Entrustable Professional Activities as a Framework for the Assessment of Residents

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No conflict of interest to be reported
Overview

1. Essentials of CBME and EPAs
2. The trouble with assessment in the workplace
3. Entrustment decisions as assessment
4. Implications before and after training
Essentials of Competency based medical education and Entrustable Professional Activities
Competency-based medical education – what’s new?

1. Medical competence more *broadly defined*
2. Focus on *observed competence*, not assumed competence because of length of experience
3. Shift from fixed time and flexible standards, to *fixed standards and flexible time*
What critics of CBME say

Medical Education and the Tyranny of Competency

The Incapacitating Effects of Competence: A Critique

Monkey see, monkey do: a critique of the competency model in graduate medical education

A critical time for medical education: the perils of competence-based reform of the curriculum

Competency-based training: who benefits?

Competency based training describes progression through

Competency based training is a framework for incompetence

Excellent care for patients cannot be learnt by ticking off arbitrary numbers of activities, writes Jonathan M Glass. We should want to produce masters of our art, not technicians
Operational problems of CBME

• Analytic competence description suboptimal
• Assessment instruments yet inadequate
• Bureaucracy in collecting learner data
Analytic framework approach

Medical expert
- With nursing staff

Collaborator
- With family

Communicator
- With patients
- With colleagues
- With trainees

Manager

Health advocate
- With children

Scholar

Professional
- With elderly
- ...

Consultation
- Breaking bad news
- Explain medication
- With elderly
- ...

The doctor

Communicator

Manager

Health advocate

Scholar

Professional
The CanMEDS 2005 competency framework

<table>
<thead>
<tr>
<th>Role</th>
<th>134 elements</th>
<th>28 key competencies</th>
<th>125 enabling competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical expert</td>
<td>14</td>
<td>6</td>
<td>27</td>
</tr>
<tr>
<td>Communicator</td>
<td>27</td>
<td>5</td>
<td>17</td>
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<tr>
<td>Collaborator</td>
<td>21</td>
<td>2</td>
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<tr>
<td>Manager</td>
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<td>Health Advocate</td>
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<tr>
<td>Scholar</td>
<td>23</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Professional</td>
<td>17</td>
<td>3</td>
<td>14</td>
</tr>
</tbody>
</table>
Back to the basic questions

- What medical work must be done?
- When can we start trusting a learner to do that?
- How prepare them to do be trusted?
- How evaluate they are ready for unsupervised practice?

And how do we reconcile this with competencies, milestones, supervision and billing requirements?
Entrustable professional activity

A unit of professional practice (task) that can be entrusted to a sufficiently competent learner
Entrustable professional activity

- Executable within a time frame
- Observable and measurable
- Suitable for entrustment decision
- Assessment result framed as permission with designated level of supervision
- Allocated to individuals
## Competencies versus EPAs

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPAs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>person-descriptors</strong></td>
<td><strong>work-descriptors</strong></td>
</tr>
<tr>
<td>knowledge, skills, attitudes, values</td>
<td>essential tasks in professional practice</td>
</tr>
<tr>
<td>- content expertise</td>
<td>- discharge patient</td>
</tr>
<tr>
<td>- health system knowledge</td>
<td>- counsel patient</td>
</tr>
<tr>
<td>- communication ability</td>
<td>- lead family meeting</td>
</tr>
<tr>
<td>- management ability</td>
<td>- design treatment plan</td>
</tr>
<tr>
<td>- professional attitude</td>
<td>- Insert central line</td>
</tr>
<tr>
<td>- scholarly skills</td>
<td>- Resuscitate patient</td>
</tr>
</tbody>
</table>
Does it fit?

Person with competencies

Task (EPA) to be done
For most EPAs, multiple competencies are required

<table>
<thead>
<tr>
<th>Competency</th>
<th>EPA1</th>
<th>EPA2</th>
<th>EPA3</th>
<th>EPA4</th>
<th>EPA5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient care</td>
<td>++</td>
<td>++</td>
<td></td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Medical knowledge</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Interpersonal skills &amp; communic.</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Professionalism</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Practice-based learning &amp; improv.</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>System-based practice</td>
<td>++</td>
<td>+</td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

Assessment based on EPAs
Synthetic/holistic framework approach

- Patient care
- Medical knowledge
- Interpersonal skills & communic.
- Professionalism
- Practice-based learning & improv.
- System-based practice

EPA1
EPA2
EPA3
EPA4
EPA5
The competency-based approach using EPAs

1. Acknowledge that mastery of most EPAs does not happen at the very end of training
2. Trust trainees to work unsupervised as soon as they have passed a threshold of ability
3. Create individualized paths to competence
Growth of competence over time

