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# Organizational Models of Emerging Academic Health Science Centers in England

Pavel V. Ovseiko, PhD, Stephen M. Davies, MSc, and Alastair M. Buchan, MD, DSc

## Abstract

Recent government policy initiatives to foster medical innovation and high-quality care in England have prompted academic and clinical leaders to develop new organizational models to support the tripartite Flexnerian mission of academic medicine. Medical schools and health care providers have responded by aligning their missions and creating integrated governance structures that strengthen their partnerships. In March 2009, the government officially designated five academic–clinical partnerships as England’s first academic

health science centers (AHSCs). As academic–clinical integration is likely to continue, future AHSC leaders could benefit from an analysis of models for organizing medical school–clinical enterprise relationships in England’s emerging AHSCs. In addition, as the United States ponders health systems reform and universal coverage, U.S. medical leaders may benefit from insight into the workings of academic medicine in England’s universal health system. In this article, the authors briefly characterize the organization and financing of the National Health Service

and how it supports academic medicine. They review the policy behind the designation of AHSCs. Then, the authors describe contrasting organizational models adopted in two of the newly designated AHSCs and analyze these models using a framework derived from U.S. literature. The authors conclude by outlining the major challenges facing academic medicine in England and offer suggestions for future research collaborations between leaders of AHSCs in the United States and England.

*Editor’s Note: A commentary on this article appears on pages 1264–1265.*

**T**here is a long history of exchanging ideas about academic medicine and health care policy between England and North America. The first dean of Johns Hopkins Medical School, Daniel Coit Gilman, learned about public health at Guy’s Hospital in London in 1889.<sup>1</sup> In 1905, Sir William Osler, the Regius Professor of Medicine at the University of Oxford, introduced bedside teaching in England, shortly after pioneering the practice in North America.<sup>2</sup> In 1910, Abraham Flexner studied medical education in England to gain insights for medical education reform in North America.<sup>3</sup> In parallel with the publication

of the Flexner Report, both Osler and Flexner testified to a parliamentary Royal Commission inquiring into medical education in the United Kingdom.<sup>4</sup> Famously, Osler<sup>5</sup> argued in 1911, “We need an active invasion of the hospitals by the universities.... In the United States and the Dominions these changes are rapidly progressing.” Thanks to the rapid development of academic medicine, North America has since become the leading place for medical discoveries and innovation.

Yet, as Flexner<sup>6</sup> stressed in his 1928 Oxford Taylorian lecture on “The Burden of Humanism,” ultimately, humanism determines the value to people of scientific discoveries. Thus, it can be argued that it is important not only to make medical discoveries but also to translate them into medical treatments available to everyone through a universal health system. Such a system, the National Health Service (NHS), was established in the United Kingdom in 1948, providing citizens with a comprehensive service “based on clinical need, not an individual’s ability to pay.”<sup>7</sup> However, the institutions of the NHS proved to be slower to adopt innovative, high-quality care practices than were the leading academic health science centers (AHSCs) in North America. Hence, today, political, academic, and clinical leaders in England are learning from North American

AHSCs how to unleash the power of academic medicine in the NHS.

Recent government policy initiatives to foster medical innovation and high-quality care in England have prompted academic and clinical leaders to develop new organizational models that have strengthened their medical school–teaching hospital partnerships by aligning their missions and creating integrated governance structures. In March 2009, the government officially designated five of these academic–clinical partnerships as England’s AHSCs, and academic–clinical integration is likely to continue. In this context, we believe that an analysis of emerging organizational models is likely to be of value to policy makers and to institutional leaders. In addition, as the United States ponders health systems reform and universal coverage, U.S. medical leaders may benefit from insight into the workings of academic medicine in England’s universal health system.

In this article, we provide an overview of the organization and financing of academic medicine in England and review policy debates behind the designation of AHSCs. Then, we describe contrasting organizational models adopted in two of the newly designated AHSCs and analyze these models using a framework derived from U.S. literature. We conclude by discussing

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major challenges facing academic medicine in England.

## Academic Medicine in England

### The NHS: Organization and provision of care

With a budget of more than £100 billion and 1.5 million employees, the NHS is the world's largest government health service and its fourth largest employer.<sup>8</sup> Approximately 87% of total expenditure on health in the United Kingdom is publicly funded, mostly from general taxation.<sup>9</sup> Health policy and the management of the NHS are devolved to national administrations (England, Scotland, Wales, and Northern Ireland), meaning that there are now four separate National Health Services in the United Kingdom, albeit of shared origin and with much still in common. In this article, we focus on policy and organizational innovations in England only. The English NHS is the largest part of the U.K. NHS, accounts for approximately 85% of its resources and workforce, and serves a population of more than 50 million people.

The Department of Health is in charge of the NHS in England; the secretary of state for health reports directly to the prime minister. The Department of Health controls 10 "strategic health authorities," which manage NHS activities at the regional level and allocate funding using a formula, based on population size and characteristics, to 152 local "primary care trusts." These local trusts coordinate the planning and funding of community-based services and primary care physicians, called "general practitioners," and pay for all secondary care. Primary care trusts have some parallels with U.S. managed care organizations: Both aim to improve health and reduce avoidable use of health care.<sup>10</sup> Similar to primary care physicians in U.S. HMOs, NHS general practitioners act as gatekeepers: A patient cannot see a specialist without a referral from his or her general practitioner.

