What we should do: 14 evidence-based tips for approaching the challenges of performance-oriented CME

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#10ECF, Dublin, Ireland
8 November 2017
Disclosures – Don Moore, PhD

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Financial relationships
- I do not have any financial relationships with any commercial entity that makes or distributes products and/or services used by or on patients that are relevant to the content of my presentation.
Learning objectives

After listening to this presentation, you should be able to describe and discuss:

• A five step process for designing CME learning activities
• A project management strategy for CME learning activities
• A method to determine desired results and content for CME learning activities
• An approach to design and organize CME learning activities for transfer
• An evaluation and assessment plan to determine if content was learned and desired results were achieved
• The early stages of an action plan for using in your CME practice what you have learned here at this meeting
<table>
<thead>
<tr>
<th>Tips for Effective CME</th>
<th>My CME/CPD Practice</th>
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My Action Plan
Tip 1 – Manage learning as a project

• A learning intervention is a project to create a change in performance.
• A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources.
• A project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal.
• A project team often includes people who don’t usually work together.
• A learning project must be a collaborative effort that involves planners, subject matter experts, learners, and administrative staff.
• Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
Tip 1 – Manage learning as a project

Project management processes fall into five groups:
• Initiating
• Planning and Design
• Executing
• Monitoring and Controlling
• Closing

Project Management Institute, 2017
Tip 1 – Manage learning as a project

• Initiating phase
  • Nature and scope of the project
  • Project charter: costs, tasks, deliverables, schedules

• Planning and Design - plan time, cost and resources adequately to
  • Estimate the work needed
  • Effectively manage risk during project execution

• Executing (Producing)
  • Project deliverables are produced
  • Proper allocation, co-ordination and management of human resources and any other resources necessary to produce deliverables

• Monitoring and controlling
  • Project performance is observed/measured regularly to identify variances from the project management plan.
  • Corrective action taken when necessary.

• Closing
  • Finalize all activities across all of the process groups to formally close the project
  • Post implementation review - learn from experiences and apply to future projects
Tip 2 – Use an ADDIE approach

• ADDIE is an acronym for an instructional design paradigm:
  • Analyze – Design – Develop – Implement – Evaluate

• ADDIE is an umbrella term that represents most of the many approaches used for creating performance-based learning activities.

• An ADDIE approach provides a framework to navigate the complexities associated with creating performance-based learning as personalized as possible.

• Focuses on authentic tasks, complex knowledge, and genuine problems, leading to high fidelity between learning environments and actual work settings.

• Considers a learning activity to be an intervention to create a change in performance.
Tip 2 – Use an ADDIE approach

• Analyze – Identify a performance issue and its probable causes
• Design – Determine the desired performance and assessment methods
• Develop – Generate learning resources
• Implement – Prepare the learning environment and engage the students
• Evaluate – Assess learner performance and evaluate impact

Branch, 2010
## Project management and ADDIE

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<thead>
<tr>
<th>Project Management</th>
<th>Clusters of Tasks</th>
<th>ADDIE</th>
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<tbody>
<tr>
<td>X</td>
<td>Initiating the project/Analyze data to determine PPG</td>
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<td>Planning and Design of the project</td>
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<td>Design – Determine what needs to be learned</td>
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<td>Closing</td>
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Tip 2 – Use an ADDIE approach
Transformation of Outcomes Framework
Tip 2 – Use an ADDIE approach

- Tip 1 Project management
- Tip 2 ADDIE

**Analysis**
- Tip 3 Start with the end in mind
- Tip 4 Align three assessments
- Tip 5 Three levels of needs assessment
- Tip 6 Determine cause

**Design - Tip 7 What do they know?**

**Develop**
- Tip 8 Organize learning for transfer
- Tip 9 Provide more time and focus

**Implement**
- Tip 10 Faculty Development
- Tip 11 Monitor learning

**Evaluate**
- Tip 12 Assess learning
- Tip 13 Were desired results achieved
- Tip 14 What worked
Tip 3 – Start with the end in mind

• Start with a **documented gap in the health of patients** in a population, community, or health system or patients managed by a group of specialists.

