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## **Education Programs: Guidelines to Develop Programs for Hospital Pharmacists (1996)**



Canadian Society of Hospital Pharmacists  
Société canadienne des pharmaciens d'hôpitaux

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## **Education Programs: Guidelines to Develop Programs for Hospital Pharmacists**

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# Education Programs: Guidelines to Develop Programs for Hospital Pharmacists

## INTRODUCTION

Pharmacists and other staff members deliver and participate in educational programs. Such programs assist pharmacists to gain knowledge and develop new skills that will help them meet the challenges posed by change. These guidelines are intended to be a tool for developing effective education programs for colleagues and other staff. The guidelines provide pharmacists who develop education programs with some basic knowledge of adult education principles and the educational program planning process. This is the original edition of the guidelines that were approved under the title of Developing Education Programs for Hospital Pharmacists; the title was fine-tuned in 2009.

## 1. SCOPE

These guidelines provide an introduction to adult education principles, and practical information on planning, designing, implementing and evaluating education programs for hospital pharmacists and other staff.

CSHP Mission:

CSHP is the national voice of pharmacists committed to the advancement of safe, effective medication use and patient care in hospitals and related healthcare settings.



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### 2. GLOSSARY OF TERMS, ABBREVIATIONS, AND SYMBOLS

The definitions given below apply to the terms used in these Guidelines. They may have different meanings in other contexts.

<b>Education</b>	The acquisition of new knowledge, skills or attitudes that takes place in response to instruction.
<b>Formative evaluation</b>	Evaluation or assessment that takes place during an educational program. It may apply to evaluation of both the learner and the educational program.
<b>Instruction</b>	The purposeful arrangement of information and environment (facilities, techniques, media, instructional strategies) to promote learning.
<b>Instructional goals</b>	Broad statements of purpose for the educational program.
<b>Instructional strategy</b>	The way the educational program is put together to present the new information using the desired instructional techniques and media to help the learner achieve the performance objectives.
<b>Instructional techniques</b>	Procedures or methods of instruction that are selected to help learners achieve the objectives or to internalize the content or message.
<b>Job analysis review</b>	A review of the skills, knowledge, attitudes, prerequisites and education required to perform a job.
<b>Learner</b>	The person to whom instruction is targeted.
<b>Learning</b>	The acquisition of new knowledge, skills or attitudes.
<b>Learning style</b>	The way individuals learn new things, solve problems, deal with others, and cope with situations.
<b>Medium</b>	A means of communication that carries information between a source and a receiver. Instructional media carry a message with an instructional purpose.
<b>Needs analysis</b>	A process to identify problems, including the nature of the problem, how important it is, why it exists, and possible ways of addressing the problem.
<b>Performance objectives</b>	Clear statements of what the learner is expected to be able to do at the end of the education program.
<b>Summative evaluation</b>	Assessment or evaluation that takes place after an educational program is finished. It may be applied to evaluation of both the learner and the educational program.
<b>Training</b>	Education that is focused on development of specific skills, often in a work-related context.

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### 3. ADULT EDUCATION PRINCIPLES

#### 3.1

Basic principles of adult learning should be considered in all phases of planning, delivering and evaluating education programs.

#### 3.2

The following adult education principles may be considered but may not apply to all learners in all circumstances:

