Summary points

The severe organ shortage has generated desperation among people awaiting transplantation

A black market for kidneys purchased from living donors exists despite prohibitory laws

Everyone but the donor derives tangible benefit from a living donor transplant

Controlled, regulated compensation to living organ donors should be permitted as with donation of other body material

Legalised donation is likely to improve safety for both donors and recipients

why should the decision to donate an organ be viewed differently?

At the moment, kidneys are covertly transplanted in third world countries, from indigent donors into wealthy recipients. Bringing these activities out of the closet by introducing governmental supervision and funding will provide equity for the poor, who will get equal access to such transplants. It is appropriate that living donors, indigent or wealthy, share in the tangible benefits of their ethical concern for others. Not doing so, effectively restricting the disadvantaged, is unreasonably disingenuous.

Contributors and sources: ALF is an American academic transplant surgeon with 15 years' experience in the specialty. She has three relatives with kidney failure, two of whom received kidney transplants, and has one relative who served as a live donor.

Competing interests: ALF is paid for transplanting organs from live donors.

1 Spital A. Conscription of cadaveric organs for transplantation: a stimulating idea whose time has not yet come. *Camb Q Healthc Ethics* 2005;14:107-12.
2 Landry DW. Voluntary reciprocal altruism: a novel strategy to encourage deceased organ donation. *Kidney Int* 2006;69:957-9.
3 Pancevski B. Bulgarian hospital admits role in illegal transplants. *Lancet* 2006;387:461.
4 Goyal M, Mehta RL, Schneiderman LJ, Sehgal AR. Economic and health consequences of selling a kidney in India. *JAMA* 2002;288:1589-93.
5 Organ Transplantation and Procurement Network. Transplants performed. www.optn.org/latestData/rptData.asp (accessed 25 Apr 2006).
6 Axelrod DA, Guidinger MK, McCullough KP, Leichtman AB, Punch JD, Merion RM. Association of center volume with outcome after liver and kidney transplantation. *Am J Transplant* 2004;4:920-7.
7 Laupacis A, Keown PA, Pus N, Krueger H, Ferguson B, Wong C, et al. A study of the quality of life and cost-utility of renal transplantation. *Kidney Int* 1996;50:235.
8 Wolters HH, Heidenreich S, Senninger N. Living donor kidney transplantation: Chance for the recipient – financial risk for the donor? *Transplant Proc* 2003;35(6):2091-2.
9 United Network for Organ Sharing. *Allocation of deceased kidneys*. Section 3.5.11.6: donation status. www.unos.org/policiesandbylaws/policies.asp?resources=true (accessed 25 Apr 2006).
10 Horon IL. Underreporting of maternal deaths on death certificates and the magnitude of the problem of maternal mortality. *Am J Public Health* 2005;95:478-82.
11 Potterat JJ, Brewer DD, Muth SQ, Rothenberg RB, Woodhouse DE, Muth JB, et al. Mortality in a long-term open cohort of prostitute women. *Am J Epidemiol* 2004;159:778-85.
12 Matas AJ, Bartlett ST, Leichtman AB, Delmonico FL. Morbidity and mortality after living kidney donation, 1999-2001: survey of United States transplant centers. *Am J Transplant* 2003;3:830-4.
13 Classifieds. *Yale Bulletin and Calendar* 2006;34(27). www.yale.edu/opa/v34.n27/classifieds.html (30 Apr 2006).
14 Mastroianni Jr. Risk evaluation and informed consent for ovum donation: clinical perspective. *Am J Bioethics* 2001;1(4):28-9.
15 Savulescu J, Spriggs M. The hexamethonium study and the death of a normal volunteer in research. *J Med Ethics* 2002;28:3-4.
16 Wadman, M. London's disastrous drug trial has serious side effects for research. *Nature* 2006;440:388-9.
17 Erin CA, Harris J. An ethical market in human organs. *J Med Ethics* 2003;29:137-8.
18 Delmonico FL. What is the system failure? *Kidney International* 2006;69:954-5.
19 Monaco AP. Rewards for organ donation: the time has come. *Kidney Int* 2006;69:955-7.

