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the information they need, but, if rigorously conducted, it will also provide generalisable findings for the wider medical education community. It will require the construction of tracking databases and associated research designs. Such work is not necessarily new and has been successfully applied at single institutions.<sup>4</sup> However, it has the potential to provide more powerful findings if conducted collaboratively, with medical schools combining data on different approaches and their outcomes. The Australian medical schools have laid the foundations for such an approach though the Committee of Deans Medical School Outcomes Database Project. It remains to be seen whether it and future projects involving other innovative schools can

provide the research evidence that Murray, for example, suggests can be generated in this time of change in medical education.<sup>5</sup>

Competing interests: None declared.

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## The ethics of medical education

Reshma Jagsi, Lisa Soleymani Lehmann

Medical students and doctors in training need to hone their clinical skills on patients to make themselves better doctors, but patients may not benefit directly from such attention. Jagsi and Lehmann consider this ethical dilemma and suggest ways to minimise the potential harm to patients

Participation of trainees in patient care is an integral part of medical education. Although educating doctors is critical to society, an ethical dilemma results from the fact that patients may not benefit from doctors in training and medical students participating in their care, and may even be harmed by it.<sup>1,2</sup> However, this dilemma has received little attention—political,<sup>3</sup> institutional,<sup>4</sup> or academic.<sup>5,6</sup> Professional societies advise only generally, noting that participation should be voluntary without providing specific procedural requirements. As a result, patients may be misinformed about the qualifications and experience of their care givers.<sup>7</sup> This situation is objectionable in its own right, but it also provides a problematic example at a critical point during trainees' moral development.

In contrast, the ethics of medical research on human subjects have been the subject of much analysis and policy development.<sup>8</sup> A compelling analogy exists between such research and medical education.<sup>9,10</sup> In both cases doctors ask patients to participate in an endeavour whose primary aim is to benefit society as a whole, not the individual. In both cases doctors must

also balance the good to society and potential benefit to individual participants against potential harm to those participants, avoid the unfair distribution of risks and benefits, and maintain respect for patient autonomy. Although education and research have different goals, their similarities are sufficient to allow for fruitful discussion based on this analogy.

In this article we apply three principles of research ethics—respect for individuals, beneficence, and distributive justice—to medical education in order to review current practice and guide further research and policy.

### Respect for individuals

Western philosophers have long argued that human beings have an inherent personal dignity that merits respect for its own sake. To use people only as a means to an end—as is the case when patients are the objects of medical education or research without meaningful consent—violates that fundamental principle.

Evidence suggests that the current practice of medical education does not always accord adequate respect to patients. In one US survey, only 38% of responding teaching hospitals claimed that they informed patients that students would be involved in their care.<sup>11</sup> Other studies show that students and their supervisors sometimes misrepresent or inadequately explain students' status.<sup>12</sup> Moreover, student conscientiousness about disclosing their status seems to decay over the course of training.<sup>13</sup> Patient surveys confirm that they receive inadequate information about trainees' roles.<sup>14</sup>

Procedures to ensure meaningful consent from patients to participation in medical education are therefore necessary. Patients must be fully informed of the training status and experience of all staff caring for them and must comprehend the risks, benefits, and alternatives. The proximity of consent to individual procedures is crucial, and a "blanket" consent at admission is insufficient.

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## Beneficence

The principle of beneficence consists of a spectrum of obligations to promote welfare, ranging from the negative duty not to inflict harm to the positive duty to do good. Beneficence requires that, even before patients are asked to participate in research or education, doctors must first decide whether the overall balance of risks and benefits justifies requesting that participation. It also requires that doctors minimise risks. Understanding the nature and probability of risks and benefits is thus essential.

Both medical education and research are primarily directed at providing benefits to society as a whole. With research, society benefits from contributions to medical knowledge; with education, it benefits from the production of well trained doctors. Both medical education and research may also benefit participating individuals. Patients may benefit from participating in research by gaining access to experimental treatments and from closer follow up. Similarly, patients may benefit from closer attention when trainees participate in their care.

Studies have shown that patient satisfaction does not decrease when students participate in their medical care. Many patients are willing to allow students to participate in invasive procedures and pelvic examinations,<sup>15</sup> indicating that they may believe the balance of potential benefits to themselves and society outweigh the risks. Altruism, rather than perceived benefit to self, seems to be the primary motivation for participation in medical education.<sup>16</sup> Self interest may play a larger role in patients' motivations for participating in research than in the case of education, and this difference has important implications. While researchers may reasonably be bound by non-maleficence alone, educators bear a stricter positive duty to do good.

Few empirical data exist regarding potential hazards of participation in medical education. Research relating provider inexperience to patient outcomes, including the idea of a "July phenomenon" (increased patient morbidity and mortality linked with the influx of new medical trainees), has been inconclusive.<sup>17</sup> Because the goals and nature of education and research differ, it seems appropriate to require a higher threshold by which benefits should exceed risks in the case of education. Further research into outcomes of trainee participation is necessary to allow doctors to provide comprehensive information to patients regarding the risks and benefits they face. Such research could also be used to develop guidelines about the appropriate level of supervision for given classes of activity and levels of experience. Educators should also identify ways to minimise the risk of participation by inexperienced providers, such as increased reliance on advanced technological simulations.<sup>18</sup>

## Distributive justice

The burdens of medical education are not currently distributed fairly. In one US study, students saw disproportionately high numbers of non-white patients and patients with Medicaid (public insurance for the indigent).<sup>19</sup> Another study found that children of doctor parents were less likely to be seen by trainees than were other children.<sup>20</sup>

Such disparities may exist because disadvantaged patients may not feel empowered to withhold consent.