- a) adults have a wide range of professional and personal experiences which not only influence their attitude toward learning, but can be useful teaching/learning resources;
- b) adults are usually volunteer learners who are more motivated to learn when they take the initiative to learn based on their specific needs;
- c) adults' learning needs may differ at different stages of their lives and careers;
- d) adults have both extrinsic and intrinsic motivation for learning;
  - i) extrinsic motivators such as promotion, higher salary, or meeting departmental or professional requirements can be effective but may not produce the same effort or enthusiasm for learning as intrinsic motivators;
  - ii) intrinsic motivators such as confidence, self-esteem, career satisfaction or a commitment to an ideal are more likely to result in a successful educational experience;
- e) adults are problem-oriented and want to learn specific knowledge and skills that will be directly applicable to their situation;
- f) adults like to focus on real-life problems they have encountered;
- g) adults like to take an active part in learning and prefer concrete hands-on experience to passive learning;
- h) adults are often independent, wanting to accomplish things for themselves and rely on their own knowledge and experience to solve problems;
- i) adults need to be directly involved in planning and directing their personal learning activities;
- j) adults have numerous roles (e.g., parent, spouse, employee, supervisor) which may interfere with their role as a learner;
- k) adults are busy, with numerous other responsibilities competing for their time, attention and energy; and
- l) because adults are resistant to change, they may resist new ideas that are in conflict with pre-existing knowledge or preconceived ideas.

### 4. EDUCATIONAL PLANNING PROCESS

#### 4.1 Overview of the Planning Process

##### 4.1.1

How instruction is designed and implemented affects both what is learned and how the new knowledge, skill or attitude will be used. Educational programs should be designed and implemented using a systematic planning process to ensure the desired outcomes of instruction are achieved.

##### 4.1.2

The educational planning process should minimally consist of:

- a) conducting a needs analysis;
- b) setting objectives;
- c) selecting the instructional technique(s);
- d) selecting the media to be used;
- e) developing an instructional strategy; and
- f) evaluating both learner and program.

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### 4.2 Needs Analysis

#### 4.2.1

To give direction and purpose to the educational program a needs analysis should be done.

#### 4.2.2

The first stage of the needs analysis should identify a performance gap, which is the discrepancy between the current situation and the desired situation.

##### 4.2.2.1

The current situation may be defined using a combination of:

- a) interviews with individuals;
- b) focus groups;
- c) surveys or questionnaires;
- d) performance assessments;
- e) peer review;
- f) observations;
- g) quality assurance data; and
- h) critical incident reports.

##### 4.2.2.2

The desired situation may be defined using a combination of:

- a) group discussions;
- b) surveys or questionnaires;
- c) literature reviews;
- d) job analysis review;
- e) information from other institutions or colleagues;
- and
- f) guidelines, standards, laws.

#### 4.2.3

In the second stage of the needs analysis, performance gaps should be further defined by considering:

- (a) the importance of the need;
- (b) the implication of not addressing the need;

(c) if education or training is the best way to address the need; and

(d) skills and resources required to address the need.

#### 4.2.4

For performance gaps that are best addressed by education or training, the intended learning group should be analyzed by considering:

- a) their current knowledge or skill level;
- b) their background knowledge and experience, including whether they have the prerequisite background and/or experience;
- c) their work site and responsibilities;
- d) if they participated in identifying the need;
- e) if the proposed change is a threat to their current performance;
- f) if they see value in changing their performance; and
- g) if they believe the desired performance is attainable.

### 4.3 Objectives

#### 4.3.1

The performance gap identified and characterized by the needs analysis should be used to develop:

- a) instructional goals for the educational program; and
- b) performance objectives for the learner.

#### 4.3.2

Instructional goals and performance objectives should be used to guide the design, implementation and evaluation of the educational program. Together, well-stated instructional goals and performance objectives should:

- a) identify the new knowledge, skills, or attitudes that the learner should acquire by the end of the educational program;
- b) establish the desired level of achievement;

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- c) define the content;
- d) determine the sequence of learning activities;
- e) guide the selection of instructional techniques and media; and
- f) provide a framework for evaluation of both the program and the learner.

### 4.3.3

Instructional goals should identify the purpose of the educational program in terms of the expected learner outcome stated in measurable, observable actions.

