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THE ROLE OF THE PHARMACIST IN THE HEALTH CARE SYSTEM

PREPARING THE FUTURE PHARMACIST:
CURRICULAR DEVELOPMENT

REPORT OF A THIRD WHO CONSULTATIVE GROUP
ON THE ROLE OF THE PHARMACIST
VANCOUVER, CANADA, 27-29 AUGUST 1997

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REPORT OF A WHO CONSULTATIVE GROUP ON THE ROLE OF THE PHARMACIST: PREPARING THE FUTURE PHARMACIST: CURRICULAR DEVELOPMENT

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1. INTRODUCTION

Significant changes in national health care systems worldwide are fuelling the critical examination of how health professionals are educated and trained, what they learn and how they learn it. The many factors contributing to these changes are presented in the World Health Organization's (WHO) *Ninth General Programme of Work* (pages 5-14, Geneva, 1994). It is essential that all health professionals are appropriately and adequately prepared to support a global policy framework for health.

Recent interest in pharmacy as a focal point for a global health policy framework stems from WHO's Consultative Group in New Delhi (1988) and Tokyo Meeting (1993); and recent WHO collaboration with the work of the International Pharmaceutical Federation (FIP), the International Pharmaceutical Students Federation (IPSF) and others. These efforts have been further pursued and supported via regional and national efforts. Sufficient background information exists to provide guidance to pharmaceutical educators regarding the preparation of students for contemporary and future careers.

2. METHODS

An action-oriented consultation of experts in pharmaceutical education and pharmacy practice (Appendix A) was convened[1] by the World Health Organization to explore the topic, *Preparing the Future Pharmacist: Curricula Development.* In preparing for the consultation, an organizing committee (Appendix B) was assembled and agreed on the following working objectives:

- To contribute to the formulation of global strategies for implementing resolution WHA47.12 on the Role of the Pharmacist.
- To strengthen and extend international collaboration by identifying model institutions and providing expertise to those in need of it.
- To develop technical guidelines for introducing, implementing and evaluating change in pharmaceutical education consistent with resolution WHA47.12.
- To promote interdisciplinary education with other health professionals.

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[1] Vancouver, BC, Canada, 27-29 August 1997

The organizing committee further identified an agenda consisting of three themes (The Ideal Profile of the Pharmacist, The Social Responsiveness of the Profession and the University, and Adapting Today the Education for Future Needs) supported by background papers (Appendix C) from the published literature. Discussion papers (Appendix D) were commissioned that specifically addressed each theme. All participants in the consultation received both the background papers and the discussion papers prior to the Vancouver consultation.

3. OBSERVATIONS

Achieving the working objectives for the consultation proved to be a formidable task. Indeed, the consultation concluded that its most significant contribution to pharmaceutical education worldwide would be to provide a planning framework to serve as a guide to schools/faculties of pharmacy for curricular revision. Such a framework takes several forms:

3.1 The Effective Use of Existing Resources

First, it is imperative to note that the bibliography attached to this report (Appendices C and D) provides a wealth of information which need not be repeated or reconstructed here. This bibliography, along with the reports of specific WHO regional initiatives (e.g., Pan American Conferences on Pharmaceutical Education [1990, 1993, 1996], the WHO information consultations on the revision of undergraduate curricula, Zimbabwe [1997], and Beirut [1997]) and the past and planned activities of the Academic Section of FIP (e.g., The World Congress on Pharmaceutical Education, 7-9 April 1998, New Orleans, USA; programme at the Pharmacy World Congress, 4 September 1998, Cairo, Egypt) should receive special attention.

3.2 The Role of the Pharmacist: "The Seven-Star Pharmacist"

Second, the consultancy agreed that contemporary and future pharmacists must possess specific knowledge, attitudes, skills and behaviours in support of their roles. Although these roles go beyond those previously described in official WHO publications and policies, they should be considered essential, minimum, common expectations of national health care systems worldwide. The consultancy summarized these roles in "the seven star pharmacist:"

- **Care-giver**—the pharmacist provides caring services. Whether these services are clinical, analytical, technological or regulatory, the pharmacist must be comfortable interacting with individuals and populations. The pharmacist must view his or her practice as integrated and continuous with those of the health care system and other pharmacists. Services must be of the highest quality.
- **Decision-maker**--the appropriate, efficacious and cost effective use of resources (e.g., personnel, medicines, chemicals, equipment, procedures, practices)

should be at the foundation of the pharmacist's work. Achieving this goal requires the ability to evaluate, synthesize and decide upon the most appropriate course of action.

- **Communicator**--the pharmacist is in an ideal position between physician and patient. As such, he or she must be knowledgeable and confident while interacting with other health professionals and the public. Communication involves verbal, non-verbal, listening and writing skills.
- **Leader**--whether the pharmacist finds him/herself in multidisciplinary (e.g., team) caring situations or in areas where other health care providers are in short supply or non-existent, he/she is obligated to assume a leadership position in the overall welfare of the community. Leadership involves compassion and empathy as well as the ability to make decisions, communicate, and manage effectively.
- **Manager**--the pharmacist must effectively manage resources (human, physical and fiscal) and information; he or she must also be comfortable being managed by others, whether an employer or the manager/leader of a health care team. More and more, information and its related technology will provide challenges to the pharmacist as he/she assumes greater responsibility for sharing information about medicines and related products.
- **Life-long-learner**--it is no longer possible to learn all one must learn in school in order to practice a career as a pharmacist. The concepts, principles and commitment to life-long learning must begin while attending pharmacy school and must be supported throughout the pharmacist's career. Pharmacists should learn how to learn.
- **Teacher**--the pharmacist has a responsibility to assist with the education and training of future generations of pharmacists. Participating as a teacher not only imparts knowledge to others, it offers an opportunity for the practitioner to gain new knowledge and to fine-tune existing skills.

3.3 The Curriculum

In a given society, the contemporary role of the pharmacist, plus his or her anticipated future role is a major derivative of the curriculum. Typically, pharmacy faculty use such knowledge to identify course work and assign contact hours. Of greater importance today, is the application of this information to determine the desired educational outcomes which further define course content, educational context and learning methods. The American Association of Colleges of Pharmacy's (AACP's) reports of the Commission to Implement Change in Pharmaceutical Education (see Appendix C) provide an excellent road map to this approach.

The consultancy wishes to emphasize the importance of educational methods. Common elements to be considered by all educators are a greater focus on student learning (rather than faculty teaching), where the student is an active participant in the learning process. Developing problem-solving and critical thinking skills in students, and the use of

educational technologies to ensure that anywhere, anytime and just-in-time learning, are important tools to achieve this goal.

The consultancy debated vigorously the need for and desirability of producing a core curriculum. Although it was concluded that six of the seven roles described above are inherently common across all societies, the core care-giver role varied dramatically from nation to nation depending on the organization and needs of its health care system. For example, contrary to many parts of the world, the United States' health care system places little value on entry-level pharmacists in industrial, analytical, technological or regulatory work. Hence, course work supporting the knowledge and skills required in these areas is absent from the curriculum of US pharmacy schools. In conclusion, it is believed that many excellent examples of core curricula, usually regionally derived, exist; the reader is referred to these for assistance (Appendix C, ref. 11, 12, 13 and 14).

The consultancy was comfortable in envisioning a universal future for the profession which placed greater value on pharmacy's clinical function. As faculties worldwide consider future curricular revision and innovation, special attention should be placed on the knowledge, skills, attitudes and behaviours which support a pharmaceutical care model.

Related to curriculum are issues of defining, evaluating and maintaining educational, programmatic and institutional quality. The consultancy concluded that all pharmacy programmes should adhere to an identified set of minimum standards, self-study and external peer review for the purpose of self-improvement.

3.4 Implementing Curricular Change

Again, the consultancy acknowledged that several successful models, ranging from individual schools/faculties of pharmacy to national programmes, exist to assist with implementing curricular change (Appendices C and D). Additionally, these models might best be disseminated in the future through some mechanism of identifying model institutions and offering to share experiences and expertise. Common to all approaches, however, is the need for leadership within schools/faculties of pharmacy.

Qualities of "the seven star leader" were proposed:

- an effective role model (especially for women);
- influential and able to influence others;
- able to articulate "one voice;"
- has a vision for the future;
- able to stimulate new thinking;
- able to synergize team thinking and team work; and
- an effective politician.

It was concluded that development of seven star leaders is an essential component of curricular change and could be achieved by attending formal, organizational-based programmes (e.g., FIP Academic Section, AACP, IPSF), fostering a climate for leadership within individual school/faculty and university cultures, and providing opportunities to gain experience through exercising leadership.

3.5 Partnerships

The consultancy agreed that given the limited resources worldwide for education and health care, the climate is open to the development of partnerships. Indeed, pharmaceutical education has a vast variety of stakeholders, ranging from parents to employers, from which it can develop mutually beneficial relationships. Furthermore, the consultancy itself recognizes that future efforts to restructure and innovate in pharmaceutical education should include a broad array of partners, including WHO, FIP, CPA and UNESCO.

RECOMMENDATIONS

Just as no single health care system will fit the needs and aspirations of all countries, no single formula for curricula revision (e.g., content, context, methods) in pharmaceutical education should be contemplated. However, it is clear that certain common elements can and must be pursued by pharmacy educators around the world. These include:

- the educational outcomes related to a nation's seven star pharmacist;
- a commitment to focus on educational methods (e.g., student-centred learning) over content, with a concomitant view to assuring quality of educational programmes;
- leadership development; and
- the effective use of partnerships.

Further, to date, much of pharmaceutical education's (indeed pharmacy practice's) debate about its future has been internalized. We have succeeded in insulating ourselves from the health care systems around us and the other health care professionals with whom we profess to desire team membership. It is time to move beyond our own discipline and begin to engage, in earnest, physicians, nurses, patients and others as we continue to plan and implement our future.