- expert
- proficient
- competent
- advanced
- novice

training \[\rightarrow\] deliberate professional practice
Competency curves of one trainee

- EPA1
- EPA2
- EPA3
- EPA4
- EPA5

Competence threshold

Training

Deliberate professional practice

Justified entrustment decisions
Another trainee

Justified entrustment decisions
Five levels of supervision, reflecting increasing trust in trainee autonomy

1. presence but no permission to enact EPA
2. practice EPA with direct (pro-active) supervision
3. practice EPA with indirect (re-active) supervision
4. unsupervised practice allowed (distant oversight)
5. EPA may be supervised for junior learners
Trainee Jones’ individualized workplace curriculum

<table>
<thead>
<tr>
<th>Graded supervision allows for…</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>PGY4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Observing the activity</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Acting with direct supervision present in the room</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Acting with supervision available within minutes</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Acting unsupervised (i.e., under clinical oversight)</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Providing supervision to juniors</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portfolio of: trainee Jones</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>PGY4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA a</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>EPA b</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>EPA c</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>EPA d</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>EPA x</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
# 7-item format of EPA description

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title of the EPA</td>
</tr>
<tr>
<td>2</td>
<td>Specification and limitations</td>
</tr>
<tr>
<td>3</td>
<td>Most relevant domains of competence</td>
</tr>
<tr>
<td>4</td>
<td>Required experience, knowledge, skills, attitude and behavior for entrustment</td>
</tr>
<tr>
<td>5</td>
<td>Assessment information sources to assess progress and ground a summative entrustment decision</td>
</tr>
<tr>
<td>6</td>
<td>Entrustment for which level of supervision is to be reached at which stage of training?</td>
</tr>
<tr>
<td>7</td>
<td>Expiration date</td>
</tr>
</tbody>
</table>
## Example EPA description

<table>
<thead>
<tr>
<th>1</th>
<th><strong>Routine check-up of the stable adult patient</strong> [early EPA for medical students]</th>
</tr>
</thead>
</table>
| 2 | **Includes:** no more and no less than  
   1. Measuring vital parameters: heart rate, respiratory rate, temperature, blood pressure, $O_2$ saturation  
   2. Explaining all actions to the patient  
   3. Reporting results to the health care team including interpretation, orally and/or written  
   **Context:** ambulatory and inpatient setting  
   **Targeted transition point:** first fulltime clinical clerkship to next clerkship  
   **Limitations:** only with hemodynamically stable patients 18 years and older |
| 3 | **X Medical Expert**  **X Communicator**  **X Collaborator** |
| 4 | **Knowledge:** basic knowledge of anatomy including relevant arteries; normal values of vital parameters  
   **Skill:** skill in using necessary devices to measure vital parameters; recognition of stable and unstable patients  
   **Attitude and behavior:** professional communication with the patient; proactive alertness in case of adverse events; willingness to ask for help if needed  
   **Experience:** all measurements done at least 5 times |
| 5 | **Short practice observations:** satisfactory observation of all measurements at least twice by experienced health care professionals (nurse, physician or other)  
   **Case-based discussions:** one CBD with a qualified health care professional |
| 6 | **Supervision Level:** Indirect supervision (level 3) ultimately before the transition to the second fulltime clinical clerkship |
| 7 | **Expiration:** after one year without practice following summative entrustment decision |
Reconciling EPAs, competencies and milestones

<table>
<thead>
<tr>
<th>EPA example</th>
<th>Competency domains</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead an interprofessional health care team, including aligning responsibilities with members' expertise and level of training</td>
<td>Patient care</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Medical Knowledge</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Interpersonal and communication skill</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>Professionalism</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Systems-based practice</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>Practice-based learning and improvement</td>
<td>*</td>
</tr>
</tbody>
</table>

Direct supervision
Indirect supervision
No supervision
The Trouble with Assessment in the Workplace
The trouble with assessment in the workplace

- Knows
- Knows how
- Shows how
- Does
The trouble with assessment in the workplace

- Knows
- Knows how
- Shows how
- Does

- In the clinical workplace
- In a simulated environment
- In a written test (closed and open format)
- In a written test (MCQ)
A reliable test

1. Standardized – equal for all candidates
2. Power to discriminate between individuals
3. Reproducible scores if re-administered