Secondary care is provided by "NHS trusts," statutory organizations that are, in effect, NHS subsidiaries authorized by the secretary of state for health to operate one or more hospitals or specialized care centers. NHS trusts have parallels with U.S. preferred provider organizations, as they enter into contracts with primary care trusts to provide specified types and

volumes of health care services at fixed rates, which are mostly based on a national price list. The National Institute for Health and Clinical Excellence provides primary care trusts and clinicians with evidence on the cost-effectiveness of certain treatments and makes recommendations on their use within the NHS. Primary care trusts employ this evidence, along with incentives and utilization management practices, to minimize unnecessary referrals and to stipulate to clinicians which treatments produce sufficient benefits to patients to be worth the expense to the NHS. Each NHS trust is governed by a board of directors. The NHS Appointments Commission appoints six laypeople from the community served by the trust to serve as the board's chair and its five nonexecutives; the board, with input from the strategic health authority, appoints five executives (including a chief executive) who are usually drawn from the pool of NHS managers in the country.

In a drive to promote local democratic accountability, the government in 2004 introduced progressive conversion of NHS trusts into "NHS foundation trusts." Each NHS foundation trust is a separate legal entity (not-for-profit public benefit corporation) whose board of directors is accountable to a newly created board of governors representing local communities. Foundation trusts are no longer subject to directions from the secretary of state for health and to performance management by strategic health authorities; instead, they are overseen by the regulatory body, Monitor, which is accountable directly to Parliament. Unlike NHS trusts, foundation trusts may retain financial surpluses to invest in the delivery of health care services, rather than returning the cash to the secretary of state for health.

A small private health care sector exists alongside the NHS—total revenues of private hospitals and clinics reach more than £3 billion annually<sup>11</sup>—but all teaching hospitals in the United Kingdom are part of the NHS, either as NHS trusts or as NHS foundation trusts.

### Physicians and academic medicine

Physicians involved in academic medicine follow one of two career tracks. Those most committed to research and/or teaching are employed by universities as salaried faculty members and also have

honorary contracts with the NHS for clinical practice. Honorary contracts confer the right to undertake clinical practice within the NHS and deal with matters of indemnity and accountability. Their purpose is to allow university faculty to contribute to NHS service delivery and to undertake research and teaching in the clinical environment. These university-employed physicians are generally referred to as "clinical academics." However, many of the physicians employed by the NHS and primarily committed to clinical practice are also active in research and teaching. In addition to their substantive contracts with the NHS, these physicians may have paid or unpaid honorary contracts with a university as a means of recognizing and reinforcing their academic engagement.

Whereas approximately two-thirds of NHS attending physicians, called "consultants," undertake some fee-for-service practice in the private sector,<sup>12</sup> very few clinical academics perform private work. Consequently, faculty practice plans do not exist in the United Kingdom. Salaries of clinical academics are closely linked to those of NHS medical staff, including incentive schemes for "clinical excellence," rather than being tied to the lower rates paid to nonclinical faculty. To qualify for the higher pay rates, medical school faculty must have a substantial clinical element in their job plan, typically around half their fixed commitments. Nonclinical medical school faculty may also be heavily dependent on the NHS for access to biomaterials and through their collaborations with clinical faculty. This dependency is managed through unpaid honorary contracts and systems of research governance.

### Funding for medical education and research

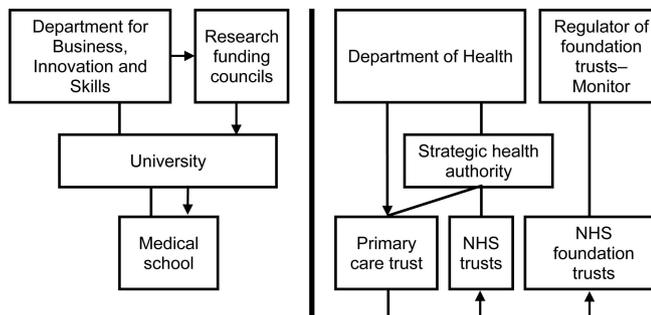
Medical education and research are also predominantly publicly funded. There are 24 medical schools in England (of 32 total in the United Kingdom),<sup>13</sup> all of which are connected to universities that rely on public funding. Training to become a doctor in England starts with an undergraduate program at a medical school (usually five years), which is followed by a two-year clinical Foundation Programme and then by two to five years of specialist training. Altogether, it takes up to twelve years to become a hospital consultant, or nine years to become a general practitioner.

The number of places available for medical undergraduates at English universities is determined and funded by the Higher Education Funding Council for England following annual consultation with the NHS on future workforce requirements. Clinical teaching for undergraduates is largely funded by the NHS. Postgraduate medical education is planned by Medical Education England, a nondepartmental government body, and is also largely funded from the NHS budget. Tuition fees for U.K./European Union students are subsidized by the government and paid by the Department of Health from year five onwards.