It is essential that pharmacy educators continue to pursue curricula development as a dynamic process, one that requires our constant attention and diligence. Numerous national, regional and international opportunities exist for us to do so.

The Directors-General of WHO and UNESCO must be made aware of these goals and related efforts. A delegation of pharmacy leaders (e.g., International Pharmacy Federation [FIP], academies of pharmacy, associations of pharmacy students) should approach the

leadership of these organizations for an appropriate discussion of the observations and recommendations contained herein. A broad-based delegation of associations of pharmacists, pharmacy educators and students from each country should similarly approach their Ministries of Health.

Finally, it is recommended that the Academic Section of the FIP and other fora use the observations and bibliography of this consultation in their efforts to enhance the education and training of pharmacists. The consultancy envisions the enduring work of this effort will occur subsequent to this report.

Appendix A

WHO CONSULTATIVE GROUP ON THE ROLE OF THE PHARMACIST: PREPARING THE FUTURE PHARMACIST: CURRICULAR DEVELOPMENT

Vancouver, Canada, 27-29 August 1997

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Appendix B

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2. WHO Resolution on the Role of the pharmacist in support of the WHO revised drug strategy (WHA47.12)

3. Good Pharmacy Practice (GPP) In Community and Hospital Pharmacy Settings (WHO/PHARM/DAP 96.1)

4. Ninth General Programme of Work Covering the period 1996-2001, WHO Geneva

5. Council of Europe: Resolution AP (93) 1 on the role and training of the community pharmacist (Adopted by the Committee of Ministers on 23 November 1993 at the 503rd meeting of the Ministers' Deputies)

6. Joint Statement issued by Canadian medical association and Canadian pharmaceutical association: Approaches to Enhancing the Quality of Drug Therapy (CMA-CPhA Joint statement, July 1996)

7. Frontline doctor of tomorrow (World Health, No.5, September-October 1994)

8. Defining and measuring social accountability of medical schools (WHO/PHARM/95.7)

9. Reorientation of medical education and medical practice: pages 6-7, report to EB 99 (EB99/19)

10. Developing protocols for change in medical education (WHO/HRH/95.5)

11. Commission to implement change in pharmaceutical education, A position paper, American Association of Colleges of Pharmacy (AACP) News, Special Report 1991 and 1997

12. Recommendations of the Third Pan American Conference on Pharmaceutical Education

13. Report of a WHO informal consultation on the revision of undergraduate curricula, Troutbeck, Zimbabwe, 27-30 April 1997

14. Report of a WHO informal consultation on the revision of undergraduate curricula Beirut, Lebanon, 24-27 June 1997

15. A position paper prepared for, and together with, UNESCO entitled "Graduate Employment and professional development - the pharmacy student perspective, by Peter Segbor, IPSF chairperson of information and education, 1996-1997".

16. Input paper to the Fifth UNESCO/NGO Collection Consultation on Higher Education (*Higher Education: The consequences of Change for Graduate Employment*) by Sally Arnison, IPSF General Secretary 1996-1997.

17. Student Forum: Professional Roundables (*a series of themes for discussion*) Report of IPSF meeting on curricula, Vancouver, August 1997 (to be requested)

Discussion papers

Theme 1 THE IDEAL PROFILE OF THE PHARMACIST

New Challenges for the Profession: The Case History from the UK
Professor Peter Noyce

Reaction from Japan; Mr A. Kawahara

Reaction from Chile; Professor Inés Ruiz

Theme 2 THE SOCIAL RESPONSIVENESS OF THE PROFESSION AND THE UNIVERSITY

Perception of the profession regarding future role
The role of the Schools of Pharmacy in responding to social need;
Professor Henri R. Manasse

Reaction from Canada; Professor Paul-Pierre Leblanc

Reaction from Thailand; Professor Sauwakon Ratanawijitrasin

Theme 3 ADAPTING TODAY THE EDUCATION FOR FUTURE NEEDS

Adapting education today for the needs of tomorrow:
Experiences in the USA and the Americas;
Professor Carl E. Trinca

Reaction from France; Professor J.-M. Aiache

Reaction from Russia; Professor Alexander P. Arzamascev

THEME 1. THE IDEAL PROFILE OF THE PHARMACIST

New Challenges for the Profession: The Case History from the UK
By Professor Peter Noyce

Orientation

Within the UK, there are three institutions which largely determine the nature of pharmacy, the university schools of pharmacy, the professional body, and the National Health Service. There are 16 schools of pharmacy in the UK, all situated in publicly-funded universities. Between them they graduate 1200 - 1400 students annually with a Bachelor Degree (BSc or BPharm) in Pharmacy, which has been the minimal academic qualification for entry to the profession for nearly 30 years.

The professional body, the Royal Pharmaceutical Society of Great Britain, has complete jurisdiction over the practice of pharmacy and controls the registration (licensure) of all pharmacists and pharmacies. It accredits each of the University undergraduate courses in pharmacy and is responsible for the structure and assessment of the one-year preregistration (externship) training period, and so controls entry to the register of pharmacists. Equally it can remove individuals from the professional register on the grounds of misconduct. Although the Pharmaceutical Society has the authority, it has not yet made either a minimum requirement for continuing education or demonstration of continuing competence a pre-requisite for continuing registration.

There are of course other voluntary national pharmaceutical organizations, some of which, such as the College of Pharmacy Practice and United Kingdom Clinical Pharmacists' Association, that have professional development as their mission, but they have no formal legal status in terms of ensuring competence to practise.

A National Health Service (NHS) has existed for nearly 50 years under which everyone through registration with an NHS general practitioner (GP) has access to free medical care. There is virtually no demand for private primary medical care and so over 98% of prescriptions in community pharmacy are under the NHS. NHS hospitals provide upwards of 80% of secondary care. Therefore the vast majority of pharmacy practice in the UK is associated with the provision of pharmaceutical services under the NHS.

Until the mid-80's there were primarily two areas of pharmacy practice, community and hospital, engaging pharmacists roughly in a proportion of 1:5. Comparatively small numbers of pharmacists also practise in industry and academia.

Community Pharmacy

Until a decade ago, pharmaceutical services in primary care were virtually solely based on the retail pharmacy, with the owner of the store holding the "contract" to provide services under the NHS. At that time, remuneration of the pharmacy owner for provision of pharmaceutical services. under the NHS was limited to the dispensing and supply of prescribed medicines.

Apart from in rural areas, where doctors may dispense, the dispensing of medicines prescribed under the NHS has always been limited to pharmacies. There are three legal classes of medicines in the UK; prescription-only (POM), pharmacy (P), and general sales list (GSL). Only pharmacies can supply all licensed medicines, but GSL medicines, including minor analgesics, cough medicines, etc. can be sold through all retail outlets.

Ownership of community pharmacies in the UK is not limited to individual pharmacists and neither is there is there a limit on the number of pharmacies an individual or company may own. Under law, a pharmacist has to be present when the pharmacy is open, to supervise the dispensing of all prescribed medicines and sale of all "P" medicines.

On average one community pharmacy serves approximately 5000 population.

Hospital Pharmacy

In contrast to community pharmacy in which there has been relatively modest evolution in practice, hospital pharmacy underwent a long process of largely self-determined development in the UK during the period 1970-90. Hospital pharmacists realized that while the demand for individually compounded medicines was decreasing, there was increasing scope for improving the effectiveness and quality of drug therapy. The opportunity for change came in the late 60's when an unacceptable level of drug administration errors was identified in British hospitals. To address this issue the Gillie report, published in 1970, recommended the introduction of the practice of "ward pharmacy" whereby pharmacists routinely visited wards on a once or twice daily basis to monitor and clarify prescriptions.

Through practising at least part of the time outside the hospital pharmacy, alongside medical and nursing colleagues, pharmacists became more involved in the process of drug therapy, increasingly acting in a consultancy capacity as a "clinical pharmacist". Hospital pharmacists, working in optimal organizational units of upwards of 15 pharmacists, began to specialize both in clinical areas e.g. paediatrics, renal, etc. and in pharmaceutical areas, e.g. drug information.

By 1988, the Department of Health decreed that the policy aims for hospital pharmaceutical services were "the achievements of better patient care and financial savings through the more cost effective use of medicines and improved use of pharmaceutical

expertise obtained by implementing a clinical pharmacy service". "Clinical pharmacy" was described in the policy statement as the systematic application of pharmaceutical skills to medicine usage both at the policy-making level and in the treatment of individual patients.

In order to maximize the pharmaceutical contribution to drug therapy, two strategic manoeuvres were necessary;

i) The delegation of distributive and preparative tasks, including dispensing, to well qualified technical staff, and

ii) The extension of the knowledge and skill base of hospital pharmacists to develop new levels of competency in drug therapy.

Since the mid-80's most schools of pharmacy have provided postgraduate taught programmes Diploma or Master's - in Clinical Pharmacy/Hospital Pharmacy/Pharmacy Practice. However there is no legal or professional requirement to hold a postgraduate equalification in order to practise as a clinical or hospital pharmacist.

Health Reforms and Medicines Management

In the period 1989-91 fundamental reforms were made to the organization, structure and the NHS, although services remained free at the point of delivery, except where prescription charges were levied.

Of particular note was the introduction of an internal market, in which health authorities determine the health care need of the population that they serve, and then purchase the necessary provision from primary and secondary care providers, including private hospitals, on the basis of comparable quality and competitive cost. The effect has been to stimulate new configurations of multidisciplinary providers, new packages of care and niche specialist providers within the NHS.

The second major change was a shift of emphasis away from secondary to primary care, and the influence of hospital doctors and managers, to general practitioners.

