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Basic Plan for Pharmaceutical Education

*(Working Group Proposal
Lima, Peru, 6-9 July 1998)**

* Organized jointly with the
Universidad Nacional Mayor de San Marcos/
School of Pharmacy and Biochemistry
Lima, Peru

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Division of Health Systems and Services Development (HSP)



Pan American Health Organization
World Health Organization

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1. BACKGROUND

A change is clearly taking place in the areas in which the professional pharmacist practices. The involvement of pharmacists in areas such as clinical and hospital pharmacy, and more recently, the acceptance of pharmaceutical care as a focus of professional practice, are influencing the educational process. In some cases, the reforms are sweeping and involve comprehensive changes in curriculum, while in others, perhaps more often, the changes consist of the inclusion of new subjects, modifications in content or programs, or a redistribution of the academic load by educational area. In many cases, the changes that are occurring focus on teaching methodologies, making them more practical and gearing the learning more to problem-solving and to developing communication and leadership skills in order to prepare pharmacists to assume greater responsibility for the results of their actions. These changes are occurring throughout the world—in Europe, Africa, Asia, the United States, and, of course, Latin America.

Meetings sponsored by the World Health Organization and the International Pharmaceutical Federation (FIP) focus on this subject, and documents and recommendations of interest to the Americas are being produced. One of the most important WHO-sponsored meetings on pharmaceutical education was the one held in New Delhi in 1988: *The Role of the Pharmacist in the Health Care System*. At this meeting, a conceptual document was produced that discussed the availability of these professionals and their responsibility as part of the health care team. A second meeting on the subject was held in 1993 in Tokyo, Japan, providing a follow-up to the recommendations of the New Delhi meeting and examining the responsibilities of the pharmacist in meeting patients' and the community's needs. The concept of pharmaceutical care served as the foundation for this meeting, which issued recommendations on pharmacy curricula. This meeting was followed by the annual meeting of the International Pharmaceutical Federation (FIP) where recommendations for developing Standards for Good Pharmacy Practice were adopted: *Standards for the Quality of Pharmaceutical Services*, also inspired by the concept of pharmaceutical care. These Standards for Good Pharmacy Practice were endorsed by the Pan American Pharmacy Federation (FEPAFAR) in 1994. The third in the series of meetings on the role of the pharmacist was held in Vancouver, Canada in 1997, which drafted recommendations for developing pharmacy curricula that would provide future pharmacists with the proper training, citing seven qualities (seven stars) that the professional pharmacist should have.

The documents produced at each meeting have been utilized in numerous activities (national, subregional, and regional seminars, workshops, and meetings) as reference tools for analyzing pharmaceutical education and professional practice in Latin American countries. This analysis is characterized by the range of approaches employed by the approximately 144 colleges and schools where pharmacy is studied. These institutions include schools of pharmacy, of chemistry and pharmacy, of biochemistry and pharmacy, and of chemistry, biochemistry, and pharmacy. The professional practice of pharmacy in some of the countries in the Region covers areas such as community pharmacy, the

countries, arriving at regional agreements. The general principle is a recognition that pharmacist are health care professionals with the responsibility of overseeing everything related to drugs, and that training institutions share the responsibility for making the pharmacist the professional with "the greatest knowledge of drugs and their effects." This knowledge begins with the very production of the raw materials necessary for manufacturing the products and does not end with their use, extending, rather, to the task of monitoring the results of the use of the drugs and determining whether the patient has received the desired therapeutic effect. Thus, pharmacists should be aware of their responsibility in helping to ensure that the patient receives the optimal therapeutic effect.

3. OBJECTIVES OF THE WORKING GROUP

The objective was to prepare a joint proposal for a basic curriculum for a course of studies in pharmacy and a series of recommendations in this regard.

This basic curriculum relates only to PHARMACY and the areas of common practice in the countries of the Region. Other areas, such as biochemistry, chemistry, food, cosmetics, toxicology, etc. should be considered by the specific teaching institutions in the countries where these disciplines are included as part of professional pharmacy practice.