## Summary points

- The current system of medical education, in which doctors in training and medical students participate in patient care, may expose patients to physical, psychological, and economic risks, often without their full consent
- Few analyses of the ethics of trainee participation in patient care have been made, and policies are not well developed
- The ethics of medical education can be informed by the ethics of research on human subjects
- We provide a theoretical framework for ethical medical education by extending three key concepts from the literature of research ethics—respect for individuals, beneficence, and distributive justice
- Within the framework provided by these concepts, we assess the current practice and effects of trainee participation in patient care and provide suggestions for policy development and further research

They may also exist because consultants assume that certain patients are likely to refuse and therefore do not ask them to participate. The lack of participation of trainees in the care of doctors' children is particularly troubling, for it indicates that those most informed about the true risks and benefits of the system of medical education are more likely to withhold consent. There is a tension between the three principles, as it is difficult to secure the societal benefit of medical education and maintain respect for patients who withhold consent without placing an unfair burden on disempowered groups.

When socioeconomic constraints lead certain groups to participate in medical education because it is their only opportunity to obtain care, the principle of distributive justice is clearly violated. System-wide changes, including broadening the location of medical training to settings outside the wards of inner city hospitals and improving the access of disempowered groups to health care more generally, particularly in the United States, are necessary if the distribution of the benefits and burdens of medical education is to be truly just.

## Conclusion

Medical educators have much to gain from research ethics. As in clinical research, patient participation should be guided by the principles of respect for individuals, beneficence, and justice. Systematic procedures are necessary to apply these principles to the practice of medical education. Professional organisations should give detailed guidelines, and teaching institutions must develop, in consultation with community members, effective mechanisms to ensure the ethical practice of medical education.

Some readers may cringe at the spectre of a new bureaucracy being created to implement these recommendations. The rapidly evolving nature of medical research and the wide variety of research proposals necessitate standing independent boards to conduct frequent reviews. Since the field of medical education has a well developed infrastructure, the application of these ethical principles should not entail substantial extra administrative burdens.

Just as there is a continuum between innovative practice and research, there is a continuum between practice and education, for medicine is a career of life-

long learning. The principles discussed in this paper are applicable not only to medical trainees but may prove useful to junior doctors and even senior doctors attempting new procedures or practices.

The history of research ethics suggests that the medical profession should be proactive rather than reactive in approaching the ethics of medical education. The time has come for the profession to turn its attention to this important issue.

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## Commentary: Patients in medical education and research

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While there are undoubtedly parallels between patient involvement in medical education and in research, the differences between the two seem to me to be more profound than Jagsi and Lehmann suppose.<sup>1</sup>

Four years ago I underwent angioplasty, during which three stents of a new type were inserted into two of my coronary arteries. Before the operation, I was asked whether I would be prepared to participate in a clinical trial that would require me to have a further angiogram six months later—the only practicable means of establishing the status of the stents.

Having already had two angioplasties, I knew the procedure to be invasive and uncomfortable, and the doctor concerned explained that it was not entirely risk free. He also made clear that it would be carried out purely for research purposes with no direct clinical benefit to me.

I gave my consent for two reasons. Firstly, I believe such clinical research to be important. Secondly, I believe that, as an NHS patient, receiving treatment free at the point of delivery, I have some responsibility to “give something back” to the providers of my health care.

I would not have been prepared to undergo the procedure purely for educational purposes. It is one thing to subject myself to inconvenience, discomfort, and risk if that is the only way a treatment can be properly evaluated. It would be quite another to do so simply for the education of medical students, who can observe or participate in any number of similar procedures being conducted routinely for therapeutic purposes.

I do not believe myself to be unusual. I suspect that many patients would accept a significantly higher degree of risk and inconvenience for research purposes than for educational ones.

Where medical education is concerned, the differences in attitude between patients being treated by the NHS or Medicaid and those being treated privately seem to me to be entirely understandable. I am sure that it has chiefly to do with the non-paying patient's sense of moral responsibility to “give something back,” as against the private patient's perception that he or she has paid for a “private” appointment.

This calls into question the assumptions made by Jagsi and Lehmann about distributive justice. Although some indigent patients may feel unable to withhold consent, it may be that far more, perhaps subconsciously, see consent as a means of “paying” for their treatment. Nor should it be supposed that doctors' children are less likely to be seen by trainees because doctors are better informed about the true risks and benefits of participation. It is more probable that they are simply private patients who see themselves as having paid for private consultations.

Finally, it is of course essential that patients' representatives should be included in the development of mechanisms to ensure high standards of ethical practice in medical education. As in so many things medical, patients' views may surprise those who suppose they can see into other people's minds.

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