Mary

Poor

Excellent

John

PASS

Mary
The trouble with assessment in the workplace

**DOES**
- Cannot meet reliability requirements

**SHOWS HOW**
- May be made reliable with much effort

**KNOWS HOW**
- Can have acceptable reliability

**KNOWS**
- Can be very reliable
Shift of workplace assessment focus needed

- Do not aim to discriminate between trainees
- Value unique qualities of trainees
- Discard artificial grades and scales (1-9; A-F)
- Primary focus: when to trust trainees with less supervision
- Use multiple sources of information over time
The Portfolio Approach to Competency-Based Assessment at the Cleveland Clinic Lerner College of Medicine
Elaine F. Dannefer, PhD, and Lindsey C. Henson, MD, PhD

Narrative descriptions should replace grades and numerical ratings for clinical performance in medical education in the United States

Janice L. Hanson *, Adam A. Rosenberg and J. Lindsey Lane
Department of Pediatrics, University of Colorado School of Medicine, Aurora, CO, USA
Better construct alignment may improve reliability

### Anaesthesia Mini-CEX (written version of online form)

**Case Details**

- Case Description
- Surgical Subspecialty
- Surgical Complexity
- Setting
- ASA
- Age

### Surgical Complexity

- Minimal -- e.g. cystoscopy, I&D
- Moderate -- e.g. lap appendicectomy, TURP, ORIF, Fem-pop bypass
- High -- e.g. body cavity surgery, craniotomy, and knee replacement

### Progression to Autonomy

<table>
<thead>
<tr>
<th>Domains</th>
<th>Required Supervisor Input for safe practice</th>
<th>Generally autonomous, some guidance required</th>
<th>Autonomous practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient assessment/investigation</td>
<td>1</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Preparation for anaesthesia</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Clinical planning</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Patient communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedural skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving/decision making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vigilance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Corresponding author. E-mail:
Entrustment decisions as assessment
Entrustment decisions

1. **Ad-hoc entrustment decisions** happen every day, affected by: trainee, supervisor, EPA type, context and trainee-supervisor relationship

2. **Summative entrustment decisions**: formal moments of competence acknowledgement; reflect *ability, right and duty* to enact EPA with less (or no) supervision: *Statement of Awarded Responsibility (STAR)*
Entrustment scale = supervision scale

1. Not ready for entrustment
2. Ready for direct supervision
3. Ready for indirect supervision
4. Ready for “unsupervised” practice
5. Ready to supervise
Important trainee factors enabling trust

• Competence
• Truthfulness / honesty
• Conscientiousness / reliability
• Discernment of own limitations
Modes of trust in *ad-hoc vs summative* entrustment decisions

<table>
<thead>
<tr>
<th>Presumptive trust</th>
<th>(Based on prior credentials without observation)</th>
<th>Guides ad-hoc entrustment decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial trust</td>
<td>(Based on first impressions)</td>
<td></td>
</tr>
<tr>
<td>Grounded trust</td>
<td>(Based on more systematic data collection)</td>
<td>Guides summative entrustment decisions</td>
</tr>
</tbody>
</table>
## Data collection to support entrustment decisions

<table>
<thead>
<tr>
<th></th>
<th>Practice-unrelated</th>
<th>Practice-related</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td>• Written / electronic knowledge testing</td>
<td>• Short practice observation</td>
</tr>
<tr>
<td></td>
<td>•</td>
<td>• Case-based discussion</td>
</tr>
<tr>
<td><strong>Skill</strong></td>
<td>• Simulation testing</td>
<td>• Short practice observation</td>
</tr>
<tr>
<td></td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td>• Simulation testing</td>
<td>• Long practice observation</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td>• Product evaluation</td>
<td>• Product evaluation</td>
</tr>
</tbody>
</table>

Continuous bench-mark thinking: *Is this trainee ready for unsupervised execution of this EPA?*
Practice related data collection

*Short practice observations:* 5-15 minute snapshot with feedback (miniCEX; procedures, handoffs, presentations)

*Cased-based discussions:* 5-15 minute mini-exam after encounter or procedure (“what if the patient …” “what if the test would have revealed…”)

*Long practice observations:* during shift/week/month; building view on professionalism and behavior
Based on my observation(s), I suggest for this EPA the trainee may be ready after the next review to:

2. Act under direct supervision
3. Act under indirect supervision
4. Act with only post-hoc report
5. Supervise juniors

Provide feedback on each of the following domains of competence, relevant to this EPA:

* Medical Expert
* Communicator
* Collaborator
* Scholar
* Leader
* Health advocate
* Professional

Or record a feedback message.
Trainee: Peter Berk
Date: January 30, 2015
Program: Undergraduate medical course
Program year: 5, of 6-year program

