

**ASSOCIATION OF FACULTIES OF PHARMACY OF CANADA**

**EDUCATIONAL OUTCOMES**

**FOR A**

**BACCALAUREATE PHARMACY GRADUATE IN CANADA**

May 25, 1998

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AFPC Mission Statement for Pharmacy Education in Canada

## ACKNOWLEDGEMENTS

The "Professional Competencies for Canadian Pharmacists at Entry to Practice" (February 1997) report from the National Association of Pharmacy Regulatory Authorities was used as the initial draft for Outcomes 1 through 6. Outcome 7 is largely based on a similar one from the Faculty of Pharmacy, University of Toronto "Professional Competencies Required of Future B.Sc. Graduates" (June 1996). In addition to these three documents, "Functions and Competencies" from the University of Alberta Faculty of Pharmacy and Pharmaceutical Sciences, "Statement of Competencies" from the College of Pharmacists of British Columbia (January 1996), "Competencies Required at the Point of Entrance to Pharmacy Practice in Canada" (June 1995) from the Halifax Invitational Workshop, "Expected Curricular Outcomes of the Dalhousie College of Pharmacy (November 1, 1995), and the Ontario College of Pharmacists "Analysis of Competencies of Newly Registered Pharmacists" (October 1995) were referred to during the development of these outcomes.

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## BACKGROUND

In 1994 the Association of Faculties of Pharmacy of Canada (AFPC) adopted the following mission statement for pharmacy education in Canada (Appendix I):

- ? the mission of pharmacy education is to provide programs of excellent quality which by their content and presentation produce graduates who contribute significantly to societal, professional and patient care responsibilities, and who are committed to life-long learning.

The patient care responsibility, the primary practice responsibility of pharmacists, can be met through the provision of pharmaceutical care. To provide pharmaceutical care graduates must have the patient, drug and disease knowledge, and the skills necessary to apply a process by which drug-related problems are identified, solved and prevented. Societal responsibilities can be fulfilled through service, education and research, and by developing and implementing health care policies and practices which promote health and well-being. Professional responsibilities can be achieved by advancing the profession through shaping the policies, practices and education of the profession and integrating the profession into the health care system and society.

To meet the societal, professional and practice responsibilities pharmacy graduates will require the knowledge and insight gained from a broad background in the pharmaceutical, medical, managerial, basic and social sciences, humanities and population health. Skills required include communication, collaboration, problem identification and resolution, critical thinking, self-assessment and ethical decision-making, while values such as honesty, fairness, responsibility, caring, empathy and respect need to be considered.

Pharmacy educators are responsible for providing high quality education to students so that these students, upon graduation, have the knowledge, skills and values necessary to meet their societal, professional and practice responsibilities. With the identification and resolution of problems being a major activity of the graduate, the methods of teaching/learning and assessment must have a significant focus on problem identification and resolution. In addition, since drug and disease information is being produced at an ever increasing rate, and it is not possible for students to know the information required to solve all of today's drug related problems, students must begin taking responsibility for their learning and develop the skills necessary to become life-long learners.

Pharmacy education transcends the boundaries of academic institutions. Hence, progressive practice sites are essential if our students are to receive the best education possible. Academia needs to be a major source of continuing and re-education to facilitate the continued enhancement of professional practice.

The educational outcomes being proposed to achieve the above were primarily based on the National Association of Pharmacy Regulatory Authority's (NAPRA) document "Professional Competencies for Canadian Pharmacists at Entry to Practice". The NAPRA competencies, if adopted by the provincial licensing bodies, will be required for licensure of graduates from Canadian Faculties of Pharmacy. Also, the competencies are being used as the basis for the Pharmacy Examining Board of Canada's (PEBC) qualifying exam. It is recognized that the licensing bodies may have competencies beyond those of the Faculties. However, Faculties of Pharmacy have a responsibility to prepare graduates with the majority of the NAPRA competencies, since approximately 90% of the graduates practice in community and hospital pharmacy. Therefore, the educational outcomes developed by AFPC must be consistent with and attempt to achieve the majority of practice competencies developed by NAPRA. While the AFPC outcomes are considered essential, each Faculty may wish to develop additional outcomes based on their specific strengths and areas of interest. Also, the Canadian Council for Accreditation of Pharmacy Programs has agreed in principle to use these educational outcomes to meet Standard No. 9 (Educational Outcomes) in its revised Standards and

Guidelines to be used in the future accreditation of B.Sc.Pharm. programs.