Since 1991, there has been a strong nationally coordinated drive to improve the cost effectiveness of prescribing primary care throughout the UK. This has involved setting annual prescribing budgets for all NHS medical practices (normally comprising three to four general practitioners (family physicians), the establishment of a National Prescribing Centre to coordinate the implementation of the policy, and more importantly - in the context of this paper - the appointment of pharmaceutical advisors to each of the 100 health authorities responsible for purchasing health care. It is these pharmaceutical officers who armed with detailed comparative prescribing statistics of individual GP practices and demographic profiles of the communities served, that have been charged with negotiating improvements in prescribing in primary care.

More recently the scope and operation of these medicines management functions has become broader and more strategic. For instance, pharmaceutical advisors now act as facilitators in developing the "disease management" culture, formulating prescribing guidelines that encompass both primary and "secondary care.

These organizational reforms have also had a significant impact on professional relationships within primary care. In the traditional mode, the GP - a partner in the practice - and the (generally employee) community pharmacist work in professional isolation from one another as a result of their separate locations and constraining working arrangements. The roles were clearly demarcated with the GP diagnosing and prescribing for "his/her" patients and the pharmacist dispensing according to the physician's instructions. Now as a result of the creation of pharmaceutical advisors who mostly come from hospital backgrounds, and are accustomed to a collegial relationship with medical practitioners and an assumed role in medicines management, GPs (like 25 years earlier in hospital medicine) are now looking increasingly to pharmacists to improve their medicines management.

Because pharmaceutical advisors - in terms of the population and number of practices for which they have overall budgetary responsibility - have limited capacity to review prescribing in individual GP practices, many other pharmacists are becoming involved in the process. Community pharmacists whose raison d'etre remains the supply of medicines, have been encouraged to provide medicines management expertise on a sessional consultant basis, and pharmaceutical partnerships are now appearing which specialize in consultancy services to primary care providers on medicine management.

Indeed the demand for medicines management in primary care had led to the emergence of a second new model of practice, that is the GP practice-based pharmacist or primary care pharmacist (PCP), who works, full or part-time in the practice as a drug therapist and medicines manager.

Primary Care Pharmacists (PCP)

In 1995 an average GP prescribed approximately US$ 250 000 worth of medicines under the NHS annually. The purpose of the PCP is to optimise the effectiveness and efficiency of drug therapy within these practices. Commonly the starting point is the development and implementation of an evidence-based practice formulary, using pharmacoeconomic evaluations as a basis, to provide a reference framework for prescribing in primary care.

However, between 70-80% of prescriptions in primary care in the UK are for "repeat prescriptions", i.e. continuing medication for chronic or episodic conditions. Much of the PCP's effort is therefore also directed at such activity. They are responsible for

reviewing within practices, arrangements for long-term prescribing, undertaking individual patient medication reviews and running, within guidelines, their own specialist clinics to review and adjust drug therapy.

Although the PCP model has only emerged within the last three years, already several hundred pharmacists are engaged in this mode of practice. Many are ex-hospital pharmacists and most are remunerated directly from the practice's NHS funds, in the same way as practice nurses and other therapists. As yet there is no specialist educational or advanced certification requirement to practice as a PCP although many have postgraduate clinical qualifications..

The current role of the Pharmaceutical Advisor

In many situations, the roles of the pharmaceutical advisors have now evolved to be "pharmaceutical specialists in public health". In short they have become responsible for determining the pharmaceutical - including drug therapy - needs of the population they serve and ensuring that these are most effectively and efficiently met by making necessary arrangements through the range of primary and secondary care providers, to commission appropriate services or packages of care from them. This will involve establishing administrative machinery to ensure that drug choice in primary care is national and cost effective, and where possible evidence-based; drug therapy policies between primary and secondary care are consistent; the use of 'high-tech" medicines, e.g. β-interferon, are rationed appropriately, and the pharmaceutical service needs of specialist client groups, e.g. narcotic abusers, are addressed.

Hospital Pharmacy Today

Hospital pharmacists are responsible for the delivery of pharmaceutical services to the level's of efficiency and quality within secondary care agreed with the purchasing health authority. The management of most hospitals is now organized on the basis of clinical business centres, e.g. mental health, woman's and child health, which are called "clinical directorates". Central pharmaceutical services are generally managed within one of these directorates, usually a clinical support directorate. Most hospitals retain a central pharmacy, although some have developed "satellite" pharmacies for distributive and preparative services. Clinical pharmacists are however attached to individual clinical directorates where they perform a similar range of duties in medicines management and pharmaceutical care to PCP's in primary care.

Community Pharmacy Today

This remains store-based under the NHS, and although dispensing remains the major NHS remunerated activity, policy makers continue to encourage community pharmacy to become more integrated and make a greater contribution to primary care in a variety of ways, viz. advising GPs on medicines management, reviewing the drug therapy of clients in residential homes, and maintenance of patient medication records.

Over the last decade there has been a substantial rise in the chain ownership of community pharmacies and within the last five years several hundred have opened within grocery supermarkets. Many in shopping areas are now open for 12-14 hours per day. How the pharmaceutical services in a particular community pharmacy develop, depends as much on the trading position of the owner as on the developments in primary care policy and practice.

Minor Ailments

Where community pharmacy is expected to take a lead is in the management of minor ailments. Currently many patients choose the NHS prescription route for accessing products which are available through community pharmacies, because they are exempt from prescription charges. However, Department of Health policy since 1996, is that the community pharmacy "should be the first port of call in the treatment of minor ailments. The policy is being run alongside a programme of deregulation of products from "prescription-only" status to "pharmacy" medicines. Consumers appear to welcome the availability of a wider range of medicines for direct purchase to treat a wider range of symptoms. Equally they expect community pharmacists to provide advice on the management of minor ailments and refer them to a GP if necessary. Consumer bodies however have been dissatisfied with the performance of community pharmacy in this area and research has shown great variation in the level and quality of advice provided. Despite the introduction 'of protocols in community pharmacy in 1995 and the requirement for the basic training of pharmacy assistants, more effort needs to be directed at knowledge and skills development and ensuring the reliability of community pharmacy in managing minor ailments. In the last five years several schools of pharmacy have introduced postgraduateDiploma courses in Community Pharmacy.

Supporting Developments

Clearly the focus of the practising pharmacist is moving towards the role of drug therapist and medicines manager. This does not mean that there is any less requirement for understanding the science and technology of drug action and delivery, but alongside the natural science curriculum, therapeutics and patient management have become equally important.

From September 1997 all Schools of Pharmacy will begin teaching a new four-year Mpharm, programme, with the first graduates appearing in 2001. This new programme demands a contribution from the population sciences - health economics, psychology, epidemiology, a foundation in clinical sciences as well as incorporating modern aspects of the natural sciences, e.g. molecular biology. It places an emphasis on effective communication, an awareness of public health and health systems, and patient contact.

The professional body is currently undertaking a strategic review of sustainable development for pharmacy practice in the UK, 'Pharmacy in a New Age". A seminal outcome of the process has been a report on pharmacy practice research and development

entitled, 'A New Age for Pharmacy Practice Research -. Promoting Evidence-Based Practice in Pharmacy. Apart from providing a strategic framework for pharmacy practice research and development, it informs both the academic pharmacy (and wider health services) community of the nature and status of pharmacy practice research and development. For this meeting, it also provides a focus through its definition of pharmacy practice:

> The application of the *knowledge and skills* of pharmacists, and the *infrastructure* of pharmacy, to meeting the *health needs* of the population. This should be performed in a manner which is equitable, effective, efficient, appropriate, acceptable and relevant, and which is *sustainable* in the commercial and other contexts in which pharmacy is practised.

THEME 1. THE IDEAL PROFILE OF THE PHARMACIST

Reaction from Japan
by A. Kawahara

I. In Japan, there are three institutions which largely determine the nature of pharmacy; the Japanese Pharmacist Association (under the supervision MHW), the universities of pharmacy (under the supervision of the Ministry of Education) and the of National Health Insurance Bodies (MHW governing) There are even 46 universities of pharmacy in Japan, of which 14 are national, three are prefectural and 29 are private. They graduate about 8000 students annually, of which 6000 are from private schools. In the case of Japan, graduates of pharmacy have the qualification for taking a national pharmacist examination implemented by MHW. Moreover, we have only one class of licence for pharmacists on a governmental basis, and pharmacist-like occupations such as technicians in European countries are never found in our country.

2. For a deep understanding of the position of pharmacists in Japan, I would first like to explain the historically unique background of pharmacists. The wave of westernization surged about 130 years ago. The Japanese government abolished the oriental medicine system and introduced a new physician qualification system based on modern western medicine. But, in order to delay preparing pharmacists, compared to preparing physicians, separation of dispensary from medical practice, which is common in most countries of the world, was not practised. As a result, the system of dispensing by physicians themselves has continued. But our separation is at present evolving gradually. Comparing between the UK and Japan, I need to state, as a large difference, that our rate of prescription practice is only 20% and outpatient care is still a major work in hospital service.

3. I have mentioned herein that our separation rate is going up, but there is still persistent resistance to write out prescriptions in the Japanese medical association. Consequently, in a considerable number of places, pharmacists focus their practice on selling OTC drugs rather than dispensing prescriptions. In Japan, in principle, only pharmacies and drug stores with pharmacists can sell medicines and the sale in retail stores is not permitted. However, the general needs for relaxing excessive regulations are growing and come into the movement of deregulation, so the JPA has a big concern about the movement. On the other hand, it is common for hospital pharmacists to carry out their practice in hospital pharmacies - mainly for outpatients, but their circumstances have been changing considerably because of the inflow of western information.

