Beyond Clinical Performance Assessment: Feedback, Learning Goals, and Remediation

2010 Maatsch Lecture

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University of California, San Francisco

Thank you

- The purpose of the Jack L. Maatsch Visiting Scholar in Medical Education fund is:
- to stimulate and support interaction around ideas and projects in medical education, with primary focus on the development and assessment of clinical competence related to the full span of professional training.

Medical Training

Clinical training via experience ➔ Assessment ➔ Advance to next level of training

Modern Medical Training

Clinical training ➔ Feedback ➔ Experience ➔ Feedback ➔ Assessment of competence ➔ Advance to next level of training ➔ Remediation

Outline

- Clinical performance assessment
- Feedback
- Remediation
- Feedback
- Learning goals
  - The importance of formative assessment
  - Clinical performance assessment in the workplace
- (More on) feedback

Is this doctor competent?
Assessment of Competence

- “Professional competence: the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served”
- Developmental continuum from novice → competent → expert

Epstein RM, Hundert EM. JAMA 2002
Carraco et al. Acad Med 2008

National Studies of Medical Student Clinical Skills Assessment and Remediation

- Karen E. Hauer, MD
- Carol S. Hodgson, PhD
- David Irby, PhD
- Kathleen Kerr, BA
- Patricia O’Sullivan, EdD
- Varun Saxena, MD
- Arianne Teherani, PhD
- A series of studies supported by the Josiah Macy, Jr. Foundation

Forces Influencing Clinical Skills Assessment

- 1990's: Josiah Macy, Jr. Foundation funded 6 regional consortia for undergraduate SP assessment (California CPX consortium)
- 1999: ACGME endorses 6 competencies, emphasizes outcomes of graduate training
- 2004: National Board added licensing requirement - USMLE Step 2 CS

Purpose

- To characterize clinical skills assessment programs nationally
- To explore how USMLE Step 2 CS will impact in-house clinical skills assessment programs
- To identify methods used for standard setting and remediation

Results: Clinical Skills Assessment Programs

<table>
<thead>
<tr>
<th>Timing in Curriculum</th>
<th>Clinical Skills Assessment Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>During/end 1st year</td>
<td>66 (73%)</td>
</tr>
<tr>
<td>During/end 2nd year</td>
<td>82 (90%)</td>
</tr>
<tr>
<td>During 3rd year</td>
<td>64 (70%)</td>
</tr>
<tr>
<td>End of 3rd or during 4th year</td>
<td>76 (84%)</td>
</tr>
</tbody>
</table>

Hauer et al. Acad Med 2005
Feedback to students

- A critical purpose of the in-house exam
- All schools gave all students some feedback
- Debate about optimal balance of formative and summative feedback

Hauer, Acad Med 2006

Lowest scoring students received the most feedback

It gives me an opportunity to take a student who has an odd affect and now there’s data. Instead of me just saying, ‘Gee, this may be a problem; you don’t make good eye contact,’ I can say now, ‘This is a problem. You’re not making good eye contact. It’s been noted in your clerkships and, here on the OSCE, you did poorly.’

Barriers to giving students feedback

- Maintaining exam security
- Limited faculty time
- Resources: balancing goals for teaching, formative and summative assessment
- Focusing students on concepts, not cases or checklists

Risk of competency-based assessment

- Focus on minimally acceptable performance
- No motivation toward lifelong learning
- Emphasis on discrete tasks rather than complex performance
- **Wash hands**
- **Say “that must be hard”**
- **Ask patient what she thinks is going on**

Student perspective: preparing for USMLE Step 2 CS

Barrier to feedback: faculty skill

- **You’re doing great!**

- **First Aid: USMLE Step 2 CS**
- **Exam-busting tips: How to pass exams the easy way**
**Redefining feedback**

- Current feedback models are limited
  - Reductionist
  - Hierarchical, diagnostic
  - Educator-driven, one-way

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**Student performance problems and remediation**

Remediation as feedback for the students most in need

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**Non-cognitive problems: communication and professionalism**

- Poor insight or resistance to exam process
- Lack of respect/empathy
- Blaming test environment rather than one’s own deficiencies
- Most challenging to remediate - maladaptive personality styles

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**Implications**

- Insight crucial for remediation
- Promoting reflection may facilitate students’ ability to incorporate changes in their approach to patients
### Remediation techniques

