effort to increase the participation of pharmacists in continuing education programmes by the introduction of incentives, by using flexible and practice-related learning programmes, and by the use of a full range of educational techniques and technologies.

7.3 *Follow-up action on the report*

The consultative group recommends that WHO monitor, at regular intervals, the implementation of its recommendations; and that international pharmaceutical associations, such as the Commonwealth Pharmaceutical Association and the International Pharmaceutical Federation, should bring the report to the attention of national pharmaceutical bodies and schools of pharmacy.

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PART II

THE ROLE OF THE PHARMACIST: QUALITY PHARMACEUTICAL SERVICES - BENEFITS FOR GOVERNMENTS AND THE PUBLIC

WHO Second Meeting, Tokyo, Japan, 31 August - 3 September 1993

WHO SECOND MEETING ON THE ROLE OF THE PHARMACIST: QUALITY PHARMACEUTICAL SERVICES - BENEFITS FOR GOVERNMENTS AND THE PUBLIC

Tokyo, Japan, 31 August - 3 September 1993

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INTRODUCTION:

1. The Group endorsed the recommendations of the first World Health Organization meeting on the pharmacist in health care (1990) which identifies the various roles of the pharmacist and the relevant educational and manpower requirements.

2. This report focuses on the responsibilities of the pharmacist to the healthcare needs of the patient and of the community, i.e. the concept of pharmaceutical care.

3. Fundamental differences are acknowledged to exist in healthcare delivery systems from country to country. However, the concept of pharmaceutical care which is considered to have relevance in every country, notwithstanding differences in socio-economic conditions development.

4. Socio-economic factors have a major effect on healthcare delivery, the rational use of drugs, and the development of pharmaceutical care. (See table 1). Wherever populations are aging, the prevalence of chronic disease is increasing, and the range of medications is broadening, drug therapy has become the most frequently used form of medical intervention in every practice setting. While appropriate drug therapy is indispensable to safe and cost-effective healthcare, the consequences of inappropriate drug therapy, both for patients and society in general, are considerable. Means of assuring rational and cost-effective use of drugs are needed in all countries regardless of their level of development. Pharmacists have a key role to play in meeting the needs of the individual and of society in this connection.

Table 1.

Factors Affecting Health Care Delivery, the Rational Use of Drugs and the Development of Pharmaceutical Care

Demography

Ageing populations
Vulnerable paediatric populations
Population increases
Changes in disease patterns/epidemiology
Geographic distribution of populations

Economic Factors

Increased costs of healthcare
National and global economics
The increasing gap between affluent and poor

Technology

Development of new drugs
New information delivery techniques and new information about existing drugs
More complex and potent drugs
Biotechnology

Sociological factors

Consumer expectations and involvement
Drug abuse/misuse
Use of traditional medicines

Political

Priorities in use of national resources (allocation to health)
Changing market philosophies
Policy makers' understanding of pharmacy
Drug regulation
National drug policies; Essential Drug Lists

Professional

Variations in education/training of pharmacists
Pharmacy personnel distribution
Evolving philosophy towards patient care in pharmacy
Basis of remuneration of pharmacists

Healthcare delivery

Access to health care
More treatment of severe illness outside hospitals

PHARMACEUTICAL CARE

5. Pharmaceutical care is a philosophy of practice in which the patient is the primary beneficiary of the pharmacist's actions. Pharmaceutical care focuses the attitudes, behaviours, commitments, concerns, ethics, functions, knowledge, responsibilities and skills of the pharmacist on the provision of drug therapy with the goal of achieving definite therapeutic outcomes toward patient health and quality of life.[1] [2]

6. Although this definition focuses on drug therapy in the individual patient, the Group chose to expand the beneficiary of pharmaceutical care to the public as a whole and also to recognize the pharmacist as a health care provider who can actively participate in illness prevention and health promotion along with other members of the health care team. Thus, in this report, pharmacists' functions are divided into those related to individual patients and those related to the community. The Group considered pharmaceutical care to be an overarching practice philosophy to which all pharmacists should aspire. Bearing in mind the particular stages of development of healthcare delivery and pharmaceutical services in particular countries, pharmacists will need to use their professional discretion in setting priorities for the achievement of these objectives.