4. You might be surprised to know that it is estimated that there are 200 thousand pharmacists in Japan, of which 30% are community pharmacy pharmacists or hospital pharmacists, and the remainder are employed in industry, universities, and health services. Most pharmacies were owned by individual pharmacists, but company or chain store style pharmacies are increasing nowadays. Because of increasing prescriptions, traditional OTC-selling pharmacies in Japan are faced with having to change their

practice and some places where they cannot keep up with the change are being occupied by chain store pharmacies.

5. All hospitals in Japan focus on dealing with outpatients, so hospital pharmacies in Japan appear to carry out their practice as western community pharmacies do. However there are increasing hospitals with ward practising pharmacists in Japan, as well. The number of such hospitals is about 2500 of 10 000 and the number of pharmacists employed is estimated to be less than 3000. Therefore, clinical pharmacy is still immature in Japan and it will take more time to reach the western country level.

6. Consequently, in Japan, it is important to promote our separation of dispensary from medical practice and ward practice

Reaction from Chile
By Professor Ines Ruiz

Chile has a population of about 13 million people; it has five universities where pharmacy is taught, and 200 students graduate every year with the degree of Chemist-Pharmacist. The professional degree is the only requirement for working in the pharmaceutical industry, community and hospital pharmacies, clinical laboratories, university, regulatory agencies, and other related places. From 60 to 70 percent of pharmacists work in community pharmacies. These are private institutions regulated by some specific health laws. In Chile there are about 1300 community pharmacies, and they are independent or chain establishments.

Due to the present economic policies, hard competition exists on medicine prices. During the last 10 years this competition has meant that the population looks upon pharmacies as any other store, and medicines as any other goods. Consequently, people have the tendency to think that medical prescriptions restrict the consumers' rights, and pharmacists, who are almost all employees, tend to violate laws. Finally, the population uses unprescribed medicines that must be sold under prescription.

The National System of Health is composed of public and private institutions. The public system can be acceded by about the 70% of the population, and health care includes free medicines only for a limited number of people. Among the people there is permanent dissatisfaction in relation to the care received.

In order to prepare Chemist-Pharmacists, universities have favoured pure sciences over clinical activities. So even though all universities have included clinical pharmacy and other related subjects in their pharmacy curricula since 1972, most students do not like to work in community pharmacies. As work opportunities in community pharmacies are greater, the new pharmacists become easily frustrated.

Then in Chile, as in many other Latin American countries, it would be very important to develop pharmaceutical care. Pharmaceutical work would benefit many people that today have no access to health, the drugs would be used more rationally, the saved resources could be used to improve health promotion, and so on. But in this continent, the challenges for doing pharmaceutical care would have to be very different from those in developed countries. Community pharmacies, pharmacists's education, physicians's perception of pharmaceutical work, and the population's knowledge about drugs and their effects would all have to undergo profound changes.

In Chile, the general idea is to face challenges and try to walk towards pharmaceutical care. To this end, last year, the University of Chile signed a collaborative agreement with the Washington State University School of Pharmacy. The goals are to promote health care through the introduction and improvement of pharmaceutical care services,

including changes in educational programmes that will serve as models for pharmacy education and the delivery of pharmaceutical care services throughout Latin America.

Also, Farmacias Ahumada, the principal Chilean chain, together with the University of Chile, and Washington State School of Pharmacy, is participating in another collaborative programme bound to modify activities of pharmacists in order to do counselling of patients , and to improve and update pharmacists's knowledge and skills. From the end of 1996, and up to the end of 1997, the nearly 200 pharmacists working at Farmacias Ahumada will receive continued education given by people from both universities. Farmacias Ahumada's interest is to compete with other chains not only through medicine prices, but also through professional services. Also, five to six pharmacists will be intensively trained to perform pharmaceutical care of some specific patients, such as elderly people, diabetics, and hypertensives.

It is difficult to predict if changes will have a quick impact on the work of the Chilean pharmacists, but the University of Chile and the pharmaceutical body hope to arrive at the year 2000 offering better services to the Chilean population.

Perception the Profession Regarding Future Role
The Role of the Schools of Pharmacy in Responding to Social Need
By Professor Henri P. Manasse

An inextricable mutual linkage exists between the profession of pharmacy and the schools of pharmacy that prepare future pharmacists. The schools of pharmacy are the primary source of the profession of pharmacy's scientific and professional knowledge base, the skills required to practise the art and science of the profession and the values, attitudes, and behaviours related to the social and cultural norms of the profession. Schools of pharmacy serve as the source of the profession's workforce and as such, play a critical role in determining the quality and quantity of the members of the profession. It is therefore appropriate and compelling that a right fit exists between the needs of society with regard to pharmaceutical services and knowledge, the aspirations of the profession as a whole, and the capabilities and philosophical underpinnings of the faculty representing schools of pharmacy. While there are universal notions in these maxims, it should be noted that what follows below is largely drawn from the American experience.

In many respects, the capacity of the profession of pharmacy to meet societal needs (as complex and as broad as these may be) is a direct reflection of the capacity that the schools of pharmacy have to prepare a workforce that can meet these needs. This does not negate the efforts of the profession itself to appropriately and effectively educate and mentor its constituents. Rather, it places an extraordinary burden on the schools of pharmacy to carefully develop their philosophies of practice and science as well as construct educational processes that will assure the preparation of a cadre of professionals that can meet societal needs for the present and for some time in the future. In order to carry out this important social function, schools of pharmacy must work constructively with the profession of pharmacy and the public at large to clarify the philosophical framework that will serve as the guide for curricular construction, teaching processes and programmatic evaluations and improvements.

To say the least, this is a daunting challenge that requires significant leadership and institutional commitment. A faculty that is fully aware of its awesome social responsibility in these matters is a requisite. Moreover, effective communication channels between the leadership and faculty of schools of pharmacy, the profession of pharmacy and its constituents and societal leadership must exist. This tripartite force must then answer the question, "How can the schools of pharmacy most effectively meet the health needs of the public through the education and training of young pharmacists?" Schools of pharmacy have, in part, addressed some specific societal service needs by offering: 1) drug information services, 2) contractual relationships to offer direct pharmacy services to hospitals and clinics, 3) educational programmes for seniors and children, 4) poison control activities, 5) placing clinical faculty in practice sites and 6) offering scientific guidance to commissions, task forces and other groups requiring expertise of basic and clinical pharmaceutical scientists.

Commitments to higher education in the United States began as private efforts to prepare young people in the learned professions of medicine, law and religion as well as to provide a liberal education in the sciences and the arts. Largely reflecting the evolution of universities in the United Kingdom and Europe, these early universities responded to the developing needs of a young republic in the mid- 1700s - a republic that was still in revolution foment and experimenting with new approaches to the democratic ideal. Significant debate around the social purposes of higher education in a democracy was evident at the time and indeed still continues today. The philosophical arguments were largely centred around two major themes: should institutions of higher education be "reflective" or should they be "reconstructive" in their social intents. That is, should such institutions reflect the society and its values and related immediate needs or should institutions of higher education serve as the reconstructive tools of the society in which they serve as the major social institutions to bring about change and new futures? Additional arguments were focused on another aspect of social purpose, namely, should higher education be only for the privileged (e.g. a learned class) or should wider access be promoted so that a greater share of the citizenry could share in the largesse of intellectual prowess.

The answer to these critical questions of social purpose was in part answered in the United States by global economic events occurring in the mid-1800s; namely, the advent of the industrial revolution in England and Europe and the resulting impacts that these movements had on American domestic and global competitiveness. Coinciding with the period of American's Civil War (1860-1865), the United States Congress authorized the provision of federal lands to the states in exchange for state commitments to build and operate publicly funded institutions of higher education. Authorized by the Merrill Act, the formation of "land grant universities" in the states was energized by the social purpose of this legislation: to create knowledge in the sciences, arts and industrial arts, to prepare individuals in these respective domains of knowledge and to work effectively towards the development of an economically competitive nation, rooted in democratic ideals. Meeting this purpose, through the use of public funds therefore established a reconstructive social role for America's public universities.

Governance and operational aspects of these new public universities were left to the states - there was a purposive view that there would be no centralized federal government governance function. Hence, American universities were free to develop their own areas of concentration and commitments to disciples and fields of study. This is an important American higher education distinctive and has critical implications for the development of pharmacy education in the universities. Another distinctive, which is described later, is the voluntary and private approach to the development of and implementation of quality assurance standards through a process of accreditation that is widely applied in American higher education. Regional accrediting bodies serve as the quality assurance organizations for this purpose. For pharmacy education, the American Council on Pharmaceutical Education (ACPE) serves this role.

Early commitments to health professions education in the United States began with the private universities and included only the study of medicine. While the provision of health services with public funds began with the creation of the United States Public Health Services in the late 1700s, there was not a broad-based, publicly funded commitment to the preparation of health professionals across a wide-array of health professions until the late I800s and well into the 1930s. Social policy and publicly funded mandates for the preparation of health professionals in the United States is therefore a relatively new phenomenon. Indeed, it was not until the enactment of Medicare and Medicaid (publicly funded health insurance programmes for the elderly and indigent) in 1965, that major national policy for the creation of a health professions workforce was beginning to be formulated. These policies were largely driven by the demands that the new legislative enablements for health services to the elderly and the poor placed on the nation as a whole. Beginning in 1968 and lasting until 1981, federal funds were appropriated to universities and their respective health sciences colleges (including medicine, dentistry, nursing, pharmacy, public health, allied health, podiatry and veterinary, medicine) for facilities, curricular planning and reform, new instructional technologies and expanding the enrollments in all of the fields of study in the health sciences. The federal funds were required to be matched by state commitments to meet the national needs stimulated by the Medicare and Medicaid mandates. As a result of these national and state policies, the size and scope of the health professions workforce, including pharmacy, was substantially enlarged. New occupations, especially in the allied health areas, were also encouraged. In the case of pharmacy, in addition to expanding the size and scope of the workforce, planning for clinical pharmacy teaching was also mandated in the 1968 federal grant requirements.

