Competency-based medical education and the use of entrustable professional activities

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University Medical Center Utrecht, the Netherlands

What is the ultimate goal of medical training:
To expect that physicians, residents, specialists we graduate can be trusted to provide high quality, safe care
What is the ultimate goal of medical training:
To expect that physicians, residents, specialists we graduate can be trusted to provide high quality, safe care (with limited or no supervision)

The Dutch Medical Act says: 
**Doctors are entitled to perform medical tasks, provided they are competent**

But.. What Is Competent? And How Do We Know?

Would clinical educators trust all graduating trainees with their own family members as patients?

- Many residency program directors can recollect cases signing off for completion of training even if not confident*

- *Failure to fail* reasons: “time is up”; “no valid documentation to back up failure”; “failing a trainee gives us trouble”; “no tools to handle this”; “when unsure, we err for the benefit of trainee”

- The imperative of Competency-based Medical Education: Reducing “false positive” decisions when graduating trainees for unsupervised practice

*Jonker et al – study in preparation
Competency-based medical education

- First described in 1978 (McGaghie et al, WHO)
- Revival around 2000: Canada (CanMEDS), USA (ACGME Outcome project), UK (Tomorrow’s Doctors)
- Why: dissatisfaction with quality of care, training models, and supervision & patient safety

CBME: Education, aimed at a standard level of proficiency for all graduates

Critical features of CBME:
- Clear description of standards for a “good physician/specialist”
- Assessment of all medical trainees using these standards
- Competence, not time, is primary reason to finalize training
Radiology Progress Test scores 2005-2009 for all Dutch residents

Competency frameworks

General acceptance worldwide, but..

- CBME frameworks tend to become analytical and detailed
- Competencies are sometimes rather abstract and general
- Clinical teachers struggle with assessment
- CBME Paradox*: while meant to be holistic, competency frameworks have gradually become analytic and tick-box like

[*Pim Teunissen: Feb 2, 2018]
Competency frameworks
General acceptance worldwide, but..

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CBME Paradox*: while meant to be holistic, competency frameworks have gradually become analytic and tick-box-like

* Pim Teunissen: Feb 2, 2018

Analytic framework approach

- The doctor
  - Medical expert
  - Collaborator
  - Communicator
  - Manager / Leader
  - Health advocate
  - Scholar
  - Professional

- With nursing staff
- With family
- With patients
- With colleagues
- With trainees

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

Pangaro & ten Cate 2013
The CanMEDS 2015 competency framework
739 components (generic for all specialties)

<table>
<thead>
<tr>
<th>Role</th>
<th>161 key concepts</th>
<th>28 key competencies</th>
<th>116 enabling competencies</th>
<th>434 milestones (excl CPD)</th>
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<tr>
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The inventors of postgraduate medical specialty training, Osler and Halsted, *early 20th C*

“Serve as my House-Officer for a couple of years and I will recognize you as a medical specialist”

“Meet all competency-standards of national accreditation and registration bodies in detail and become a medical specialist”

Accreditation bodies, *early 21st C*
What is the best metaphor for educating doctors?

1. Is it building a house with bricks?

2. Is it watering a plant for autonomous growth?
   Steeping a tea bag in hot water?

Is there a third way?

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**EDITORIAL**

**Entrustable Professional Activities**

*The Future of Competency-Based Education in Surgery May Already Be Here*

Jacob A. Greenberg, MD, EdM and Rebecca M. Minter, MD

Annals of Surgery, 2018
**Entrustable Professional Activity**

- **Definition**: Unit of professional practice (a task) that can be fully entrusted to a trainee, once he or she has demonstrated the necessary competence to execute this activity unsupervised.

- **Purpose**: To operationalize competency-based medical education through a stepwise and safe engagement of trainees in clinical practice – with a progressive (bounded) autonomy.

- **Becoming competent**: Passing the threshold that allows for sufficient trust in the trainee to act unsupervised.

**Why Entrustable Professional Activities?**

- **The MD license or speciality registration is too broad to oversee for any educator.**
  EPAs break down its breadth in units of practice that can be overseen, assessed, monitored, documented and certified.

- **Competencies: often felt too remote from the clinical duties to be optimal for assessment.**
  EPAs may be a better focus.

- **Regular assessment is not directly linked to progression of responsibility.**
  Entrustment decisions for EPAs aim to do so.
E.P.A.

