

Correspondence: CS O'Gorman^{1,2}

¹Graduate Entry Medical School, and ²Centre for Interventions in Infection, Inflammation & Immunity (4i), University of Limerick
Email: clodagh.ogorman@ul.ie

References

1. Witkop CT, Zhang J, Sun W, Troendle J. Natural history of fetal position during pregnancy and risk of non vertex presentation. *Obstetrics and Gynaecology* 2008;87:5-80.
2. Hannah M, Hannah H. Planned caesarean section versus planned vaginal breech birth for breech presentation at term: a randomised multi-centre trial. *Lancet* 2000;356:1375-83.
3. Coltart T, Edmonds DK. External Cephalic Version at term: a survey of consultant obstetric practice in the United Kingdom and Republic of Ireland. *BJOG* May 1997;104: 544-7.
4. Wright J, Wright A. "A survey of trainee obstetricians' preferences for childbirth" *European Journal of Obstetrics and Gynaecology* July 2001;97: 23-25.
5. Reinhard J, Peiffer S, Sanger N, Hermann Z, Yuan J, Louwen F. Effects of clinical hypnosis versus neurolinguistic programming (NLP) before external cephalic version (ECV): prospective off center randomised double blind controlled trial. *Evid Based Complement Alternat Med* 2012;626740.
6. Lorini R, Scotta MS, Cortona L et al. Coeliac disease and type I (insulin-dependent) diabetes mellitus in childhood: follow-up study. *J Diabetes Complications* 1996;10:154-9.
7. Lorini R, Scaramuzza A, Vitali L et al. Clinical aspects of coeliac disease in children with insulin-dependent diabetes mellitus. *J Pediatr Endocrinol Metab* 1996;9:101-11.
8. Barera G, Bonfanti R, Viscardi M, et al. Occurrence of celiac disease after onset of type I diabetes: a 6 year prospective longitudinal study. *Pediatrics* 2002;109:833-8.
9. Acreini CL, Ahmed ML, Ross KM, et al. Coeliac disease in children and adolescents with IDDM; clinical characteristics and response to gluten-free diet. *Diabet Med* 1998;15:38-44.
10. Holmes GKT. Screening for celiac disease in Type I diabetes. *Arch Dis Child* 2002;87:495-98.
11. Saadah OI, Zacharin M, O'Callaghan A, Oliver MR, Catto-Smith AG. Effect of gluten-free diet and adherence on growth and diabetic control in diabetics with coeliac disease. *Arch Dis Child* 2004;89:871-6.
12. Glaser B, Strauss A (1967). *The discovery of grounded theory: strategies for qualitative research*. Aldine de Gruyter, New York.
13. Strauss A, Corbin J. *Grounded theory methodology: an overview*. In: Denzin NK, Lincoln YS (ed) (1994), *Handbook of qualitative research*. Sage Publications, London ch 17, pp 273-85.
14. Strauss A, Corbin J (1998). *Basics of qualitative research techniques and procedures for developing grounded theory*, 2nd ed. Sage Publications, Thousand Oaks, CA.
15. Morse JM, Johnson JL 1991. *Understanding the illness experience*. In: Morse JM, Johnson JL: *The illness experience: dimensions of suffering*. Sage Publications, Newbury Park, CA, ch 1, pp 1-12.
16. Clifford C (1997). *Nursing and health care research: a skills-based introduction*. Prentice Hall, London.
17. Werner O, Schoepfle GM (1987). *Systematic fieldwork*, Vol 2. Sage Publications, Thousand Oaks, CA.
18. Cluett ER, Bluff R (2000). *Principles and practice of research in midwifery*. Balliere Tindall, London.
19. Creswell J (1998). *Qualitative inquiry and research design. Choosing among the five traditions*. Sage Publications, Thousand Oaks, CA.

What is the Difference Between Deontological and Consequentialist Theories of Medical Ethics?