In addition to responding to public policy mandates regarding the expansion of the health professions workforce, American universities with health sciences degree programmes have also attempted to respond to a variety of other societal needs. As might be expected, the degree and kind of responsiveness has been largely a result of local or state needs rather than broad-based national need. This is to be expected since most universities receiving public funds do so from state rather than federal sources. Commitments to primary care, community health, rural health services, telemedicine, preventive health care and patient education and the expansion of minority enrollments in health professions schools have been part of the health sciences unit agendas in public universities. A number of private universities have initiated such priorities well in order to be equally responsive to social need.

Formal pharmaceutical education began in the United States in 1821 when the Philadelphia College of Pharmacy and Sciences was founded as a private enterprise by pharmacy practitioners in the Philadelphia area. This school represented the first organized curriculum in pharmacy to be offered in the United States. It began (and continues to this day) as a free-standing school after being rebuffed by the University of Pennsylvania which opined that pharmacy was not a recognized discipline worthy of university studies nor was it compatible with the directions of the School of Medicine at this institution.

The United States presently has seventy-nine (79) schools of pharmacy. Four of these schools are free-standing institutions; that is, they are comprehensive schools that do not have a governance attachment to a university. Thirty-seven (37) schools are located in and are part of comprehensive health sciences centres in Universities. Of the seventy-nine schools, twenty-four (24) are part of private universities while the remainder are part of public universities.

In the fall of 1996, these schools enrolled a total of 33 059 students. During this academic year, 8003 students received undergraduate professional degrees in pharmacy. Of this number, 77 percent graduated with the Bachelors Degree in Pharmacy while the remainder received the Doctor of Pharmacy degree. In addition to offering undergraduate professional degree programmes, 60 schools of pharmacy also offer programmes leading to the Master of Science and Doctor of Philosophy in the various sub-disciplinary areas of the pharmaceutical sciences. The latter degree programmes are typically offered in collaboration with or under the supervision of the Graduate College of the University.

In order for graduates of the professional programmes in pharmacy to be licensed by the states to enter the practice of the profession, they must meet several qualifications, including a) graduating from an accredited programme b) passing a national licensure examination and c) meeting other requirements as stipulated in state law. Accreditation of the pharmacy programme is therefore a critical element of assuring the public that the programme meets minimum educational standards as promulgated by the American Council on Pharmaceutical Education (ACPE). The ACPE is presently in the process of finalizing a new set of standards which focus on the offering of only the Doctor of Pharmacy degree. It is the stated intent of the ACPE to only accredit Doctor of Pharmacy degree programmes by the year 2000; hence, requiring the phase out of the Bachelor of Science degree programme offerings in the United States.

While the policy shift in undergraduate professional education in American pharmacy has been a long and arduous consensus process, it also represents more a reconstructive than reflective social policy. Specifically, the articulation of new educational standards for Doctor of Pharmacy degree programmes represents certain and specific views about the nature and content of the pharmaceutical curriculum in the United States. It specifies a set of intended curricular outcomes that stress the clinical skills of pharmacists as they provide pharmaceutical care services to their patients in the American health care system. These standards also mandate a knowledge and skill base that will be utilized by pharmacist in meeting state and national health goals particularly as these relate to appropriate utilization of medicines by the American public. The standards are also reflective in their philosophy insofar as they attempt to respond to the more traditional needs of the public.

The adoption of the Doctor of Pharmacy degree as the minimum professional degree requirement in American pharmacy is one of the most important reconstructive acts that pharmacy education has taken in the latter part of the twentieth century. Following

previous decisions to move from a two-year programme to a three-year programme, from a three-year curriculum to a four-year degree programme and then from a four-year programme to a five year university course of study, the new directions that define a professional doctoral degree programme are hoped to advance the capabilities of the profession to meet increasing expectations in American society for enhancing the rational and appropriate use of medications in all settings of pharmacy practice. Indeed, right along with these movements has been a call in some sectors of the profession for expanded postgraduate education in the form of residencies and fellowships. This follows the medical model of education; that is, a provisional doctoral degree followed by a residency in the specialty areas of medicine. While the residency is not as yet a requirement for licensure and/or practice in pharmacy, there is an increasing pool of new graduates seeking residency training in the almost 400 accredited residency programmes presently available in the US.

The view of pharmacy's future by the profession might be characterized best from the perspective of Charles Dickens novel, *The Tale of Two Cities* in which the opening chapter begins with the line: "They were the best of times and they were the worst of times." The ever expanding role of pharmacists in clinically focused practices might represent the "best of times" while the continuing systems of a compensation model that is built on a commodity-based reimbursement system and shrinking profit margins community pharmacies might be best reflective of the "worst of times." Somewhere in the middle of these polar ends of present day realities of the profession, lies the vision of the professions future practice roles.

Major shifts in the methods and processes of medication distribution and the management of the drug supply in the United States are presently being seen. Increased mechanization of the prescription filling process, coupled with extensive application of computer technologies related to labelling, record keeping and creation of patient focused educational materials to accompany prescriptions, are contemporary trends that continue to evolve and refine. Along with these developments is the ever increasing need for pharmacists to provide direct to patient pharmaceutical care services in both the acute care and ambulatory care setting. New opportunities for pharmacists in the pharmaceutical industry, in the insurance industry, in the computer industry, the mail order pharmacy industry and other areas where the knowledge system of pharmacy can and should be applied also represent opportunities for pharmacy's future. The growing number and complexity of medicinal agents as well as their increased usage, particularly among the elderly, places strong demands in the US health care system for a large cadre of clinically competent practitioners. Additionally, there are several major disease areas that represent priority health challenges in the US (e.g. cardiovascular, diabetes, cancer, asthma, neurological). As more initiatives in the treatment of patients with these chronic diseases are brought forward, it goes without saying that more extensive medication treatment will be seen.

If history can be an indicator of the future with respect to the evolution of pharmacy practice in the US, it is probably safe to say that the profession will position itself so that

it continues to meet social needs. That positioning will be driven in part by market demands and in part by evolving social policy regarding the future of America's health care system. Positioning will as well be driven by effective academic leadership that is well attuned to pervading social need. It should be noted however, that appropriate positioning will not occur spontaneously. There must be a willingness and effective processes in place to achieve it.

Schools of pharmacy respond to social need within the traditional mission of America's institutions of higher education; namely, educating and training students in professional and graduate degree programmes, creating and disseminating new knowledge and providing a diverse and unique set of knowledge-based services to the profession and the public. As might be imagined, the intensity and scope of response to these areas of mission are dependant upon the school's fiscal, human and physical resources, as well as the mission and strategic direction of the university of which the school of pharmacy is part. As one surveys the seventy-nine schools of pharmacy in the US, there is evident diversity in the depth and breadth by which each school responds to social need in the context of its more traditional mission of education, research and service. This is a valued characteristic and indeed, represents a major strength of pharmacy education in the US.

In examining this question, one also needs to consider how social need for pharmacy's contributions are defined and determined. If the profession of pharmacy did not exist for example, how would the drug supply be managed and how would appropriate medication use be assured? Would other health professionals be able to meet these social needs or would a pharmacy-like occupation be created? What types of personnel would staff the various areas of the pharmaceutical manufacturing and distribution industry? Where would fundamental discoveries related to drug design, product formulation, pharmacology and pharmacodynamics and other applications of the pharmaceutical sciences occur?

The research missions of the various schools and colleges of pharmacy have been relatively well aligned with social needs. This is particularly true of those members of faculty who have competed effectively for grants and contracts from governmental research agencies that have established national basic science research priorities. Ranging from priorities in defence and national security to health priorities of the nation, a number of American schools of pharmacy have been competitive in garnering financial research support. Pharmaceutical scientists educated and trained in pharmacy programmes have also taken on leadership positions in the pharmaceutical industry, governmental laboratories and private research institutions. These have all been important contributions to meeting societal needs in the scientific and research sectors.

Schools of pharmacy in the United States have also educated and trained a workforce for pharmacy practice in its varied forms in an admirable manner. To be sure, the graduates of American schools of pharmacy have, for many decades, found career opportunities in an extensive array of venues. Consequently, the financial and professional rewards of an

intensive and competitive educational and licensure requirements have borne fruit for many pharmacists. But these outcomes do not tell the whole story.

For many reasons, some clear and others not well understood, the practitioner workforce in pharmacy is grossly underutilized. There are many health priorities in the United States that are not being met. These include acute and chronic diseases and ailments that could be positively affected by the application of the pharmacists' professional expertise. Likewise, there is marked inconsistency in the quality and quantity of professional skills applied by pharmacists to the care of patients in all settings of practice. Are these gaps and inconsistencies results of less optimal education offered by schools of pharmacy? The answer is likely to be equivocal; that is, while schools of pharmacy cannot wash their hands of their contribution to these problems, they also cannot bear the entire burden associated with these deficiencies. Other factors contributing to this challenge include restrictive laws, lack of value clarification within the profession itself about what its social purpose is, boundary challenges by other health occupations, perverse compensations systems, weaknesses in professional leadership and a lack of uniform and broadly applied standards of care.

Schools of pharmacy generally do not adhere to a consistent philosophy of practice and patient care and as a result there is little socialization focus on the development of the ethos and values associated with such a philosophy. Conflicts among faculty members with respect to the definition and application of a philosophy of practice are prevalent. The processes of education that are so prevalent in American pharmacy education today also augur against the development of a set of values and behaviours that are linked to a caring philosophy so necessary for the delivery of patient care services. Few faculty members work assiduously to be mentors to their charges during the formative stages of professional education. Even fewer faculty members are committed to the constant reform and renewal of pharmacy practice, say nothing of their own curricula.

