OUTCOMES

This document provides an example of methods for measuring each level of outcomes identified on Moore’s Expanded Outcomes Framework for Assessing Learners and Evaluating Instructional Activities. Sample evaluation tools for measuring outcomes at levels 2 through 7 are provided.
## Methods for Measuring Outcomes

Moore’s Expanded Outcomes Framework for Assessing Learners and Evaluating Instructional Activities

<table>
<thead>
<tr>
<th>Outcomes Framework</th>
<th>Miller’s Framework</th>
<th>Description</th>
<th>Sources of Data</th>
</tr>
</thead>
</table>
| **LEVEL 1**        |                    | Number of learners who participate in the educational activity | Attendance records  
On line tracking of action within an activity |
| **LEVEL 2**        |                    | Degree to which expectations of participants were met regarding the setting and delivery of the educational activity | Questionnaires/surveys completed by attendees after an educational activity |
| **LEVEL 3A**       | **Learning: Declarative Knowledge** | The degree to which participants state what the educational activity intended them to know | Objective: Pre and post tests of knowledge  
Subjective: Self-reported of knowledge gain |
| **LEVEL 3B**       | **Learning: Procedural Knowledge** | The degree to which participants state how to do what the educational activity intended them to know how to do | Objective: Pre and post tests of knowledge  
Subjective: Self reported gain in knowledge (e.g., reflective journal.) |
| **LEVEL 4**        | **Competence**     | The degree to which participants show in an educational setting how to do what the educational activity intended them to be able to do | Objective: Observation in educational setting (e.g., checklists, online peer assessment and EHR chart stimulated recall.)  
Subjective: Self reported competence, intention to change |
| **LEVEL 5**        | **Performance**    | The degree to which participants do what the educational activity intended them to be able to do in their practice | Objective: Observed performance in clinical setting, patient charts, administrative databases  
Subjective: Self-report of performance |
| **LEVEL 6**        | **Patient Health** | The degree to which the health status of patients improves due to changes in practice behavior of participants | Objective: Health status measures recorded in patient charts or administrative databases  
Subjective: Patient self-report of health status |
| **LEVEL 7**        | **Community Health** | The degree to which the health status of a community of patients changes due to changes in the practice behavior of participants | Objective: Epidemiological data and reports  
Subjective: Community self-report |
Example of Evaluation Level 2 – Satisfaction

Please check the ratings that best describe your reaction to this session:

A. Were the session objectives clear?
   __No           __Somewhat       __Yes, definitely

B. Were the instructional techniques and materials helpful to your learning the material?
   __No           __Somewhat       __Yes, definitely

On a scale of 1 to 5, with 5 being the highest rating, please circle the number that best describe your reaction:

C. I would rate the instruction overall as ...
   Low 1 2 3 4 5 high

D. I would rate the activity overall......
   Low 1 2 3 4 5 high
**Example of Evaluation Level 3A – Declarative Knowledge**

**Knows**

Needle puncture into the shoulder joint (gleno-humeral joint) from a posterior portal through the supraspinatus fossa would require penetration of these muscles:

A. Trapezius and supraspinatus
B. Supraspinatus and infraspinatus
C. Supraspinatus and subscapularis
D. Subscapularis and serratus anterior
E. Supraspinatus and teres minor

<table>
<thead>
<tr>
<th>BEFORE Knowledge or skill</th>
<th>AFTER Knowledge or skill</th>
<th>ABILITY TO..................</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25........effectively encourage my patients to obtain retinal exams.</td>
<td>26........manage lipids in diabetics.</td>
<td>27........effectively manage Hemoglobin A1c levels in my patients.</td>
</tr>
</tbody>
</table>
Example of Evaluation Level 3B – Procedural Knowledge
Knows How

A 75 year old man is hospitalized for a skin infection. Blood cultures demonstrate bacteremia. He receives intravenous antibiotic therapy for 4 days until afebrile and feeling better, and is discharged with oral antibiotics that he takes for one more week. Two weeks later he returns feeling poorly. He has back pain, night sweats, and low grade fevers of 100 to 101 degrees. Spine x-rays show multiple areas of bone destruction. Which of the following species were MOST LIKELY present in his first admission blood cultures?

A. Salmonella typhi
B. Pseudomonas aeruginosa
C. Enterococcus species
D. Peptostreptococcus
E. Staphylococcus aureus
Example of Evaluation Level 4 – **Competence**

**Shows How**

*(Commitment to Change)*

___________________________________________

Name of Attendee

As part of its ongoing system of program evaluation, the Continuing Medical Education program seeks information about physician’s change and learning. Please complete the post conference session questionnaire. You are not required to participate. If you do, you should expect to receive a brief follow up questionnaire from the CME office in approximately 45 days. All your responses will be confidential. They will be reported only as cumulative statistics.

