



**Association of Faculties of Pharmacy of Canada**

**Educational Outcomes for**

**Entry-Level Doctor of Pharmacy Graduates in Canada**

AGM, Montreal, May 31, 2007

## TABLE OF CONTENTS

<b>Acknowledgements</b>	3
<b>Introduction</b>	4
<b>General Ability-Based Outcomes</b>	6
Outcome 1 – Professionalism and Ethical Behaviour	6
Outcome 2 – Scientific Reasoning, Critical Thinking and Problem-Solving	8
Outcome 3 – Communication	10
Outcome 4 – Teamwork/Interdisciplinarity	12
Outcome 5 – Self-Directed Learning Abilities/Life-Long Learning	13
Outcome 6 – Leadership	14
Outcome 7 – Advocacy	16
<b>Specific Outcomes</b>	17
Outcome 1 – Practice Pharmaceutical Care	17
Outcome 2 - Assume Legal, Ethical and Professional Responsibilities	20
Outcome 3 - Provide Drug Information, Educate About Drugs and Promote Health	22
Outcome 4 – Coordinate Drug Distribution and Service Delivery	24
Outcome 5 - Understand and Apply Practice Management Principles	26
Outcome 6 – Understands and Applies Principles of Research Methods	27
<b>Glossary of Terms</b>	29

## **ACKNOWLEDGEMENTS**

Two documents from the Association of Faculties of Pharmacy of Canada, “Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada, May 25, 1998” and “Educational Outcomes for a Post-Baccalaureate Doctor of Pharmacy Graduate in Canada, June 12, 1999” were used as the starting point for these outcomes. Many of the outcomes are reproduced with modifications and reorganization. Several other documents were used as resources including two documents from the American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education “Educational Outcomes 1998” and “Educational Outcomes 2004”, the National Association of Pharmacy Regulatory Authorities “Model Standards of Practice 2003” and the Faculty of Pharmacy, University of Montreal “Educational Outcomes for a Professional Doctor of Pharmacy (Pharm.D.) graduate, Working Paper, December 10, 2003”. With permission, the format and much of the content of the general outcomes has been adapted from the Faculty of Pharmacy, University of Montreal “Educational Outcomes for a Professional Doctor of Pharmacy (Pharm.D.) Graduate, Working Paper, December 10, 2003”. The Task Force would like to acknowledge the work of the faculty members from the University of Montreal Faculty of Pharmacy.

Financial support was provided to the AFPC Task Force on Entry-Level Pharm. D. Outcomes by Merck Frosst who also supported the translation of the “Educational Outcomes for a Professional Doctor of Pharmacy (Pharm.D.) Graduate, Working Paper, December 10, 2003” in April 2004.

Members of the AFPC Task Force on Educational Outcomes for an Entry-Level Doctor of Pharmacy Graduate included Tom Brown, Claude Mailhot, Susan Mansour (Chair), Sylvie Marleau, Sharon Mitchell, and Anne Marie Whelan.

## INTRODUCTION

The AFPC Task Force on Educational Outcomes for an Entry-Level Doctor of Pharmacy Graduate was struck by the Council of AFPC in 2004. The Task Force was charged with the responsibility to develop Educational Outcomes for Entry-Level Doctor of Pharmacy Graduates. An initial draft was presented to Council in June 2004 to begin the process of feedback and revision. Feedback was obtained on two separate occasions from each Faculty/College/School of Pharmacy through the AFPC Council. This feedback was reviewed and modifications made.

A major change in the formatting of these outcomes compared with previous AFPC outcomes is the expansion and specificity of general ability-based outcomes. The Task Force felt that these outcomes require more explicit explanation and detail for this type of degree. It was noted that this is consistent with several other health professions.

**Knowledge** is not shown as a general or specific outcome; rather it is considered essential to meet all or most of the outcomes. Broad-based and pharmacy-specific knowledge are both **required** of pharmacy graduates.