The latter perspective may be harsh, particularly to those faculty members who are prominent and engaged in mentoring, applying high ideals and stimulating a reconstructive philosophy in education and practice. However, the realities of much of American pharmacy practice are ample evidence of the points previously asserted. High rates of morbidity and mortality associated with medication misadventures are a reality, inappropriate and missing consultation with patients and prescribers on appropriate medication prescribing and utilization are rampant and leadership for assuring improvements and quality enhancements in the medication use system in the United States is scarce. The current re-engineering and downsizing of many of America's health care institutions is beginning to show negative effects on quality of care and more specifically on the quality of pharmacy practice. Fundamental standards of patient safety are being violated when automated dispensing systems no longer rely on the quality checks traditionally provided by pharmacists. Basic standards of sterility and product quality are violated when pharmacists are not directly involved in the preparation of small and large volume parental agents. Long standing societal covenantal commitments are skirted when patients are handed their medications by clerks and are not privately

consulted by the pharmacist on the premises. There is indeed a significant gap between what pharmacy education preaches, what pharmacy practice aspires and advocates and the realities of a competitive marketplace in which quality and cost oftentimes negatively compete. While some examples of progress are evident in these regards, substantial challenges still remain.

This paper has been constructed to stimulated discussion, critical analysis and planning. A specific attempt has been made to put forward a number of themes and issues that are not often discussed or acted upon by educational leaders in pharmacy. It is hoped therefore, that a broader view of the linkage between social need and the philosophy, purpose and calling of higher education in pharmacy might emerge. It is clear from the American experience that the role and utilization of the pharmacist as strictly a purveyor of drug products and sundries is time limited. It is equally clear that societies depend on and are owed a rational system for effectively utilizing the applied knowledge of the science and art of pharmacy's time honoured disciplinary strengths. The search for consistent quality in the offering of pharmaceutical services, equity in geographic and economic access to pharmaceuticals and the services of the pharmacist and demonstrated relationships between efficiency and quality still continues. This is America's challenge and a challenge that is evident in many other parts of the world.

Reaction from Canada
By Professor Pierre-Paul Leblanc

Introduction

Dr Manasse has presented an excellent overview of the evolution of the universities and the health care system in the United States and on how the profession and the schools of pharmacy have responded to social need. In my response, I would like to expand the content of Dr Manasse's document by identifying some trends in health care delivery and pharmaceutical services and on how the schools of pharmacy can respond to these trends. My response reflects the Canadian point of view which is not very different from the American one, except that Canada offers its citizens a universal health care coverage supported and financed mainly by the federal and provincial governments.

Trends in Health Care Delivery

The financial limitations imposed by large national debt bring a decrease and a rationalization in the expenses for health care. The restructuring of the health care system and of the institutions will favour the development of a community-based health care system in which the community pharmacist can play an important role because of its availability and its capacity to respond to primary health care problems.

Technology will make available new dosage forms and new biotechnology products which will require from the pharmacist new skills in the conservation, distribution and administration of these products.

Communication and information technology will change considerably the way physicians prescribe, the way pharmacists provide pharmaceutical services and the way pharmacists update their skills and competencies through long distance learning. The amount of biomedical knowledge is now so large and its accessibility increased so much by the information technology, namely Internet, that health professionals have to work together in teams to provide the best health care services to the patients.

The ageing of the population, at least in the developed countries, will change the priorities of health care. Chronic diseases and drug use will increase.

Responses of University And Profession

Education

Our pharmacy graduates must develop life-long learning abilities considering the rapid expansion of knowledge in the biomedical sciences and its accessibility by the

information technology. Student-centred approach in education can best provide these life-long learning abilities.

The schools of pharmacy and the profession should put emphasis on community-based pharmaceutical services in response to the trends mentioned earlier and on pharmaceutical services to the elderly.

Interdisciplinary training is a necessity considering the extent of biomedical knowledge and the diversity of health care professionals.

Our students and pharmacists, through continuing education, should receive a good formation in pharmaceutical biotechnology to optimize the use of the new dosage forms and the new biotechnology products. They should also be familiar with the information and communication technology so that they can use it to provide pharmaceutical services and for long distance learning.

Research

Research in pharmacy practice should be developed to optimize pharmaceutical care.

Service

Universities should be involved in international collaboration to improve the level of pharmaceutical services in every country.

Conclusion

As mentioned by Dr Manasse, the university should have a "reconstructive" approach to pharmaceutical services to support the profession in implementing through continuing education the new skills required from the pharmacists.

The communication and information technology has a great impact on pharmacy practice and continuing education and can be a powerful tool to help developing countries improve the level of pharmaceutical services.

Reaction from Thailand
By Professor Sauwakon Ratanawijistrasin

A profession emerges in a society when it fulfils a set of new roles demanded by that society. These roles exist in a dynamic environment within which they are continuously redefined by the changing need of the society. The societal responsiveness of a profession. in turn, determines the very existence and the nature of the profession over time.

The profession of pharmacy has evolved in an ever-changing environment. Changes in the profession occurred in the US, in Thailand, and in other countries with the schools of pharmacy as a leading force. As Dr Manasse points out, schools of pharmacy play a critical role in determining the quality and quantity of the members the profession, and thus, the capacity of the profession of pharmacy to meet societal needs depends on the capacity that the schools have to prepare the workforce that can meet these needs.

Education is an enterprise for the future.. It takes years from the time a new role is envisioned to development of a new curriculum, to the teaching processes, to the time when the graduates under a new curriculum enter the workforce, and to the time the impact of change materializes. Hence, a change made today in the enterprise of education will be realized only after many years. As a consequence, the university must take a reconstructive role in order for the profession to be responsive to the change in its environment.

The history traced by Dr Manasse provides valuable examples of the roles the schools of pharmacy in the United States have played in shaping the nature of the profession. The recent policy shift in undergraduate professional education from Bachelors Degree in Pharmacy to accredit only Doctor of Pharmacy degree programmes by the turn of the century is a profound example of the university's reconstructive role. The ACPE's move demonstrates how a well-established collective body of pharmacy education with strong leadership and committment can foster change in the future of a profession. The long process of the articulation of the policy towards clinical pharmacy also reflects careful consideration of trends in societal needs and the accumulation of around two decades of experience since clinical pharmacy teaching was first mandated as part of federal grant requirements. The reconstructive perspective and the process of bringing about this major shift in the policy provides valuable experience from which one can learn how institutions of professional education define values and determine the future of the profession.

Since pharmacy education was established in Thailand 84 years ago, the schools of pharmacy have prepared a generalist workforce to build the nation's pharmaceutical industry, to fill the various pharmacy functions in hospitals and community pharmacies, and to forge consumer protection of pharmaceuticals. Increasingly, pharmacist roles in

clinical drug use have been recognized and performed in a number of hospitals. This new clinical role coexists with, rather than replaces, other more traditional roles. As a result, today the roles of pharmacist in this country have become more diverse than before. The nation's drug policy goals - to make quality drugs available and affordable; to promote rational drug use, and to achieve national self reliance in pharmaceutical production - present the pharmacy profession with a multitude of demands. How well the profession can meet and shape this wide range of demands depends on the capacity of pharmacy education to define societal values and to prepare a competent and conscientious workforce for the society. It remains a tremendous challenge for the university and the pharmacy profession in Thailand to recognize trends in the demand made by the society and to identify the direction for the future of the profession.

Adapting Education today for Needs of Tomorrow: Experiences in the USA and the Americas

By Professor Carl E. Trinca

This paper describes how pharmaceutical educators in the Americas are adapting today for the future needs of their people. As in other parts of the world, it is difficult to generalize, and often chauvinistic to interpret and/or impose one country's experiences upon another's. For this reason, I have chosen to divide this assignment into two parts: a case study about the United States (of which I know the most about its health care needs and aspirations), and some remarks about how pharmaceutical educators are working as equal partners throughout the Americas to improve the quality of pharmaceutical services and the educational preparation of future pharmacists.

A Case Study of the United States: Building a Secure Future While Avoiding Double Jeopardy

Health care in the United States is a one trillion dollar business, or nearly 15 percent of the nation's gross domestic product; over $3500 in health care costs are expended annually for every man, woman and child, while no other nation in the world spends more than $2000 per person (although Canada may be nipping on our heals). It is a business which employs one out of every 11 Americans. But in spite of its resources in dollars, workforce, talent, and technology, over 15 percent of the US population, or 45 million people (and one million more people each month) do not have an insurance plan for regular health care.

Over five years ago, when the Administrative Branch of our Federal government began in earnest to reform the health care system, President Clinton focused on three themes: access, cost and quality. Finally, it appeared, the American public's long, unquestioning love affair with unlimited growth, and proliferation and utilization of the technologies of treatment, had been chastened with the idea that limits, of both an economic and humane nature, are not only necessary but desirable. Although governmental efforts at the national level failed miserably, some states proposed and are still implementing bold new steps to improve the individual's access to quality, cost effective health care. And, as one would expect in a free-market economy, the market appears to be the short-term winner, zeroing-in on cost and attempting to squeeze every excess provider dollar out of the system while guaranteeing fat returns on the investments of their shareholders. But, even these forces are sporadic and regional in nature. Some parts of the United States, such as California, have virtually all its insured population covered by some form of managed care; other states are virtually untouched to date; while most states find themselves somewhere in between. Equally important is the movement of Federally supported care for the indigent (e.g., Medicaid), the elderly (e.g., Medicare) and active and retired military (e.g., CHAMPUS do to base closings, the Department of Veterans Affairs) toward highly managed care delivery systems.