• Articulate the gap in terms of what health status is and what it could or should be.

• **Desired results**: reduce the size of or completely eliminate the gap.
Tip 4 – Align 3 stages of assessments

• There are three stages in the continuum of assessment:
  • Needs assessment determines the prior knowledge of learners in the subject area of the course, and what the learners should be able to know and do after completing the course (goals of the course).
  • Formative assessment is feedback and guidance provided continuously throughout courses to help a student understand how he or she is progressing towards accomplishing the goals and objectives of the course and what he or she needs to do to continue to progress.
  • Summative assessment determines if learners achieve the expected level of performance (goals of the course).

• Alignment necessary to reach goals (desired results) of the course. (Squires, 2012; Squires, 2005).
Tip 4 – Align 3 stages of assessments

Alignment of Three Forms of Assessment

Formative Assessment
Monitoring how an individual learner is progressing toward accomplishing the goals of a course.

GAP

Learning Objectives
Learning Activities

Needs Assessment
Learners prior knowledge and performance plus goals of a course.

Summative Assessment
Learners actual knowledge and performance after participating in a course.

Course Goals
Learners expected knowledge and performance after participating in a course.
Tip 5 – 3 levels of needs assessment

- **Patient health**: The health of patients in a population, community, or health system or patients managed by a group of specialists.
- **Clinician performance**: The performance of a target audience of clinicians who care for these patients.
- **The competence and/or knowledge** of a target audience of clinicians.
Tip 6 – Determine cause of sub-optimal care

• Identify the cause of the gap in patient health using fishbone or driver diagram process.
Fishbone Diagram (cause and effect)

- **Micro-system**
  - Poor process
  - No team
  - Disorganized
  - Lack of integrated EMR
  - No medicine reconciliation

- **Physicians**
  - Inconsistent practice
  - Knowledge

- **Technology**
  - High HbA1c

- **Patients**
  - No Support
  - Low literacy
Tip 6 – Determine cause of sub-optimal care

• Identify the cause of the gap in patient health using fishbone or driver diagram process.

• If a cause is identified that is related to clinician performance, work with subject matter experts and QI consultants to
  • Determine the specific behaviors that clinicians are not performing or not performing at an appropriate level by auditing a sample of the charts.
  • Determine appropriate level for each behavior identified by consulting current practice guidelines, recent research findings, and/or local consensus best practice (clinical pathways).
  • Prioritize behaviors that are most distant from optimal and/or are likely to have the greatest impact on patient health if they are not performed.
"I think you should be more explicit here in Steps 2, 3, 4."
Tip 7 – What do they know?

- Importance of “prior knowledge” for planning content.
- Interview or survey SMEs about the prioritized behaviors.
  - The prioritized behaviors are complex tasks in which performance requires the integrated use of both controlled (conscious, conceptual) and automated (unconscious, procedural or strategic) knowledge.
  - SMEs will help planners determine the clinical and basic science knowledge as well as the thought processes that underlie the prioritized behaviors.
  - The outcome of working with SMEs would be a description of performance objectives that could be used to plan scenarios to assess the competence of clinicians in the target audience.

Ambrose, et.al., 2010
Branch, 2010
Tip 8 – Organize learning for transfer

What is transfer?

• **Traditional definition**: effectively and continuously retrieving what was learned in one setting and applying it in another setting (Perkins, 1992).

• **Emerging definition**: effectively and continuously retrieving what was learned in one experience and learning how to use what has been learned in similar (routine) or different (adaptive) experiences. (Bransford and Schwartz, 1999, 2005)

• Facilitated by **preparation for future learning**, e.g. teaching clinical content with underlying basic science concepts (Mylopoulos and Woods, 2016, Hatano and Inagaki, 1986).

• Retrieving is facilitated by (Brown, et.al., 2015; Cervero and Gaines, 2015)
  - Active and varied learning methods
  - Multiple, varied exposures to content
  - Practice and feedback
  - Frequent testing as exploratory learning exercises
  - Challenge
Tip 8 – Organize learning for transfer

• The real issue is not why basic science, or how much of it, is needed during formal medical education.