CS O'Gorman¹⁻⁴, AP Macken¹⁻⁴, W Cullen^{1,2}, C Dunne^{1,2,4}, MF Higgins⁵

¹Graduate Entry Medical School, and ²Centre for Interventions in Infection, Inflammation & Immunity (4i), University of Limerick

³The Children's Ark, University Hospital, Limerick

⁴National Children's Research Centre, Crumlin, Dublin

⁵Maternal-Fetal Medicine, Mount Sinai Hospital, Toronto

Every day, every doctor, senior or junior, faces ethical decisions. From the moment you start seeing patients on the wards, there are decisions to make. And as every decision you make can/will have a significant impact on the lives of so many people – your patient, your patient's family, you, other healthcare professionals – medical ethics can give you a framework to help you to approach some of these decisions. The aim of this brief tutorial is to introduce some theory to frame your practice.

Why is patient confidentiality so important? Do all patients, even children, have rights? What about those with psychiatric disease? If we only had limited funds, would we treat diabetes or cancer, or fund in vitro fertilisation for infertile prospective parents? Illustration of some ethical principles will help us try to answer these questions. Ethics is a branch of philosophy. It is based in morality and it allows us to try to differentiate right from wrong, in the framework of rules or standards of good or moral behaviour.

What is the difference between "right" and "wrong"?

Should be easy to answer, right? Wrong! Some people believe that ethics is not about differentiating right from wrong, but that ethics is a matter of opinions. Some people use information from their backgrounds to differentiate right from wrong; these backgrounds can be based on the beliefs of the family with whom they grew up; or on religious, cultural or other societal beliefs.

Some base their beliefs on what they have been taught about specific ethical theories or on what they believe the majority would choose (or "what would others do in this situation?") Regardless, each individual's beliefs or choices are equally relevant and important. This is called ethical relativism; it allows us to tolerate other people's beliefs and choices, without losing track of our own.

One possible definition of right and wrong could be the balance of benefits and harms – the right action is likely to lead to more benefits than harms, and the wrong action is likely to lead to more harms than benefits. This is commonly used in medicine when weighing up options.

Are "right and wrong" a bit like "pleasure and pain"?

Only sort of. But there are ethical theories that can be explained using the concepts of pleasure and pain – the consequentialist and utilitarian theories.

Consequentialism ("The end justifies the means")

Here the end or the consequence is more important than the means used to achieve that end, or that an action is "right" if it leads to the "best" outcome. Of course, that depends on who and how defines "best"! This is a problem with consequentialism – it does not define which consequences are morally most important.

Utilitarianism, as an example, suggests that the best consequences are those in which human happiness (utility) is maximised. One of the fathers of consequentialism defined human happiness as "the balance of pleasure over pain".

For example, if we have a limited amount of money, do we choose to fund several months of chemotherapy for an adult with lung cancer or perform an elective caesarean section on a woman who has chosen this? Consequentialism tells us that the best course of action is the one in which happiness is maximised. But it is difficult to decide which of these individuals would have the maximum happiness from their individual outcomes. Each individual would value their happiness differently, as would those that have an interest in the individual's outcome.

Deontological (or "duty-based") theory ("The measures must be just")

Here the best choice is defined by the methods that must be followed to achieve an outcome – not by the outcomes themselves. This is where deontology and consequentialism differ. The deontological theory believes that, in any given situation, some acts are ethically and morally "wrong" and not acceptable, even if they are supposed to lead to the desired outcome. So euthanasia would be considered wrong, as it is an active killing, even though the aim is to ultimately relieve suffering. Or, even if we know that giving nightly growth hormone injections to a child with short stature will help that child's growth, and even if the child's parents want the treatment, if the child objects to the treatment, then deontology tells us that to proceed with treatment is ethically morally "wrong". But consequentialism tells us that if that child achieves an acceptably normal height, then the action of injections to which the child objects, is justified because we achieve the desired outcome. (Of course, this does not touch on the ethical question of whether or not we should agree to "standardisation" of children's heights.)

The four principles of medical ethics

Autonomy: This is respect for individuals, their rights and requests. This is why doctors are obliged to maintain confidentiality – because the information belongs to the individual patient. Autonomy also tells us that patients have to be allowed to come to their own conclusions; and doctors can support this by providing relevant important information.

Beneficence: This is the pursuit of the outcome that is best for the patient. This principle deals with doing good to others, or doing good for your patient. Generally, the patient and the doctor both have the best interest of the patient as their desired outcome. Problems arise when the expressed desired outcome of the patient and the doctor are not the same.

Non-maleficence: This is the pursuit of not doing harm to the patient. This is not always the same as beneficence. Particularly if the desired outcome is only achieved by a method that causes some harm or distress to the patient.