• **Entrustable**: acts that require trust – by colleagues, patients, public

• **Professional**: confined to occupations with extra-ordinary qualification and right

• **Activities**: tasks that must be done

EPAs ground competencies in daily practice

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**Competencies versus EPAs**

<table>
<thead>
<tr>
<th>Competencies</th>
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<td><strong>work-descriptors</strong></td>
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<td>essential units of professional practice</td>
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<tr>
<td>• content expertise</td>
<td>• discharge patient</td>
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<tr>
<td>• health system knowledge</td>
<td>• counsel patient</td>
</tr>
<tr>
<td>• communication ability</td>
<td>• lead family meeting</td>
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<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>
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</table>

*the ability to do something successfully or efficiently*  
*something that is (trusted to be) done successfully or efficiently*  

*Oxford dictionary*
Does it fit?

Task (EPA) to be done

Person with competencies

EPAs require multiple competencies

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPA1</th>
<th>EPA2</th>
<th>EPA3</th>
<th>EPA4</th>
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Assessment focused on EPAs

Pangaro & ten Cate 2013
Synthetic EPA framework approach

Medical expert  
Collaborator  
Communicator  
Manager  
Health advocate  
Scholar  
Professional

Operationally defining ‘competent’

When a professional activity is mastered..

• ...at a threshold level  
• ...that permits trust  
• ...to act unsupervised

Competent: stage in a developmental continuum
Growth of competence over time

- Training
- Deliberate professional practice
- Expert
- Proficient
- Competent
- Advanced
- Novice

Ready for unsupervised practice

Competency curves of one trainee for various EPAs

- EPA1
- EPA2
- EPA3
- EPA4
- EPA5

Competence threshold

Justified entrustment decisions

Loss of trust

Training
Deliberate professional practice

Dreyfus & Dreyfus 1986; ten Cate et al. 2010
Growth of competence of two trainees for one EPA (eg, obstetric deliveries)

Annual mean physician-level normalized risk-adjusted complication rates by elapsed years of experience since OB residency completion for physicians in the 1st and 4th quartiles of performance in the first year after residency completion, as estimated by weighted least squares regression. [Based on 15,673 physician years, in Florida and New York, 1992-2010]
Annual mean physician-level normalized risk-adjusted complication rates and 95% confidence intervals by elapsed years of experience since OB residency completion, as estimated by weighted least squares regression.

Entrustment decisions: Five levels of supervision, reflecting increasing trust in trainee autonomy

1. Be present 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. May provide supervision to junior learners


Ten Cate et al 2010
An individualized workplace curriculum

Graded supervision allows for
1. Observing the activity
2. Acting with direct, pro-active supervision present in the room
3. Acting with (re-active) supervision available within minutes
4. Acting unsupervised, i.e. under clinical oversight
5. Acting as the supervisor to a junior

<table>
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<th>Portfolio of: trainee Jones</th>
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<td>EPA c</td>
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<td>EPA d</td>
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For patient safety residents receive less opportunity to execute true responsibilities for patient care

→ Poorly prepared for unsupervised practice
→ Patient safety jeopardized after training

**Table 1. Examples of Seniorization of Tasks in the Academic Medical Center**

In trying to improve adherence to Surgical Care Improvement Project (SCIP) measures to prevent bladder catheters in postoperative patients, a senior hospital administrator demands that attending surgeons (not surgical residents) be required to write the order to have catheters removed immediately after the operation.

The Centers for Medicare and Medicaid Services (CMS) requires that attending physicians personally sign orders to admit a patient to the hospital. A resident’s signed order is not sufficient, even though that resident may have indicated that patient to the emergency department and had been instructed to admit the patient.

For patient safety, residents receive less opportunity to execute true responsibilities for patient care

→ Poorly prepared for unsupervised practice
→ Patient safety jeopardized after training
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PAPERS OF THE 133RD ASA ANNUAL MEETING

General Surgery Residency Inadequately Prepares Trainees for Fellowship

Results of a Survey of Fellowship Program Directors

Samer G. Mattar, MD,² Aidan A. Alweidi, MD, FACS | Daniel B. Jones, MD, FACS | D. Rohan Jeyarajah, MD, FACS | Lee L. Swanson, MD, FACS | Ralph W. Aye, MD, FACS