<table>
<thead>
<tr>
<th>Clinical</th>
<th>Independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preceptorships</td>
<td>• Independent study (Web module, reading)</td>
</tr>
<tr>
<td>• Remediation within clerkships</td>
<td>• Student reviews exam recording alone</td>
</tr>
<tr>
<td>• Special clinical rotations</td>
<td></td>
</tr>
</tbody>
</table>

- **Precepted video review**
  - Precepted review of exam recording

- **Organized group activities**
  - Practice with SPs
  - Skills workshops, or group discussions


### Use of Remediation Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Overall</th>
<th>Role</th>
<th>History</th>
<th>Clinical reasoning</th>
<th>Knowledge</th>
<th>Precepted review</th>
<th>Communication</th>
<th>Professionalism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical activities</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
<td>1.4</td>
<td>1.7</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Independent study</td>
<td>2.8</td>
<td>2.4</td>
<td>2.4</td>
<td>2.6</td>
<td>2.4</td>
<td>2.0</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Precepted video review</td>
<td>3.4</td>
<td>3.3</td>
<td>3.2</td>
<td>3.0</td>
<td>3.1</td>
<td>3.2</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Organized group activities</td>
<td>2.8</td>
<td>2.7</td>
<td>2.2</td>
<td>2.3</td>
<td>2.3</td>
<td>2.2</td>
<td>2.7</td>
<td></td>
</tr>
</tbody>
</table>

1 = never, 3 = half the time, 5 = always


### Confidence in exam and remediation

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am confident in:</td>
<td></td>
</tr>
<tr>
<td>our exam scores</td>
<td>4.1</td>
</tr>
<tr>
<td>our ability to diagnose student problems</td>
<td>4.0</td>
</tr>
<tr>
<td>our ability to remediate history taking, physical exam</td>
<td>3.8</td>
</tr>
<tr>
<td>our ability to remediate communication</td>
<td>3.6</td>
</tr>
<tr>
<td>our ability to remediate clinical reasoning</td>
<td>3.2</td>
</tr>
<tr>
<td>our ability to remediate knowledge</td>
<td>3.1</td>
</tr>
<tr>
<td>our ability to remediate professionalism</td>
<td>2.9</td>
</tr>
<tr>
<td>I am satisfied with our school's remediation process</td>
<td>3.5</td>
</tr>
</tbody>
</table>

1 = strongly disagree, 5 = strongly agree

### Challenges of remediating late in medical school

- I passed all of my core clerkships...
- I am busy doing my subinternship...
- I have to do 4 visiting “audition” rotations...
- Residency applications are due...

*Is there a better way?*

### Much uncertainty about remediation

- Schools invest significant resources in analyzing why a student failed
  - Confidence in diagnosis is high
  - Confidence in remediation is low
- Schools use resource non-intensive remediation activities (Precepted Video Review) most, and resource intensive activities (Clinical Activities) least
- Institutions that required retest are most satisfied with their remediation process.

### Remediation of Physicians across the Continuum from Medical School to Practice: a Thematic Review of the Literature

KE Hauer, A Ciccone, TR Henzel, P Katsufrakis, SH Miller, WA Norcross, MA Papadakis, DM Irby

Acad Med 2009
### Narrative literature review of remediation

#### Study criteria

1. Deficiencies in an individual’s performance identified through an assessment process
2. Attempt is made to provide remedial education
3. Reassessment after remediation

### 13 published studies of remediation

<table>
<thead>
<tr>
<th>Deficit</th>
<th>Identification</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>UME</td>
<td>Knowledge, clinical</td>
<td>Faculty video review, SP practice, tutorials</td>
<td>Retest - knowledge or SP exam</td>
</tr>
<tr>
<td></td>
<td>skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GME</td>
<td>Knowledge</td>
<td>Individual study plan, mentor, clinical rotations</td>
<td>Exam scores</td>
</tr>
<tr>
<td></td>
<td>in-training exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CME</td>
<td>MD practice</td>
<td>Chart review, interviews</td>
<td>Individualized Chart or practice review</td>
</tr>
</tbody>
</table>

### Using the learning sciences to guide remediation

<table>
<thead>
<tr>
<th>Knowledge deficit</th>
<th>Deliberate (conscious and focused) practice with feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and skills deficits</td>
<td>Help build strong knowledge structures and representations (schema, scripts, exemplars, prototypes)</td>
</tr>
<tr>
<td>Professionalism problem</td>
<td>Explicit instruction, guided practice, mentored reflection, observation and interaction with role models</td>
</tr>
</tbody>
</table>