Changes from the AFPC document “Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada, May 25, 1998” to other general outcomes include the following:

- thinking has been expanded to general outcome #2 “Scientific reasoning, critical thinking and problem-solving”;
- planning is found under general outcome #4 “Teamwork/interdisciplinarity”, general outcome #6 “Leadership” and specific outcome #6 “Understand and apply management principles”;
- communication has been expanded in general outcome #3 “Communication”;
- values and ethical principles have been expanded in general outcomes #1 “Professionalism and ethical behaviour”;
- self-directed learning has been expanded in general outcome #5 “Self-directed learning abilities/life-long learning”;
- professionalism is found under general outcome #1 “Professionalism and ethical behaviour” and general outcome #7 “Advocacy”;
- citizenship is found under general outcome #6 “Leadership”.

Specific outcomes have also been expanded in some areas where it was considered important to provide a deeper understanding of their meaning for this level of graduate. Elements have been added to Outcome #1 “Practice Pharmaceutical Care” and Outcome #2 “Assume Legal, Ethical and Professional Responsibilities”. Previous outcomes 3 and 4 for the baccalaureate degree “Provide Drug and Drug Use Information and Recommendations” and “Educate About Drugs, Drug Use and Health Promotion” have been combined and slightly expanded into Outcome #3 “Provide Drug Information, Educate About Drugs and Promote Health”. The previous outcome #5 “Manage Drug Distribution” has been changed and expanded in “Coordinate Drug Distribution and Service Delivery”. The previous outcome #6 “Understand Practice Management Principles” has also been changed to “Understand and Apply Practice Management Principles” and reflects a higher level of expectation. The previous outcome #7 “Apply the

Principles of Scientific Inquiry to Contribute to the Profession and Society” has been split into several outcomes. General Outcome #2 now encompasses the principles of scientific inquiry more broadly into “Scientific Reasoning, Critical Thinking and Problem-Solving”. Elements of the ideas in the old specific outcome #7 are also found in general outcomes #1, 6 and 7. Finally, the new outcome #6 “Participate in Research” retains the need to understand and be able to participate in pharmacy research.

It should be noted that while the “Educational Outcomes 2004” from the American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education have become more generalized than the “Educational Outcomes 1998”, the Task Force felt that it was important to retain a certain level of detail in the AFPC Educational Outcomes for an Entry-Level Doctor of Pharmacy Graduate.

# General Ability-Based Outcomes



## General Outcome One

### Professionalism and Ethical Behaviour

#### Outcome Unit

**Pharmacy graduates exhibit altruism, excellence, honesty and integrity, accountability, a sense of duty, commitment and respect for others.**

#### Outcome Elements

- 1.1. Respect their patients, consider their needs and expectations and, in a broader sense, respect others.
  - 1.1.1. “subordinate their personal interests to those of their patients
  - 1.1.2. are fair and avoid any preconceived judgments or discrimination
  - 1.1.3. respect the basic rights and freedoms of others
  - 1.1.4. respect and protect the individual’s right to confidentiality
  - 1.1.5. demonstrate sensitivity and tolerance within a culturally diverse society”<sup>1</sup>
- 1.2. Exhibit a sense of belonging, pride and commitment to the profession.
  - 1.2.1. consistently maintain and develop their competencies
  - 1.2.2. contribute to the advancement and development of the profession
  - 1.2.3. exhibit a professional attitude, particularly in terms of the image that they project and the language that they use
  - 1.2.4. acknowledge the roles of professional organizations and professional development

---

<sup>1</sup>from: American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education “Educational Outcomes 1998”

1.3. Exhibit a sense of professional responsibility.

1.3.1. are accessible and demonstrate due diligence

1.3.2. assume responsibility for the results of their actions with patients and colleagues

1.3.3. recognize their limitations and ask for help whenever necessary

1.4. Exhibit a sense of ethics and integrity in the performance of their duties.

1.4.1. make decisions while respecting ethical considerations

1.4.2. show integrity in dealings with patients, colleagues and organizations

1.4.3. honour personal values and apply ethical principles in professional and social contexts

1.4.4. demonstrate behaviour that recognizes cultural and personal variability in values, communication and life styles