## **INTRODUCTION**

The educational outcomes which follow flow from the AFPC mission statement, as described above. It is intended that these outcomes be met by our students at the time of graduation from our B.Sc. programs in pharmacy. The following outcomes are a guide to curriculum development and change, and provide the framework for creating a common core curriculum for all Canadian graduates. Achievement of these outcomes will define what a graduate should look like when he/she graduates, i.e. it creates a person with certain knowledge, abilities and skills. The educational outcomes document clearly focuses on the end outcomes, i.e. those most related to practice. The exhaustive determination of all outcome elements would result in a document that is too prescriptive, and hence may suggest that there is no room for individuality within the various programs. Hence, the document focuses on the outcomes most closely associated with the end product of the pharmacy curriculum. It is understood that a curriculum is composed of a series of building blocks. The structured practical experience component of the program builds on a strong background in pharmacy practice. Pharmacy practice in turn builds on the pharmaceutical and medical sciences, which in turn requires a sound foundation in the basic sciences. Therefore, each component, while not described in detail in the educational outcomes document, is understood to be absolutely necessary for student success in achieving the final outcomes.

The first outcome, Meet Patient's Drug-Related Needs, is clearly the most important, as it identifies what a graduate must do to practice pharmaceutical care, the model of practice chosen by the profession. Outcomes 2 through 7 are outcomes which are essential for the achievement of the first outcome, that is they enable #1 to be achieved. Preceding the specific outcomes are the "General Outcomes Required of a University Graduate and Educated Citizen and Necessary for the Fulfilment of the Professional Outcomes Required of Pharmacy Graduates". These general attributes are needed to meet practice, professional and societal responsibilities. They refer to those general ability-based outcomes desired from a University education and essential for professionals, and will be elaborated upon in a future Appendix entitled "Development of Levels and Ranges of Educational Outcomes Expected of Baccalaureate Graduates".

In this document, an "outcome" is what a graduate should be able to do with what they have learned. An "outcome unit" is a general description of the outcome, while an "outcome element" is a subsection of the outcome unit indicating parts that are needed to accomplish the whole. The levels of performance for each outcome have not been specifically addressed in this document, however they will be more explicitly defined in the Appendix being developed, as mentioned above.

Finally, the development of outcomes is but one component of an education model. These outcomes will need to be translated into a curriculum, and appropriate methods of instruction and assessment will need to be determined.

**General Outcomes Required of a University Graduate and Educated Citizen  
and  
Necessary for Fulfilment of the Professional Outcomes Required of Pharmacy Graduates**

1. **Knowledge and Thinking Abilities** - Graduates shall have knowledge and comprehension of the core information associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and pharmacy practice<sup>1</sup>. They will be able to utilize the principles of scientific inquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. They will be able to systematically find, analyse, evaluate and apply information and shall make informed, defensible decisions.
2. **Planning Abilities** - Graduates will be able to demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. They will be able to develop and implement plans and organize work to meet deadlines. Planning and implementing change are important within this ability and require graduates to understand and consider the human reaction to change, motivation issues, leadership and team building when planning changes required for fulfilment of practice, professional and societal responsibilities.
3. **Communication Abilities** - Graduates will be able to effectively use and respond to written, verbal and nonverbal communications from diverse audiences and for varied purposes. To do so, graduates must be able to use information, media and technology. Graduates will have a sufficient understanding of information systems to integrate computer and related technology into their daily practice.
4. **Values and Ethical Principles** - Graduates will honour personal values and apply ethical principles in professional and social contexts. They will be able to demonstrate behaviour that recognizes cultural and personal variability in values, communication and life styles. They will be able to use ethical frameworks and apply ethical principles when decision-making. They will take responsibility for the outcomes associated with their decisions.
5. **Self-directed Learning Abilities** - Graduates will be able to demonstrate self-directed learning capabilities as a means of fulfilling and advancing their practice and professional role in society. They will be able to effectively self-assess and use feedback from others to identify their learning needs and to satisfy these needs on an ongoing basis.
6. **Professional Identity** - Graduates will be able to understand, analyse and communicate the value of their professional roles in society (e.g. health care professionals, suppliers of pharmaceuticals, promoters of health, educators, business managers, employers, employees) through consideration of historical, social, economic and political issues. They will be able to evaluate these factors, and the conflicts they may create, when integrating these roles. They will be able to demonstrate attitudes and behaviours which reflect a pride in and a desire to improve the profession, including a commitment to the profession's responsibility to teach future pharmacists.
7. **Citizenship** - Graduates will be able to assume participatory or leadership roles when appropriate to facilitate improvement in health and well being. This requires graduates to be informed, responsible citizens.