Public funding for research is routed to medical schools and their partner NHS trusts and foundation trusts on a competitive basis through the Medical Research Council and other research councils (funded through the Department for Business, Innovation and Skills, but operating with a high level of autonomy) as well as the National Institute for Health Research (NIHR; funded by the NHS). Both clinical academics and NHS consultants compete for these funding streams, often in close collaboration. Medical schools also receive research funding from charities and from industry. Furthermore, the Department of Health provides teaching hospitals with funding uplifts toward the additional service costs that arise from hosting teaching and research.

**Two points concerning academic medicine in England**

This brief account of the context for academic medicine in England (which would be equally applicable to the other U.K. countries) highlights two points. First, the organization and financing of the NHS are key to the development of academic medicine. Second, teaching hospitals and medical schools in England receive the majority of their funding from public sources, principally routed through the Department of Health and the Department for Business, Innovation and Skills, respectively (in the latter case, some of this funding is allocated through research councils), creating a bifurcating accountability. Consequently, a key feature of academic medicine in England is the “strategic fragmentation” of the tripartite mission of research, education, and patient care in the public sector.<sup>14</sup> Medical schools and their partner NHS



**Figure 1** The “unlinked partners” model of medical school–clinical enterprise relationships in England, 2009. The left and right panels represent funding and accountability relationships in the higher education sector and the National Health Service (NHS), respectively. NHS organizations are not structurally linked to medical schools, no common governance and accountability mechanisms exist, and the scope of contractual relationships between partner medical schools and NHS organizations is limited. Lines without arrows indicate reporting and accountability relationships; arrowed lines indicate major funding flows.

organizations have historically relied on cross-representation in management forums and day-to-day communication among leaders—underpinned to a limited extent by cross-departmental agreements—but they have not been structurally linked through common governance and accountability mechanisms. This arrangement (Figure 1) resembles the “unlinked partners” model of medical school–clinical enterprise relationships described by Culbertson et al.<sup>15</sup> Recent policy initiatives have sought to overcome this fragmentation by linking academic and NHS partners and aligning their missions, most notably through the fostering of nationally recognized AHSCs.<sup>16,17</sup>

**From Strategic Fragmentation to Strategic Alignment**

The government’s NHS reform agenda set a broad policy context for the strategic alignment of health research, education, and patient care. In 2002, Sir Derek Wanless,<sup>18</sup> an independent advisor appointed by the U.K. Treasury, reviewed U.K. health care financing and concluded that private insurance, social insurance, self-pay, and other alternative forms of financing would be more expensive and less equitable than general taxation. Nonetheless, Wanless recommended that the United Kingdom devote a “substantially larger share of national income to health care” by raising total health spending from 7.7% of GDP in 2002–2003, to 9.4% in 2007–2008, and up to 12.5% in 2022–2023. Subsequently, in the 2002 budget statement the government committed to the

unprecedented annual funding increase of 7.4% per year (adjusted for inflation) over the following five years to improve the provision and quality of health services.<sup>19</sup> Furthermore, the government’s 10-year Science and Innovation Investment Framework stated the government’s ambition to raise the level of research and development (R&D) from 1.9% of GDP in 2002 to 2.5% by 2014, which will substantially close the gap between the United Kingdom and the United States (2.67% of GDP in 2002) and modernize public services through research and innovation.<sup>20</sup>

In response to the government’s agenda “to improve the nation’s health and increase the nation’s wealth,” the Department of Health formulated a new national health research strategy for 2006–2010, *Best Research for Best Health*.<sup>21</sup> A centerpiece of this strategy was consolidating investment in NHS R&D under the umbrella of the newly established NIHR. The NIHR appointed an international panel of experts to select and designate the leading academic–clinical research partnerships as “biomedical research centers.” On designation in 2006, the NIHR awarded government grants to partner NHS organizations toward new biomedical research for a period of at least five years. In 2007, the NIHR launched a similar grant scheme for applied health research, Collaborations for Leadership in Applied Health Research and Care. These NIHR grants have provided strong financial incentives for the strategic and operational alignment of biomedical and applied health research in medical

schools and their partner NHS organizations.

The government also announced in 2006 its long-term aspiration to consolidate health research funding from different government agencies in a single fund<sup>22</sup> and commissioned Sir David Cooksey to review U.K. health research funding arrangements. In line with the U.S. Institute of Medicine's finding that two "translational blocks" in U.S. biomedical research should be tackled by collaborative efforts of multiple stakeholders,<sup>23</sup> Cooksey<sup>24</sup> concluded that the United Kingdom needed to close two "translational gaps":

- translating ideas from basic and clinical research into the development of new products and approaches to treatment of disease and illness; and
- implementing those new products and approaches into clinical practice.<sup>24</sup>

Cooksey's recommendation that the government should seek to achieve better coordination of public health research funding for universities and the NHS led to the establishment in 2007 of the Office for Strategic Coordination of Health Research, to oversee and align the research strategies of the Medical Research Council and the NHS. However, the changes implemented stopped short of combining NIHR and Medical Research Council funding into a single national health research fund.