### Costs of remediation

- Resource intensive interventions for a small number of learners
- Creating efficiencies
  - “referral centers” – collaborative across institutions
  - Span UME/GME/CME
  - Promote learner self-assessment of skills

### Feedback and formative assessment

- Formative assessment
  1. teacher and learner clarify expectations: learning intentions and criteria for success
  2. teacher provides feedback
  3. learner is activated as owner of own learning (self-assessment, learning goals)

Lifelong learning

The inaccuracy of self-assessment

Feedback complexity affects effectiveness of feedback

Recipient characteristics affect effectiveness of feedback

Students’ self-assessment after a standardized patient exam

How do our own students hear and incorporate feedback from the CPX?
Influences on learning goals

- All feedback is filtered through the recipient’s own self-assessment
- Which factors influence students’ learning goals after OSCE cases AND feedback (faculty scores, comments)?
- Student, case, faculty feedback?
- Students’ self-assessments most strongly informed learning goals

Eva et al, Acad Med 2010

Goal orientation

Learning orientation: desire to learn new skills

Performance orientation: desire to demonstrate competence

“I care about this material and want to be a superb doctor”

“I want to get an ‘A’”

Curricular goals in the era of competency based assessment

- Goal: to standardize learning outcomes and assess competencies over time AND individualize the curriculum...
- Could argue for
  - a structured supplemental curriculum for practice and feedback
  - shift from remediation to individualized curriculum

What if we move from a paradigm of remediation to one of formative assessment and individualized learning plans?

Changing our approach to remediation

Clinical Skills Guidance Program

- Goals:
  - Partner with the student progress committee and advisory college mentors
  - Create a competency-based supplemental curriculum for H&P and communication for at-risk students through the clinical core year

Curriculum activities

- Student completes written reflection and own learning goals with advisory college mentor and clinical skills guidance faculty
  1. Student watches faculty narrated video cases
  2. Student - clinical skills guidance faculty: individual performance review, learning plan (Gap analysis)
  3. Standardized patient workshop
  4. High-stakes standardized patient exam (CPX)

The importance of formative assessment

- Feedback must be conceptualized as a supported sequential process rather than a series of unrelated events.
- Requires established, longer-term professional relationships

Predicting Failing Performance on a Standardized Patient Exam (CPX)

- Which medical school assessment measures identify students at risk of failing CPX?
  - Retrospective case-control study
- Results: students flagged even once in student progress meetings or clerkships -> increased risk of failing CPX in communication
- no predictors of failing H & P
  Chang et al. Acad Med 2009

Next steps: feedback in the workplace

- Sociocultural theory of learning: learn through active participation in work of a community
- Clinical workplace learning: oriented toward the central goal of helping patients
guided participation to engage learners in patient care, challenge to perform at higher levels of competence
- supervisor adapts level of support and feedback to learner’s needs
  Dorrnan T et al. Med Educ 2007
Faculty and student perceptions of evaluation in two clerkship models

- Traditional block clerkships and longitudinal integrated clerkship
- Longitudinal clerkship:
  - Multiple simultaneous preceptorships (developmental)
  - Longitudinal preceptors (relationships)
  - Brief structured clinical observations (bedside teaching, feedback)
- Survey of preceptors, students in each clerkship model


Greater satisfaction and confidence with evaluation in the LIC

- Preceptors and students favored evaluation in the LIC on three factors (p<.01):
  1. validity of evaluation process
  2. quality of clinical skill evaluation
  3. willingness to provide constructive feedback

Lessons learned from a clinician/administrator/researcher

1. Collaborate; build strong teams
2. Clinical and teaching venues are a ‘lab’
3. Recognize unanswered questions
4. Intersect theory with day-to-day educational work
5. Plan ahead to study curricular interventions
6. Look outside your comfort zone – other learners, other fields

Informed self-assessment

- Conditions: environment, relationships, personal attributes
- Tensions

<table>
<thead>
<tr>
<th>Info sources</th>
<th>External</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation of info</td>
<td>Reflect, filter</td>
<td>Emotion, confidence</td>
</tr>
<tr>
<td>Response to info</td>
<td>Ignore/reject</td>
<td>Accept</td>
</tr>
</tbody>
</table>

Sargeant et al. Acad Med 2010

Summary

- Psychometrically sound summative assessment, while important, does little in isolation to advance learning
- For low performers, surprisingly little evidence guides remediation
- Formative assessment promotes learning for all learners
- Promote individualized articulation of next steps
- Facilitate constant feedback loops

Thank you

Questions??
References