1.5. Seek and provide mentorship.

1.5.1. share their knowledge and experience with their peers

1.5.2. participate in the training of future professionals

1.5.3. provide advice and support to and watch over and foster progress of others

1.5.4. seek experienced and trusted advisors for life-long development



## General Outcome Two

### Scientific Reasoning, Critical Thinking and Problem-Solving

#### Outcome Unit

**Pharmacy graduates apply the principles of the scientific process and critical thinking to contribute to patient care, to the Profession and to society.**

#### Outcome Elements

- 2.1. Implement the principles of the scientific process and use them to solve problems commensurate with their complexity and within their clinical, scientific, social, cultural and legal context.
  - 2.1.1. identify the elements of problems and state them clearly and accurately
  - 2.1.2. raise important and relevant questions
  - 2.1.3. systematically gather relevant information using a variety of research methods and tools
  - 2.1.4. analyze information carefully
    - a. evaluate the premises, including biases and prejudices, on which the opinions of others are based
    - b. validate the use made of mathematical calculations and statistical tools
    - c. ensure the accuracy, quality, meaning, relevance and completeness of information, arguments and sources of information
  - 2.1.5. propose plausible solutions based on analyses of the information
  - 2.1.6. arrive at well reasoned solutions through testing alternatives against relevant criteria
  - 2.1.7. consider the context in which solutions are formulated as well as their practical consequences and underlying values
  - 2.1.8. determine and implement informed, defensible solutions
  - 2.1.9. re-evaluate the process, identify successful and unsuccessful elements, and make the appropriate changes

2.2. Possess the skills and attitudes associated with critical thinking.

2.2.1. exhibit curiosity and open-mindedness

2.2.2. broaden their field of expertise and knowledge

2.2.3. call on the reasoning of others to enrich their own understanding of issues

2.2.4. recognize and accept contradiction, ambiguity and the relativity of certain information

2.2.5. are able to adjust their ideas

2.2.6. have the confidence to submit the results of their conclusions to the critical examination by others



## General Outcome Three

### Communication

#### Outcome Unit

**Pharmacy graduates communicate effectively with diverse audiences, using a variety of strategies that take into account the situation, the purpose of the communication and the target audience.**

#### Outcome Elements

##### 3.1. Communicate non-verbally and verbally with others.

- 3.1.1. demonstrate active listening skills and respond appropriately
- 3.1.2. exhibit empathy, tact and respect in their dealings with others
- 3.1.3. are sensitive and adapt well to intercultural and interdisciplinary situations
- 3.1.4. effectively use verbal and non-verbal communication techniques
- 3.1.5. when speaking, use organized thought processes and appropriate vocabulary
- 3.1.6. adapt the content of their arguments to specific contexts and audiences

##### 3.2. Communicate in writing.

- 3.2.1. exhibit comprehension and appropriate interpretation in reading activities
- 3.2.2. write clearly, using organized thought processes and appropriate vocabulary
- 3.2.3. correctly apply the rules of syntax, grammar and punctuation.
- 3.2.4. adapt the content of their arguments to specific contexts and target audiences

##### 3.3. Speak to an audience.

- 3.3.1. appear comfortable, are able to capture and maintain audience attention, use appropriate tone and pace, and use nonverbal language where appropriate
- 3.3.2. organize presentation and have the ability to set and adhere to appropriate time limits
- 3.3.3. respond to and manage interaction with the audience

3.4. Use communication technology.

3.4.1. demonstrate sufficient understanding of information systems to integrate computer and related technology into effective communication

3.4.2. use appropriate etiquette when using information technology



## General Outcome Four

### Teamwork/Interdisciplinarity

#### Outcome Unit

**Pharmacy graduates are cooperative and show respect when working in a team. Pharmacy graduates effectively contribute to determining and achieving objectives. Pharmacy graduates respect their field of expertise and those of others when working in interdisciplinary teams.**