Core Entrustable Professional Activities

<table>
<thead>
<tr>
<th>Date of entrustment</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA 1: Report on basic vital functions</td>
<td>Jan 10 2013</td>
<td>July 1 2013</td>
</tr>
<tr>
<td>EPA 2: Basic history and physical examination</td>
<td>Feb 1 2013</td>
<td>July 1 2014</td>
</tr>
<tr>
<td>EPA 3: Collecting basic bodily materials</td>
<td>Mar 7 2013</td>
<td>July 1 2014</td>
</tr>
<tr>
<td>EPA 4: Conducting basic therapeutic acts</td>
<td>Dec 2 2014</td>
<td>--</td>
</tr>
<tr>
<td>EPA 5: Handling basic diagnostic tests</td>
<td>Nov 1 2014</td>
<td>--</td>
</tr>
<tr>
<td>EPA 6: Initiating treatment of common disease</td>
<td>Nov 1 2014</td>
<td>--</td>
</tr>
<tr>
<td>EPA 7: Bringing bad news non-terminal illness</td>
<td>Sep 9 2014</td>
<td>--</td>
</tr>
<tr>
<td>EPA 8: Acting upon in-hospital emergency</td>
<td>July 1 2013</td>
<td>--</td>
</tr>
<tr>
<td>EPA 9: Managing end-of-life actions</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>EPA 10: Managing a limited hospital ward</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>EPA 11: Managing a limited out-patient clinic</td>
<td>--</td>
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</tr>
</tbody>
</table>

Specialty-specific Entrustable Professional Activities

<table>
<thead>
<tr>
<th>Program</th>
<th>Vital Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of entrustment</td>
<td>Level 3</td>
</tr>
<tr>
<td>EPA A: Managing acute circulatory failure</td>
<td>--</td>
</tr>
<tr>
<td>EPA B: Managing acute respiratory failure</td>
<td>--</td>
</tr>
<tr>
<td>EPA C: Cardio-pulmonary resuscitation</td>
<td>--</td>
</tr>
<tr>
<td>EPA D: Managing vitally threatened ER patient</td>
<td>--</td>
</tr>
</tbody>
</table>

Elective Entrustable Professional Activities

<table>
<thead>
<tr>
<th>Date of entrustment</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA: Basic Teaching (Student Teach Certif.)</td>
<td>--</td>
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</tr>
</tbody>
</table>

Click on EPA to read full description; click on date to see history of entrustment decision-making
Implications before and after training
Trends in residency responsibility since Libby Zion case (1984)

- Decrease of duty hours
- Increase in patient safety training
- More attendings on clinical wards (days and nights)
- More care by hospitalists – less by residents
- More protocolized resident-staff communication
- Billing based on staff care

Decrease of resident responsibility may affect patient safety after training.

Need for a better safety-autonomy balance
Implications of summative entrustment decisions for EPAs before end of training

• Statement of Awarded Responsibility (STAR)
• CBME: from fixed time and flexible standards to fixed standard and flexible time
• Grant unsupervised autonomy for part of practice before end of training - oversight only
Implications of summative entrustment decisions for EPAs before end of training

<table>
<thead>
<tr>
<th>Portfolio of: trainee Jones</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>PGY4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA a</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>EPA b</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>EPA c</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>EPA d</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>..EPA x</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Implications of summative entrustment decisions for EPAs before end of training

- Grant unsupervised autonomy for part of practice before end of training - oversight only
- STAR is mini-license in protected environment
- Public, patients, regulators, insurance companies, ACGME must accept partial professional responsibilities of physicians in training
Implications of summative entrustment decisions for EPAs *after* end of training

- Specialistist license based on portfolio of EPAs
- Core EPAs define profession – elective or subspecialty EPAs define profile
- EPAs have expiration dates
- Specialists may lose unpracticed EPAs and may learn and add new EPAs
- CPD may be based on EPA dynamics
In conclusion

• Focus on EPAs can operationalize CBME
• Entrustment decision-making aligns assessment with natural work flow in a teaching hospital
• Medical competence may be defined as a portfolio of EPAs, dynamic across life time
• True CBME requires a dialogue with public, patients, insurance companies and regulators on graded responsibility during training
References

• Glass, J. M. (2014). Competency based training is a framework for incompetence. British Medical Journal, 348, g2909. doi:10.1136/bmj.g2909
• Ten Cate, O., & Scheele, F. (2007). Competency-Based Postgraduate Training: Can We Bridge the Gap between Theory and Clinical Practice? Academic Medicine, 82(6), 542–547.
• Ten Cate, O., Snell, L., & Carraccio, C. (2010). Medical competence: the interplay between individual ability and the health care environment. Medical Teacher, 32(8), 669–75.