Medical Student Assessment
Faculty Development Module

Approved by the University of Colorado Denver, School of Medicine, Clinical Block Directors Committee, Spring 2008
Reviewed and Revised August 2010
Welcome to our course in assessing medical students’ clinical performance. Note that this module is designed for all faculty and residents who are responsible for assessing medical students in Phases 3 and 4 of medical school at the University of Colorado Denver School Of Medicine. For some departments, this module may be required in order to teach students. At the completion of this 15-minute course you will:

• Understand the principles of Criterion-based Performance Assessment
• Understand medical students’ developmental progression through the clinical years
• Know the elements of the Medical Student Clinical Assessment Form
• Be able to accurately and reliably assess a medical student in the clinical years

After you finish these modules, you will test your achievement of these objectives through a brief examination. If you feel you understand these issues adequately already, you may take a pre-test to test your knowledge. If you achieve greater than 80% on the pre-test, you are excused from completing this module. To take the pretest you will need to log in to Blackboard. For more information please contact Helen.Macfarlane@ucdenver.edu
The University of Colorado School of Medicine Clinical Core Curriculum immerses students into intensive clinical experiences in hospital, ambulatory clinic, emergency and operating rooms, in community, rural and urban environments.

The Core Clerkships include:
- Care of the Hospitalized Adult
- Operative and Perioperative Care
- Infant, Child and Adolescent Health
- Musculoskeletal Care
- Rural and Community Care
- Adult Ambulatory Care
- Urgent and Emergency Medicine
- Care of Women
- Psychiatric Care
- Neurologic Care

Each Core Clerkship is designed to meet a set of competencies deemed essential for students to move on to the next stage of training - 4th year and residency. Course specific competencies can be found at: http://www.uchsc.edu/som/curriculum/phase3/
Principles of Criterion-based Performance Assessment

**Principle 1: Student performance is assessed against a set of specific criteria.**

Assessment involves the comparison of two or more elements. Assessment may compare an individual’s performance to the performance of others or to a set of pre-established criteria for successful task completion. These two types of comparison have very different purposes and require different judgments from raters.

- **Norm-based assessment** compares individuals’ performances to one another, resulting in a ranking of individuals. This traditional form of assessment has been widely used to select individuals for further education or for jobs and is what most residents, fellows and faculty have been exposed to throughout their training.

**Example:**

Dr. Thomas, who has 15 years of experience working with and evaluating students, is due to evaluate John, his student over the last 2 weeks. He has observed John performing a brief history and physical examination, has heard daily oral presentations, and has interacted with him on multiple occasions to assess his fund of knowledge. Dr. Thomas has a clear expectation based on this experience for what an “honors student” is. He believes that John is a very good student with great enthusiasm, but not quite functioning at an honors level and will therefore complete his evaluation in a manner that reflects what he thinks will result in a “high pass” grade- on a 6-point scale where 1= poor performance and 6=outstanding performance, mostly 5s and some 4s and 6s.

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<th>Below Expectations</th>
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<tbody>
<tr>
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<td>3 4</td>
<td>5 6</td>
</tr>
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<td>3 4</td>
<td>5 6</td>
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<tr>
<td>Physical Examination</td>
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The next attending to work with John, Dr. Smith, has just completed residency. She too has been working with John for 2 weeks as well. She too has an expectation of what an “honors” performance is and believes that students should get honors if they are active participants in rounds, enthusiastic about learning and generally helpful. She has heard from the medical students and residents that she has worked with that
to get honors, she must give John all 6s on a 6-point scale where 1= poor and 6= outstanding, so she completes the evaluation form with all 6s.

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What grade does John deserve? More importantly, what is John’s level of competence?

Answer: Hard to tell…..This example provides insight into some of the challenges of norm-based assessment.

