Reframing the goal of training in health care:
Trusting trainees and graduates to care for the patients of the future

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Disclosure statement

No conflict of interest reported

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“X-ray” of UMCU’s education building, designed to resemble a body with lungs and CV system
An anecdote
History of schooling*

120,000 years

*Stephen Billett, 6-6-2013
History of schooling: > 99.9% learning by doing in the workplace, < 0.1% in school*

*Stephen Billett, 6-6-2013
Exams at the Royal College of Surgery in London, 1986
What happened in the 20th century?

- What have we gained?
- What have we lost?
- What must we regain?
From practice-based knowledge to knowledge-based practice
Have we gained qualities?

• Scientific knowledge and rigor
• Structured curricula
• Sophisticated teaching methods
• Medical technology
• Specialized expertise
• High quality of care

But at a cost...?
Have we lost qualities?

• Connection of science and care?
• Patient care as continued focus?
• Suitable workplaces?
• Longitudinal and personal coaching and supervision?
THE

LOST ART

OF

HEALING

BERNARD LOWN, M.D.
What do we struggle to regain?

- The concept of medical competence
- General competencies of physicians
- Integration within education
- Continuity in teaching, coaching, care
The Question of Competence

Edited by Brian D. Hodges and Lorelei Lingard
Foreword by M. Brownell Anderson
Competency-Based Medical Education

Philosophy
• Better description of the physician
• Only graduate physicians meeting standards
• Based on competence, not on time in training

Practice
• Detailed description of competencies
• Struggle with teaching and assessment
What critics 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 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
Causes of the controversies

• For many: Not the principle of CBME, but the implementation

• For some: Fundamentally distinct views on educating doctors
The analytic approach to CBME

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

With:
- nursing staff
- family
- patients
- colleagues
- trainees
- children
- elderly
- ...
- ...

Consultation
Breaking bad news
Explain medication
With children
With elderly

Pangaro & ten Cate 2013
The analytic approach to CBME

<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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<tbody>
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<td>Medical expert</td>
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<td>25</td>
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<td>16</td>
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</table>
More fundamentally: two views

1. Doctors are defined by sets of competencies. If we can identify, train, monitor all required behaviors we can guarantee good doctors (the analytic view)

2. Becoming a doctor requires stimulation identity formation and role internalization over time ("tea-steeping"). Much of development cannot be regulated (the holistic view)

* Hodges 2010; Jarvis-Selinger et al 2012
Educating doctors

Building a house with bricks?

Nurturing a plant for autonomous growth?
• Over-control and external regulation conveys distrust in autonomous growth. External control does not likely stimulate intrinsic motivation of learners.

• Just letting the tea steep or plant grow conveys over-reliance on natural happenings, with no control on quality

We must reconcile the bricks and branches
Back to the foundational questions

1. What work must be done?
2. When to start trusting learners to do it?
3. How prepare them for unsupervised practice?
4. How evaluate their readiness for it?
5. Which competencies needed?

Regaining features of 120,000 years of workplace learning and combine with 21st century context?
Entrustable Professional Activity

A unit of professional practice that may be entrusted to a learner to execute unsupervised, once he or she has demonstrated the required competence.
# Competencies versus EPAs

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPAs</th>
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<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>
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</tbody>
</table>

EPAs require workers with competencies

(ten Cate 2013; Ten Cate et al. 2010; Ten Cate & Scheele 2007)
Does it fit?

Task (EPA) to be done

Person with their competencies
Most EPAs require multiple competencies

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPA1</th>
<th>EPA2</th>
<th>EPA3</th>
<th>EPA4</th>
<th>EPA5</th>
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<td>++</td>
<td>++</td>
<td>+</td>
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<td>+</td>
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</tbody>
</table>
EPAs: a synthetic approach

- Medical expert
- Communicator
- Collaborator
- Manager
- Health advocate
- Scholar
- Professional

EPAs: EPA1, EPA2, EPA3, EPA4, EPA5
Entrustable professional activity

- Executable within a time frame
- Observable and measurable
- Tasks, allocated to individuals
- Suitable for entrustment decision

Assessment as entrustment = *ability* + *permission* + *duty* to act, with designated level of supervision

ten Cate, 2005
EPAs

- **Entrustable**: acts that require trust – by colleagues, patients, society
- **Professional**: confined to occupations with extra-ordinary qualification and right
- **Activities**: tasks that must be done

EPAs ground competencies in daily practice
Using EPAs in workplace learning

• Most trainees master most EPAs before the very end of training

• Trainees should be trusted to do the work once their competence is established

• Schools should accommodate individualized pathways to full competence
When is “competence” reached?