### 4.3.4

Performance objectives should be developed for each of the components that make up the instructional goal. Complete, well developed performance objectives should be stated using the **ABCDs** to specify what the learner will be able to do at the end of the educational program:

- a) **Audience:** the learner who will achieve the objective (e.g., the pharmacist will be able to ...);
- b) **Behaviour:** the new knowledge, skill or attitude to be acquired stated as an observable action (see Appendix A) (e.g., ... identify drug-related problems ...);
- c) **Conditions:** the situation under which the performance will be observed (e.g., ... when presented with a patient receiving drug therapy ...); and
- d) **Degree:** the standard or criterion for acceptable performance stated using qualitative or quantitative terms (e.g., ... identify all drug-related problems ...).

### 4.3.5

The behaviour component of performance objectives should be stated using an action verb appropriate to the type of learning outcome that is important (see Appendix A). The major types of learning outcomes which should be considered include development of:

- a) intellectual skills (e.g., knowledge, comprehension, application, problem-solving);
- b) motor skills;
- c) attitudinal skills; and
- d) interpersonal skills.

## 4.4 Instructional Techniques

### 4.4.1

Appropriate instructional techniques should be chosen to enhance the learning process and help learners achieve the desired performance objectives.

### 4.4.2

Factors that should be considered when choosing an instructional technique include:

- a) setting or learning environment (e.g., large group versus small group, on-site versus distance);
- b) type of desired learning outcome (e.g., intellectual, motor skill, attitude, interpersonal skill);
- c) learner characteristics (e.g., learning styles, preferences, needs, capabilities);
- d) feedback opportunities offered by the technique; and
- e) available resources, including facilities and media.

### 4.4.3

A combination of the following instructional techniques should be considered:

- a) lecture: useful to present new information to large groups;
- b) discussion: useful to encourage application of knowledge, problem-solving, stimulate learner interaction, and develop interpersonal skills;
- c) role-playing or simulation: useful for practising a skill, promoting attitudinal change, or developing interpersonal skills;
- d) case studies: useful to learn problem-solving strategies and develop analytical skills;

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- e) brainstorming: useful to generate new ideas in a nonthreatening environment and develop interpersonal skills; and
- f) demonstration: useful to teach motor skills or procedures.

### 4.5 Instructional Media

#### 4.5.1

Media should be chosen to enhance the instructional technique and help learners achieve the desired performance objective. Most media may be adapted for use with a variety of instructional techniques.

#### 4.5.2

A combination of the following types of media should be considered:

- a) print (e.g., books, journals, self-instructional modules);
- b) nonprojected visuals (e.g., chalkboard, whiteboard, flipcharts, diagrams, pictures, models, real objects);
- c) projected visuals (e.g., overhead transparencies, slides, computer LCD panel);
- d) motion media (e.g., videotapes);
- e) audio (e.g., lecture, audiotapes, audio CD);
- f) computers (e.g., computer-assisted learning programs, databases, CD-ROM multimedia systems); and
- g) telecommunications (e.g., audio/video/computer conferencing, television, Internet).

### 4.6 Instructional Strategy

#### 4.6.1

For every educational program, an instructional strategy should be developed which incorporates these four main components:

- a) preparation of the learner for instruction;

- b) presentation of new information;
- c) participation of the learner to help them process the new information; and
- d) practice with feedback to consolidate new information and skills.

#### 4.6.2

Preparation of the learner for instruction should be included in the introductory part of the education program to:

- a) gain the learner's attention;
- b) establish the relevance of instruction to the learner;
- c) help the learner recall existing knowledge; and
- d) review the objectives of the program, presentation or class.

#### 4.6.2.1

The technique that is used to prepare the learner for instruction should be chosen based on the type of learning outcomes that are important. Preparation may be achieved by:

- a) presenting an interesting question, problem situation, or case;
- b) providing an example of the concept or demonstration of the skill to be learned;
- c) asking questions to stimulate recall of existing knowledge;
- d) explaining why the information to be presented is relevant or how it might be used; and
- e) reviewing the objectives of the lesson or program.

#### 4.6.3

In the presentation stage of the program, the information that is included should be:

- a) relevant to the intended audience;
- b) current;
- c) organized in a clear, logical manner;
- d) organized in a simple-to-complex progression; and
- e) illustrated with examples whenever possible.