#### Outcome Elements

##### 4.1. Cooperate with team members.

- 4.1.1. consider and pay attention to the interests and needs of others
- 4.1.2. make their points of view known, listen to and respect the opinions of others, defend points of view if necessary
- 4.1.3. adapt their roles to the circumstances and requirements of the team; are able and willing to lead the team
- 4.1.4. contribute to planning, organizing and performing the work to be done and evaluating the results
- 4.1.5. respect the rules established by the group
- 4.1.6. help maintain a healthy work environment and assist with conflict management
- 4.1.7. provide constructive feedback

##### 4.2. Participate in interdisciplinary teams.

- 4.2.1. actively make their expertise available to others and willingly agree to share relevant information, using language that can be understood by all
- 4.2.2. clearly but not rigidly differentiate their discipline from those of other professionals in the interdisciplinary team
- 4.2.3. effectively contribute to defining objectives shared by all of the disciplines concerned
- 4.2.4. actively support other professionals and accept their support without feeling that their professional autonomy is being threatened



## General Outcome Five

### Self-directed Learning Abilities/Life-long Learning

#### Outcome Unit

**Pharmacy graduates recognize their learning needs; develop, use and evaluate learning strategies to gain knowledge and foster the development of competencies and skills throughout their professional lives.**

#### Outcome Elements

- 5.1. Determine the desired areas of knowledge or competency in which they are lacking.
  - 5.1.1. practice self-assessment and use the feedback of others to determine their weaknesses and knowledge gaps
  - 5.1.2. remain curious and willing to learn
  - 5.1.3. develop methods for identifying knowledge gaps
- 5.2. Use appropriate learning activities to ensure their personal and professional development.
  - 5.2.1. update their knowledge, skills and attitudes on an ongoing basis to maintain professional competence
  - 5.2.2. set learning objectives and determine the learning styles and types of activities that suit them to meet identified needs
  - 5.2.3. participate in a variety of learning activities to achieve targeted objectives
  - 5.2.4. critically analyze and assess continuing education activities
- 5.3. Manage and document learning.
  - 5.3.1. create personal archival and retrieval information management systems
  - 5.3.2. create and maintain learning portfolios



## **General Outcome Six**

### **Leadership**

#### Outcome Unit

**Pharmacy graduates proactively improve the profession, facilitate the betterment of the health care system and the health and well being of the community; exhibit self-confidence, initiative, creativity, vision, flexibility and citizenship.**

#### Outcome Elements

6.1. Demonstrate realistic confidence in their abilities.

- 6.1.1. defend their ideas or positions even when unpopular
- 6.1.2. remain positive and professional in difficult situations

6.2. Develop proactive strategies to prevent or solve problems.

- 6.2.1. determine situations in which they should assume leadership
- 6.2.2. clearly put forward their views with conviction

6.3. Develop creative ideas and solutions.

- 6.3.1. are open to new information and approaches
- 6.3.2. challenge conventional methods and propose innovative solutions
- 6.3.3. act as agents of change

6.4. Have vision regarding the future of the profession and its place in the health care system and community.

- 6.4.1. predict emerging roles for the profession within the health care system
- 6.4.2. recognize opportunities, limitations, and potential obstacles to the development of the profession and take steps to address them

6.5. Adapt to people and circumstances.

6.5.1. observe their environment and react by adapting their behaviour to the demands of changing work situations

6.5.2. react promptly to new opportunities and problems

6.6. Demonstrate responsible citizenship.

6.6.1. “demonstrate an appreciation of the obligation to participate in efforts to help individuals and to improve society and the health care system”<sup>2</sup>

---

<sup>2</sup> from: American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education “Educational Outcomes 1998”



## General Outcome Seven

### Advocacy

#### Outcome Unit

**Pharmacy graduates advocate for patients and for the profession.**

#### Outcome Elements

7.1. Advocate for groups of patients to ensure appropriate access to products and services

7.1.1. assist groups of patients in the identification of their needs

7.1.2. develop action plans, in consultation with patient groups, considering desired outcomes, risks and costs

7.1.3. document support for the actions required to meet patients' needs

7.1.4. present information in appropriate written and/or verbal formats to patient groups

7.2. Advocate for the profession.

7.2.1. promote the role of the pharmacist and the impact of the pharmacist in achieving patient outcomes

