

Cost and value in medical education – what we can learn from the past?

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ABSTRACT What lessons can be learned from the history of cost and value in medical education? First, the issue of cost and value in medical education has been around for a long time. Rising costs and an economic recession have made us focus on the subject more, but the issue has been just below the surface for over 200 years. A problem like this will not go away by itself – we must tackle it now. Second, the history of cost and value in medical education makes us look critically at who should pay. Should it be students, institutions or governments? We can see from the past that several different models have been tried; that all have their advantages and disadvantages; and that none are perfect. Third, looking at the past should make us realise that the issue of cost in medical education cannot be viewed in isolation. Medical educators throughout history have looked at how cost can affect selection for medical school, how costs can be related to benefits, and the effect of rising costs on career choices. Cost in medical education has always had far reaching consequences and implications. It probably always will. Looking at issues in medical education from the perspective of cost often makes them more stark and explicit – this in turn may help us to start to find solutions. In the future our solutions must be evidence based and must take account of cost.

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Medical education is expensive.¹ Worldwide spending on medical education is likely to be over £65 billion,² tuition fees for medical students in England are now as high as £9,000 per annum and the annual budget of Health Education England is £4.9 billion.

These figures are substantial and the growing expense of medical education has led many to consider the effect that this will have on medicine at a macro- and micro-economic level. Will medical education in its current form become too expensive for governments to provide? Will school-leavers or graduates be put off medicine by its seemingly prohibitive cost? Will junior doctors choose high earning specialties to help them pay off debts more quickly? Are some or all of these phenomena occurring already? Or are rising costs justified by higher quality and hence better value? Certainly rising costs and a global economic recession have led many to look at the issue of cost and value in medical education anew. However this is not a completely new trend – a look into the past can show us that many medical educators and learners in the past have thought hard about the issue of cost in medical education. We are likely to be able to learn from their thinking.

Much of this paper focuses on the UK – as this is where most of the literature comes from – and in the UK the

funding of medical education has evolved over time. Until the middle of the 20th century, students and their families largely paid for the cost of medical education themselves. Towards the end of the 20th century a new system of state-led funding emerged which made medical education essentially free. However, in the 21st century, tuition fees in England have meant that students must pay for a substantial proportion of the costs. How medical education has been delivered over that time period has also evolved. Until the middle of the 20th century, lectures dominated the preclinical years and an apprenticeship model of clerking dominated the clinical years. From the 1960s onwards, reform led to the development of a range of new educational methods (such as problem-based learning).

One of the earliest references to cost and medical education comes from the Scottish economic philosopher Adam Smith in the 1700s.³ He referred to the expense of medical education and felt that this should be offset by more generous pecuniary recompense for physicians. At that time the expense of medical education fell upon the learners – however in the long term the learners were also the recipients of the financial payback. This theme of high costs was to continue to trouble medical educators throughout the 19th century. In 1844, J Ingham Ikin stated: ‘It is

indisputable, that the system of apprenticeship has been much abused, especially in the country, and in towns not possessing recognized medical schools; for a young man not having the opportunity of attending a lecture, or witnessing the practice of a hospital, till a five years' apprenticeship is expired, is a great loss of time, and causes a considerable increase of expenditure.⁴ In 1867 Alexander Fleming referred to the 'burden of maintaining high-class medical education' and suggested that this burden should be supported by the public who benefit from the services of physicians.⁵ A decade later the issue of who should pay was continuing to worry senior educators in medicine. John Wood claimed that the costs of medical education were already at the limit of affordability of the upper classes who paid for their offspring to receive a medical education.⁶ This in turn led others to consider the effect of high cost on access to medical education. According to John Banks, an unwanted side effect of high costs was the fact that medical education was becoming a resource available only to the rich.⁷ In 1890, Willoughby Francis Wade delved deeper into further unwanted effects of rising costs: 'If only the students who are the least well furnished with money were always the least well furnished with brains, well and good. But we all know that it is quite as often the opposite.'⁸

By the turn of the 20th century, the narrow focus on cost was widening out so that educators were beginning to consider the effectiveness or benefits related to medical education – in light of costs. In 1902, Robert Lee suggested that young doctors should be able to earn a living on finishing medical school and that, as a consequence, medical education should be directed to a practical purpose.⁹ Similarly, Carey Coombs, a British cardiologist and researcher, felt that prospective students should have a chance to see something of the practice of medicine before they started their course to find out whether they would be able to do the work, and that this should happen 'before heavy fees are paid'.¹⁰ James Kingston Fowler on this theme in 1908 said: 'Medical education is a form of technical education in the efficiency of which the public, if they only realized it, are interested as much if not more than in many others to which public money is given, inadequately it is true, but without hesitation.'¹¹ His description of medical education as a technical one must have been controversial but it was important as it was an early evaluation of the utility of medical education in light of its cost. In 1922, on a similar premise, Thomas Clifford Allbutt, a British physician and medical inventor, wondered about the utility of university delivered medical education – especially when many practitioners might be more interested and adept at 'craft rather than for intellectual study'.¹² Owen applauded the fact that scientific intellectual pursuits were seen as sound investments and that public funds should continue to be spent on them.¹³