(Accepted 10 July 2006)

doi 10.1136/bmj.38961.475718.68

Medical education

Trust, competence, and the supervisor's role in postgraduate training

Olle ten Cate

The decision to trust a trainee to manage a critically ill patient is based on much more than tests of competence. How can these judgments be incorporated into assessments?

Centre for Research and Development of Education, University Medical Centre Utrecht, PO Box 85500, 3508 GA Utrecht, Netherlands

Olle ten Cate
director

t.j.tencate@umcutrecht.nl

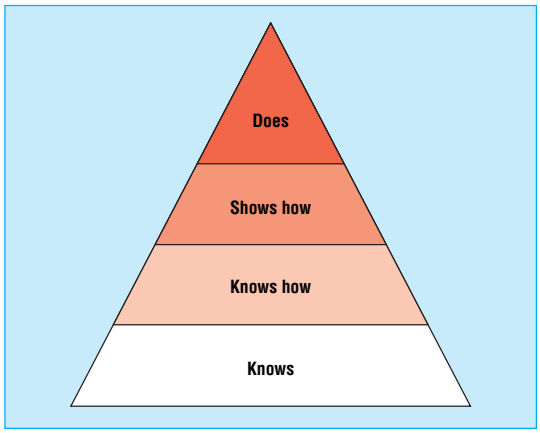
BMJ 2006;333:748–51

Competency based postgraduate medical programmes are spreading fairly rapidly in response to the new demands of health care. In the past 10 years, Canada, the United States, the Netherlands, and the United Kingdom have introduced competency models and other countries are following.[1–5] These frameworks are valuable, as they renew our thinking about the qualities of doctors that really matter.

Paramount in these developments is the view that quality of training should be reflected in the quality of the outcome—that is, the performance of its graduates. As postgraduate training almost fully focuses on learning in practice, training and assessment moves around the top two levels of Miller's hierarchical framework for clinical assessment (figure).[6] Knowledge and applied knowledge of residents may be interesting, but performance in practice is the real thing. The question is: How can we assess it?

Competence does not necessarily predict performance

Competency based training suggests that competence and competencies are what we want trainees to attain. But is this the same as performance? If a doctor is competent, what happens if she does not perform according to her assessed competence? Most authors agree that performance involves more than



Miller's pyramid for clinical assessment

competence.[7] It clearly includes something that cannot easily be caught with traditional assessment methods. One component is willingness to apply your competence.[8] But there is more.

Consider two residents, 1 and 2. Resident 1 scored A on the knowledge, applied knowledge, and objective skills examinations whereas resident 2 scored B. Both serve in a night shift in the hospital, and you are on call that week. Each of them faces a critical acute care problem. Resident 1 decides not to call you and manages according to the best of his ability. Resident 2 is hesitant and calls you to discuss the case. Management is then carried out in line with your advice. Which resident, in terms of the "does" level, should receive the highest mark? Who would you trust most to do night shifts? Resident B's behaviour may yield better care than resident A's.

Just as trainees' scores for "knows" and "knows how" do not necessarily predict scores for "shows how," all these may not predict the "does." The outcome of care may be more important than the trainee's attributes in terms of knowledge and skill. It is important to grasp this factor, as the movement towards competency based training asks for assessment of outcome at the "does" level.[9 10]

Different approach to assessment

Specialty associations, universities, and programme directors face the task of devising assessment models related to the new competency frameworks. This is difficult. Let's take the Canadian framework (CanMEDS) as an example. This model states that medical professionals should adequately execute the roles of medical expert, communicator, collaborator, scholar, health advocate, and professional.[1] Clearly, these roles are so intertwined that assessing each of them separately would make little sense. Another problem is their broadness. The ability to collaborate in one situation may not predict it for another situation. The same problems hold for other roles and for underlying detailed key competencies formulated within each of these competency frameworks. Attempting to assess them separately may result in a trivialised set of attained abilities.

The sum of what professionals do is far greater than any parts that can be described in competence terms.[11] Identifying a lack of competence may be possible, but confirming the attainment of a competency is difficult. To further develop educational technology and sophistication of assessment methods does not seem the right direction.[12] This may atomise competencies, increase bureaucracy, and move away from expert opinion and from what really matters in day to day clinical practice. We need another direction.