In addition to aligning various academic and clinical funding streams at the level of funding agencies, the medical community in England considered facilitating translational efforts through the alignment of academic and clinical missions at the level of universities and teaching hospitals. Between 2001 and about 2004, the Nuffield Trust for Research and Policy Studies in Health Services, an independent foundation, published a report and hosted a series of events exploring the idea of "university clinical partnership" and the case for adopting North American AHSC models in the United Kingdom.<sup>25,26</sup> Although this idea was attractive to many NHS and university leaders, these proposals did not attract much interest from policy makers, and "without political blessing organizational leaders have not been able to marry."<sup>14</sup>

Such blessing came later from Professor Lord Ara Darzi, an academic surgeon at

Imperial College London and minister in the Department of Health. In his 2006 review of London's health care strategy, Darzi<sup>16</sup> drew on the examples of medical excellence at Toronto's Sunnybrook Health Centre and Boston's Massachusetts General Hospital to suggest that developing AHSCs would help London preserve its leading position in academic medicine in the United Kingdom and allow patients to benefit from the latest medical breakthroughs.

Darzi<sup>16</sup> argued that "'AHSC' is not a label that should be applied indiscriminately ... like 'university hospital' and 'teaching hospital'" and proposed six criteria to determine whether an academic-clinical partnership really formed an AHSC:

- Integrated Governance—this could range from delegated authority through to full mergers.
- Internationally recognised excellence in research and clinical practice (with the concurrent ability to be a leader within the UK).
- Clear integrated funding streams for research and teaching.
- Integrated leadership and career paths.
- Joint programmes which combine research and clinical work.
- Commercial expertise to market research developments and benefit the UK's economy.<sup>16</sup>

In 2007, Darzi carried out a strategic review of the whole NHS in England; in *High Quality Care for All*,<sup>17</sup> he recommended adopting the AHSC model as national policy. Subsequently, the Department of Health launched a competition for AHSC status and appointed an international designation panel to peer review applications from NHS-university consortia. In March 2009, the Department of Health officially granted five medical schools and their NHS partners AHSC status: Imperial College London, King's College London, University College London, the University of Cambridge, and the University of Manchester.

AHSC designation did not lead to immediate government funding. Rather, the AHSC designation process served as a catalyst for the strategic alignment of medical schools with their NHS partners, enhancing prestige of the designated organizations and raising expectations for future funding. AHSC leaders could expect that designation may help them

protect their current research and education funding streams, secure government funding earmarked for health care innovation, and give them an advantage in competition for peer-reviewed grants.

## Emerging Organizational Models

To demonstrate the emerging organizational models of the designated AHSCs, we describe and analyze them using three dimensions of medical school-clinical enterprise relationships proposed by Weiner et al<sup>27</sup>: clinical enterprise organization, academic-clinical enterprise integration, and authority position of the chief academic officer over the clinical enterprise (i.e., the highest-ranking official in the medical school or the AHSC responsible for the academic mission). In addition, we describe academic enterprise organization as a fourth variable. According to our empirical observation, the medical school-clinical enterprise relationships across the five designated AHSCs fall under two organizational models: the joint leadership and management model, uniquely represented by Imperial College Healthcare, or the joint partnership board model, represented by Cambridge University Health Partners (CUHP; the AHSC vehicle for the University of Cambridge) and the other three designated AHSCs. We address these models in turn, below.

### Joint leadership and management model: Imperial College Healthcare, London

**Academic enterprise organization.** The academic enterprise of Imperial College Healthcare consists of the Faculty of Medicine of Imperial College London. In 1988–2000, four free-standing medical schools and three clinical research institutes merged to form Imperial College London, creating one of Europe's largest medical schools. It is characterized by a "corporate" management structure: 52 departments are grouped into eight divisions whose chairs report directly to the dean called the "principal."<sup>\*</sup> The divisions bear primary responsibility for

\* The title of the chief of a medical school in the United Kingdom varies between institutions, and thus in this article we use "dean" as a generic descriptor.

financial and human resources management, and the dean has a fund for interdivisional appointments and other areas where resources might be otherwise limited.

**Clinical enterprise organization.** Under the leadership of the current dean, Professor Stephen K. Smith, and with the support of London’s strategic health authority, Imperial College London embarked in 2007 on a mission to integrate its biomedical research with health care provision. Professor Smith summarized it as follows<sup>28</sup>:

The UK is recognised as second only to the US for the quality of its biomedical research, yet this excellence is not reflected in the quality of its clinical outcomes. Our patients are losing out from this failure to turn discoveries and innovations into new treatments and ways of caring for them. The AHSC will close this gap. For the first time in this country we seek to truly integrate biomedical research and health care provision to provide the best health care in the world, free at the point of delivery.

As part of the AHSC project, two acute NHS trusts merged in late 2007, bringing together five major teaching hospital affiliates of Imperial College, to create a unitary clinical enterprise. The resultant Imperial College Healthcare NHS Trust is the largest NHS trust in England, spanning 43 specialties organized into seven clinical program groups.

**Academic–clinical enterprise integration.** Imperial College Healthcare is pursuing a strategy of academic–clinical integration through joint leadership and management appointments (Figure 2)<sup>29</sup>:

- The medical school dean is the clinical enterprise CEO.
- The college president is a voting nonexecutive member, and the college secretary is a nonvoting member of the clinical enterprise board; the clinical enterprise board chair is a member of the college board.
- The clinical enterprise managing director and the medical school vice dean are members of each other’s management boards; clinical program group chiefs and academic division chairs are members of one another’s management boards as well.
- The clinical enterprise executive directors of education and research

hold senior medical school appointments.