4. METHODOLOGY

For the development of the plan, the group took the following steps:

- a) identification of the areas of professional pharmacy practice, by participating country, which, although to a different degrees, were experiencing a growth trend;
- b) analysis, in each area, of the current and future responsibilities of pharmacists;
- c) identification of the areas of knowledge needed to carry out these responsibilities, and estimation of their relative weight in the curricula;
- d) other supplementary recommendations on the subject.

5. AREAS OF PRACTICE WITH THE GREATEST GROWTH, BY PARTICIPATING COUNTRY

The main areas of professional pharmacy practice with the greatest growth potential over the next 20 years, by participating country, are detailed in Table 1. The common areas are:

- 1) Community pharmacy
- 2) Hospital pharmacy
- 3) The drug industry
- 4) Education and research

To a lesser extent, there was also agreement on the pharmacist's expanding participation in the field of public health, which encompasses professional areas related primarily to strengthening of the regulatory component, quality assurance, and drug surveillance. It was felt, however, that the other areas of practice mentioned earlier cover this field.

The most relevant areas identified as NOT being common to all countries include:

- Clinical laboratories
- Food
- Toxicology
- Cosmetics
- Chemistry

TABLE 1
Areas of Professional Practice, by Country

Country	Areas of Practice
ARGENTINA	Community pharmaceutical care Hospital pharmaceutical care Drug industry Cosmetics industry Pharmaceutical industry (synthetic drugs, active ingredients extracted from plants, biotechnology)
BRAZIL	Community pharmacy Clinical pharmacy Hospital pharmacy Food industry Drug industry Clinical laboratories Teaching and research Public health services Homeopathy Preparation of magistral formulas
CHILE	Community pharmacy (pharmacy offices) Hospital pharmacy Industry Education Food science Analytical laboratories (to a lesser extent than currently) Toxicology Biotechnology/gene therapy
COSTA RICA	Community pharmacy Hospital pharmacy Drug industry (production, quality control, medical visits, management of marketing and sales) Teaching and research
UNITED STATES OF AMERICA	Community pharmacy: pharmacy offices and outpatient pharmaceutical care centers (outpatient clinics). Hospital pharmacy Biotechnology Industry: drug information, medical visits and research Education and research Homeopathy Information technology Radiopharmacy
MEXICO	Pharmaceutical industry Community pharmacy Hospital pharmacy Clinical analysis Teaching and research Regulation

cont...

5. AREAS OF PRACTICE WITH THE GREATEST GROWTH, BY PARTICIPATING COUNTRY

Country	Areas of Practice
PANAMA	Community service Community pharmacy (pharmacy offices) Hospital pharmacy Drug industry (production and quality control, detailing and promotion, coordination and management) Teaching and research
PERU	Consultations on pharmaceutical care Clinical pharmacy Hospital pharmacy Pharmaceutical biotechnology Radiopharmacy Pharmacy and tourism Drug industry Food industry Toxicology Surveillance of symptoms of communicable diseases
VENEZUELA	Community pharmacy Hospital pharmacy Drug industry (production, quality control, medical visits and marketing) Cosmetics industry Food quality control Teaching and research Toxicology: in government and business sectors Governmental regulation

6. ACTIVITIES BY AREAS OF PROFESSIONAL PRACTICE

For each common field of pharmacy practice, the most important activities for which the pharmacist is responsible were identified. These, along with the essential qualities required, will serve as basis for identifying the areas of knowledge, aptitudes, and skills that pharmacists need to practice the profession properly, with high standards and in such a manner that they are irreplaceable (see Table 2).

Table 2
Activities for each Proposed Area of Professional Practice

COMMUNITY PHARMACY
Pharmaceutical care, which involves:
Individualized selection of drug therapy (generic substitution – substitution of alternative therapies)
Dispensing: Interpretation of the prescription and delivery of the product and the information relevant to its rational use
Information
<i>Compile and interpret information on the patient</i>
Establishment of a pharmaceutical care plan
Monitoring and surveillance
Preparation and management of the pharmacotherapeutic profile
Evaluation of individual therapies
Identification and assessment of existing and probable problems associated with the drug
Detection and assessment of symptoms
Determination of treatment
Health promotion
Disease prevention
First aid
Primary health care
Surveillance of symptoms
Drug surveillance
Relationship with other professionals
Management: selection, planning, inventory control, and distribution
HOSPITAL PHARMACY
Pharmaceutical care (includes all the components identified in community pharmacy)
Production and quality control of: intravenous solutions, parenteral nutrition, reconstitution of cytostatics, general repackaging of pharmaceutical products
Distribution within the hospital
Formularies: preparation and management of the formulary system
Active and effective participation in technical committees, e.g.: Committee on Pharmacy and Therapeutics, control of hospital infections