Maybe we should not focus on competencies but on day to day activities and accomplishments of our trainees and infer the presence of competencies from adequately executed professional activities. These are what expert supervisors can assess. The question is primarily how to optimise expert judgment of clinical performance, given the competency frameworks.

Trust

Here is where trust enters our thinking. We want medical doctors whom we can trust to take care of us, our family and friends, and anyone else. We may distrust incompetent doctors, but we also distrust those who, for whatever reason, do not act according to their ability, those who take too big risks, and those who make mistakes because they work sloppily. If clinical supervisors think of their trainees, they would be able to identify those whom they would entrust with a complex medical task because they will either perform well and seek help if necessary or not accept the task if they don't feel confident. Supervisors often know who to pick, even if they can't tell exactly why.

This gut feeling does not always match with formally assessed knowledge or skill, but it may be more valid for its purpose. No external body or procedure can replace this type of expert judgment. One reason is that trust in the judgment of a supervisor implies a personal involvement in the outcome of the activity of the trainee. If this is your trainee, his or her accomplishments are part of your accomplishments. If it's not done well, you will have a problem.

Relation of professional activities to competencies

	Competencies* (to be inferred)						
Entrustable professional activities (to be appraised)	**Medical expert**	**Communicator**	**Collaborator**	**Scholar**	**Health advocate**	**Manager**	**Professional**
Measuring blood pressure	+	—	—	—	—	—	—
Performing venepuncture	—	+	—	—	—	—	—
Performing appendectomy	+	+	—	—	—	—	—
Giving morning report after night call	+	+	+	—	—	—	—
Designing treatment protocol	+	—	+	+	+	+	—
Chairing a multidisciplinary meeting	—	+	+	—	+	—	+
Requesting organ donation	—	—	—	+	—	+	+

*From Canadian competencies framework.[1]

Entrustable professional activities

Postgraduate training and assessment should not move away from the clinical supervisor in the ward but should instead scaffold the supervisor's role of appraising the execution of activities entrusted to residents. Entrusted, or rather, entrustable activities are not the same as competencies. It is easier to appraise a critical professional activity than a competency, such as health advocate, scholar, or professional. Competencies must be translated to professional activities. As competence is an attribute of a person and activities are part of daily work, they are different dimensions of performance (table). Most activities reflect several competencies and most competencies are applied in several activities.

The two questions that now arise are which critical professional activities cover the relevant competencies of the profession and how can supervisors learn when to entrust such activities to a trainee?

The box lists the criteria for entrustable professional activities.[13] Identifying these activities for assessment purposes requires analysis of the profession. Procedures developed some decades ago, such as the critical incident technique and job or task analysis, are useful tools.[14–16]

The recent design of a two year part time postgraduate competency based curriculum for public heath doctors in the Netherlands was based on the analysis of the profession. Fifteen specialists attended two half day meetings and were asked mentally to go through a regular working routine and identify all entrustable professional activitites they could think of. This initially yielded around 40 critical activities, which after discussion were reformulated and led to a list of nine general and 33 specific activities covering the essentials of the specialty.[17] The analysis subsequently helped to establish the framework of the curriculum as the activities were all described with matrix links to 28 predetermined competencies and with suggestions on how to observe the trainees' performance in these activities. The idea is that once a trainee has been entrusted to carry out all entrustable professional activities related to a specific competency, this competency is considered to be acquired.

Trust as a tool in assessment

The second question is how we know when we can entrust a critical professional activity to a trainee. In practice, it happens often. The attendant on call is an example. She knows the resident, hears the phrasing of the problem and the tone of a request on the phone, draws a conclusion, and must instantly decide whether to take over or leave the responsibility to the trainee.

Educators do not fully exploit these gut feelings about trustworthiness for assessment purposes. Yet they may be at variance with marks for a test or even for a clinical evaluation. We need to substantiate the factors that make us decide to trust a trainee to care for critically ill patients. Interestingly, doctors often make decisions in uncertainty. Here, medical decision making parallels educational decision making. Substantial evidence is available on methods that can help medical decision making.[18] The same holds for decisions about staff planning, which has everything to do with entrustment of professional work.[19] So, why not draw analogies between decision making in education and decision making in health care and human resource management and use similar methods?