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### 4.6.3.1

Information should be presented in a variety of ways, using any combination of:

- a) definitions;
- b) background information;
- c) statements of facts;
- d) statements of principles;
- e) examples and nonexamples;
- f) graphics and illustrations;
- g) problem situations/case studies;
- h) procedure lists;
- i) demonstrations; and
- j) summaries.

### 4.6.4

Opportunities for learner participation should be incorporated into all education programs to:

- a) give learners a chance to use their existing knowledge;
- b) help learners relate new information to previous knowledge; and
- c) help learners make new information relevant to their situation.

#### 4.6.4.1

Participation exercises should be developed that are appropriate for the type of learning outcomes that are important. Participation may be achieved by questions or activities which require learners to:

- a) organize information in a way that is meaningful to them;
- b) highlight important points by summarizing or paraphrasing;
- c) provide examples based on their experience;
- d) think of similar problems they have encountered in the past;
- e) think of situations in which they can use the new information;
- f) think through the steps of a procedure before they try it; or

g) visualize themselves performing an activity, skill or procedure.

### 4.6.5

To help learners transfer new knowledge and skills from the educational program into their work or life situation, they should be given a chance to practice using them during the educational program. Informative feedback should be included to help the learner determine if they have achieved the objectives, and identify where learning has been inadequate or incorrect.

#### 4.6.5.1

The type of practice that is incorporated into the educational program should be chosen based on the type of learning outcomes to be achieved, and the practice exercises should relate directly to the performance objectives. Practice may be achieved by exercises in which the learner is asked to:

- a) recall, summarize or interpret information;
- b) classify examples of a concept;
- c) apply principles to questions or scenarios illustrating various situations;
- d) perform a procedure, or steps of a procedure;
- e) demonstrate a skill; or
- f) solve increasingly more complex problems using the new information and problem-solving strategy.

### 4.6.6

Additional factors should be considered to enrich the educational program and make it more interesting and appealing for learners. These factors include but are not limited to:

- a) providing guidance to help the learner work through both self-instructional material and practice exercises during a class or presentation;
- b) presenting information in a variety of ways or using alternative forms of presentation to help reinforce important points, reach different learning styles, and make the program more interesting;

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- c) incorporating activities that make the program enjoyable and even fun to motivate the learner; and
- d) giving the learner some control over the educational program.

### 4.7 Evaluation

#### 4.7.1

Evaluation should be an ongoing process that assesses both:

- a) learner achievement of the performance objectives; and
- b) the education program itself.

#### 4.7.2

Methods for evaluating learner achievement shall be developed based on the performance objectives. One or a combination of the following methods may be chosen:

- a) actual performance;
- b) simulation;
- c) demonstration;
- d) oral responses; and
- e) written responses.

##### 4.7.2.1

The method of learner evaluation should be chosen based on the type of learning outcome that is reflected in the performance objective. Consider the following evaluation methods for each type of learning outcome:

- a) intellectual skills (knowledge/comprehension): oral or written responses;
- b) intellectual skills (application/problem-solving): actual performance, simulation, demonstration;
- c) motor skills: actual performance, simulation, demonstration;
- d) attitudinal skills: actual performance, simulation; and

- e) interpersonal skills: actual performance, simulation, demonstration.

##### 4.7.2.2

Actual performance may be evaluated in on-the-job conditions over a sustained period of time using a combination of:

- a) examining work samples;
- b) observing actual work;
- c) gathering supervisor, peer, and/or customer feedback; and
- d) using self-assessment ratings

##### 4.7.2.3

Evaluation in a simulated or controlled environment may be done using:

- a) role playing;
- b) computerized simulation; and
- c) case scenarios.

##### 4.7.2.4

Evaluation using demonstration may be incorporated as an extension of practice with feedback during the educational program, providing the learner is given a chance to practice and receive feedback before the evaluative demonstration.