## Specific Outcomes



### Specific Outcome One

#### Practice Pharmaceutical Care

##### Outcome Unit

**Pharmacy graduates practice pharmaceutical care ethically and compassionately in a professional manner. In partnership with patients and other health care providers, pharmacists 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 professional<sup>3</sup> relationships with their patients and/or the patients' agent<sup>4</sup> that conform to the Code of Ethics of the profession.
  - 1.1.1. establish and maintain rapport with their patients
  - 1.2.2. demonstrate a caring, empathetic, and professional attitude respecting their patients' dignity, need for privacy, education, culture, beliefs, interests and desires
  - 1.1.3. determine, in conjunction with their patients, the responsibilities of the pharmacist and the patient, the benefits of acceptance of these responsibilities and the consequences of not accepting these responsibilities

---

<sup>3</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>4</sup>In the remainder of this document, patient means patient and/or the patient's agent.

- 1.2 Determine their patients' needs and desired outcomes of drug therapy.
  - 1.2.1. use a variety of information sources to elicit their patients' values, desired level of care, health concerns, scope and breadth of health problems and facilitators and impediments to health
  - 1.2.2. assess the accuracy, relevance and impact of the above information
  - 1.2.3. in conjunction with their patients determine reasonable, feasible and desired health-related outcomes
  - 1.2.4. prioritize the desired outcomes
- 1.3. Identify and prioritize their patients' actual and potential drug-related problems.<sup>5</sup>
  - 1.3.1. use a variety of sources to collect the information required to identify the patients' drug-related problems. Includes but not limited to:
    - a. patients' drug therapy, medical and psychosocial history
    - b. relevant information from the patients' medical charts
  - 1.3.2. establish professional contact with the patients' other health care providers in order to gather related health and drug information
  - 1.3.3. perform selected aspects of physical assessment
  - 1.3.4. order lab tests as necessary and permitted by legislation
  - 1.3.5. consult scientific literature
  - 1.3.6. identify drug-related problems
  - 1.3.7. prioritize the drug-related problems
- 1.4. Develop therapeutic and monitoring plans designed to achieve optimal patient outcomes and to resolve/prevent the patients' drug-related problems.
  - 1.4.1. assess alternative strategies (including no treatment, preventive strategies, non-drug treatment, non-prescription and prescription drugs) and select therapeutic options (evidence-based when possible) best suited to their patients in consultation with the patients and, when appropriate, other health care providers
  - 1.4.2. determine the desired therapeutic endpoints
  - 1.4.3. identify appropriate monitoring parameters
  - 1.4.4. formulate monitoring plans
  - 1.4.5. determine the responsibilities of the pharmacist, the patient and the other health care providers
- 1.5 Refer when appropriate.
  - 1.5.1. determine if referrals are necessary
  - 1.5.2. identify the appropriate health care providers or agencies for referral

---

<sup>5</sup>See Glossary for types of drug-related problems.

1.6 Implement therapeutic and monitoring plans and assess the progress of their patients in order to evaluate the outcomes.

- 1.6.1. implement therapeutic care plans, which may include but are not limited to:
  - a. recommend no treatment, nonprescription drugs, prescription drugs, compliance aids, medical devices and/or nonpharmacologic measures
  - b. prescribe/administer drugs in compliance with the legal guidelines/standards/rules
  - c. initiate or adjust drug therapy according to prescriptions
  - d. supply their patients with the appropriate treatments
  - e. provide emergency first aid treatment and cardiopulmonary (CPR) if other more qualified personnel are not available
- 1.6.2. counsel patients on relevant information regarding their therapeutic care plans
  - a. choose and adapt verbal information to meet their patients' needs
  - b. choose and adapt written information to meet their patients' needs
- 1.6.3. convey relevant information verbally or in writing to other members of the health care team and/or to patients' caregivers to ensure continuity of care
- 1.6.4. provide services in accordance with legal obligations, professional and ethical standards and health care policies
- 1.6.5. assume responsibility for all recommendations
- 1.6.6. implement the monitoring plans for follow-up care

1.7. Revise the patients' lists of drug-related problems, the prioritization, and the therapeutic and monitoring plans when appropriate.