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<sup>1</sup> Based on content areas specified in the Canadian Council for Accreditation of Pharmacy Programs Standards, Standard No. 11, 1997.



## OUTCOMES

### Outcome #1

#### **Meet Patients' Drug-Related Needs**

Outcome Unit:

Pharmacy graduates, in partnership with patients and other health care providers, use their knowledge and skills to meet patients' drug-related needs, with the objective of achieving optimal patient outcomes and maintaining or improving the patients' quality of life.

Outcome Elements:

- 1.1 Develop a professional<sup>2</sup> relationship with the patient and/or the patient's care provider<sup>3</sup> that conforms to the Code of Ethics of the profession.
  - i. establish and maintain a rapport with the patient by using effective dialogue
  - ii. demonstrate a caring, empathetic, and professional attitude
  - iii. determine, in conjunction with the patient, the responsibilities of the pharmacist and the patient, the benefits of acceptance of these responsibilities and the consequences of not accepting these responsibilities
  
- 1.2 Determine the patient's needs and desired outcomes of drug therapy.
  - i. use a variety of information sources to elicit the patient's values, desired level of care, health concerns, scope and breadth of health problems and facilitators and impediments to health
  - ii. establish a professional contact with the patient's other health care providers in order to gather related health and drug information
  - iii. assess the accuracy, relevance and impact of the above information
  - iv. in conjunction with the patient determine reasonable, feasible and desired health-related outcomes
  - v. prioritize the desired outcomes
  
- 1.3 Identify and prioritize the patient's actual and potential drug-related problems. (see Glossary for types of drug-related problems)
  - i. use a variety of data sources to collect the information required to identify the patient's drug-related problems
  - ii. identify the drug-related problems
  - iii. prioritize the drug-related problems
  
- 1.4 Develop therapeutic and monitoring plans designed to achieve optimal patient outcomes and to resolve/prevent the patient's drug-related problems.
  - i. assess the alternative strategies (including no treatment, non-drug treatment, non-

<sup>2</sup> A relationship in which the patient and the pharmacist establish a framework for decision making based on the patient's values. There are obligations and expected benefits for both the health care provider and the patient.

<sup>3</sup> In the remainder of this document, patient means patient and/or the patient's care provider.

- prescription and prescription drugs) and select the therapeutic option best suited to the patient in consultation with the patient and, when appropriate, other health care providers
- ii. make a recommendation, explaining the rationale for the treatment options and outlining the advantages and disadvantages of the alternatives
  - iii. assume responsibility for the recommendation
  - iv. determine the desired therapeutic endpoints
  - v. identify appropriate monitoring parameters
  - vi. formulate a monitoring plan
  - vii. determine the responsibilities of the pharmacist, the patient and the other health care providers
- 1.5 Refer when appropriate.
- i. determine if a referral is necessary
  - ii. identify the appropriate health care provider or agency for the referral
- 1.6 Implement the therapeutic and monitoring plans to assess the progress of the patient in order to evaluate the outcomes.
- i. establish a mechanism for follow-up
  - ii. implement the plans
- 1.7 Revise the patient's list of drug-related problems, the prioritization, and the therapeutic and monitoring plans when appropriate.
- i. interpret the relevant information collected as determined in the monitoring plan
  - ii. evaluate the success of the therapeutic and monitoring plans relative to the desired patient outcomes
  - iii. refine or revise the plans as necessary
  - iv. provide ongoing care, education and counselling
  - v. obtain feedback on the quality of the care process
  - vi. undertake required communication with other health care providers
- 1.8 Document patient information, desired outcomes, drug-related problems, assessment, referrals, recommendations, interventions, follow-up and outcomes.
- i. identify the objectives of the documentation
  - ii. maintain the medication profile, medical history and patient information
  - iii. document the required patient-specific information and care provided
  - iv. document communication with other health care providers and health / social agencies
  - v. document communication with third party payers

## Outcome #2

### Assume Legal, Ethical and Professional Responsibilities

Outcome Unit:

Pharmacy graduates will be able to practise within legal requirements, uphold ethical and professional standards of practice, fulfil professional responsibilities and contribute to the development of the profession.

Outcome Elements:

- 2.1 Demonstrate an understanding of the Canadian health care system and the profession of pharmacy's role within the system.
  - i. understand the federal and provincial governments' roles in the health care system
  - ii. contribute to decision making regarding the safe, effective and efficient use of drugs
  - iii. understand how policy development is influenced in public and private health care
  - iv. understand utilization management, financing, and economic issues in drug therapy and pharmacist services.
  
- 2.2 Practice in accordance with federal, provincial and territorial legislation, regulations and standards.
  