Cost evaluation and pharmaceutical expenditures
Drugs use studies
Programs on adverse drug reactions
Drug information services and centers
Pharmacokinetic monitoring
Participation in medical visits (medical rounds)
Clinical research
Preparation of drug use protocol
Education
INDUSTRY
Production of active ingredients
Product Registration (sponsorship)
Research and development of new products
Manufacture: good manufacturing practices (GMP)
Quality assurance: good laboratory practices (GLP)
Management
Marketing promotion
Drug Information
Technical direction
REGULATION/ PUBLIC HEALTH
<i>Drug Surveillance</i>
Evaluation of information/research
Legislation
Policies
Program planning
GMP-GLP audits, inspections

7. AREAS OF KNOWLEDGE

Areas of knowledge that will allow pharmacists to practice professionally in an appropriate, effective, and high-quality manner were identified. To this end, the classification (grouping) proposed by the Ibero American Commission of Colleges of Pharmacy (COHIFA) and the recommendations of the American Council of Pharmaceutical Education (ACPE), of the United States, were used as a guide:

- Basic sciences
- Pharmaceutical sciences
- Biomedical sciences
- Social and administrative sciences
- Integration activities
- Preprofessional practice

The following table presents the designated areas of knowledge, according to the above grouping.

Table 3
Necessary Areas of Knowledge

Basic Sciences	Chemistry:
	General
	Inorganic
	Analytical
	Organic
	Physical chemistry
	Pharmacochemistry
	Biochemistry
	Biology
	Microbiology
	Physics
	Mathematics
	Research methodology
Pharmaceutical Sciences	Open courses (pharmaceutical topics, introduction to professional practice)
	Pharmacology
	Pharmacochemistry (design, synthesis, and relation between

	structure and activity) Pharmacokinetics Biopharmacy Pharmaceutical technology (includes compounding operations, bench, industrial, and galenical production) Toxicology Quality assurance Pharmacobotanical/pharmacognostic phytotherapy
Biomedical Sciences	Biostatistics Anatomy Physiology Parasitology (theoretical) Pharmacotherapeutics Pharmacokinetics Physiopathology: Includes interpretation of laboratory tests Semiology (Includes physical examinations) Immunology Nutrition, importance as it relates to drugs
Social, Behavioral, and Administrative Sciences	Educational techniques Administrative sciences, includes marketing, economics Pharmacoeconomics Human relations Communications sciences Analysis and evaluation of biomedical literature Public health Pharmacoepidemiology Pharmaceutical management (includes supply) Legislation Pharmaceutical duties and ethical principles
Integration Subjects	
Preprofessional Practice	

7.1 QUALITIES OF THE PHARMACIST

Special attention was given to the qualities that the pharmacist should have, as identified in the Good Pharmacy Education Practice (GPEP). These qualities were analyzed and adopted by the Working Group. These GPEP specify that pharmacists should have the knowledge, attributes, skills, and behaviors that support and validate their expertise. These qualities are exemplified in seven characteristics that should typify the seven-star professional (approved by the Vancouver Working Group, 1997). The pharmacist should:

- 1) Be a member of a health care team that provides high-quality, essential services that include clinical, technological, analytical, and regulatory aspects. Note that pharmacists are essentially public health professionals and that their public health function is exercised in all areas in which they work—from the drug industry itself to the community, hospital, or public health pharmacy to the field of regulation.
- 2) Be capable of making decisions and taking responsibility for these decisions. Self-reliance and shared responsibility for the results of therapy are elements that merit development in the course of professional training. Moreover, the ability to make decisions involves not only the store of knowledge that the pharmacist imparts (and appropriately receives), but also the development of decision-making skills.
- 3) Be a communicator. Due to the ideal position of the pharmacist between physician and patient, it is vital that he/she has self-confidence to properly educate and inform the patient to ensure compliance with treatment; to provide the physician with supplementary knowledge to aid in rational prescribing; and, when dealing with the general public to promote the rational use of drugs and foster intelligent self-medication.
- 4) Be a leader. Assuming leadership of the health team in all that concerns drugs relates directly to education, requiring continuous updating on developments in the field. This leadership includes how the pharmacist should perform in multidisciplinary situations, in individual situations with patients or groups of patients, and in any setting where support or intervention is needed.
- 5) Be a manager. Not only with respect to human, material, and financial resources, but also information and appropriately transferring that information to the rest of the health team. In line with the trend in areas of future development, the ability to manage information sources, analyze that information, and produce and disseminate information appropriately, according to the audience, is also considered a key element in professional education.
- 6) Never stop learning. It can not be expected that the mere completion of pharmacy studies will be sufficient to practice the profession appropriately. The principles, concepts, and commitment to the profession must be cultivated throughout the pharmacist's professional life. Furthermore, learning is considered important for the use of general educational techniques that will assist the pharmacist in educational and informational undertakings with other professionals, patients, and the general public.
- 7) Teach (serve as an educator). Participation in teaching activities not only transfers knowledge but represents a way of gaining new knowledge and skills.

7.2 INTEGRATION ACTIVITIES

The group considered the lack of opportunity to incorporate basic scientific, pharmaceutical, biomedical, and social knowledge, both theoretical and empirical, one of the weaknesses in current pharmaceutical training

In this regard, it is considered vital to include integration activities in every curriculum to foster the student's sense of assurance and self-confidence, and support the integration of the future professional into the health care team.

It is also important to inculcate the principle that the ultimate aim of all pharmaceutical actions should be to address health needs and contribute to improving the quality of life.

The curriculum should include these activities from the outset; they should be sequential and progressive, designed for various levels of complexity and intensity, and they should have application across the curriculum.

It is important to clarify that these are not areas of specialization; thus, they should not be confused with so-called "short courses." They do not replace the period of preprofessional practice, and all students should cover the same areas of integration, since they are considered basic and common to all pharmaceutical education.

These areas of integration should be compulsory for the three key professional areas: community, hospital, and industrial practice. Different mechanisms can be utilized, and these can be carried out through courses in theory and practice (courses with case simulations), workshops, internships, etc. The designations for these activities can also vary, using, for example, the terms "pharmaceutical care" or simply "integration modules," requiring in both cases that they be established for different levels (I, II, III, IV....).

The teaching methodology for these areas of integration should consist of simulations of clinical cases and real problems that pharmacists face in the different areas of professional practice, making it possible to develop problem-solving skills through the integration of knowledge and the ability to identify and evaluate results.

7.3 PRE-PROFESSIONAL PRACTICE

This refers to the period of internship required as a prerequisite to graduation, in which the student enters the labor market for a given period of time, performing tasks and assuming responsibilities associated with the practice of the profession.

The above areas of knowledge should include first aid, knowledge of foreign language (usually English), computer skills and, of course, ethical principles. It is important that the student, when undertaking career studies, already have knowledge of these areas, since they are of use in all, or nearly all other areas, and lack of knowledge of these is considered a serious limitation in terms of basic education.

8. RECOMMENDATIONS

a) Percentage of Total Academic Load of the Different Sciences

The following percentage distribution of the academic weight is a guideline for universities in evaluating the current load and considering needed changes, to respond to the need for training pharmacists with the necessary basic knowledge and the desired qualifications. However, some groups of studies, such as the basic sciences, preprofessional practice, and integration activities may not have less than the percentage indicated. In fact, they may be increased, while other areas are concomitantly reduced by as much as 5%. A 10% "free" load is also envisaged, in order to address areas of knowledge related to aspects of private practice in each country, e.g.,: food, toxicology, cosmetics, biochemistry, etc. and/or the specific requirements of the universities themselves.