- Two of the seven clinical program group chiefs are chairs of the matching academic divisions; directors of research in five other clinical program groups are academic division chairs; and heads of education in all seven clinical program groups hold senior medical school appointments.

**Authority position of the chief academic officer.** The dean/CEO possesses executive authority over the clinical enterprise at Imperial College Healthcare, which allows the dean/CEO to hire and evaluate physicians and managers in the best interests of the whole AHSC and to play a key role in investment decision making. However, substantial legal and regulatory barriers prevent the dean/CEO from cross-subsidizing the academic and clinical enterprises. Furthermore, like every NHS trust, Imperial College Healthcare is performance-managed by a strategic health authority, and the dean/CEO cannot make legally binding provisions for the links with the medical school without directions from the secretary of state for health. The trust has begun the process of applying for foundation trust status, which would allow the dean/CEO to gain managerial autonomy from a strategic health authority and to formalize the links with the medical school.

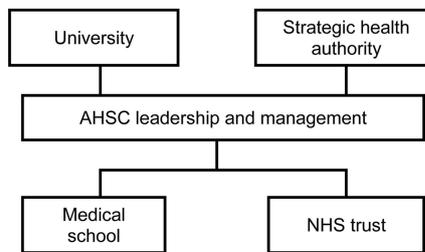
**Joint partnership board model: CUHP, Cambridge**

Teaching hospitals in four of the designated AHSC partnerships had become foundation trusts even before the government announced its AHSC policy. As these foundation trusts had recently

adopted constitutions that made accountability to local communities paramount via a process requiring extensive public consultation, they found it difficult to contemplate the further deliberations and upheaval that would be required to move to a “joint leadership and management model.” Instead, in each of these partnerships, the foundation trusts and their academic partners agreed to establish a new legal entity with a joint partnership board and delegated to that board certain powers to coordinate the delivery of the tripartite mission across autonomous organizations. We demonstrate this model using the example of CUHP, although the details of constitution and governance vary between the four partnerships using this model.

**Academic enterprise organization.** Education in the science of healing has existed at the University of Cambridge since at least the 16th century, when King Henry VIII established the chair of Regius Professor of Physic. However, prior to the establishment of the School of Clinical Medicine in 1976, Cambridge medical students had to finish their education at other medical schools—most notably, in London—once their preclinical studies were completed.

Unlike the Faculty of Medicine at Imperial College London, the Cambridge School of Clinical Medicine has a decentralized, collegiate structure. Whereas preclinical education and life sciences research are based at the School of Biological Sciences and specialized research institutes, clinical education and translational research are based at the School of Clinical Medicine. The latter is one of the smallest medical schools in



**Figure 2** The “joint leadership and management” organizational model of Imperial College Healthcare, London, 2009. The clinical enterprise, represented by a newly merged unitary National Health Service (NHS) trust, is linked to the medical school through the joint academic health science center (AHSC) appointments of the medical school dean/clinical enterprise CEO and academic department chairs/clinical service chiefs. This linkage is not ordained by law, however, and separate funding and accountability mechanisms remain in place for the academic and clinical missions.

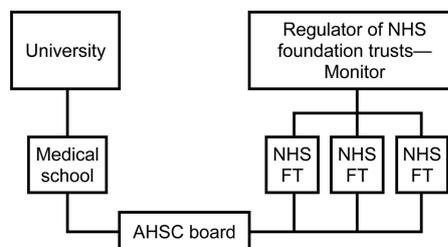
England (130 admissions per year) and does not have sufficient places for all Cambridge students completing the preclinical course, which means that Cambridge medical students continue to migrate after three years to medical schools in London and elsewhere. The school is organized into 12 departments, which bear primary responsibility for financial and human resources management. The Regius Professor of Physic serves as ex-officio dean of the clinical school, presides over collective decision making by academic department chairs, represents the school's interests in university affairs, and oversees the implementation of policy.

**Clinical enterprise organization.** The clinical enterprise of the AHSC consists of three independent NHS foundation trusts:

- Cambridge University Hospitals, an acute care trust providing a comprehensive range of general and specialized services in the Rosie and Addenbrooke's Hospitals;
- Papworth Hospital, a superspecialized cardiothoracic center near Cambridge; and
- Cambridgeshire and Peterborough, a mental health and learning disability trust providing services across 75 community-based sites.

Given that the School of Clinical Medicine and a number of specialized research institutes are based at the Addenbrooke's Hospital site, the academic and clinical partners are pursuing a strategy of integration through joint expansion and collocation. Papworth Hospital and parts of Cambridgeshire and Peterborough's acute mental health services are being relocated to the Addenbrooke's site, as part of a wider strategy to expand and develop the site into the Cambridge Biomedical Campus.<sup>30</sup> At Addenbrooke's Hospital, academic departments and clinical services are already collocated, and the Regius Professor of Physic and hospital executives share the same suite of offices there.