**Pros of Norm-Based Assessment:**

- Easy to understand
- Commonly Used

**Cons or Challenges to Norm-Based Assessment:**

- Provides no information about specific aspects of performance
- Relies on the experiences and expectations of the evaluator
- Hard to standardize; low rater agreement
Now let’s learn about an alternative means of assessment.

- **Criterion-based assessment** begins with an established set of criteria for successful performance and compares an individual’s performance to these criteria. In other words, the rater is responsible for documenting what the specific skills of the individual are based on their observed performance. They are NOT responsible for comparing them to anyone else, or for trying to determine a grade.

**Example:**

In the scenario just described, both Dr. Smith and Dr. Thomas have observed John’s oral presentations. When they are asked to complete the evaluation of John they are asked to rate his abilities based on observable behaviors related to his oral presentations. John’s oral presentations are accurate and objective. But, they sometimes contain extraneous information and important information sometimes gets lost in the presentation.

Please complete the evaluation below as if you were Dr. Thomas, with 15 years of experience teaching medical student:

| Oral presentations are generally disorganized or incomplete and may be inaccurate | Oral presentations are organized, accurate and complete with occasional extraneous material; More senior team members occasionally need to ask for clarifying information | Oral presentations are organized, accurate, complete, concise, and include prioritization and analysis of medical issues; More senior team members can rely on these presentations to contain any and all relevant material necessary to determine plan of care |

**Answer: middle column**

Would you evaluate the student any differently if you were Dr. Smith?

- Yes
- No

**Answer: No**

**Pros of Criterion-Based Assessment:**

- Provides specific feedback to the student about their performance- and what they need to do to improve
- Rater is responsible for observing and recording specific behaviors- NOT GRADING
- Higher inter-rater agreement and validity of grading process
Cons or Challenges to Criterion-Based Assessment:

- Raters must understand the system and adhere to it for grading to be fair

Summary: Reasons for Changing the Medical Student Clinical Evaluation

Requirements to assess students’ achievement of essential competencies are better met with criterion-based assessments. Because criterion-based assessment involves observing and documenting student performance in specific domains, it provides better feedback for student improvement, increases inter-rater reliability, and provides information on how the clinical experience supports development of competencies. The same form is used for all Core Clerkships, which permits documentation of a student’s development across the curriculum. 

**BUT-** faculty, fellows and residents who assess students MUST adhere to the criterion-based assessment for this tool to work effectively.
Principle 2: Performance criteria define what it means to complete a task successfully.

The challenge in criterion-based assessment is to identify the right criteria and determine the qualities that distinguish achievement from non-achievement. The criteria identify the observable behaviors critical to successful performance.

The ACGME has identified the following six competencies for residents:

**Patient care**—provide patient care that is compassionate, appropriate and effective for the treatment of health problems and the program of health.

**Medical knowledge**—demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

**Practice based learning and improvement**—investigate and evaluate the care of patients, appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self evaluation and life-long learning.

**Systems-based practice**—demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

**Professionalism**—demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

**Interpersonal skills and communication**—demonstrate effective exchange of information and collaboration with patients, their families, and health professionals.

These competencies have been widely adopted by subspecialty organizations. The medical student assessment form has adopted criterion-based elements that describe student performance in these six competencies.
Principle 3: Criteria for performance change as a student progresses through 3\textsuperscript{rd} year and into 4\textsuperscript{th} year.

Students’ growth during the 3\textsuperscript{rd} year is truly astounding. This phenomenon has been well described by Dr. Lou Pangaro and his colleagues in a descriptive model known as RIME (Reporter, Interpreter, Manager, and Educator). In brief, this model describes each of these stages as follows:

THE RIME Model in a nutshell:

**Observer:** watching, but not meaningfully contributing to patient care  
**Reporter:** Expected level- Phase 3 student

- Obtains and reports basic information accurately: answers the "What" questions about patients  
- Clearly communicates clinical facts about patients, and follows data daily  
- Uses proper terminology  
- Is beginning to interpret data: has basic knowledge to know what to look for in a history and physical  
- Has the ability to recognize normal from abnormal and confidence to label a new problem  
- Reliable, honest, hard-working  
- Works well with patients, staff and colleagues: solid professional qualities.