Justice: This relates to the allocation of limited resources. Justice makes two particular points: firstly, each individual is entitled to the same resources; secondly each time a patient accesses resources, this impacts on other patients, to whom this resource is

no longer available. Justice is how we distribute limited resources in an ethical and moral manner.

What is an ethical problem?

Because ethical decisions can have so many potential outcomes, and because it is difficult for us to guess which outcome is "most right", ethical decisions can lead to "moral distress". And following making a difficult ethical decision, any remaining uncertainty is called "moral residue".

Do all individuals have the same rights – children, adults, elderly, those with psychiatric disorders, those with or without access to education or medical insurance? Some ethical theories believe that all individuals have the same rights; some ethical theories do not.

How does this help us to approach an ethical problem?

We suggest starting with an attempt to define the ethical problem and the ethical principles affected by the problem. Then, gather the background to the problem: consider any person that might be affected by the problem – the patient, their family, parents or guardians. Consent may be required before divulging confidential information. Then discuss the problem, looking for advice based on opinion or experience – with your peers, your seniors, doctors, nurses. It may be helpful to enlist the help of a bio-ethicist or a legal advisor also. After identifying potential solutions, consider the various action, choose one and implement it. We discuss and review the progress and outcome regularly with the patient (and/or family members or guardians). The details of an ethical problem may change and evolve constantly: sometimes, the decision will need to be reversed and a new action chosen and implemented. We also realise that we frequently need help with ethical decisions – to decrease our own moral distress and moral residue! And to feel reassured that we are helping to choose the best course of action for our individual patient and individual problem.

Sounds hard? Every hour of every day medical staff go through this process. Think of the ethics of resuscitation at the edges of viability. Obstetricians have to discuss whether to monitor the heart rate of a 22/23 week foetus whose mother is in threatened labour. Simultaneously, neonatologists must consider whether this baby should undergo full resuscitation, which may lead to a prolonged NICU stay with high likelihood of mortality or profound morbidity. If this baby remains in utero for even 1 week, then the potential clinical outcomes change significantly (with the advancing gestation), and both the obstetric and paediatric clinical teams need to re-evaluate their ethical decisions and processes.

Every day of your medical career, from very junior to very senior, you are likely to encounter ethical problems that affect many people. We hope that this paper helps you to create a framework that you can use to try to answer some of these questions. So often, it seems that there are more questions than answers!

Correspondence: CS O'Gorman^{1,2}

¹Graduate Entry Medical School, and ²Centre for Interventions in Infection, Inflammation & Immunity (4i), University of Limerick
Email: clodagh.ogorman@ul.ie.

How to Teach Practical Skills in Medicine: Out of Hospital Training

MF Higgins¹, AP Macken²⁻⁵, O Coyle^{2,4}, W Cullen^{2,3}, D McGrath², CS O'Gorman²⁻⁵

¹Maternal-Fetal Medicine, Mount Sinai Hospital, Toronto

²Graduate Entry Medical School, and ³Centre for Interventions in Infection, Inflammation & Immunity (4i), University of Limerick

⁴The Children's Ark, University Hospital, Limerick

⁵National Children's Research Centre, Crumlin, Dublin

"See one, do one, teach one" is the traditional paradigm for teaching medicine while working, the apprenticeship model. This paradigm is based on training during long working hours and with evaluation by mentors¹. More recently, medical education is turning towards more structured programmes of teaching skills, where formal training can be objectively assessed using competency-based assessment². At an undergraduate level this is driven by the requirement of a newly-qualified doctor to be familiar with basic competencies required for clinical work; these competencies are often assumed by other members of the healthcare team and are desired by the undergraduate students themselves. In fact, students themselves have requested training in particular practical techniques such as venepuncture, catheterisation and suturing in order to better prepare themselves for the practicalities of working life³.

Changes in methods to achieve competency in practical skills in postgraduate medical education have been driven by several factors. Firstly, the introduction of the European Working Time Directive (EWTD) has reduced the working hours of junior doctors and thus the number of procedures performed by trainees and thus decreased the emphasis on the apprenticeship model⁴. Secondly, there are increased requirements to assess skills based on competency⁵. Thirdly new procedures (such as laparoscopy) have been introduced so quickly that all grades of doctors have needed to be trained at the same time¹. Many new techniques for teaching practical clinical skills have just been introduced recently. Therefore trainers who themselves were taught using the "see one, do one, teach one" paradigm are now the postgraduate teachers of students who have used – and are therefore familiar with – the newer methods of teaching.