• Instead, the question is how this science is to be much more effectively taught, both throughout the entire 7- to 10-year period of medical school, internship, and residency, and in the continuing education required of physicians.

Everyone knows learning must be serious and difficult and you must remain seated at all times. No fun allowed.
Tip 8 – Organize learning for transfer

• **Predisposing** activities to create or reinforce a “teachable moment”.
  • Activate prior knowledge with case scenario exercises
  • Compare with summary of participant performance data

• **Enabling** activities to facilitate learning to address the “teachable moment”.
  • Presentation (content and concepts)
  • Worked example or demonstration (content and concepts)
  • Deliberate practice with scaffolding (content and concepts)
  • Expert feedback with coaching (content and concepts)

• **Reinforcing** activities to assist in retrieval of what was learned.
  • Reminders
  • Continuous feedback of participant performance data
  • Commitment to change and follow-up
  • Monthly scenario exercises
Tip 9 – Provide more time and focus

• Strengthening retrieval capability needs more time than is set aside in a typical CME activity.
  • Active and varied learning methods
  • Multiple, varied exposures to content
  • Deliberate practice with scaffolding – the 10,000 hour controversy (Ericsson, 2016)
  • Expert feedback with coaching
  • Frequent testing as exploratory learning exercises

• Typical day-long CME activity: 8 didactic lectures with Q&A

• Suggested new day-long CME activity:
  • Two topics: one in the morning; one in the afternoon
  • Inquiry-based learning format
Tip 9 – Provide more time and focus

Klein and Harris, 2007
Tip 10 – Help faculty with new approaches

• Faculty will be challenged by the changes that have been suggested for the CME/CPD space.
  • One set of these new and different approaches draw on the principles of the emerging field of the learning sciences
    • Focus more on helping people learn than on traditional teacher-directed approaches (Bransford, Brown, & Cocking, 2000; Sawyer, 2014).
    • Many clinicians who are currently involved in health professions education have not received training in these newer learner-based approaches (Srinivasan et al., 2011).
  • Another set of new and different approaches focus on enhancing patient outcomes through improving clinician performance.
    • Emphasis on using performance data in planning. (Moore, et.al, 1994)
    • Increasing use of QI methodology and collaboration with QI staff. (Moore, 1995)

• Faculty must be prepared for the new approaches to health care and educational practice. (Davis, et.al., 2017)
Tip 11 – Monitor: Are they learning?

- An important component of enabling activities is formative assessment.
- Formative feedback is intended to generate feedback on performance to improve and accelerate learning. (Nicol and McFarlane-Dick, 2006)
- The combination of deliberate practice and expert feedback with coaching is how formative feedback is accomplished.
- Characteristics of formative feedback that should be followed (Trumbull, 2013):
  - Keep clear criteria for what defines good performance
  - Encourage learners’ self-reflection
  - Give learners detailed, actionable feedback
  - Encourage faculty and peer dialogue around learning
  - Promote positive motivational beliefs and self-esteem
  - Provide opportunities to close the gap between current and desired performance
  - Collect information which can be used to help shape teaching
Tip 4 – Align 3 stages of assessments

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Tip 12 - Did they learn?

- Answered by assessment.
- The terms “assessment” and “evaluation” are often used interchangeably in education discourse.
- But for precision ...
  - “assessment” refers to the performance of learners
  - “evaluation” refers to the performance of a course, curriculum, or program.
- Assessment - any systematic method of obtaining data and drawing inferences from the data to determine what an individual or group has learned as a result of engaging in a learning activity (Downing and Yudkowsky, 2009).
Tip 4 – Align 3 stages of assessments

Alignment of Three Forms of Assessment

Formative Assessment
Monitoring how an individual learner is progressing toward accomplishing the goals of a course.

Needs Assessment
Learners *prior* knowledge and performance plus goals of a course.

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Learning Objectives
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- **Enabling** activities to facilitate learning to address the "teachable moment".
  - Presentation (content and concepts)
  - Worked example or demonstration
  - Deliberate practice with scaffolding – observe practice with rubric.
  - Expert feedback with coaching – grade based on observation.