- 1.7.1. interpret relevant information collected as determined in the monitoring plan
- 1.7.2. evaluate the safety and efficacy of the therapeutic and monitoring plans relative to the desired patient outcomes
- 1.7.3. refine or revise the plans as necessary
- 1.7.4. provide ongoing care, education and counselling
- 1.7.5. obtain feedback on the quality of the care process
- 1.7.6. undertake required communication with other health care providers, including continuity of care/transfer of care to other pharmacists.

1.8. Document pharmaceutical care activities including patient information, desired outcomes, drug-related problems, assessment, referrals, recommendations, interventions, follow-up and outcomes.

- 1.8.1. identify the objectives of the documentation
- 1.8.2. maintain medication profiles, medical history and patient information
- 1.8.3. document the required patient-specific information and care provided and outcomes/follow-up
- 1.8.4. document communication with other health care providers and health/social agencies
- 1.8.5. document communication with third party payers
- 1.8.6. participate in adverse effect notification and medication error reporting programs.



## Specific Outcome Two

### Assume Legal, Ethical and Professional Responsibilities

#### Outcome Unit

**Pharmacy graduates will be able to practice within legal requirements, and the ethical and professional standards of practice, and fulfil professional responsibilities.**

#### Outcome Elements

- 2.1. Demonstrate an understanding of the Canadian health care system and the profession of pharmacy's role within the system.
  - 2.1.1. identify the federal and provincial governments' roles in the health care system
  - 2.1.2. contribute to decision making regarding the safe, effective and efficient use of drugs
  - 2.1.3. describe how policy development is influenced in public and private health care
  - 2.1.4. describe 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 their patients.
  - 2.3.1. ensure patient confidentiality
  - 2.3.2. advocate their patients' best interests
  - 2.3.3. involve their patients in decision-making
  - 2.3.4. respect the right of patients to make their own choices
  - 2.3.5. abide by the principle of nonabandonment<sup>6</sup>
  - 2.3.6. use ethical frameworks in decision-making

---

<sup>6</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.

- 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. Apply legal and ethical principles to given clinical situations in which legal, ethical, and professional issues are overlapping and/or conflicting.



## Specific Outcome Three

### Provide Drug Information, Educate About Drugs and Promote Health

#### Outcome unit

**Pharmacy graduates provide information and recommendations to health professionals and the public concerning drugs, drug use and health promotion to ensure optimum and cost effective patient care.**

#### Outcome Elements

##### 3.1. Provide drug information to health professionals and the general public.

- 3.1.1. identify needs for information and recommendations on drugs
  - a. determine the contexts in which requests are made and the individuals' levels of knowledge and understanding
  - b. identify and reformulate the information needs of their target audience
- 3.1.2. respond to these needs with consideration of pharmacoepidemiology, pharmacoconomics and pharmacotherapeutics
  - a. use the necessary retrieval techniques to access the required drug-related information
  - b. critically analyse the information
  - c. organize information for a variety of audiences, determine critical content, formulate recommendations as relevant, and use appropriate methods for dissemination/communication
  - d. evaluate the usefulness of the information provided
  - e. document the information provided
  - f. create archival and retrieval information management systems

##### 3.2. Promote public awareness of health and disease.

- 3.2.1. identify needs for information and recommendations on drugs
  - a. identify barriers to and facilitators of health and wellness in individuals and groups

- 3.2.2. design, implement and evaluate educational programs for events related to drugs, drug use or health promotion
  - a. identify learning needs of their audience
  - b. collaborate with patients and other health care providers in the development of strategies
  - c. assess personal abilities to carry out particular educational plans
  - d. select educational techniques appropriate for the learners
  - e. select and organize content
  - f. implement their educational plans
  - g. assess outcomes

3.3 Develop and participate in programs on medications and their use.



## Specific Outcome Four

### Coordinate Drug Distribution and Service Delivery

#### Outcome Unit<sup>7</sup>

**“Pharmacy graduates manage and use resources of the health care system to provide, assess and coordinate safe, accurate, cost-effective and time-sensitive medication preparation and dispensing to meet patients’ requirements and to improve therapeutic outcomes of medication use in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel.”**