- 2.3 Practice in a professional and ethical manner which assures primary accountability to the patient.
  - i. ensure patient confidentiality
  - ii. advocate the patient's best interests
  - iii. involve the patient in decision-making
  - iv. respect the right of patients to make their own choices
  - v. abide by the principle of nonabandonment<sup>4</sup>
  - vi. use ethical frameworks when decision-making
  
- 2.4 Demonstrate an understanding of the ethical issues surrounding illicit drug use and the misuse and abuse of prescription drugs, non-prescription drugs and alternative/complementary therapies such as homeopathy, herbal and non-drug treatments.
  
- 2.5 Advocate for groups of patients to ensure appropriate access to products and services.
  - i. assist groups of patients in the identification of their needs
  - ii. develop an action plan, in consultation with patient groups, considering desired outcomes, risks and costs
  - iii. document support for the actions required to meet patients' needs
  - iv. present information in an appropriate written and/or verbal format to the patient groups
  
- 2.6 Contribute to renewal and advancement of the profession.
  - i. understand the role of professional organizations and professional development
  - ii. communicate the role of the pharmacist and the impact of the role in achieving

<sup>4</sup>

A graduate cannot be required to violate fundamental personal values, standards of scientific or ethical practice or law. When a patient's beliefs dictate decisions that run counter to the graduate's advice, the graduate is obliged to try to understand clearly the beliefs and the viewpoints of the patient. After a serious attempt to resolve differences, if the graduate is unable to carry out the patient's wishes, the graduate must withdraw and transfer care of the patient.

patient outcomes

### **Outcome #3**

#### **Provide Drug and Drug Use Information and Recommendations**

Outcome unit:

Pharmacy graduates provide information and recommendations to individuals and groups concerning drugs and drug use to ensure optimum and cost effective patient care and to promote health.

Outcome Elements:

- 3.1 Identify needs for information and recommendations on drugs and drug use.
- 3.2 Respond to these needs with consideration to the principles of pharmacoepidemiology, pharmacoconomics and pharmacotherapeutics.
  - i. use the necessary retrieval techniques to access the required drug-related information
  - ii. critically analyse the information (consider adequacy of research design, statistical testing, relevance, applicability, accuracy, reliability, validity and generalizability)
  - iii. organize information for a variety of audiences, determine critical content, formulate recommendations as relevant, and use appropriate methods for dissemination/communication.
  - iv. evaluate the usefulness of the information provided
  - v. document the information provided

**Outcome #4****Educate about Drugs, Drug Use and Health Promotion**

Outcome Unit:

Pharmacy graduates educate individuals and groups to encourage appropriate drug use and to promote health.

Outcome Elements:

- 4.1 Identify needs of individuals and groups for education related to drugs, drug use or health promotion.
  - i. identify barriers to and facilitators of health and wellness in individuals and groups
- 4.2 Design, implement and evaluate an educational plan for an event related to drugs, drug use or health promotion.
  - i. identify learning needs
  - ii. collaborate with patients and other health care providers in the development of strategies
  - iii. assess personal abilities to carry out a particular educational plan
  - iv. select educational techniques appropriate for the learner(s)
    - v. select and organize content
    - vi. implement the educational plan
    - vii. assess outcomes

**Outcome #5**

**Manage Drug Distribution**

Outcome Unit:

Pharmacy graduates meet patients' requirements for the accurate supply of quality pharmaceuticals by taking responsibility for the functions of distribution and preparation of pharmaceuticals

Outcome Elements:

5.1 Supervise and participate in drug distribution

- i. maintain safe and effective systems of drug distribution via supervising or undertaking the: interpretation of drug orders; performance of pharmaceutical calculations; selection of ingredients; compounding and dispensing; preparation of sterile products; identification of storage and handling conditions; identification of stability problems; acquisition and disposal of pharmaceuticals; documentation and reporting of drug distribution errors
- ii. comply with relevant legislation, regulations and standards governing pharmacy practise, drug distribution, record keeping and manufacturing
  - iii. adhere to distribution policies and procedures
  - iv. identify and resolve problems in the drug distribution system
- v. detect, document, report, and respond appropriately to situations of drug abuse, misuse or diversion by recognizing and investigating patterns of inappropriate use, identifying and documenting inappropriate order quantities, using appropriate mechanisms of reporting and referral, and responding appropriately to prescription forgeries

## Outcome #6

### Understand Practice Management Principles

Outcome Unit:

Pharmacy graduates demonstrate an understanding of management principles with the goals of optimizing patient care and the use of practice resources.