The impacts of this brief scenario have had profound influence on the delivery of health care in the United States, and has begun to effect the education and training of health professionals, including pharmacists. According to the Pew Health Professions Commission, and now others, it may ultimately affect the number of graduates, and their distribution within the workforce, by downsizing programmes and shifting away from specialization to primary care and mid-level professionals, such as nurse practitioners and physician assistants. Unfortunately, the story does not end here.

Today, these same three themes, perhaps packaged slightly differently for the academic temperament, are emerging in the world of higher education: accessibility, affordability and quality. Most in the academy simply prefer to view these themes as mere inconveniences, something for the amusement of administrators. Others take them more seriously, but have limited their view to the Federal government's concerns over accreditation, and the states' concerns over funding, faculty productivity, and educational outcomes. But the real sleeper, just as in health care, is the market. More and more, the public in general and employers more specifically are dissatisfied with the products of higher education. It takes too long, costs too much, produces the wrong set of knowledge and skills, and is too confining for innovation and experimentation. Many businesses claim the need of retraining the new graduate immediately upon hiring, and have established their own in-house educational centres. Entrepreneurs such as the University of Phoenix, Mind Extension University and Microsoft University have entered the sacred world of higher education, and are bringing the vision of the virtual university to reality. California higher education, including the University of California, California State University and California Community College systems is the largest, best funded, and possibly the most productive in the world. Yet talk among the system's presidents and chancellors reflect the concern that one of these days companies such as Microsoft, PacTel and IBM will join together as a consortium, approach the governor of the state of California, and bid on the delivery of all higher education in the state. Effectively, this has the ability to put our world-class universities out of business. And California isn't that special. What I have just described can now, virtually, occur anywhere in the world.

Health professions education is an easy target for the consequences implied by these two scenarios; as pharmaceutical educators, we can avoid double jeopardy by our ability to respond satisfactorily to our stakeholders' concerns over access, cost and quality of health care and education.

Fortunately, the United States began preparing for the future education of pharmacists long before health care reform began, and even before we recognized the power of market forces on the educational systems which prepare health professionals. Fortunately pharmaceutical education also chose several innovative methods in addressing its future since our professional and educational literature remains relatively shallow, somewhat redundant, and mostly unsubstantiated.

In 1984, 1989 and 1994 profession-wide strategic planning conferences were convened under the theme, *Pharmacy in the 21st Century.* Notably, it was during the 1989 conference that Doug Hepler introduced his vision for pharmaceutical care. The first Pew Health Professions Commission was established in 1989. The year 1989 also marked the beginning of the American Council on Pharmaceutical Education's proposal to change the entry-level degree in pharmacy from the baccalaureate to the doctor of pharmacy (Pharm.D.) and to revise the accreditation standards and guidelines for educational programmes in pharmacy. Importantly, 1989 also marked the beginning of the work of the American Association of Colleges of Pharmacy's Commission to Implement Change in Pharmaceutical Education. Henri Manasse was president of AACP in1989. And, last but certainly not least, 1989 also marks the date of the first planning meeting for the Pan American Conference on Pharmaceutical Education. We will return to this activity later.

Many of you are already familiar with AACP's Commission to Implement Change in Pharmaceutical Education and its observations and recommendations. For those of you who are not, I would be pleased to see that you receive copies of all reports and follow-up activities. For all of you, however, I think it would still be useful to view the enduring quality of the Commission's work some eight years after its inception.

Much of the Commission's success can be attributed to the dedicated and visionary individuals who offered many hours of their time to ensure a quality, user-friendly report. From its outset, the report was intended to be a road map, a path to the future; it was not intended to sit on a shelf, collecting dust. As you in your own countries attempt to prepare for the future, this and the following lessons I learned from the Commission's work may be helpful. Second, the Commission took logical pauses in its work to present, discuss and debate its findings with pharmaceutical educators and the profession. It did not proceed until critical elements were approved by AACP's membership. Third, the Commission began at the beginning. It proposed a mission statement for pharmaceutical educationwhich derived from the profession's view of itself. The mission statement established both a direction and paradigm for pharmaceutical education's evolution; simply, the first paragraph reads:

> Pharmaceutical education is responsible for preparing students to enter into the practice of pharmacy and to function as professionals and informed citizens in a changing health care system. It is responsible for generating and disseminating new knowledge about drugs and about pharmaceutical care systems.

Fourth, the Commission examined the curriculum, but not in the typical way. Rather than propose course work, it stressed desired curricular outcomes expressed as competencies. Rather than limit these competencies to conceptual competence (the ability to understand the theoretical foundations of the profession) and technical competence (the ability to perform skills required in the profession), it ventured to propose integrative competence (the ability to think critically; communicate effectively; and possess aesthetic sensitivity, professional ethics, professional identity, and leadership)

and career marketability (as exhibited by adaptive competence, the scholarly concern for improvement, and motivation for continued learning). The Commission also believed that the process of education is fundamental to future learning; that is, formal lectures are too confining and must be supplemented with developmental discussions, simulations, faculty and student interaction, early practice experiences, presentation, and assessment methods which offer opportunities for self- and peer-evaluation. Fifth, the Commission made specific recommendations about how pharmaceutical education should change in order to prepare for the future practice of pharmacy in the United States - how education can be both proactive and responsive to contemporary market needs. Sixth, the Commission was not afraid to subject its work to repeated scrutiny even after its work was apparently complete. In 1996, it published an updated version of its work in the context of a health care system which had undergone dramatic changes since 1989. Overall, the original observations and recommendations of the Commission stood the test of time; the major emphasis of the updated report focused on better defining the health care environment or market, and the mandate to proceed with implementing institutional change at an even more rapid pace. And finally, the Commission and ACP's leadership committed to an ongoing process of schools helping schools, faculty helping faculty, administrators helping administrators, via the Association's Center for the Advancement of Pharmaceutical Education, or CAPE. CAPE's basic function is to work with schools in helping them to bring about the recommendations of the Commission through a planned process of institutional change.

In addition to this interpretation of the Commission's successes, I would like to offer several additional observations you might find helpful in your own countries. First, pharmacy tends to be insular. We talk to ourselves, we complain to ourselves, we attend meetings with other pharmacists, most of us practice in pharmacies isolated from other health care professionals. The same applies to pharmacy educators. As you design your educational outcomes, think beyond our current paradigm; we don't want to burden the future practices of our students with our parochialism. For example, in borrowing from my work as a Pew Health Professions Commissioner, I have learned that all health professionals, including pharmacists, must have certain core competencies: the ability to care for the community's health; to emphasize primary care; to participate in coordinated care; to ensure cost-effective care; to practice prevention and health promotion; to involve patients and families in the decision-making process; to promote health lifestyles; to assess and use technology properly; to work to improve the health care system; to manage information; to understand the role of the physical environment; to provide culturally sensitive care; and to be accountable at all levels. Defining and implementing these competencies provide pharmaceutical educators with a wonderful opportunity to interact with other educators, both within the health professions and within the social/behavioural and management sciences. Beyond these competencies, however, there are issues of multi- and cross-disciplinary student learning, faculty collaboration in practice and research, and a multitude of other opportunities we have been sloth in exploiting.

Second, a portion of my current responsibilities at Western University of Health Sciences demands that I plan strategically for the university. In that capacity, I offer several

observations about the market's impact on a health sciences university, and equally, a school or faculty of pharmacy:

1. **As a result of market change, health science universities must dramatically reinvent themselves in order to remain financially viable and accomplish the mission of education, scholarship, patient care and public service.** Ownership of university enterprises, governance, organization and leadership must support and enhance a game plan that meets the demands of the new health care market. Those market demands include: speed and decisiveness, ability to take and manage risk, primary care capacity, unified response, collaboration, and demonstrated value. We must constantly examine and redefine the delicate balance between our responsibility to prepare the educated person against the market's demand for contemporary knowledge and skills.

2. **No single structure guarantees success for all health science universities; however, every one should create an organization with common elements.** Given the complex and rapidly changing environment, the university must develop mechanisms that can adapt easily when necessary. This usually translates into flatter, less complex structures from staff through faculty through administration.

3. **Leadership, at all levels, is the critical variable in managing change.** Leaders must be comfortable having and using the same skills required in industry, such as understanding and following the market environment; defining and communicating a common vision; rewarding risk-taking behaviour; building trust; building external relationships; recruiting excellent people; and being politically savvy, consistent, disciplined and focused.

4. **Health science universities must capitalize on what should be a competitive advantage by linking health care providers and delivery systems into an integrated clinical enterprise.** Speed, productivity, flexibility and the ability to resolve critical problems facing the health care delivery system are paramount. Institutional and provider (teacher and clinician) behaviour need to be better aligned through gain sharing and other methods.

5. **Effective governance is essential for mission fulfilment and market competitiveness.** A bias for action must be supported. Whether the non-governmental governing board model characteristic of higher education in the United States, or the governmental influences of a Minister of Education present in many of your countries, individuals in such positions should be selected to provide the skills required to operate in the current health care and education environments and should have the stature necessary to add value to external relationships. They must understand and support strategic initiatives while providing considerable operating freedom.

6. **The university should strive for distinctiveness.** It is no longer sufficient to be just another health science university, or to maintain a broad-based mission as "a claim

to fame." The university must be distinctive in word and deed. The institutional mission, strategies and values of the institution should support this distinctiveness. Each academic unit must also be distinctive in a manner which supports the university. Teaching, scholarly activity, patient care, administration and public service are all areas which can benefit from innovation, experimentation, discarding ineffective practices and evaluation.