- Basic sciences 15±5%
- Pharmacy 20±5%
- Biomedical sciences 15±5%
- Social sciences 15±5%
- Integration areas 10%
- Preprofessional practice 15%
- Free 10%

The group points out that the percentage distribution that is offered is based on the grouping of knowledge areas presented in Table 3.

b) Teaching Methodology

- The student should be the key to the teaching-learning process
- There is a vital need to promote activities to develop:
 - Critical thinking
 - Problem-solving capacity
 - Teamwork
 - Communication skills (verbal and written)
 - Leadership
 - Integration of knowledge
 - Computer sciences (technology)
- Use of innovative teaching strategies that promote the active participation of the student in the teaching-learning process, in order to foster continuous self-instruction
- The instructor should facilitate learning, helping to reduce the use of lecture classes

- Use of the computer/internet for classroom teaching or for distance learning or self-instruction

c) Years of Career Studies

There is concern because there are countries in the Region that award different degrees for equal periods of study: while some award bachelor's degrees, others award doctoral degrees.

d) Relationship between Theory and Laboratory Work

- Depending on the nature of the subjects, there should be a balance between the time devoted to classes on theory and time spent on practical (laboratory) work, so that the latter complements the former, while making it possible to develop the aptitudes and skills necessary for professional practice.
- Practical (or laboratory) work should, wherever possible, be oriented to problem solving, rather than to repeating experimental models.

e) Required and Elective Courses

- Required courses should be aimed at training for performing basic tasks in the different areas of professional practice: industrial, community, and hospital pharmacy, and health care regulation. This should guarantee that the students receive a comprehensive education.

Elective courses should expand the student's education in the selected and preferred area of professional practice.

f) Continuing Education

- Academic institutions have the obligation to promote and provide programs for continuing education in coordination with professional institutions or associations and employers (public and private sector), for professional upgrading.
- Pharmacists have a responsibility to remain current in the field. It is recommended that, whenever possible, courses be offered in distance learning, using all accessible modern communications media, such as the Internet.

g) Specializations (Master's Program, Doctorate) in the Profession

- Taking their physical, human, and financial potential into account, academic institutions should develop postgraduate projects that address the needs of the country and the Region.

- It is recommended that ongoing exchanges between the teaching institutions of the countries take place to develop masters and doctoral programs.
- The specialties should cover the different areas of professional practice, addressing the need for diversification and for creating new areas.

h) Education and Updating of Educators

- It is obvious that possessing an excellent curriculum, including plans for updating that curriculum, is pointless if it is not accompanied by a plan that allows the school's teaching staff to remain current in the field and incorporate new knowledge. Changes cannot be made if those who must implement the process of change do not incorporate those changes within themselves.
- There is a recognized need for a process that will enable professors to remain current on scientific and technical developments, professional practice, educational technology, and the realities of the surrounding social environment.
- Universities should foster the updating and specialization of their personnel and formulate plans for professional development, instruction, and training. It is highly advisable that plans for postgraduate training be included, and every university should seek to have all of its teaching staff earn postgraduate degrees.
- It is essential that all universities encourage their professors to maintain an ongoing involvement with research connected to their particular areas of teaching, in order to avoid a situation in which the professors are merely passing on, rather than also generating, knowledge.
- There is also the option of tutorial programs to meet the need for updating faculty. Agreements between universities for human resources education and for recognizing the time spent on advising, consulting work, and extension services are also valid alternatives.
- Evaluation of the teaching staff is an important component. This should be conducted with a view to correcting and preventing coercive attitudes. The evaluation processes should include representation by the student body, have a self-evaluation component, and involve the participation of the university's education unit in order to obtain an impartial evaluation. Finally, the evaluation process should provide those being evaluated with the possibility of (feasible) training in the areas for which they have been judged to be deficient.
- Research is another significant aspect. Every university should include research activities. This should not be understood to mean that every professor should do research (although this would be the ideal situation); however, it should be made clear that the college/school of pharmacy should do research.

- Teacher exchanges between countries of the Region, along with the signing of agreements between universities within the region are cited as elements of interest for human resources education and research (e.g., Twin School Project).

i) Accreditation of Schools

- The group recognizes the importance of the accreditation process and recommends that discussion on this issue be encouraged in each country and at the regional level.

9. MONITORING PLAN

The proposal and recommendations of this workshop will be presented at the Fourth Pan American Conference on Pharmaceutical Education, to be held in Chile, in November 1999. On that occasion, working groups made up of Conference participants will be held, in order to approve the proposal, along with any pertinent amendments. The representatives of participating teaching institutions in Mexico and Venezuela will be responsible for presenting the current proposal at the Fourth Pan American Conference on Pharmaceutical Education.

