

ONTARIO BASE HOSPITAL GROUP

EDUCATION DEVELOPMENT REFERENCE DOCUMENT

January 2019

Version 1.0



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PREFACE

This document has been created by the Education Subcommittee to standardize the creation of education of paramedics in the Province of Ontario. The agreed-upon process follows an evidence-based standard in clinical education. Each Regional Base Hospital Program will be responsible for ensuring the guideline is followed, and as such, any educational content created will be transferable in an effective and familiar manner among Regional Base Hospital Programs. A standardized approach to education will also enable cross-certification among Regional Base Hospital Programs to occur in a seamless fashion.

OBHG – MAC MANDATED EDUCATION

The ESC will utilize the following process when developing standardized provincial education on behalf of the OBHG MAC and apply the following procedural steps as part of the educational design.

1. ESC approved learning objectives will be submitted to the MAC for endorsement.
2. Education will be developed to meet the MAC endorsed learning objectives as per the Education Development Reference Document.
3. The ESC physician advisor(s) will participate in the education development to ensure medical accuracy and provide MAC with confirmation that the education is medically accurate.
4. ESC will beta test and amend education as required with ESC physician input.
5. ESC will review final educational content and endorse.

DEFINITIONS

Performance

Using cognitive, affective, and psychomotor ability to commit or omit actions.

Proficiency

Advancing cognitive, affective, and psychomotor ability.

Education Need

Knowledge, skill, and attitude required based on emerging literature, emerging technology, degradation in proficiency, or to improve proficiency.

Gap Analysis

Measuring the difference between desired knowledge, skill or attitude and current knowledge, skill, or attitude.

Assessment

Measuring proficiency.

Reliability

The ability of an assessment tool to reach similar conclusions during successive uses.

Validity

The extent to which a test appropriately measures the intended testing.

Performance Threshold

A pre-determined level or degree of demonstrated proficiency.

Competence

Proficiency at or above a pre-determined performance threshold when assessed in a domain of possible encounters.

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Performance Outcome

The desired cognitive, affective, and psychomotor ability post-education.

Learning Objective

Description of the knowledge, skill, or attitude taught in a lesson.

Evaluation

Measuring to what extent a lesson achieved the learning objectives and performance outcome described.

Pedagogy

The science of education; science-based education theory. Examples include behaviourism, constructivism, social constructivism, experiential learning, scaffolding and more.

EDUCATION DEVELOPMENT PROCEDURE

1) CONDUCT A NEEDS ASSESSMENT

Identify performance outcomes desired. This identification can be driven by the degradation of proficiency over time, a desire for improved proficiency, new knowledge from emerging literature, new psychomotor ability from emerging technology, mandate from the Ministry of Health or Medical Advisory Committee, recommendation from the Coroner's office, etc.

A source determination should be identified as above, or from research, a gap analysis, or previous education evaluation¹.

Example of a performance outcome:

Paramedics will bypass STEMI patients to the PCI centre.

2) CREATE LEARNING OBJECTIVES

Break the performance outcomes into specific learning objectives. For each performance outcome desired a list of educational objectives for each knowledge, skill, and attitude required to achieve that outcome should be created^{2,3}.

Example learning objectives:

The paramedic will apply ECG electrodes in the correct positioning for 12-lead diagnostic (psychomotor).

The paramedic will recognize an ST-elevation MI on a 12-lead ECG (cognitive).

The paramedic will choose to divert from the nearest hospital to the PCI centre (affective).

3) IDENTIFY PERFORMANCE ASSESSMENTS

A method for collecting the performance data and assessing it for the individual and the group is required to ensure the objectives are met and the lesson is effective. The method of assessment must match the objectives^{1,5-9}. The assessment process should demonstrate reliability and validity. Some assessment methods include written tests, rubrics, checklists, surveys, and global rating scales.

For example, a written test can assess cognitive and affective objectives, but cannot assess psychomotor. A written test must have items created that assess the intended knowledge or attitude and the test itself must be assessed as part of the individual assessment for inappropriate items which can skew the results.

For another example, an observational checklist can be used to assess psychomotor performance. However, consideration of the details of performance such as timeliness, duration, accuracy, quality, and the importance of each action must be weighed. *The electrode was placed in the correct location, but it was done with uncomfortable force and technique for the patient.*

4) CHOOSE INSTRUCTION METHODS

Depending on the specific objectives required, the audience, and the resources available, an evidence-based pedagogy and method should be applied to achieve the learning objectives. Learning theories are numerous and flexible such as constructionism, constructivism, experiential, etc^{1,4}. Methods should be congruent and match the pedagogy and objectives, such as simulation, discussion, reflection, problem-based, deliberate practice, etc. There may be many lessons created, each containing at least one, and as many as a handful of learning objectives organized into a particular pedagogy and methodology. One lesson may be a lecture to disseminate information, where another lesson requires deliberate practice of psychomotor skill. The grouping of lessons together results in educational design.

Example pedagogy:

Experiential learning will be leveraged to create a situation where the learner will gain an experience upon which to reflect. Social constructivism will be leveraged to create a social environment where all participants are committed to proficiency.

Example instruction method:

Paramedics will immerse in a simulation in which they will apply electrodes, interpret a STEMI, and choose to bypass to the PCI centre; after which each objective will be coached in a debrief. Upon conclusion of the lesson, paramedics will self-reflect upon their performance. This method requires a low instructor to learner ratio as well as suitable space, equipment and time for performing the simulation.

5) PACKAGE THE EDUCATION DESIGN

An education delivery document should present the performance outcomes of the contained education. Each lesson within the design document should be identified and include a list of learning objectives as well as pedagogy and methodology required to achieve those objectives. The associated amount of time, space, and resources should be listed for each lesson along with the assessment tool selected for assessing the objectives of that lesson. Finally arranging the lessons into an organized order will shape the agenda. Anyone should be able to deliver the education repeatedly and consistently by using only the education design¹.

6) EVALUATE THE EDUCATION

Evaluating the effectiveness of education that has been delivered can be done on different levels and over varying periods of time⁵. Immediately following a lesson or education event, reflection from the learners can reveal their perceived reaction. Assessment data collected during the lesson or education event can reveal immediate performance thresholds. Similar data collection over time or repeated at intervals can reveal the proficiency to degradation curve. Data collected from external sources, observers, or stakeholders can also reflect any performance related to education.

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APPENDIX - CHECKLIST

EDUCATION SHARING CHECKLIST

- Needs Assessment** – Root identified (emerging literature; emerging technology; data demonstrating gap or degradation; request from Ministry of Health and Long-Term Care, Medical Advisor, or coroner, etc.).
- Learning Objectives** – Descriptive cognitive, psychomotor, and affective objectives using Bloom’s Taxonomy are stated clearly.
- Assessment Strategy** – Each lesson is associated with a method for assessing the objective outcome.
- Pedagogy & Methodology** – Learning objectives are collected into lessons with an identified learning theory and method for delivery.
- Education Design** – The education has been organized into lessons and includes required resources, time allotment, space requirements, and an agenda.
- Program Evaluation** – A strategy for assessing the effectiveness of education is included.