7. **Planning must be well conceived, supported, broad-based in participation and impact, and communicated.** A direct relationship should exist between planning and budgeting, and planning and the setting of priorities. Incentives should be in place to allow the institution to test new ideas, fast track needed initiatives, guard against job loss, ensure continued public recognition, and evaluate longstanding practices. Planners should seek information and feedback from the grassroots; all planning actions must be communicated widely.

8. **Expertise must be available to implement change**. The institution must invest in its priorities, whether such investment constitutes human resources, physical resources, fiscal resources or infrastructure. Such investments should be communicated in the context of overall university mission and strategies.

Strategies we are using to address mandates of the market are partnerships and strategic alliances, including those with an international impact; the more effective use of educational technologies; redefining our non-tuition sources of revenue; and assisting our alumni in assuring their continued prosperity as health professionals through continuing professional education and other life long learning opportunities.

I sincerely believe that these methods have value and are transferable to anywhere in the world, which segues nicely into the second part of my assignment.

A Case Study of the Americas: Working Together to Improve Pharmaceutical Care

You will recall that 1989 was a seminal year for pharmaceutical education in the United States; I would like to believe that it was also the beginning of new era of cooperation between pharmaceutical educators throughout the Americas. In 1989 the Pan American Health Organization (PAHO), leaders in pharmaceutical education throughout the Americas, and the American Association of Colleges of Pharmacy joined together in Washington, DC to plan the First Pan American Conference on Pharmaceutical Education. Meeting in Miami in January 1990, conference delegates representing 22 countries began to explore common goals and aspirations for our profession and the education of future practitioners. As a result, a *Declaration of Principles* was adopted. The principles supported the World Health Organization's agenda for Health for All by the Year 2000, defined the primary care role of the pharmacist as a member of the health care team and expert in medication use, and promoted international cooperation and exchange among schools of pharmacy. Three years later in Ixtapa, our Mexican colleagues hosted the second Pan American Conference. The result of this conference

was the adoption of a mission statement for pharmaceutical education in the Americas. The statement provided a planning framework for individual faculties and countries to pursue a common goal while remaining sensitive to the unique social, political and/or economic conditions which exist in the Americas. The statement also provided the elements of a pharmaceutical education which serve to drive curricular development. Proceedings of both conferences were published in Spanish and English and contain these two documents. Almost one year ago, in Buenos Aires, the pharmaceutical educators of Argentina hosted a third conference. The resulting declaration established a Pan American Commission on Pharmaceutical Education with delegates from each country in the Americas with a charge to produce a directory of institutional and human resources, including course work and consultantships, for the purpose of facilitating academic exchanges and the development of research and teaching projects at the professional and graduate levels; to develop and promote strategies aimed at improving educational processes, curricular reform, and leadership and management development; to exchange information on legislation and regulation affecting pharmacy and pharmaceutical education; and to plan and share continuing professional education opportunities. The declaration also set in motion the planning for a fourth conference to be held in Chile within three years.

As a result of these actions over the past 8 years, we have created a model for collaboration and sharing. Supported by this model are numerous other activities driven by many competing forces including social, political, economic and financial. The challenges and opportunities afforded Mexico, Canada and the United States as we jointly explore the implications of the North American Free Trade Agreement is but one example. These same lessons in the Americas will undoubtedly apply to our interpretation and implementation of the provisions of our GATT (General Agreement on Tariffs and Trade) treaties.

In summary, many good examples exist world-wide which will prove invaluable on our quest to prepare highly qualified, talented and adaptable pharmacists for the future. It all begins with the educational process, but more than ever, education is becoming a life-long prerequisite for continued professional and personal success. We don't, nor should we ever, take our responsibilities lightly. We must, however, look beyond our ivory towers to other health professions educators, our students and their employers as we seek to find new ways to meet the challenges facing health care and health professions education in the 21st century.

THEME 3. ADAPTING TODAY THE EDUCATION FOR FUTURE NEEDS

Reaction from France
By Professor J.-M. Aiache

In the European tradition, the employment by pharmaceutical companies of pharmacists with university degrees has always been an absolute requirement and without such pharmacists a company is not allowed to operate. However, slowly, with the increasing place of analytical chemistry for controlling raw materials and drug products; the increased use of automatic manufacturing systems and /or the use of sophisticated production areas or technologies; and the importance of marketing, business and human management, over the past 20 years, instead of pharmacists, pharmaceutical companies have recruited persons called specialists in one of these areas such as:

- chemists for analytical chemistry
- engineers for automatic manufacturing systems
- businessman from commercial schools for marketing and management

Therefore the role, together with the number of pharmacists in pharmaceutical companies, is decreasing in such a way that the question has been asked: do we need pharmacists ?

The European Commission, in a special document, describes the places of pharmacists in industry. Among them the most important are:

- drug and drug dosage form development
- control
- quality control and quality insurance
- manufacturing
- wholesaler for community pharmacists
- marketing
- toxicology and pharmacovigilence

At the same time the European Union (EU) describes as a "competent person" someone who can assume "responsibility" in a pharmaceutical company. This is the most important role in the company because the competent person has the ability to release a batch of a drug product for sale to patients . Who must be, or can be, in charge of this duty? A pharmacist responsible, with and thanks to his diploma (but who has not done the actual work, which has been carried out by a chemist or a technician under the control of a chemist), or the person (chemist, engineer) who is in direct contact with the technician ? In France the pharmacist is "responsible" and is considered as the competent person for batch release (the authority to say "yes " or "no ") based purely on scientific and experience criteria and with complete independence. Can a non-pharmacist but competent person assume the same responsibility ? Probably yes, depending on his/her knowledge area and or degree! Thus, many schools of pharmacy

in Europe are proposing to those students interested in an industrial career (which is a good and well-paid job) either a pre-graduate formation (during more or less two years) with six-months practical training, according to a programme covering all items necessary to enter a pharmaceutical company whatever the position proposed, so that they are considered directly as competent persons, or postgraduate formation (in specialized institutes or not!) as an educational complement paid by the student him/herself, or as continuing education paid by the company. Some programmes have been presented during the FIP congress in Jerusalem in 1996 and the presentations will be included in the July 1997 issue of the Journal of the American Association of Colleges of Pharmacy (AACP).

The most important subjects of these programmes are regulatory affairs (for obtaining a marketing authorization) and specialized teaching programmes taught by professionals on new manufacturing processes and drug development including toxicological and pharmacokinetic considerations.

THEME 3. ADAPTING TODAY THE EDUCATION FOR FUTURE NEEDS

Reaction from Russia
By Professor Alexander P. Arzamascev

Socio-economic changes of the transition period and the following disintegration of the pharmaceutical industry, together with decentralization of pharmaceutical services and the drug supply system, were the reasons which forced the revision of existing pharmaceutical education in this country.

At present, as we face constantly increased numbers of pharmacies, as well as wholesale organizations of a different status - moving from municipal to private - the alternative pharmaceutical services are being developed with their own supply centres and pharmacies. The total number of drugs is increasing constantly, from 3000 (1992) to more than 10 000 (1996), mainly as imported drugs. A Scheme for certification of pharmaceutical activities was introduced, as well as for the quality of medicaments. Under these circumstances the need for new, professionally-oriented scientists is evident. Certain regions, to which many federal functions concerning health care and pharmaceutical care were shifted, express their intention to have new schools of pharmacy.

That is why the licensing, attestation and accreditation procedures came into force for all educational institutions. At the same time a new educational standard for pharmacists was adopted by the Ministry of Education and the Ministry of Health. The latter is still responsible for medical and pharmaceutical education. This document provides the minimum volume of disciplines for five years of study (as was before) but adds a possible extra year of education for a certificate.

All teaching programmes were revised by 1996 with emphasis on the integration competence of the future specialist and the ability to adapt him/herself to a new economic situation. It is understood that the programme for Pharmacy Administration has undergone the most drastic changes. A certain increase in the volume of medico-biological sciences did not create difficulties as the Faculty is part of Medical Academy. This gives an opportunity to coordinate the education of common disciplines (pharmacology, clinical pharmacology, etc.)

Major problems still exist in the field of training of pharmaceutical personnel even though traditionally a system for professional refresher training existed in this country. As from 1995, all freshly graduated, and also already practicing pharmacists, have to undergo specialization for at least one year in either pharmaceutical technology, pharmaceutical chemistry and pharmacognosy, or community pharmacy (including administration, economy, etc.) after which they obtain a certificate . The latter is necessary for obtaining a licence and the certification (after a refresher course) and licencing procedures have to be repeated every fifth year. At the same time education

of teachers of all categories mentioned above represents a special problem which deserves to be considered separately .

The Permanent Commission for Pharmaceutical Education of the Ministry of Health unites 14 schools of Pharmacy in Russia and is responsible for the curricula and educational process, including the unified education plan and teaching programmes. However each of the pharmaceutical institutes can introduce a new discipline within 25% of the plan concerned. Only the decision of the governing body (Counsel) is needed for this purpose.

WHAT COULD BE ANTICIPATED IN RUSSIA?

On the federal level:

- implementation of a new drug law through a system of regulations. in close accordance with the future development of health care and potential political, economic, and social changes,
- formulating a marketing strategy
- establishing a network of quality control centres, harmonization of requirements for production, purchasing, distribution and medical use of drugs

On the regional level

- formulation of appropriate regional priorities,
- development of pharmaceutical management and a new systems, including private pharmacies,
- establishing local manufacturing facilities,
- development of purchasing power through the compulsory medical insurance scheme.

We must also remember that many foreign students are obtaining their education in almost all countries of the world which, in our opinion, gives additional support for unification and harmonization of the pharmaceutical education. We hope that a document on change in pharmaceutical education will help us to enter the year 2000 with a certain optimism for our profession in the future.

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