**Interpreter:** Expected level- senior (phase 4) student to intern

- Good working fund of knowledge  
- Active participant in patient care: consistently prepared for rounds, the OR, clinic, etc.  
- Consistently able to interpret data: can identify and prioritize new problems  
- Can offer a differential diagnosis: can present 2-3 reasonable possibilities for new problems and cite reasons they may apply to this patient  
- Not always correct, but has a higher level of knowledge, more skill in selecting clinical findings which support possible diagnoses and applying these to specific patients  
- Answers the "Why" questions about his/her patients
Manager: Expected level- 2nd year resident

- Excellent general fund of knowledge
- Broad/deep knowledge of his/her own patients
- Excellent level of patient care: actively suggests management options, answers the "What's next" questions about his/her patients
- Has the skill to select among options for his/her patients: is proactive rather than reactive, actively suggests management options
- Confidence/willingness to state own preferences
- Diagnostic plans include more than one appropriate treatment option, and therapeutic plan considers the merits of all reasonable therapies
- More judgment in deciding which action needs to be taken: can tailor plan to patient's circumstances and preferences (finds common ground)

Educator: Expected level- ideal senior resident

- Can cite evidence that new therapies, tests, and procedures are worthwhile
- Takes an active role in educating themselves, colleagues and patients
- Open to new knowledge
- Skilled in identifying questions that can't be answered from textbooks
- Superior fund of knowledge
- Provides superior patient care and consistently possesses superior knowledge of his/her patients

Most students function as Observers in the preclinical years (Phases 1 and 2) of medical school and achieve Reporter stage by the beginning of Phase 3 (the clinical curriculum). During Phase 3, students can develop very quickly or more slowly based on a number of factors including their skills and their learning environment. All students should achieve the level of Interpreter by the completion of 4th year in order to effectively assume the role of intern.

The Medical Student Assessment Form

The Medical Student Assessment form identifies 13 dimensions of clinical performance and organizes them according to the ACGME competencies. Performance criteria for each dimension describes the expected performance of a medical student as they progress through the clinical years (Reporter to Interpreter/ Early Manager Stages described in the RIME Model). A separate section at the end of the form is provided to enter comments. Comments are vital to determine if the form is being correctly used and to assist clerkship directors in the assignment of a grade.
Consider a few of the 13 dimensions and their respective criteria for the Stages that reflect Preclinical Students (Observers) to end of 4th year students (Solid Interpreters to Early Managers). Think about your current student, or a student you have worked with in the past. Reflect on which of the criteria describe this student. Also note that a student may well be functioning at the level of a Reporter in one dimension, but the level of an Interpreter in another. This is part of the normal developmental progression of medical students.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Observer to Novice Reporter</th>
<th>Reporter to Novice Interpreter</th>
<th>Interpreter to Novice Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Knowledge</td>
<td>Has gaps in medical knowledge necessary to fully understand common illnesses encountered during this rotation</td>
<td>Has understanding of etiology, clinical manifestations and pathophysiology of common illnesses encountered during this rotation; Asks appropriate questions to further areas where knowledge is lacking or incomplete</td>
<td>Has outstanding fund of knowledge with regard to both common and uncommon illnesses encountered during this rotation</td>
</tr>
<tr>
<td>Clinical Care</td>
<td>Demonstrates inconsistent, incomplete or inadequate data collection during history taking</td>
<td>Demonstrates consistent, complete and adequate data collection during history taking</td>
<td>Performs a focused or comprehensive medical history, as indicated by presenting issue, in an organized, complete and efficient manner</td>
</tr>
<tr>
<td></td>
<td>Misses important components of the physical exam or performs them incorrectly</td>
<td>Performs all important components of the physical examination correctly</td>
<td>Performs either a focused or comprehensive physical examination, as indicated by presenting issue, in an efficient, correct and sensitive manner</td>
</tr>
<tr>
<td>Communication</td>
<td>Avoids personal contact with patients and/ or families, lacks appropriate sensitivity</td>
<td>Creates rapport with patients/families through active listening, use of open-ended questions, limited interrupting and use of words that demonstrate compassion and caring</td>
<td>Communicates even complicated or difficult information to patients and families and appropriately responds to their concerns/questions</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Is sometimes unreliable in completing work or inefficient in carrying out required duties</td>
<td>Is punctual and reliable in day-to-day tasks; Fulfills basic patient care responsibilities required of him/her; Helps with team tasks when requested</td>
<td>Takes primary responsibility for patients and advocates for their needs; Anticipates the needs of the team and actively attempts to meet these needs</td>
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On the evaluation form, above each description of student performance, there are 2 radio buttons. These buttons are present because students vary in the consistency with which they may achieve the described criteria.

