

How to Write Well-Defined Learning Objectives

Anesthesia Education Toolbox Project

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Faculty Disclosure

- None

Learning Objectives

Upon completion of this activity, participants will be able to:

- Describe the rationale for using learning objectives in medical education.
- Distinguish between goals and learning objectives.
- Critically analyze sample learning objectives for their strengths and weaknesses.
- Create three SMART learning objectives relevant to his/her curriculum.

What is a Learning Objective?

- **Specific** statement of **observable** learner behavior that can be **measured** upon completion of an educational activity.
- 5 elements: **Who, will do, how much or how well, of what, by when?**

Thomas PA. Goals and Objectives. In: Thomas PA, Kern DE, Hughes MT and Chen BY, ed. Curriculum Development for Medical Education: A Six Step Approach. 3rd ed. Baltimore, MD: Johns Hopkins University Press; 2016: 50-64.

Example

Upon completion of the difficult airway workshop (**when?**), the participants (**who?**) should be able to formulate (**will do?**) an accurate (**how well?**) algorithm for the management of an obese adult with inadequate face mask ventilation (**of what?**).

SMART Learning Objectives

Specific	What action will be performed & by whom?
Measurable	How will success be measured?
Achievable	Can the objective be achieved within a given time frame & with available resources?
Relevant	Are the objectives aligned with instructional method & assessment?
Time-bound	When will the objective be achieved?

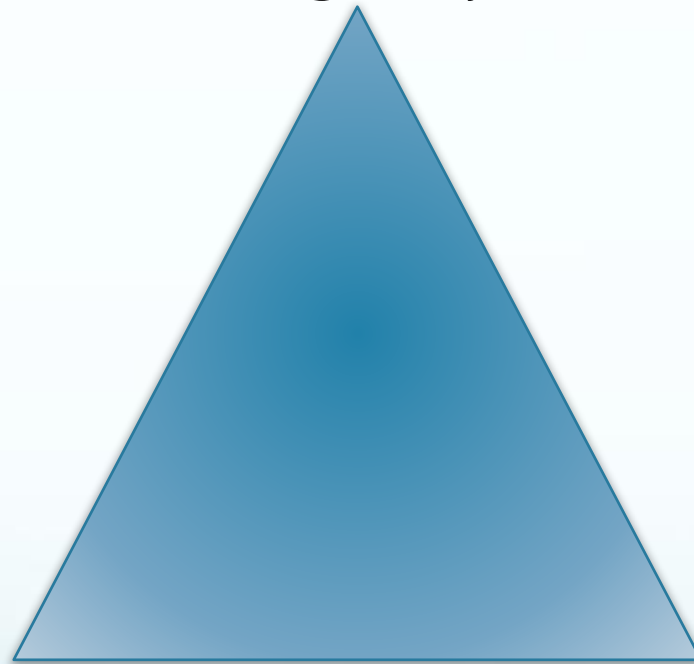
Goals vs. Learning Objectives

Goal	Broad statement of expected learning outcome of a course or curriculum
Learning objective	Specific statement of learner-centered performance