**Academic–clinical enterprise integration.** In response to AHSC policy, the Cambridge academic and clinical partners have formalized their long-standing collaboration by creating an AHSC partnership vehicle—CUHP—



**Figure 3** The “joint partnership board” organizational model as implemented by Cambridge University Health Partners, 2009. The clinical enterprise is represented by three independent National Health Service (NHS) foundation trusts (FTs) and is linked to the medical school through the board of a new academic health science center (AHSC). The board is a vehicle created to strengthen collaboration between the partners while maintaining separate funding and accountability mechanisms for the academic and clinical missions.

constituted as a company limited by guarantee (i.e., without equity capital and shares), with the four partner organizations as members (Figure 3). CUHP has existed in shadow form since AHSC designation was awarded in March 2009 and was legally constituted in November 2009. CUHP will pursue its tripartite goal of excellence across research, education, and patient care through the following mechanisms<sup>31</sup>:

- Member organizations will consult the CUHP board about key appointments, capital development plans, and changes to the structural organization of each of the partners.
- An executive group will operate under delegated authority from the CUHP board and will include a chief operating officer and “mission leads” to work across member organizations.
- Member organizations will reshape their internal structures to further support the tripartite mission and provide better alignment with academic structures.

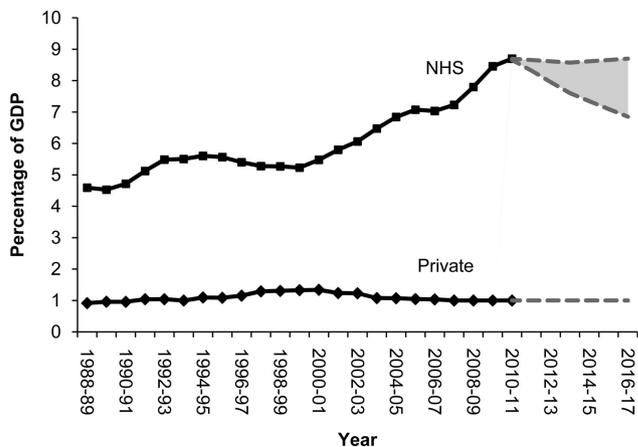
The AHSC will provide a vehicle to strengthen collaboration between member organizations without changing the existing property relationships. Transfers of undertakings and funds related to joint operations are expected to remain between member organizations, rather than from member organizations to the AHSC, but the form of incorporation allows for transfers of activities or funding to the AHSC should this be advantageous in the future.<sup>31</sup>

**Authority position of the chief academic officer.** The Regius Professor of Physic, who serves as a nonexecutive director on the board of the largest NHS partner (Cambridge University Hospitals), is the

executive director of CUHP. The remaining members of the CUHP board have been appointed from the partner NHS bodies or from the University of Cambridge, with the overall composition (defined in a members' agreement) intended to balance university and NHS interests. Formally, six directors are university representatives (three are clinical academics who also have honorary contracts and service commitments in the NHS), and six are drawn from the three NHS trusts. The board is completed by an eminent independent chair with experience of both the practice and politics of academic medicine. Although most of the directors of CUHP are appointed ex-officio from the member organizations, they are obligated under U.K. law to act only in the interests of CUHP when acting in the capacity of CUHP directors.

### Challenges Facing Academic Medicine in England

Despite early adoption by Imperial College Healthcare, a model of hierarchical governance arrangements spanning the totality of the academic–clinical enterprise relationship has not yet found further supporters in England. Instead, the other four designated AHSCs have opted for horizontal governance arrangements featuring a joint partnership board and intermediary organizations. The resulting medical school–clinical enterprise relationships are best described as “network,” rather than “center,” relationships, which Weiner et al<sup>27</sup> observed are of increasing importance in mature North American AHSCs. These network relationships are based on consent and collaboration rather than traditional hierarchies with clear reporting lines.



**Figure 4** U.K. health care expenditure as a percentage of gross domestic product (GDP): National Health Service (NHS) actual (1988–1989 through 2007–2008), NHS planned (2008–2009 through 2010–2011), and NHS projected (2011–2012 through 2016–2017); private actual (1988–1989 through 2006–2007) and private projected (2007–2008 through 2016–2017). While U.K. NHS expenditure has risen over the last 10 years by three percentage points of GDP from 5.5% in 2000–01 to an estimated 8.5% in 2009–10, it is projected that by 2016–17 NHS expenditure will flatten off or decline in the range indicated by the gray area. This may lead to a possible gap of £4 billion to £40 billion in NHS funding in comparison with the future funding scenarios recommended to the government in the 2002 Wanless Report in order to improve the quality of care and cope with demographic pressures. Source: Appleby et al, 2009.<sup>33</sup> Used with permission.

As the remaining teaching hospitals are undergoing a process of accelerated conversion into foundation trusts and public spending cuts are planned in response to diminishing tax revenues due to economic downturn, it is likely that the trend toward risk minimization through limited liability structures and horizontal governance arrangements will continue. This presents political, academic, and clinical leaders with two major challenges.