1. As a result of your participation in this session, will you make a change in your practice?
   ___ Yes  ___ Uncertain (go to questions #2)  ___ No (go to question #3)

   If yes, please specify one change you will make:
   
   ______________________________________________________________________________________________________
   ______________________________________________________________________________________________________

   With 1 being the lowest level of commitment and 5 being the highest, please circle the number that most accurately indicates your commitment to successfully implement the change you specified.

   Lowest            Highest
   1  2  3  4  5

2. If you indicated uncertainty about making a change, please describe what causes your uncertainty.

   ______________________________________________________________________________________________________
   ______________________________________________________________________________________________________

3. If you answered no to question # 1, please explain why you will make no change as a result of participating in this session.

   ______________________________________________________________________________________________________
   ______________________________________________________________________________________________________

______________________________     _______________________________________
Signature      Email address
Example of Evaluation Level 4 – Competence

Shows How

Megacode Assessment Form (Basic)

<table>
<thead>
<tr>
<th>Learner:</th>
<th></th>
<th>Date:</th>
<th></th>
<th>Evaluator:</th>
<th></th>
<th>Lessons Completed: 1-4</th>
<th>PASS ________</th>
<th>REvaluate __________</th>
</tr>
</thead>
</table>

Scoring: 0 = Not Done  
1 = Done incorrectly, incompletely, or out of order  
2 = Done correctly in order

- Student must perform each of the 5 **BOLD items correctly**
- **Scenario** must include “Heart rate remains <100 beats per minute (BPM) and no chest movement” to allow demonstration of corrective action (Lesson 3)
- **Scenario** must include “Heart rate <60 bpm despite positive-pressure ventilation” to demonstrate chest compressions.
- Learner must demonstrate ventilation and chest compressions
- **Scenario** with meconium-stained fluid is optional

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Item</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Checks Bag, Mask, and Oxygen Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asks 4 Assessment Questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Term? Meconium? Breathing? Tone?)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(Optional) If meconium is present, determines if endotracheal suction is indicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positions head, suctions mouth then nose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dries, removes wet towels, and repositions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requests description of breathing, heart rate, and color</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Indicates need for positive-pressure ventilation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Apnea, heart rate &lt;100 bpm, central cyanosis despite O₂)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provides positive-pressure ventilation correctly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(40-60 breaths/min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Checks for improvement in heart rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Instructor note: Heart rate does NOT improve.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Takes corrective action when heart rate not rising and chest not moving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Reapply mask, lift jaw forward, reposition head, check secretions, open mouth, increase pressure if necessary.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reevaluates heart rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Instructor note: Heart rate must remain &lt;60 bpm.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Identifies need to start chest compressions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Heart rate &lt;60 bpm despite 30 seconds of effective positive-pressure ventilation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstrates correct compressions technique</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(Assess correct finger or thumb placement, compress one third of the anterior-posterior diameter of the chest.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstrate correct rate and coordination with ventilation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ask student and assistant to switch positions.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closure</td>
<td>Continues/discontinues positive-pressure ventilation appropriately or weans free-flow oxygen</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student’s Score Subtotals**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Y</th>
<th>N</th>
<th>Reevaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed all bold items correctly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student’s Total Score (add subtotals)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Minimum passing score:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 pts with meconium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22 points without meconium</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Team STEPPS**

**Team Performance Observation Tool**

**Date:** ________________________________  **Rating Scale**  1 = Very Poor
**Unit:** ________________________________  (circle 1)  2 = Poor
**Team:** ________________________________  3 = Acceptable
**Shift:** ________________________________  if 1 or 2  4 = Good

4 = Good
5 = Excellent

### 1. Team Structure

<table>
<thead>
<tr>
<th>Rating</th>
<th>a. Assembles a team</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b. Establishes a leader</td>
</tr>
<tr>
<td></td>
<td>c. Identifies team goals and vision</td>
</tr>
<tr>
<td></td>
<td>d. Assigns roles and responsibilities</td>
</tr>
<tr>
<td></td>
<td>f. Actively shares information among team members</td>
</tr>
</tbody>
</table>

**Comments:**

**Overall Rating – Team Structure**

### 2. Leadership

<table>
<thead>
<tr>
<th>Rating</th>
<th>a. utilizes resources efficiently to maximize team performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b. balances workload within the team</td>
</tr>
<tr>
<td></td>
<td>c. Delegates tasks or assignments, as appropriate</td>
</tr>
<tr>
<td></td>
<td>d. Conducts briefs, huddles, and debriefs</td>
</tr>
<tr>
<td></td>
<td>e. Empowers team members to speak freely and ask questions</td>
</tr>
</tbody>
</table>