Of course, decisions of entrustment have a practical side—if no alternative options are available, overdemanding responsibility is a risk. But probably in most cases, the judgments of supervisors can be justified. The pros and cons are balanced, including giving the trainee a chance to show his ability.

Decisions of entrustment also have a substantial element of subjectivity. Supervisors may differ greatly, and inevitably different decisions of entrustment will be made in similar situations. However, this is no reason to abandon expert judgment. As with clinical decision making, the experts need to do it, not the diagnostic assessment device. Of course, when evidence is available it should be used. And crucial decisions should be taken collectively among experts. In addition, we should develop assessment methods that include divergent expert judgment. The first steps on this path have been taken.[20]

Trust, competence, and qualification

In conclusion, the idea of trust reflects a dimension of competence that reaches further than observed ability. It includes the real outcome of training—that is, the quality of care. Supervisors who really trust a trainee to carry out a procedure that is critical for patient care involve themselves in the assessment process. Entrusting a critical activity should lead to the trainee being granted responsibility in all similar future circumstances. Once sound feedback has confirmed a critical number of times that all went well, the entrustment could be formalised and considered a qualifica-

Summary points

- Quality of training should be reflected in performance rather than in competence of graduates
- Adequate performance includes the ability and inclination to apply competence in a way that optimises the outcome of professional activities
- No external body or procedure can replace expert judgment of accomplishments
- Trust by a supervisor reflects competence and reaches further than observed ability

Criteria for entrustable professional activities[13]

- Part of essential professional work
- Require specific knowledge, skill, and attitude
- Generally be acquired through training
- Lead to recognised output of professional labour
- Usually be confined to qualified staff
- Be independently executable within a time frame
- Be observable and measurable in their process and their outcome
- Lead to a conclusion (done well or not well)
- Reflect the competencies to be acquired

tion to act independently. It means that competence is present, as it is a prerequisite for the adequate execution of the activity.

The ideas I have elaborated need further investigation. But it is essential that innovation of postgraduate training should focus on expert appraisal of performance in practice and that trainees be qualified once they can be trusted to bear the responsibility for specific, entrustable, professional activities.

Competing interests: None declared.

Contributors and sources: OtC was involved in the introduction of the CanMEDS model of competency based postgraduate training in 2004 in the Netherlands, as an adviser of the Dutch Central College of Medical Specialties. He currently advises specialty associations about reform of postgraduate medical training.