Results: There was a 63% response rate (n = 91/145). Of respondent program directors, 21% felt that new fellows arrived unprepared for the operating room, 38% demonstrated lack of patient ownership, 30% could not independently perform a laparoscopic cholecystectomy, and 66% were deemed unable to operate for 30 unsupervised minutes of a major procedure. With regard to laparoscopic skills, 30% could not atraumatically manipulate tissue, 26% could not recognize anatomical planes, and 56% could not suture. Furthermore, 28% of fellows were not familiar with therapeutic options and 74% were unable to...
Moving from just assessment of ability to entrustment decision-making

- Traditional psychometrics are weak for workplace-based assessment (leniency bias, low reliability, lack of standards)
- Variance caused by raters and context is larger than variance caused by trainee qualities
- Worsened by lack of supervision, fragmented care, short patient stays, little observation
- And a lack of mindset to avoid ‘failure to fail’
- A move from traditional assessment to entrustment decisions for EPAs may increase validity
Aligning the constructs of learners assessment and care

Invited Commentary

**Entrustment Decisions: Bringing the Patient Into the Assessment Equation**

Olle ten Cate, PhD

**QUALITY AND PATIENT SAFETY**

Can I leave the theatre? A key to more reliable workplace-based assessment

J. M. Weller¹,², M. Misur², S. Nicolson³, J. Morris³, S. Ure⁴, J. Crossley⁵ and B. Jolly⁶

Psychology of traditional workplace assessment

She’s nice and works hard; it won’t hurt and will probably motivate her if I mark her ‘superior’

Please... mark me ‘superior’
Psychology of \textit{EPA-based} workplace assessment

She’s nice and works hard, but it may hurt my patients if I mark her ‘ready for unsupervised practice’.

Please... mark me ‘superior’

The purpose of workplace-based assessment: \textit{Retrospective} or \textit{Prospective}?

Does the student show mastery of the content, taught in courses and rotations?

Is the student ready to assume the expected future responsibilities?

End of training
The trust concept in EPA-based assessment

- Trusting someone is making yourself **vulnerable**
- Calculated **risk** that adverse events are acceptable
- Graduates will be certified to carry out activities that supervisors have **not been able to observe** and leaners may have never encountered
- Entrustment decisions require estimation of **adaptive competence** to cope with unfamiliar situations
- Trust can **boost confidence and motivation** in learners*

Gin et al, submitted

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**Ad-hoc decisions of entrustment** occur daily in clinical education

**Summative decisions of entrustment** are based on multiple workplace-based assessments and focus on increased autonomy. Sometimes called a **STAR**
Extending Miller’s Pyramid

**Is Trusted** [to deal with new patients, unfamiliar challenges, new knowledge]

- Does
- Shows how
- Knows how
- Knows

<table>
<thead>
<tr>
<th></th>
<th>Miller, 1990</th>
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<tr>
<td>Readiness for tomorrow’s demands</td>
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<td>KSA integrated and observed in context</td>
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<tr>
<td>Integrated knowledge &amp; skill</td>
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<tr>
<td>Applied knowledge</td>
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<td>Knowledge</td>
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**What factors determine entrustment decisions?**

“Shall I trust this student to attend to this patient now?”

*Shall I trust this student to attend to this patient now?*
General qualities that enable trust (in trainees)

1. **Capability** (knowledge & skill; experience; awareness and oversight)
2. **Integrity** (truthful, good intentions, patient-centered)
3. **Reliability** (conscientious, predictable, accountable, responsible)
4. **Humility** (observing limits, willing to ask help, receptive to feedback)
5. **Agency** (self-confident, proactive toward work, team, safety)

**Useful acronym**: think of *A RICH* entrustment decision

Wrap-up: a few take home messages

- The justified entrustment of trainees with responsibilities is the core mission of (competency-based, medical) education
- (analytical) Competency-based education needs (synthetic/holistic) EPAs to connect with clinical practice
- EPAs break down the breadth of a license in units of practice that can be well overseen, assessed, monitored, documented and certified
- Entrustment decision-making as assessment is more than evaluation of skill and knowledge. A R I C H entrustment decision reviews a learner’s Agency, Reliability, Integrity, Capability and Humility
- Traditional workplace-based assessment looks back at how a learner did; entrustment decisions look forward to future competence

References

- Glass, J. M. (2014) "Competency based training is a framework for Incompetence". BMJ (Online), 348(April), pp. 1–2.
- Glass, J. M. (2014) "Competency based training is a framework for Incompetence". BMJ (Online), 348(April), pp. 1–2.