Learning objectives are drawn from the goal

Golden Triangle of Instructional Alignment

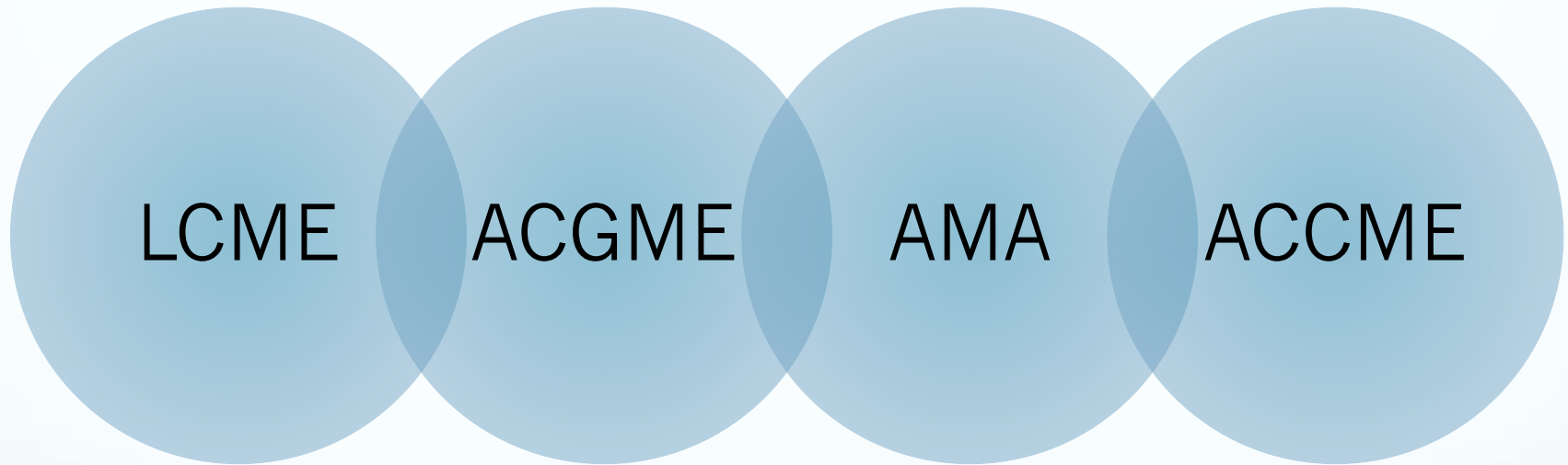
Learning Objectives



Instructional
Methods

Assessment
Tools

Requirement in Medical Education



1. Liaison Committee on Medical Education Standards for Accreditation of Medical Education Programs Leading to the MD Degree. <http://www.lcme.org/publications/#Standards>. Published Mar 2016.
2. Accreditation Council for Graduate Medical Education Common Program Requirements. http://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRs_07012016.pdf Published Feb 2007.
3. American Medical Association Guidance on New Procedure for CME. www.ama-assn.org/ama/pub/education-careers/continuing-medical-education/physicians-recognition-award-credit-system/cme-help/guidance-new-procedure-cme.page

First: Specify the condition

Upon completion of this educational activity,

learners will be able to:

Next Steps...

Identify learning concepts

Demonstrate learning



Choose an action verb

Measurable & Observable

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Avoid These Verbs

Understand

Appreciate

Review

Comprehend

Learn

Be familiar with

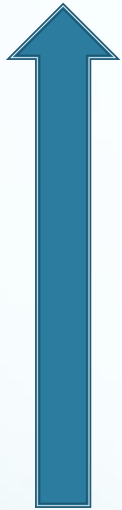
Avoid Combining

Two separate actions
(e.g. diagnosis and management)

Two separate topics
(e.g. sepsis and hemorrhage)

Revised Bloom's Taxonomy

Higher



Lower

Create

Evaluate

Analyze

Apply

Understand

Remember

Remember

Retrieve relevant knowledge from long-term memory

Define

Recall

Identify

Describe

Recount

Outline

List

Repeat

Reproduce

Understand

Construct meaning from instructional messages

Describe

Clarify

Summarize

Explain

Discuss

Identify

Estimate

Report

Interpret

Apply

Carry out or use a procedure in a given situation

Demonstrate

Modify

Solve

Calculate

Show

Illustrate

Discover

Predict

Compute

Analyze

Break material into its constituent parts

Contrast

Distinguish

Calculate

Categorize

Compare

Criticize

Classify

Criticize

Debate

Evaluate

Make judgments based on criteria & standards

Appraise

Justify

Critique

Argue

Discriminate

Validate

Conclude

Select

Summarize

Create

Put elements together to form a coherent or functional whole

Compose

Construct

Develop

Design

Formulate

Devise

Assemble

Propose

Summarize

Weak

Understand the pathophysiology of MH.

SMARTer

Describe at least 3 intra-cellular mechanisms within the muscle cell during an MH episode.

Weak

Review the anesthetic considerations in pediatric traumatic brain injury.

SMARTer

Formulate an anesthetic plan for a child presenting with abusive head trauma that follows the 2012 pediatric TBI guidelines.

Weak

Be aware of anesthetic considerations with neuro-monitoring during spine surgery.

SMARTer

Compare the effects of at least 2 anesthetic agents on latency and amplitude of SSEP and MEP during spine surgery.

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Weak

Discuss possible complications during open mid-gestation fetal surgery.

SMARTer

Critically analyze the risk of preterm labor, PPRM and uterine dehiscence during fetal MMC repair in the MOMS trial

Summary

Who, will do how much/how well, of what by when?

Specify the condition

Identify content area

Choose an action verb-measurable & observable

Use higher order action verbs when appropriate

Quiz Question

Q1: Which of the following action verbs is MOST appropriate for use in a learning objective?

- A. Understand
- B. Review
- C. Formulate
- D. Appreciate