1 CanMEDS 2000 Project. *Skills for the new millennium: report of the societal needs working group.* Ottawa: Royal College of Physicians and Surgeons of Canada, 2005. www.healthcare.ubc.ca/residency/CanMEDS_2005_Framework.pdf (accessed 10 Apr 2006).
2 Accreditation Council for Graduate Medical Education. *Outcome project.* www.acgme.org/Outcome (accessed 8 Aug 2006).
3 Bleker OP, Ten Cate ThJ, Holdrinet RSG. General competencies of the future medical specialist. *Dutch J Med Educ* 2004;23:4-14.
4 General Medical Council. *Principles of good medical education and training.* London: GMC. www.gmc-uk.org/education/publications/gui_principles_final_1.0.pdf. (accessed 8 Aug 2006).
5 Australian Medical Association. *AMA position statement prevocational medical education and training.* www.ama.com.au/web.nsf/doc/WEEN-6JVTW2 (accessed 8 Aug 2006).
6 Miller GE. The assessment of clinical skills/competence/performance. *Acad Med* 1990;65:563-7.
7 Rethans JJ, Norcini JJ, Baron-Maldonado M, Blackmore D, Jolly BC, LaDuca T, et al. The relationship between competence and performance: implications for assessing practice performance. *Med Educ* 2002; 36:901-9.
8 Stewart A. Instructional design. In: Dent JA, Harden RM, eds. *A practical guide for medical teachers.* Edinburgh: Elsevier, 2005:186-93.
9 Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C. Shifting paradigms: from flexner to competencies. *Acad Med* 2002;77:361-7.
10 Long DM. Competency-based residency training: the next advance in graduate medical education. *Acad Med* 2000;75:1178-83.
11 Grant J. The incapacitating effects of competence: a critique. *Adv Health Sci Educ Theory Pract* 1999;4:271-7.
12 Schuwirth LWT, Van der Vleuten CPM. A plea for new psychometric models in educational assessment. *Med Educ* 2006;40:296-300.
13 Ten Cate O. Entrustability of professional activities and competency-based training. *Med Educ* 2005;39:1176-7.
14 Flanagan JC. The critical incident technique. *Psychol Bull* 1954;51:327-59.
15 Harvey RJ. Job analysis. In: Dunnette MD, Hough L, eds. *Handbook of industrial and organizational psychology.* Vol 2. 2nd ed. Palo Alto: Consulting Psychologists Press, 1991:71-163.
16 Jonassen DH, Tessmer M, Hannum WH. *Task analysis methods for instructional design.* Mahwah, NJ: Lawrence Erlbaum Associates, 1999.
17 Wijnen-Meijer M, Ten Cate O, eds. *A competency-based curriculum for society and health physicians.* Utrecht: Collaborative Dutch Associations for Society and Health Physicians, 2006 [in Dutch].
18 Elstein AS, Shulman LS, Sprafk SA. *Medical problem solving.* Cambridge, MA: Harvard University Press, 1978.
19 Armstrong M. *A handbook of human resource management practice.* 10th ed. London: Kogan Page, 2006.
20 Charlin B, Roy L, Brailovsky C, Van der Vleuten C. From theory to clinical reasoning assessment. The script concordance test. *Teach Learn Med* 2000;12:189-95.

(Accepted 17 July 2006)

doi 10.1136/bmj.38938.407569.94

Peer review training
BMA House, London

Peer review is fundamental to science but has largely been an amateur process, with new reviewers learning their trade like apprentices. It is possible to learn about critical appraisal of research papers and other academic articles in many places, but do you really understand what editors want from you? *BMJ* is running a series of workshops aimed at providing an overview on how to approach peer review, developed with the less experienced reviewer in mind. The following dates are available in 2006:

21 November—led by Dr Trish Groves, deputy editor, *BMJ*

22 November—led by Dr Tessa Richards, assistant editor, *BMJ.*

The places will be filled on a first come, first served basis. If you would like to book please email Rachel Naish (rnaish@bmjgroup.com) with your full contact details.

August is medical staffing month

August again. Time for a change of job. Fortunately for me, after a recent interview I was offered exactly the job I wanted, which I gratefully accepted. After the interview, a woman from medical staffing took copies of my documents. A few days later I received a written job offer through the post.

A week later I was telephoned by the same woman in medical staffing, and she offered me the post again. She seemed a little surprised when I asked if this was the same job as the week before. She then asked me if I could send all my documents to her, as she would need copies of them. After establishing that she already had copies, she asked if I had returned all the forms she had sent me in the post, and I reassured her that I had.

The next day she called again to ask if I had sent the forms back. Again, she seemed surprised when I asked if these were the same forms we had discussed the day before. They were, and she had forgotten about our conversation.

Last week, I contacted the consultant's secretary to get a copy of the rota. It hasn't been written yet.

I then received all the paperwork for my induction.

Today, I received a telephone call from a medical staffing department at a different hospital in the trust trying to establish if I have the correct criminal records paperwork. I reassured them that I do, and that I had given a copy to the original woman in medical staffing, and I asked why they were interested. It turns out I am due to start in their hospital tomorrow—didn't I know?

Two hours later I received a call from the original woman in medical staffing, telling me that I'm due to start work at the other hospital—and please ignore the induction paperwork that I've been sent.

On the plus side, for the first time in four years of working for the NHS, I've actually been sent a contract for the job before I start it. It's wrong, of course.

Iain Varley *senior house officer in oral and maxillofacial surgery, York Hospital, York (iainvarley@doctors.org.uk)*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. Please submit the article on http://submit.bmj.com Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.