ANNEX: BASIC CURRICULUM

Lima, Peru, 6-9 July 1998

Provisional Agenda

1. BACKGROUND

A change is clearly taking place in the areas in which the professional pharmacist practices. The involvement of pharmacists in areas such as clinical and hospital pharmacy, and more recently, the acceptance of pharmaceutical care as a focus of professional practice, are influencing the educational process. In some cases, the reforms are sweeping and involve comprehensive changes in curriculum, while in others, perhaps more often, the changes consist of the inclusion of new subjects, modifications in content or programs, or a redistribution of the academic load by educational area. In many cases, the changes that are occurring focus on teaching methodologies, making them more practical and gearing the learning more to problem-solving and to developing communication and leadership skills in order to prepare pharmacists to assume greater responsibility for the results of their actions. These changes are occurring throughout the world—in Europe, Africa, Asia, the United States, and, of course, Latin America.

Meetings sponsored by the World Health Organization and the International Pharmaceutical Federation (FIP) focus on this subject, and documents and recommendations of interest to the Americas are being produced. One of the most important WHO-sponsored meetings on pharmaceutical education is the series on "The Role of the Pharmacist in the Health Care System." The first of these meetings was held in New Delhi in 1988, and from this meeting, a conceptual document emerged on the subject that discusses the availability of these professionals and their responsibility as part of the health team. The second meeting was held in Tokyo, Japan in 1993. At this meeting, the responsibilities of the pharmacist were examined in terms of meeting the patient's and the community's needs. The concept of pharmaceutical care served as the framework for this meeting, which issued recommendations on components of the pharmacy curriculum. This meeting was followed by the annual meeting of the FIP, which adopted recommendations for the preparation of Standards for Good Pharmacy Practice: Standards for the Quality of Pharmaceutical Services, also inspired by the concept of pharmaceutical care. These standards for good practice were endorsed by the Pan American Federation of Pharmacy (FEPAFAR) in 1994. The third in the series of meetings on the role of the pharmacist was held in Vancouver, Canada in 1997, and recommendations for the development of curricula for preparing the pharmacist for the future were prepared, highlighting seven qualities (seven stars) that this professional should have.

The documents produced at each meeting have been utilized in numerous activities (national, subregional, and regional seminars, workshops, and meetings) as reference tools for analyzing pharmacy education and its professional practice in Latin American countries. This analysis is characterized by the various approaches employed by the approximately 150 colleges and schools at which pharmacy is studied. These include schools of pharmacy, chemistry and pharmacy, biochemistry and pharmacy, and chemistry, biochemistry and pharmacy. In some countries in the Region, the pharmacist's professional practice only covers certain areas of activity, such as community pharmacy, the government, hospital, and industrial sectors, and teaching and research. Other countries also include areas covered by other professions, primarily biochemistry and chemistry, in addition to the pharmaceutical areas cited. Both groups of countries attempt to meet the needs by reorienting pharmaceutical education based on pharmaceutical care.

The most significant activity in terms of pharmaceutical education in the Americas is the series of Pan American Conferences on Pharmaceutical Education, sponsored by the American Association of Schools of Pharmacy (AACP) and the Pan American Health Organization. At the First Conference, held in Miami in 1990, the Declaration of Principles was approved, emphasizing the responsibility of pharmacists as part of the health care team, the commitment by governments, institutions (government, professional associations and educational institutions), and pharmacists themselves, and the cooperation of international agencies. At the Second Conference, held in Ixtapa, Mexico in 1993, the Mission of Pharmaceutical Education was approved, indicating the fundamental elements of pharmaceutical education. The third and most recent of these conferences, held in Buenos Aires, Argentina in 1996, approved a Declaration that included, among other things, the creation of the Pan American Commission on Pharmaceutical Education, to be coordinated by an Executive Committee made up of five members: representatives from the last three conferences, the representative of the Secretariat of the next conference, and a PAHO official.

In tandem with the series of Pan American conferences, and under the auspices of the Government of Spain, the Latin American Conference of Schools of Pharmacy (COHIFA) was formed, made up of the deans of colleges and schools of pharmacy of the Latin American countries and Spain. The Pan American and the Latin American conferences deal with the same topics, and although they have different characteristics, primarily in their composition, the same recommendations and documents are used in both conferences.