When a professional activity is mastered
• ...on a **threshold** level
• ...that permits **trust**
• ...to act **unsupervised**

Competence is a *stage* in a continuum of development
Growth of competence over time

- Novice
- Advanced
- Competent
- Proficient
- Expert

Ready for unsupervised practice

Training

Deliberate professional practice

Dreyfus & Dreyfus 1986; ten Cate et al, 2010
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. EPA may be supervised with junior learners

ten Cate & Scheele, 2010
Competency curves of one trainee

Competition threshold

Justified entrustment decisions

training  deliberate professional practice

ten Cate et al, 2010
Another trainee

Loss of trust

Justified entrustment decisions

Competition threshold

Training Deliberate professional practice

ten Cate et al, 2010
EPA approach serves flexibility

- **Intra-trainee variation**: trainees do not reach competence for everything on last day of training.
- **Inter-trainee variation**: different prior knowledge and skills, learning ability, general attitude.
- **Context variation**: variable clinical opportunities, local practice (epidemiology, facilities, culture), education-mindedness of staff.

One size does not fit all.
Accommodating the paradigm of “fixed standards – flexible time”

1. Varying time in training
   – Take background into account when initially creating individualized workplace curriculum
   – Open enrolment and completion of program across the year
   – Treat time variations as maternity leaves or MD-PhD programs
   – Do not vary too much (more than 25%)

2. Varying the portfolio of EPAs
   – Play with elective EPAs and focus areas of expertise
Plans for the new Utrecht UME curriculum

- 2 small core EPAs mastered for bachelor degree
- 5 core EPAs mastered for MD degree
- 3 speciality specific EPAs for MD
- Residency with preparation
- Residency without preparation
- All UME core EPAs required to graduate
- Speciality specific EPAs for shortened residency
- Elective EPAs for upper level students
Plans for new the national radiology residency program in the Netherlands

2.5 years of general radiology training, devoted to core radiology EPAs

Training in one or more focus areas with specific EPAs (Neuro, Peds, Intervention, GE, Mammo etc)

Continued training in core radiology EPAs

- All core radiology EPAs required to graduate
- Flexibility in nr of focus area EPAs (0 to 2 areas)
- EPAs determine certification for autonomous practice
EPAs may change your view of competency-based medical training and practice

- **Curriculum**: individualized and clear targets
- **Assessment**: entrustment decisions
- **Legitimate participation of trainees**
- **EPA-based MOC**: better for re-registration
**An individualized workplace curriculum**

<table>
<thead>
<tr>
<th>Graded supervision allows for</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>PGY4</th>
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<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>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3 Acting with supervision available within minutes</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4 Acting unsupervised, i.e. under clinical oversight</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>5 Providing supervision to juniors</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Portfolio of: 

*trainee Jones*

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An individualized workplace curriculum allows for graded supervision, which includes:

1. Observing the activity
2. Acting with direct supervision present in the room
3. Acting with supervision available within minutes
4. Acting unsupervised, i.e. under clinical oversight
5. Providing supervision to juniors

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*ten Cate, 2014*
Psychology of traditional workplace assessment

She’s nice and works hard, it won’t hurt and will stimulate if I mark her ‘superior’

Please... mark me ‘superior’,
Psychology of EPA-based workplace assessment

Please mark me ‘superior’

She’s nice and works hard, but it may hurt my patients if I mark her ‘ready for unsupervised practice’
Entrustment decisions: more than traditional workplace assessment

• Trusting a trainee is accepting risk and becoming vulnerable

• Recognizing *ability* + *right* + *duty* to act

*Oxford Dictionary: “Competence”*
Maintenance of Competence

• EPAs gained during specialty training may serve well as MOC focus
• Continued and deliberate practice of EPAs should suffice to maintain the portfolio
• Disrupted or not maintained EPAs for years should lose the status of ‘Level 4’: renewed supervision mandatory
• New EPAs could be added after specialty registration
Maintenance of Competence

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Wrapping up

• Competency-based medical education is a great advance
• Operationalizing competencies for teaching and assessment is problematic
• Entrustable professional activities can revitalize CBME by connecting competencies to practice
• EPAs can serve to create the flexibility in programs that CBME requires
• Entrustment decisions deepen the nature of workplace-based assessment
• EPAs may serve to make MOC more meaningful
References

• Ten Cate, O. & Scheele, F., 2007. Competency-Based Postgraduate Training: Can We Bridge the Gap between Theory and Clinical Practice? Academic Medicine, 82(6), pp.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), pp.669–75.
• Gingerich, A., 2015. What if the “trust” in entrustable were a social judgment? Medical Education, 49(8), pp.750–752.
• Hauer, K.E. et al., 2015. Using a Curricular Vision to Define Entrustable Professional Activities for Medical Student Assessment. Journal of General Internal Medicine 2015;30(9):1344-8