This paper is a literature review of the evidence in the area of teaching practical techniques in medicine. The first article reviews the research on skills laboratories and simulation and the second concentrates on training in direct contact with patients.

Skills labs

The aim of a clinical skills laboratory is to allow students the opportunity to practise practical procedures in a safe, non-stressful environment, where procedures can be broken into a number of steps in order to improve understanding. From its beginnings in eighteenth century France where Madam Du Coudray used fetus and pelvis models to train midwives, clinical skills laboratories have expanded to utilise many varieties of media. Animals models provide living simulations⁶ but may raise concerns about moral issues, cost and infections¹. Virtual reality techniques raise interesting possibilities⁷ but are expensive and may not be accessible to all. More commonly, manikins, synthetic tissues, trainers or skill stations have been used to teach both basic and more advanced practical skills.

Manikins

Manikins are of value in training a large number of students in a variety of skills procedures. Studies have assessed the use of manikins in endotracheal intubation⁸ and in the assessment and treatment of an acutely ill patient using a Laerdal SimMan⁹. Other simulators may be used to teach uncomfortable procedures such as otoscopy, vaginal delivery, catheterisation, colonoscopy, bronchoscopy and digital rectal examination. The generic components of these practical sessions with manikins include: breaking the skill down into individual steps, learning on simple scenarios before moving onto more challenging clinical scenarios

(cognitive based learning), limitations of time to allow for maximum concentration and low teacher to student ratios. In all these scenarios, students can use the manikins to practice team work in assessing and treating these acute emergencies. In the study on intubation, after a single session, 93% of the 115 students reached the required standard to attempt intubation on a patient and feedback from students was very positive.

Simulators

Simulators permit practice to achieve mastery both techniques and instruments used in laparoscopic surgery within a controlled environment. The user-friendliness of such models for novice surgeons is evidenced by the continuing popularity of courses using these models in teaching surgical skills.

Skill stations

Skill stations have been successfully used in undergraduate and postgraduate medical education to teach practical skills. One Canadian study assessed skills training of fourth year medical students in teaching basic surgical practice at the start of a surgical rotation. Here 69 students were taught such practices as scrubbing, gowning, gloving, aseptic technique, suture cutting and instrument handling. Students taught using skill stations within a one-hour station by a surgeon and nurse educator scored higher in assessment than those who were not exposed to the teaching module. Student feedback ranked the teaching module highly in areas such as value, contribution to knowledge and increased confidence in technical skills¹⁰. In addition, students in the teaching group had improved post-test scores compared to both their own pre test scores and to the non-teaching group. A similar study performed in the Netherlands used a short (2 hours) course to teach skills to qualified general practitioners. These skills included shoulder injection, cervical smear taking and ophthalmic evaluation in diabetes. Competence in the skills was measured by a knowledge test. After the course, a significant positive effect on performance in practice was found for both cervical smear taking and shoulder injection¹¹.

Interaction with other teaching methods

Skills labs may also be used in conjunction with other methods of teaching: one example in teaching neonatal examinations and procedures (Apgar scoring, assessment of gestational age, oxygen therapy) used a combination of an interactive multimedia programme on CD-ROM followed by practice in a skills laboratory¹². Students also found the CD to be useful for revision purposes. On their own, computer assisted learning tools are not as useful as they lack immediate feedback; one study showed that medical students learning how to tie a knot were more effectively taught using a lecture and feedback seminar than by a CD alone¹³. Notwithstanding, a definite advantage of interactive computer programs is the ability to deliver such training in many different languages.

Multidisciplinary team skills labs

Interestingly, a multidisciplinary skills lab has also been developed to allow medical and nursing students to learn how to work both individually and as a team, in order to integrate their learning at an early stage. In one example, a simulated patient takes the role of a patient being admitted for hemicolectomy with four students (medical and nursing) sharing the tasks required to admit the patient to the ward, assess him for surgery, consent him and discuss postoperative recovery while being observed by a general surgeon and stoma therapist. After the shared exercise, the