The current meeting is based on the Declaration of the Third Pan American Conference, which included the commitment of the participants to prepare strategic proposals for the review of curricula, making it possible to set minimum content requirements to facilitate the exchange of students, educators, and professionals that will facilitate the incorporation of other pharmaceutical skills and the updating of knowledge. Those assuming this responsibility were the representatives of Venezuela and Argentina. However, given the range of contexts in the countries in which the studies take place, at the first session of the Executive Committee of the Pan American Commission (New Orleans, 1998), the Pan American Health Organization proposed the implementation of a

workshop on the subject, with the participation of a representative from the Curriculum Committees of several universities from different countries in the Region. The proposal was endorsed by the Committee.

2. OBJECTIVES

Preparation of a joint proposal for a basic curriculum for the course of study in PHARMACY and a series of pertinent recommendations.

The core aspect of the meeting is the presentation, discussion and analysis of support materials and the scope of agreement on minimum curriculum content. This content will focus exclusively on the course of study in PHARMACY and not on other areas (biochemistry, chemistry, etc.). During this discussion, the group is expected to produce recommendations on, but not limited to:

- Basic curriculum, limited to the designated subjects
- Percentage of academic load for the different areas of study: basic, chemical, pharmaceutical, social, and other sciences
- Educational approach
- Years of career studies
- Approaches as part of undergraduate study
- Specializations necessary for professional pharmacy practice

The proposal and recommendations of this workshop will be presented at the Fourth Pan American Conference on Pharmaceutical Education, to be held in Chile in 1989. On that occasion, working groups involving the conference participants will be held, in order to approve the proposal and any amendments that might be made.

3. PARTICIPANTS

A participating expert from each of the following schools:

Andean Area:

Peru: School of Pharmacy and Biochemistry, University of San Marcos

Venezuela: School of Pharmacy, Central University of Venezuela

Central America:

Costa Rica: School of Pharmacy, University of Costa Rica

Panama: School of Pharmacy, University of Panama

Southern Cone:

Argentina: A representative of EQUAFYB. Association of Schools of Pharmacy and of Biochemistry of Argentina, Uruguay, Paraguay, and Brazil (three from São Paulo).

Brazil: School of Pharmacy, University of Minas Gerais

Chile: School of Chemical and Pharmaceutical Sciences, National University of Chile.

North America:

The United States of America: School of Pharmacy, University of Maryland

Mexico: decision pending

4. SUPPORT MATERIAL

- Comparison of the current curricula (or curricula under consideration) of the participating schools. (This preliminary work is subject to receipt, at PAHO, in Washington, D.C., of the curricula of each participating school.)
- Curriculum proposal of EQUAFYB
- Proposal of academic load approved by the COHIFA

AGENDA

Monday, 6th

9:00 - 9:30 Opening of the Meeting. Meeting objectives and methodology. Presentation of the agenda

9:30 - 12:30 Presentation by each participant on:

- Areas of current professional pharmacy practice in the country: its greatest advantages and limitations
- Outlook for professional pharmacy practice in 20 years (in the country)

- Response of the country's schools of pharmacy to the situation

First part: ARG-BRA-CHI-CR-MEX

1:30-3:30 Continuation: PAN-PER-USA-VEN

4:00-5:30 Profile of future professional pharmacy practice in the Americas. Plenary discussion

Tuesday, 7th

8:30–10:00 Presentation of support documents:

- EQUAFYB
- COHIFA
- Basic document

10:30–12:30 General discussion on:

- Grouping of subjects (classification)
- Identification of a curriculum (subjects) that addresses the profile of the pharmacist of the future
- Required courses
- Elective courses
- Credits
- Professional practicum
- Special requirements
- Curriculum
- Teaching methodology
- Education and updating of professors

Wednesday, 8th

9:00 - 5:00 (Continuation)

Thursday, 9th

10:00 - 12:00 Round-table at the School of Pharmacy of the University of San Marcos.

2:00 - 5:00 Review of the proposal and of the general recommendations

Note: On the morning of the first day, a committee will be appointed to work at the end of each day and on the morning of the last day to consolidate the proposal.

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