First, political leaders face the challenge of aligning incentives across academic and clinical enterprises. While NHS trusts receive incentives to accelerate their conversion into foundation trusts, so as to decentralize health care, medical schools and their affiliated teaching hospitals have been encouraged to increase academic–clinical integration, so as to foster innovation and high-quality care. These two sets of incentives are misaligned, however, because the mission of the teaching hospitals that are part of foundation trusts is narrowly defined. The current legislation defines the foundation trust’s mission as providing patient care, permits rather than mandates research and education, and gives limited representation to academic partners in governance and management structures. One solution would be to align these two sets of incentives through legislation creating a new type of NHS

organization—an “academic foundation trust” that has a statutory duty to pursue the tripartite mission and allows for meaningful representation of academic partners at all levels of governance and management. Without such legislation, the choice of governance arrangements for academic–clinical integration will effectively be limited to horizontal “network” models.

Second, AHSC leaders face the challenge of developing a robust AHSC business model that will remain viable under the adverse conditions of economic downturn. Given the bifurcating accountability of universities and NHS organizations to different government departments, medical schools and their affiliated clinical enterprises cannot cross-subsidize each other. Thus, they cannot adopt the U.S. “virtuous cycle” model, under which “the clinical enterprise—through financial support—raises the level of the academic enterprise, which, in turn, raises the level of the clinical enterprise.”<sup>32</sup> The current English model is based on the assumption of public spending growth and allows strategically aligned academic and clinical enterprises to invest public funding in innovative projects. However, all public spending departments, including the NHS and universities, are facing a period of stagnant funding that will be particularly painful as it comes straight

after a period of unprecedented investment (Figure 4).<sup>33</sup> The adverse consequences of economic downturn on academic medicine in England could be far more profound than the impact of the 1997 Balanced Budget Act on U.S. academic medicine because English medical schools and teaching hospitals receive the overwhelming majority of their funding from public sources. Therefore, England’s emerging AHSCs must make a compelling business case for publicly funded AHSCs in an uncertain economic climate.

Overall, given that AHSCs in England represent a very recent phenomenon and that they are still in formation, we only begin in this article to examine the organizational forms of emerging AHSCs and the surrounding policy debates. Whereas U.S. AHSCs respond to market competition,<sup>34</sup> the principal driving force behind change in academic medicine in England is central government policy, chiefly that of the separate departments responsible for health and for higher education. Yet despite the fundamental differences between the English and American health systems, there are also similarities. Our study suggests that in England, as in the United States, there is a trend toward “network” relationships in AHSCs. Moreover, similar to AHSCs in North America,<sup>35</sup> AHSCs in England are facing profound financial challenges. Therefore, policy makers in England and North America could benefit from future studies examining how their counterparts on the other side of the Atlantic respond to common challenges, as well as which health systems and policies provide better leverage for the tripartite Flexnerian mission of academic medicine. Indeed, one of Flexner’s<sup>3</sup> mottos was *ambulando discimus*, or “we learn by going about.”

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## Commentary: **Models of Academic–Clinical Partnerships: Goods, Better, Best**

Herbert Pardes, MD, and Harold Alan Pincus, MD

### Abstract

Elsewhere in this issue, Ovseiko and colleagues discuss organizational models for emerging academic health science centers (AHSCs) in England. In this commentary, the authors consider the advantages, or “goods,” to organizing educational, clinical, and research missions within the AHSC model. Cultivating relationships among the three

central missions of academic medicine yields good results for clinicians, trainees, patients, researchers, and communities, but it can also inspire all stakeholders to strive for better results. After outlining some of these benefits of current AHSC models, like those common in the United States, the authors discuss how close collaboration between U.S. and U.K.

AHSC leaders could foster sharing of best practices and ultimately lead to better performance at AHSCs—emerging and established—in both nations. Providing excellent health care begins with developing the best organizational models for AHSCs, and identifying and pursuing such models should be a top priority.

*Editor’s Note: This is a commentary on Ovseiko PV, Davies SM, Buchan AM. Organizational models of emerging academic health science centers in England. Acad Med. 2010;85:1282–1289.*

**T**he article by Ovseiko and colleagues,<sup>1</sup> “Organizational models of emerging academic health science centers in England,” raises important issues for the fields of academia, medical research, and clinical care not only in England and in the United States, but throughout the world. Coherently linking academic and clinical activities delivers obvious benefits, but are some models for organizing these relationships better than others? Is there a “best” way to structure an academic health science center (AHSC)? First, some “goods” produced by AHSCs.

### Recognizing the Good

Obviously, any clinical enterprise should strive to deliver the very best care. But

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AHSCs have larger responsibilities. They are expected not only to serve their local community but also to provide leadership in clinical care and innovation for their region and the nation. Moreover, academic centers are designated to aggregate the greatest depth and the widest coverage to deal with any medical problem presenting to their door. These types of problems have grown increasingly severe and complex with medical situations that are formidable unto themselves and often accompanied by coexistent conditions. Addressing these problems generally requires health care providers to work as a team that incorporates professionals from multiple disciplines with multiple skills. The team concept is also being extended beyond the direct patient-care level to an organizational level with various forms of collaborative partnerships across the time and space of varied inpatient and outpatient settings.

Thus, AHSCs should strive to model the very best care—in addition to excellence in primary and secondary care, AHSCs should have in their capacity the ability to respond to emergent, tertiary, and quaternary situations.