- **Reinforcing** activities to assist in retrieval of what was learned.
  - Reminders
  - Continuous feedback of participant performance data
  - Commitment to change and follow-up
  - Monthly scenario exercises
Tip 12 – Did they learn?

• A course assessment plan should be developed as soon as the expected results of a course are determined.

• Blueprinting is an approach that could be used to align learning objectives, learning activities, and assessment (Coderre, Woloschuk, an McLaughlin, 2009).

• A course blueprint is typically a matrix with four columns: one column for learning objectives; one for learning activities; one for content and scaffolding) and one for assessment methods. Each row in a blueprint matrix should include
  • A learning objective related to the desired result
  • Learning activities that will most likely contribute to the learner’s opportunity to accomplish the objective
  • Content to be covered and the scaffolds for practice exercises
  • The assessment method that will most likely provide evidence that the learner accomplished the learning objective.
There are many potential ways to assess learning. George Miller’s pyramid is a useful way of categorizing methods of assessment (Miller, 1990)

- Assessment at the “knows what to do” level is accomplished by testing the recall of facts.
- Assessment at the “knows how to do it” level is accomplished by case-based multiple choice items, essay questions or oral presentations.
- Assessment at the “shows how to do it” level is accomplished by rubric-based observation with standardized patients or small group case discussion.
- Assessment at the “does it” level is best accomplished through chart audit.
Tip 13 - Were desired results achieved?

**Desired results**: reduce the size of or completely eliminate the gap.

- Did the clinicians learn?
- Did the clinicians meet the performance goals of the course?
  - Competence (Observation)
  - Practice (Chart Audit)
- Did patient health status improve?
Tip 14 – What worked? What didn’t work?

• Program evaluation: systematic collection and analysis of information related to the design, implementation, and outcomes of a program for the purposes of monitoring and improving the program.

• Best used for a program of CME courses, but can be used for a single course.

• Aggregated data from the assessment of learners is useful but not enough.

• The purpose of program evaluation is to analyze the CME/CPD system and all of its interacting parts.

• Many other sources of information are necessary for making judgments about the quality of a CME/CPD program and recommendations for improvement.
Program Action – Logic Model

**INPUTS**
- What we invest
  - Staff Time
  - Volunteer hours
  - Planning Time
  - Money
  - Knowledge base
  - Expertise
  - Materials
  - Equipment
  - Space
  - Technology
  - Partners

- Who we reach
  - Existing Contributors
  - New Contributors
  - Clients
  - Educators
  - GLAMS
  - Decision-makers
  - Consumers

- What we do
  - Develop products, curriculum, resources
  - Deliver content and services
  - Conduct workshops, and meetings
  - Train
  - Counsel/Advise
  - Facilitate
  - Partner
  - Disseminate/Work with media

- What we create
  - Plans
  - Event Documents
  - Topic Areas
  - Pages
  - Articles
  - Templates
  - Satisfaction
  - Fun
  - Community Networks

- Assumptions

**OUTPUTS**
- Activities
- Direct Products

**OUTCOMES - IMPACT**
- Short term
  - Awareness
  - Knowledge
  - Attitudes
  - Skills
  - Interest
  - Opinions
  - Aspirations
  - Intentions
  - Motivations

- Intermediate
  - Practice/Contributions
  - Decision-making
  - Policies

- Long Term
  - Social Action

**External Factors**

**Evaluation**
- Identification – Design – Implementation – Completion/Follow-up

Tip 14 – What worked? What didn’t work?

• A logic model should be constructed as early in the learning project as possible, especially when the learning project goal is determined. (Kellogg, 2004)

• Usually, its starts with “the end in mind” like the ADDIE approach.

• A logic model is a theory-based approach – “If this is available and this is done, then that is likely to occur”.

• Evaluation questions at each level of the logic model:
  • Did what was supposed to happen, happen?
  • Did it happen as planned?
  • 5 whys - five iterations of asking why is generally sufficient to identify a cause.

• Realist evaluation – what worked for whom under what circumstances. (Pawson et. al., 2005)
References


References

Thanks!