Example:
John is able to derive a differential diagnosis and assessment for patients presenting with shortness of breath and chest pain with only minor assistance from an intern or resident. But, he has no idea how to approach the presenting problems of acute renal failure and hyponatremia. For each of these latter clinical situations, the intern needed to completely develop the differential diagnosis and teach it to John, who was then able to repeat it at attending rounds. He is only able to develop management plans with significant help from the intern. Each of these 4 conditions is common on your rotation and required clinical entities for the clerkship.

How would you rate him on the following scale?

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<td>Is unable to derive a rudimentary differential diagnosis and assessment on their own; Is completely dependent on more senior members of the team for development of a management plan</td>
<td>Is able to derive a rudimentary differential diagnosis and assessment on their own; Overall management plan requires significant assistance from more senior members of the team</td>
<td>Formulates an appropriate differential diagnosis, assessment, diagnostic and therapeutic plan; Details of management plan require minor input from more senior members of the team</td>
</tr>
</tbody>
</table>

Answer: He would be rated as a reporter, using the radio button on the left. John can develop a differential diagnosis and assessment plan for some, but not all (or even most) of the common medical conditions encountered/ required during the rotation.

Possible Pitfalls:

Allowing a personal bias in assessing the learner's skill level- stick to the criteria and evaluate them based solely on their observed behaviors
Providing Comments

At the end of the form, two comment sections are provided. The first comment section provides space to include summary comments on the student’s performance. Specific comments about observed behaviors help to communicate the basis for your rating and provide excellent feedback to the student. The comments in this section can be included in the Dean’s Letter or MSPE. These comments need to be carefully worded to communicate to residency directors who will use them to select students.

What are the characteristics of comments appropriate for the Dean’s Letter?
Comments should:
1. Provide an accurate and objective description of the student’s performance
2. Provide context for a statement regarding the overall abilities of the student (e.g., already working at level of R1)
3. Use specifics as much as possible (e.g., he regularly came in early and stayed late, not he had a strong work ethic)

**Example:** John was a true pleasure to have on the team. He has a love of learning and used this to both improve the care of his patients and the knowledge of his team members. He has excellent interpersonal skills and formed immediate and strong relationships with all of his patients. The patients clearly identified him as their primary provider.

Finally a section is provided for you to give any Additional Feedback to Students. This area is explicitly for students and the clerkship director and designated as not to be included in the Dean’s Letter. If you have comments that you feel are important for the student or the clerkship director to know, but are not sure if they are appropriate for inclusion in the Dean’s letter, put them in this section.

**Example:** Lisa was encouraged to express her ideas more to improve her ability to reach out to patients. I also recommended that she be more proactive in tracking down test results and notifying her team members. While, these concerns are reflected in my evaluation of Lisa, I feel it is also important to note that she responded very well to feedback and this improved over the course of our time together.