#### Outcome Elements

4.1. Participate in drug and health-related product preparation, distribution and delivery of services.

4.1.1. supervise and undertake:

- a. interpretation of drug orders
- b. pharmaceutical calculations
- c. dispensing of pharmaceuticals and health-related products
- d. preparation of extemporaneous compounds
- e. preparation of sterile products
- f. provision of professional services

4.1.2. identify storage and handling conditions, and stability problems

4.1.3. document, report and resolve drug errors

4.1.4. ensure the existence of programs to prevent, detect and resolve drug errors

4.2. Supervise inventory management.

4.2.1. choose appropriate sources of supply and maintain adequate supplies

4.2.2. ensure appropriate storage/disposal of pharmaceuticals and related products

4.3. Comply with relevant legislation, regulations and standards governing pharmacy practice.

<sup>7</sup> from: American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education “Educational Outcomes 1998”

- 4.3.1. adhere to distribution policies and procedures
- 4.3.2. identify and resolve problems in the drug distribution system
- 4.3.3. detect, document, report, and respond appropriately to situations of drug abuse or misuse

4.4. Justify and explain the value of provided services.



## Specific Outcome Five

### Understand and Apply 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. Pharmacy graduates apply relevant principles in everyday practice.**

#### Outcome Elements

- 5.1. Participate in human resource management.
  - 5.1.1. supervise the work team
  - 5.1.2. delegate tasks appropriately
  - 5.1.3. motivate the work team
  - 5.1.4. participate in staff selection, training, development and evaluation
- 5.2. Effectively manage workload.
  - 5.2.1. demonstrate organizational skills
  - 5.2.2. prioritize and organize work flow
  - 5.2.3. demonstrate time management skills
- 5.3. Understand, participate in, and develop quality improvement programs.
- 5.4. Demonstrate an understanding of marketing principles in the context of supply and demand for professional services.
- 5.5. Demonstrate an understanding of the role of technology to improve practice.
- 5.6. Demonstrate an understanding of the important components of management, including resource management, inventory management, formulary system, strategic planning, and policy development.



## Specific Outcome Six

### Understands and Applies Principles of Research Methods<sup>8</sup>

#### Outcome Unit

**Pharmacy graduates, in partnership with researchers and other health care professionals, understand research principles and apply them to sustain and assist in the continual development of pharmacy as a profession, and the optimal design, delivery and utilization of medications.**

#### Outcome Elements

- 6.1. Understand the need for the creation and discovery of new information as it pertains to the continual development of the profession and optimization of pharmacotherapy.
  - 6.1.1. recognize the need for research and how it can be used in the profession of pharmacy
  - 6.1.2. describe various research methods, their advantages, disadvantages and limitations
  - 6.1.3. determine the essential components of a research project
- 6.2. Apply principles of research methods and participate in drug utilization evaluation, continual quality improvement and/or practice-based problems.
  - 6.2.1. recognize relevant problems
  - 6.2.2. define the parameters of the problems
  - 6.2.3. retrieve and assess reports/literature relevant to the problems
  - 6.2.4. formulate research questions/hypotheses
  - 6.2.5. design projects
- 6.3. Use results from projects or from the literature to propose changes and re-evaluate the problems.
  - 6.3.1. demonstrate an understanding of the process of making change
  - 6.3.2. identify changes indicated by research results

---

<sup>8</sup> The term “participate” in this Outcome refers to pharmacy graduates’ participation in research conducted or led by others. The term “applies” in the title of the Outcome and the phrase “uses results from” in 6.3 refer to the application of research results from the research of others. This Outcome should not be read to imply that every pharmacy graduate will conduct research.

6.3.3. plan for change

6.3.4. determine how changes will be evaluated

6.4. Understand and adhere to ethical research principles.

6.4.1. identify relevant ethical issues related to research

6.4.2. identify how the relevant issues could be addressed

## 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