By the middle of the 20th century, attention had switched to where the funding of medical education would come from. In this regard, Flexner, in 1924, was explicit that medical faculty shouldn't be expected to fund raise – they are busy enough delivering the service.¹⁴ Flexner was based in the USA but his ideas were to have much influence in the UK and elsewhere. However, there was also a realisation that students could not be expected to solely bear the full costs of medical education.¹⁵ Norman's colourful picture of the financial standing of most medical students in 1938 showed why: 'I have personal recollections of existence for over three years on a diet of cocoa and dry bread, with an occasional kipper for variety, in order to save enough money to pay my hospital fees.'¹⁶

The era of accountability dawned in the following years. According to McWhinney in 1972 '...professions exist to serve the public interest and if universities use public funds to train members of professions they must expect to be held accountable.'¹⁷ Bole echoed this in 1980 but made clear that medical educators must also expect to be held accountable by students themselves.¹⁸ For the first time, commentators started to wonder why medical education was so expensive in the first place. Laurence Wale was forthright: 'So why is clinical education so expensive? The obvious reason is too many staff. Certainly in teaching hospitals this is coupled with too few patients and makes it very difficult to give an all-round education to the undergraduate.'¹⁹ It also introduced the concept of value for money. According to Leigh in 1987, free market forces would mean that consumers (or learners) would always purchase a product that offers the best value for money – be that a book or a meeting.²⁰ In a similar vein, Rhodes suggested that, as the public was often paying for a doctor's continuing professional development, the doctor should ensure that the public got a good return on their investment.²¹ The opposite of value for money is of course waste, and medical education has never been immune to waste. In the 1980s many doctors were being trained to consultant level yet not ultimately being appointed as consultants, and educators were increasingly bemoaning the underlying lack of educational and manpower planning.²²

The modern era in cost and value in medical education probably started in the 1990s. Since then there has been a growing interest in the subject and an exponential growth in publications. For the first time, commentators stopped looking at the cost and value of medical education as a single entity and started to examine the cost and value of individual components of medical education. Van den Berg suggested that lectures may be an efficient method of knowledge translation owing to the teacher:learner ratio but also noted the lack of active learning in most traditional lectures.²³ Clarke noted in 2009 that objective structured clinical

examinations are expensive forms of assessment to run and that to use them 'to test cognitive skills is wasteful.'²⁴ Eva, the editor of *Medical Education*, also commented on the cost benefit ratios of assessments in different contexts,²⁵ and others have commented on the cost effectiveness or cost and value of clinical teaching and study leave.^{26,27} The modern era has seen a growing number of experts looking at the cost and value of medical education globally and the effect that this has on global healthcare provision. Carlson noted the lack of funding for medical education and the effect that this had on the global distribution of physicians – with many poor countries having inadequate numbers.²⁸ Various suggestions emerged as to how to prevent this maldistribution. According to Masnick in 2005, 'targeting medical training to local needs might reduce the export value of medical graduates.'²⁹ Jablanczy suggested a more radical solution – obliging graduates leaving a poor country to compensate that country for the cost of their undergraduate medical education.³⁰ To date, few of these suggested models have solved the problem of the brain-drain and enabled poorer countries to recoup all their monetary investments in medical education. Indeed in all countries, there is a recognition that medical education needs to establish economic models that will enable return on investment – in the developed world as well as the developing world.³¹

In recent years there has been recognition of the unforeseen consequences of rising costs in medical education. High costs mean high debts for undergraduates with the attendant risk that many prospective students from poorer families will decide that becoming a doctor is not financially feasible.³² Those that do get into debt have to repay it and there has been a growing suspicion that many will choose lucrative specialties to repay the debt – regardless of the career they might want to have or the specialty that they might be best at, or indeed, more importantly, the health needs of the population.³³

The realisation of the costs of medical education is also driving change at political and policy levels. Teaching hospitals are paid handsomely to deliver medical education and many have asked whether they are truly able to meet their obligations.³⁴ Sheldon has suggested that the funding should follow the medical student out into the community: 'Rather than compensating the more expensive teaching hospitals for (possibly) unnecessary costs we should consider ways of redistributing medical students to the medical schools, teaching hospitals and community teaching settings which have the lowest marginal excess costs.'³⁵ Gunstone has questioned the roles of 'bureaucracy, finances and power' rather than educational needs in the forms of medical education currently being delivered.³⁶ The utility equation of assessment states that a good assessment should be reliable, valid and acceptable, and that it should have a positive educational impact and be cost effective.³⁷ However, further work needs to be done on how costs in assessment are measured and how these costs can be balanced against the other components of utility. Lastly the *Shape of Training* report, which was undertaken by economist David Greenaway, has raised fundamental questions about whether our current model of postgraduate training is fit for purpose, particularly in terms of length of training and focus on specialism, generalism and, implicitly, value for money.³⁸

What of the future? It is likely that current trends will continue for some time. The 21st century economic recession has served to concentrate minds and bring into stark relief the cost and cost utility of current models of medical education. Perhaps it is appropriate to leave the last word to the former UK Chief Medical Officer, Dr Liam Donaldson, writing in 2010: 'In the current, cost-constrained environment, those funding the education of our doctors will no longer tolerate an approach of quality at any cost.'³⁹

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