**Comments:**

**Overall Rating – Leadership**

### 3. Situation Monitoring

<table>
<thead>
<tr>
<th>Rating</th>
<th>a. Includes patient/family in communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b. Cross monitors fellow team members</td>
</tr>
<tr>
<td></td>
<td>c. Applies the STEP process when monitoring the situation</td>
</tr>
<tr>
<td></td>
<td>d. Fosters communication to ensure team members have a shared mental model</td>
</tr>
</tbody>
</table>

**Comments:**

**Overall Rating – Situation Monitoring**

### 4. Mutual Support

<table>
<thead>
<tr>
<th>Rating</th>
<th>a. Provides task-related support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b. Provides timely and constructive feedback to team members</td>
</tr>
<tr>
<td></td>
<td>c. Effectively advocates for the patient</td>
</tr>
<tr>
<td></td>
<td>d. Uses the Two-Challenge rule, CUS, and DESC script to resolve conflict</td>
</tr>
<tr>
<td></td>
<td>e. Collaborates with team members</td>
</tr>
</tbody>
</table>

**Comments:**

**Overall Rating – Communication**

### TEAM PERFORMANCE RATING

**Team STEPPS 06.1**
Example of Evaluation Level 6 - Patient Health

*(Run Charts)*

Run charts are running records of processes over time. They are a simple analytical tool that may be used to understand variation in health care processes, such as hand washing, or changes in health, such as diabetes control for individual patients or for groups of patients.

Below is a sample run chart. The X-axis (horizontal) measures time or a sequence of when data are collected, and the Y-axis (vertical) measures the item of interest, such as variations in infection rates.

![Figure 1: Infection Rate](image-url)
Example of Evaluation Level 6 – Patient Health

SF-12v2 Health Survey

Below is a sample of questions on the QualityMetric’s SF-12v2® Health Survey, used to measure functional health and well-being from the patient’s point of view. For more information go to: https://www.amihealthy.com.

---

-SAMPLE-

This survey asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities. Thank you for completing this survey!

---

1) In general, would you say your health is:

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

2) The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

   a. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf  
      Yes limited a lot O  Yes limited a little O  No, not limited at all O

   b. Climbing several flights of stairs O O O

3) During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

   a. Accomplished less than you would like to  
      All of the time O  Most of the time O  Some of the time O  A little of the time O  None of the time O

   b. Were limited in the kind of work or other activities O O O O O
Introduction

Where we live matters to our health. The health of a community depends on many different factors, including the environment, education and jobs, access to and quality of healthcare, and individual behaviors. We can improve a community's health by implementing effective policies and programs. For example, people who live in communities with smoke-free laws are less likely to smoke or to be exposed to second-hand smoke, which reduces lung cancer risk. In addition, people who live in communities with safe and accessible park and recreation space are more likely to exercise, which reduces heart disease risk.

However, health varies greatly across communities, with some places being much healthier than others. And, until now, there has been no standard method to illustrate what we know about what makes people sick or healthy or a central resource to identify what we can do to create healthier places to live, learn, work and play.

We know that much of what influences our health happens outside of the doctor's office – in our schools, workplaces and neighborhoods. The County Health Rankings & Roadmaps program provides information on the overall health of your community and provides the tools necessary to create community-based, evidence-informed solutions. Ranking the health of nearly every county across the nation, the County Health Rankings illustrate what we know when it comes to what is making communities sick or healthy. The County Health Roadmaps show what we can do to create healthier places to live, learn, work and play. The Robert Wood Johnson Foundation collaborates with the University of Wisconsin Population Health Institute to bring this groundbreaking program to counties and states across the nation.

The County Health Rankings & Roadmaps program includes the County Health Rankings project, launched in 2010, and the newer Roadmaps project that mobilizes local communities, national partners and leaders across all sectors to improve health. The program is based on this model of population health improvement:

In this model, health outcomes are measures that describe the current health status of a county. These health outcomes are influenced by a set of health factors. Counties can improve health outcomes by addressing all health factors with effective, evidence-informed policies and programs.

Everyone has a stake in community health. We all need to work together to find solutions. The County Health Rankings & Roadmaps serve as both a call to action and a needed tool in this effort.

For county rankings, health outcomes and health factors click on:  http://www.countyhealthrankings.org/app#!/virginia/2014/overview