A second major “good” is AHSCs’ capacity to train the very best health care providers possible. This requires both exposure to the mass of authoritative information about medicine and medical care delivery and grounding across the full spectrum of translational sciences, from basic to clinical to population science, with a continuing awareness of the evolution of health care in the general

community. AHSCs provide this exposure for trainees from multiple disciplines across the full developmental pathway extending from partnerships with grade schools in their communities through undergraduate and professional schools to continuing education of senior health professionals. These trainees ultimately evolve in various directions with career trajectories encompassing the educational aspects of health care, direct clinical care, research, and, conceivably, leadership roles in the administration and direction of AHSCs or other health organizations.

Finally, AHSCs provide to all societies the good of medical research, which has produced countless improvements in diagnosis and treatment strategies for a wide range of medical problems. It is one of the great accomplishments of modern medicine and health care that many conditions such as congenital heart disease, eroding and failing function of major organs, and the erosion of the utility of joints have been addressed by innovative and increasingly effective techniques to correct those conditions with a direct impact on both the quality and the length of people’s lives.

These several functions come together in the various centers around the world that address the “tripod” of care, education, and research functions in various organizational frameworks. It is our opinion that the closest juxtaposition of these three parts of the tripod in an AHSC has many distinct values.

## Striving to Be Better

It is widely accepted that clinicians are energized by having an educational role within a clinical care setting. Kept on their toes by young students who challenge and raise questions, experienced clinicians and clinical teachers are stimulated to stay on top of the latest developments in medicine and to think through many problems that emerge in medical care. Absent these challenges and educational responsibilities, seasoned clinicians might be less motivated to remain on the cutting edge.

In an AHSC, research is informed by the clinical environment and continually challenged to translate the excitement of discoveries in basic processes into useful products within medicine and health care. Importantly, this translational process does not stop at the development and successful testing of a product or intervention. AHSCs are a critical locus for the translational step of effectively implementing and disseminating effective diagnostic and treatment interventions and improving health outcomes.<sup>2</sup> In the United States, the National Institutes of Health has fostered these partnerships through the major investment of Clinical and Translational Science Awards.

Education is improved when it is in the context of a research environment because the researchers bring systematic approaches of inquiry to problems being dealt with clinically. This exchange augments informed clinicians' skills and broadens their thinking for addressing clinical challenges.

One could find many other ways of illuminating this "virtuous circle"<sup>3</sup> that can result from the interchange among these functions, but we use the above as simple representative examples.

## Pursuing the Best

As Ovseiko et al<sup>1</sup> have documented, there are multiple approaches to collectively organizing these functions, and their associated organizations and international comparisons are illuminating. The United Kingdom and the United States each has its own set of governance, representation, and legal, financial, and health care organization principles that control these functions.

The U.K. government's greater control and funding responsibility of both the health care system and the academic enterprise may be seeing its emerging counterpart in an increasing government role in the U.S. health care system. Even before the recently passed health care reform is implemented in the United States, the government already oversees or supports a very large proportion of health services, graduate medical education, and biomedical research. Competition and the role of the private sector are important points of influence in the U.S. system, and this will continue with health care reform.

There are many different organizational models for AHSCs in the United States—some in which centers are relatively independent of universities, others in which centers are part of the universities; some in which hospitals and medical schools are integrated under one governance, others in which they are separate—and all have ways of handling the organization of the clinical practice portion within the overall system. These variations in organizational structure are most often the result of the local institutional situation and context in terms of history, geography, tradition, the health care market, and often-changing strategic decisions by leadership over time.

Organizational models are also influenced in the United States and the United Kingdom by a relatively worldwide economic strain that most societies are experiencing. Thus, in the United States, discussions of consolidated payment, accountable care organizations, integration of hospital and doctor enterprises, and governance are all parts of the attempt to streamline, potentially consolidate operations, and hopefully reduce costs while improving quality.

We feel that one should identify the "goods" that are the goal and try to design the organizational and governance strategies in such a fashion as to maximize the accomplishment of those goods. So, in the end, the best organizational models enable the very best care delivered to the overall population by the most skilled and up-to-date practitioners in a setting where research can prosper and, therefore, deliver new ideas and new diagnostic and

treatment advances in the kind of virtuous circle described by Wartman.<sup>3</sup>

We believe that the Flexnerian principle of learning best by "going about" may be worth considering in this discussion. Perhaps it might be valuable to foster an exchange of visits by leaders both in the United Kingdom and the United States to respective centers in both countries and glean from each other best practices, which may be mutually informing.

There is no question that in both countries external forces are stimulating changes in the systems and their functions. Given the many common interests and orientations of the United Kingdom and United States, a thoughtful and somewhat systematic interaction between AHSC leadership may illuminate best practices in both places and, perhaps, generate insights influenced by the experience of interaction between the enterprises or new ideas stimulated by the exchange. One of the outcomes may be an understanding of how to respond to the common external forces that affect the organization, governance, and functioning of AHSCs and develop new organizational approaches that are in the interest of providing the best health care, training the best clinicians, and stimulating the most productive research.

Health care is important, not only for the benefit of the patients but also for the respective nations' economies and productivity. Pursuing the best models for providing that care should be at the very top of national priorities for both countries.

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