7. The Group recognized that the team approach is vital to achieve the optimum use of limited resources - both human and financial - in meeting healthcare needs in all countries. Thus, although the roles of pharmacists are considered in this report, the Group recognized that pharmaceutical care is not provided in isolation from other health care services, but in collaboration with patients, physicians, nurses and other healthcare providers.

8. Where the pharmacist alone provides pharmaceutical care to a patient by initiating the therapy with a non-prescription drug or acts within a team on a prescribed therapy, the standards of the pharmacists activities should conform to national pharmacy standards based on the International Pharmaceutical Federation (FIP) Guide to Good Pharmacy Practice.

9. In certain countries, more patients are being treated with complex therapies in intermediate care facilities or in their homes. The reasons for this include an increase in

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[1] Hepler, CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. Am J. Hosp Pharm, 1990;' 47: 533-543.

[2] Commission to Implement Change in Pharmaceutical Education. A position paper: Entry-level Education in Pharmacy: A Commitment to Change. American Association of Colleges of Pharmacy News. Special Report. Alexandria VA 1991

the number of elderly in the population and the trend to shorten periods of hospital treatment. Consequently, the Group believes that pharmaceutical care provision will extend beyond the traditional pharmacy establishments and that pharmacists will have to collaborate with one another to ensure continuity of pharmaceutical care.

ASPECTS OF PHARMACEUTICAL CARE

10. The elements of pharmaceutical care for individual patients, taken together, describe comprehensive pharmaceutical care, the delivery of which requires an ongoing, covenantal relationship between the pharmacist and the patient. The pharmacist must use his clinical judgement to determine the level of pharmaceutical care that is needed for each patient. Examples of situations which call for comprehensive pharmaceutical care include:

- Patients who are particularly vulnerable to adverse effects because they are physiologically compromised (e.g. infants; the elderly; those with kidney, liver or respiratory failure)

- Patients with medical conditions that require ongoing evaluation and manipulation of drug therapy to achieve optimal results (e.g. diabetes mellitus; asthma; hypertension; congestive heart failure).

- Patients who are taking multiple medication thereby placing them at higher risk for complex drug-drug or drug-disease interactions and for drug-food interactions.

- Patients requiring therapy with drugs that can be extremely toxic, especially if they are dosed, administered or used improperly (e.g. cancer chemotherapeutic agents, anticoagulants, parenteral narcotics.

- Patients whose acute illnesses can become life threatening if the prescribed medications are ineffective or used improperly (e.g. certain infections, severe diarrhoea).

Pharmaceutical Care For Individual Patients

11. The following are the various actions that comprise the application of pharmaceutical care to individuals. If undertaken, in whole or in part, they will result in added value to drug threrapy by making a positive contribution to the safe and cost effective use of drugs, leading to positive outcomes and improved health care.

- Obtain and maintain medication records and relevant health information, if they do not already exist. This information is essential to assess individualized drug therapy.

- Identify, evaluate and assess:

  (i) drug related problems (side effects; drug interactions; improper drug use);

(ii) symptoms described by patients;
(iii) self-diagnosed conditions;

and decide whether pharmacist action is appropriate or collaboration with other health professionals is needed.

- Initiate or modify drug/non drug therapies by:

  (i) independent action (drugs that can be provided by pharmacists without a prescription; non drug therapies, e.g. life style changes, medical devices); and
  (ii) collaborative action (always for medically prescribed drugs).