##### 4.7.2.5

Indirect evaluation by asking questions and having the learner respond orally may be done by:

- a) oral examinations;
- b) interviews; and
- c) presentations.

##### 4.7.2.6

Indirect evaluation by having the learner respond to written questions or test items may be done by:

- a) selected response tests, such as multiple choice, true/false, matching questions; and,

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b) constructed response tests, such as essay questions, calculations, short-answer questions, completion questions, written reports, projects

### 4.7.2.7

A standardized tool, such as a rating scale, checklist, or answer key, should be used with each of these methods to provide consistent evaluation between learners.

### 4.7.3

Evaluation of the education program should include both:

- a) formative evaluation, which assesses the program while it is in progress; and
- b) summative evaluation, which assesses the program after it is completed.

#### 4.7.3.1

Formative evaluation may consist of any or all of:

- a) expert review of the program content to ensure it is valid, relevant to practice, and current;
- b) developmental testing using a small number of “test learners” from the target audience to identify areas where the program needs to be improved or modified before full-scale implementation; and
- c) field testing using a larger group of learners who complete the program and provide feedback on content, process, and learner achievement.

#### 4.7.3.2

Summative evaluation should be done after the educational program is completed to determine the success of the program in closing the performance gap that was identified in the needs analysis. Depending on the type of education program which was undertaken, three stages of summative evaluation which should be considered are:

- a) reviewing the program’s goals and establishing criteria for collecting data to determine if these have been met;

b) collecting data to determine if the program’s goals were met, using any or a combination of:

- i) questionnaires;
- ii) interviews;
- iii) performance data;
- iv) observations during the program;
- v) on-the-job observations after the program; or,
- vi) document analysis (e.g., meeting minutes, statistics, personnel files); and

c) analyzing the data, which may include:

- i) analysis of impact on the organization, employees, customers; and
- ii) cost-benefit or cost-effectiveness analysis.

### 4.7.4

For ongoing educational programs, the results of the formative and summative evaluations should be continually examined to determine what revisions are necessary to improve learner achievement and/or the educational process.

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### APPENDIX A: ACTION VERBS FOR USE IN PERFORMANCE OBJECTIVES

#### Action Verbs for Intellectual Skills

adapt	analyze
apply	arrange
assemble	assess
assign	build
calculate	categorize
characterize	classify
collect	compare
compile	compose
compute	conclude
construct	contrast
convert	correlate
create	critique
deduce	defend
define	demonstrate
derive	design
detect	determine
develop	devise
diagnose	discover
discriminate	discuss
distinguish	divide
equate	estimate
evaluate	examine
explain	extrapolate
file	follow
formulate	generalize
generate	grade
group	identify
illustrate	indicate
infer	inspect
invent	inventory
itemize	list
locate	manufacture
monitor	order

organize	outline
plan	predict
prescribe	present
produce	program
project	propose
quote	rank
rate	recall
recite	record
reiterate	reject
repeat	revise
screen	select
separate	solve
sort	specify
state	study
summarize	synthesize
tabulate	translate
troubleshoot	use
verbalize	verify
write	

#### Action Verbs for Attitudes

accept	appreciate
believe	choose
describe	favour
follow	influence
participate	reject
support	

#### Action Verbs for Motor Skills

adjust	align
close	connect
disconnect	execute
grasp	insert
install	lift
load	loosen
make	manipulate
measure	move
open	prepare
press	pull
push	reconstruct
remove	replace
rotate	set

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signal

tighten

### Action Verbs for Interpersonal Skills

ask

clarify

criticize

defend

develop

enhance

exclude

include

propose

recommend

restate

suggest

summarize

### APPENDIX B: ADDITIONAL RESOURCES FOR DEVELOPING EDUCATION PROGRAMS

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**Note:** *this reference provides some useful tips for instructors or facilitators to help them deliver a successful education program.*

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