Outcome Elements:

- 6.1 Demonstrate an understanding of the principles of personnel management.
  - i. understand management principles relevant to human resources
  - ii. define accepted standards, policies and procedures
  - iii. apply the principles of effective inter-professional and intra-professional working relationships
- 6.2 Effectively manage workload in a pharmacy practice setting.
  - i. demonstrate organizational skills
  - ii. prioritize and organize work flow
  - iii. demonstrate time management skills
- 6.3 Demonstrate an understanding of the principles of quality improvement.
- 6.4 Demonstrate an understanding of marketing principles in the context of supply and demand for professional services.
- 6.5 Demonstrate an understanding of the role of technology .
- 6.6 Demonstrate an understanding of the important components of management including resource management, inventory management, strategic planning, and policy development.
- 6.7 Demonstrate skills related to group work, decision-making, leadership and achieving change.

**Outcome #7**

**Apply the Principles of Scientific Inquiry to Contribute to the Profession and Society**

Outcome Unit:

Pharmacy graduates will apply the principles of scientific inquiry to address pharmacy practice issues.

Outcome Elements:

- 7.1 Apply the principles of scientific inquiry to make plans to address pharmacy practice issues.
- i. recognize relevant problems and opportunities
  - ii. define the parameters of the problem or opportunity
  - iii. retrieve and assess reports/literature relevant to the problem or opportunity
  - iv. formulate research questions/hypotheses
  - v. establish/develop protocols
  - vi. plan for implementing the protocols
  - vii. plan for collecting, analysing and interpreting data
- 7.2 Use the results of research projects and literature to develop plans to effect change in pharmacy practice.
- i. understand the process of making change and the normal human reaction to this process
    - ii. identify changes indicated by research results
  - iii. determine the changes most appropriate for practice, specifying intended results
  - iv. identify by whom and under whose authority change should be implemented
  - v. plan for obtaining approvals as necessary for an implementation plan for these changes, including the time lines, resource requirements, consultation with stakeholders, education and training of stakeholders in the change process and methods for monitoring of outcomes
  - vi. plan for implementing the approved plan and monitoring the implementation process including collection of any data concerning outcome measures
    - vii. assess the outcome data and interpret the results
- 7.3 Understand and adhere to ethical research principles.
- i. identify the relevant ethical issues related to research
  - ii. identify the relevant issues which apply to the project
  - iii. indicate how the relevant issues would be addressed and approvals sought
- 7.4 Prepare and defend a research plan.
- i. prepare a report of the research plan in a format which complies with the expectations of the scientific method
    - ii. present the research plan

## GLOSSARY OF TERMS

### **Biomedical Sciences**

? content in anatomy, biochemistry, biostatistics, immunology, microbiology, molecular biology, physiology and pathophysiology (from CCAPP, 1997)

### **Drug-related problem**

? undesirable signs or symptoms which result when a patient:  
 ? is taking/receiving a drug for no medically valid indication  
 ? needs pharmacotherapy but is not receiving it  
 ? is taking/receiving the wrong drug  
 ? is taking/receiving too little of the right drug  
 ? is taking/receiving too much of the right drug  
 ? is taking/receiving the drug inappropriately  
 ? is experiencing an adverse drug reaction  
 ? is experiencing a drug interaction

### **Pharmaceutical sciences**

? content in medicinal chemistry, pharmacology, toxicology and pharmaceutics (physical/chemical principles of dosage forms and drug delivery systems, biopharmaceutics and pharmacokinetics), and behavioural, social and administrative pharmacy (epidemiology, health care economics, pharmacoeconomics, practice management, history of pharmacy, ethical foundations of practice, and social and behavioural applications) (combined behavioural, social and administrative sciences with pharmaceutical sciences from CCAPP, 1997)

### **Pharmacy practice**

? content in clinical laboratory medicine, clinical pharmacokinetics, communications applicable to pharmacy, complementary and alternative medicines, computer applications, delegated prescribing authority, disease-state management, drug distribution and drug administration, drug information and literature evaluation, emergency first-care, geriatrics, gerontology, health promotion and disease prevention, laws pertaining to practice, nutrition, outcomes documentation, paediatrics, patient evaluation, pharmacotherapeutics, physical assessment, prescription processing (from CCAPP, 1997)

### **Outcome**

? pharmacy graduate context - what a graduate should be able to do with what they have learned  
 ? patient context - desired therapeutic outcome

### **Outcome unit**

? a general description of the outcome that includes the key indicators of the expected outcome

### **Outcome element**

? a subsection of the outcome unit indicating the parts that are needed to accomplish the whole

### **Standard of practice**

? standards of practice are those standards of practice required by the licensing bodies in each province