- Prepare and supply medication for use (including selection of drug products, prescription assessment, dispensing, compounding, packaging, labelling)

- With prescriber and/or patient, as the case may be, - set goals of therapy

- Design and implement pharmaceutical care plan (education, counselling)

- Monitor for therapeutic outcomes and take appropriate follow up actions (begin the pharmaceutical care cycle again)

Pharmaceutical Care For The Community

12. Pharmacists individually and as a profession have important roles to play in positively influencing drug policy, drug use and outcomes as well as other aspects of health care. In many instances this will be through collaboration with other health professionals at a community level.

(a) Participate in the formulation of drug policy including drug regulation

(b) Develop guidelines and criteria for formularies

(c) Collaborate with other health care professionals to develop treatment guidelines

(d) Design and monitor procurement and drug distribution systems, including storage and disposal (e.g. country wide, local, institutional)

(e) Formulate and manufacture quality medications within pharmacy practice

(f) Serve as a source of objective drug information: establish poison and drug information systems, e.g. poison and drug information centres

(g) Initiate and undertake research in e.g. pharmacotherapeutics including clinical trials; pharmacoepidemiology; pharmacy practice; health economics; and evaluate and document the results of such research in order to improve all aspects of pharmaceutical care.

(h) Educate all health professionals who participate in pharmaceutical care

(i) Develop, evaluate and document pharmaceutical care practices

(j) Participate in health screening (e.g. diabetes, cholesterol)

(k) Participate in health promotion and education (e.g. the proper use of medication; smoking cessation; immunization; prevention of drug abuse; hygiene; family planning; AIDS prevention)

(l) Develop professional standards and audit procedures

(m) Establish and maintain an appropriately qualified pharmacy workforce.

RECOMMENDATIONS

(1) To be proactive in the adoption and promotion of the provision of pharmaceutical care the profession should:

(a) Introduce the concept into association mission statements

(b) Establish appropriate practice guidelines and standards

(c) Develop relevant audit procedures

(d) Encourage individual pharmacists to embrace this concept in their professional practice

(e) Promote pharmacist representation on all relevant healthcare policy groups

(f) Systematically interact with other healthcare professions to develop pharmaceutical care

(g) Establish centres to promote and facilitate practice research and studies

(h) Facilitate the dissemination of information on pharmaceutical care through international pharmaceutical associations such as Commonwealth Pharmaceutical Association (CPA) and the International Pharmaceutical Federation (FIP)

(2) The profession and educators should take appropriate actions to provide pharmacists with the requisite pharmaceutical care skills by:

(a) continually reviewing the undergraduate or university curriculum outcomes, content and process to ensure that they are in line with the concept of pharmaceutical care. So that graduates are able to provide basic pharmaceutical care to patients and accommodate their practices to an ever-changing environment, the following components of the curriculum should be properly balanced:

(1) basic sciences
(2) pharmaceutical sciences
(3) biomedical and clinical sciences
(4) socio-economic and behavioural sciences
(5) practice experience

(b) introducing courses related to the implementation of patient-oriented practice e.g. communication skills;

(c) developing relevant teaching methods;

(d) integrating aspects of education and training for pharmacy, medical and other healthcare students;

(e) ensuring that there is a patient-related preregistration training period in practice, designed to achieve competencies related to pharmaceutical care;

(f) adopting the philosophy of pharmaceutical care as a principal basis for continuing education programmes; and

(g) developing postgraduate educational programmes to prepare pharmacy practitioners for research and practice activities related to pharmaceutical care.

(3) Governments, national and international authorities and agencies, including WHO, should support the concept of pharmaceutical care and adopt policies to promote e.g:

(a) the recruitment, retention and motivation of pharmacists in positions of responsibility in relation to policy making, drug/medical device regulation and service provision;

(b) a satisfactory pharmaceutical service, provided or supervised by pharmacists, in the community and in hospitals; and

(c) the maintenance of regulatory controls and their effective enforcement to control the sale of medicines generally and to counteract the circulation of substandard and counterfeit drugs.