THE ECONOMIC AND SOCIAL IMPACT OF UK ACADEMIC CLINICAL PARTNERSHIPS

A project for the Association of UK University Hospitals and Council of Heads of Medical Schools

Phase 1 Report

Identifying and quantifying the outputs of UK Academic Clinical Partnerships

THE ECONOMIC AND SOCIAL IMPACT OF UK ACADEMIC CLINICAL PARTNERSHIPS

A project for the Association of UK University Hospitals and Council of Heads of Medical Schools

Phase 1 Report

Identifying and quantifying the outputs of UK Academic Clinical Partnerships

SQW Limited

Enterprise House, Vision Park
Histon
Cambridge, UK CB4 9ZR

Tel: 01223 209400
Fax: 01223 209401
Email: sdavies@sqw.co.uk

April 2006 JC5468 – corrections June 2006

SQW Quality Statement

This document has been reviewed and approved by:

Name: Neil Costello
Job Title: Director
Date: 25 April 2006

Freedom of Information Act, 2000

SQW Limited submits this report under a commercial contract with the client named above. It may contain sensitive information that could potentially prejudice commercial interests. It should not therefore be disclosed to third parties without the express permission of the client.

TABLE OF CONTENTS

Executive Summary

Background

1. This report presents a study commissioned by the Association of UK University Hospitals (AUKUH) and the Council of Heads of Medical Schools (CHMS) in September 2005. The aim of this study was to define and quantify the main outputs of the partnerships between UK medical schools and their main university hospital partners. The study represents the first phase of a programme of work. The second phase is a series of more detailed studies of individual partnerships. The final phase would be an overview and synthesis of these organisation-specific studies and the findings summarised in this report.
2. The primary objective of this study was to assemble a conceptual framework, data and arguments that will equip AUKUH and CHMS to adopt a more pro-active stance in moving forward the agenda of university hospitals and medical schools in the UK.
3. Secondary objectives for the study included

    - describing and quantifying the missions of UK academic clinical partnerships
    - to support university hospitals and medical schools in engaging with the public policy agenda across a broad spectrum
    - to enable AUKUH and CHMS to better understand the profile of their membership.
    - to provide material that can be used to raise the awareness of stakeholders.

Conceptual Framework

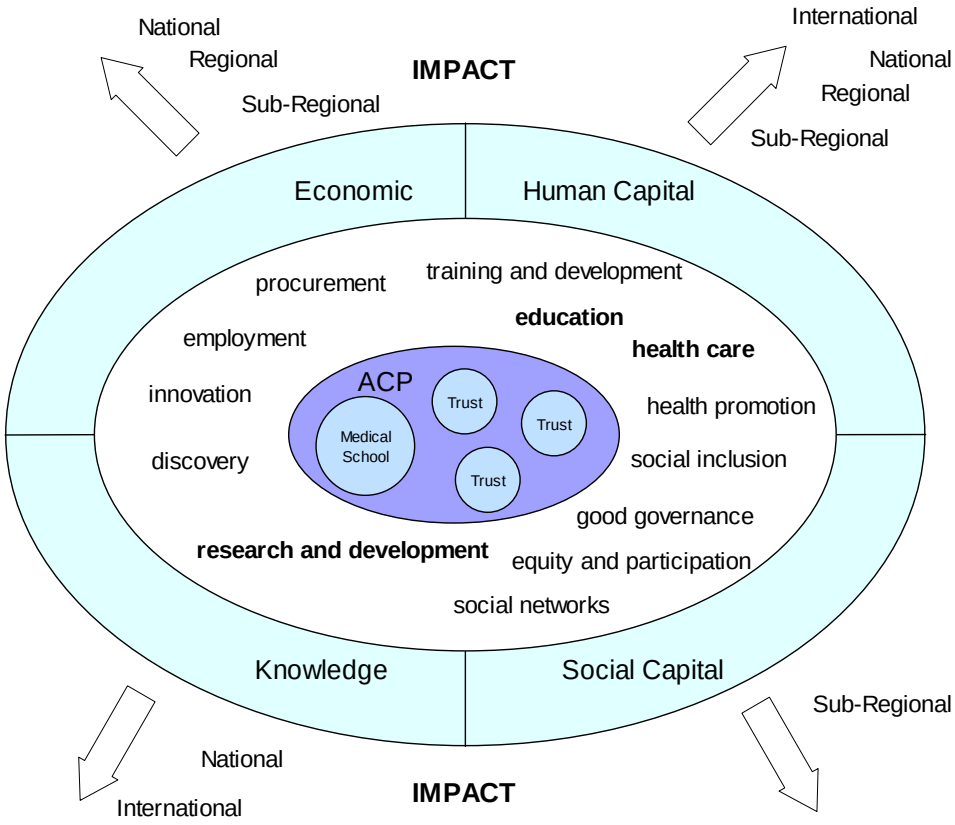
4. For the purposes of this study an Academic Clinical Partnership (ACP) has been defined as ‘the combined enterprise of a medical school and its major clinical partner or partners’. We restrict the definition of clinical partners to university hospitals, using the criteria for membership of the Association of UK University Hospitals (AUKUH) to define these organisations.
5. At the inception of the study, the intention was to use the term ‘Academic Medical Centre’ to label the combined enterprise of medical school and university hospital. This followed the terminology adopted by the Department of Health in the consultation draft of the new national strategy for health in England. The term ‘Academic Clinical Partnership’ has been adopted in this final report as a more inclusive concept which allows for multi-Trust partnerships. It also potentially allows inclusion of a wider range of university schools and departments with interests in health research and education, rather than restricting the university side of partnerships to medical schools alone.

6. The study population was defined as the 31 members of CHMS plus the 38 members of AUKUH. Following discussion with the client the university hospital population was extended to include 2 Scottish university hospitals that were formerly members of the Association but have allowed their membership to lapse, together with 3 research intensive single-specialty trusts that are closely aligned with medical schools but are not members of AUKUH. The aim was to assemble comprehensive data relating to the population of 31 medical schools and 43 university hospital trusts as thus defined.

7. Data was drawn from a variety of secondary, publicly-available sources supplemented by surveys of the study population. In the case of medical schools, a 100% response rate to surveys was obtained, meaning that the report presents a complete picture of CHMS membership. For Trusts, the response rate to surveys was only 79% and not all responses were complete, so the picture for the NHS is rather more partial where this relies on survey data. In addition, a number of indicators for trusts which are routinely made available in England are not available for the devolved administrations, meaning that the picture is least complete for Trusts outside England.

8. Figure 1 shows the impact model used in the study, and also in the phase 2 studies. This has been developed from a number of sources including the development of impact assessments within higher education, work on the impact of NHS organisations beyond health care and sustainability policy.

Figure 1: ACP impact and outputs: a holistic framework



9. The inner circle in this model represents the Academic Clinical Partnership. The middle circle shows a range of outputs from the partnership which includes, but is not confined to, clinical care, education and teaching. The outer circle represents the impact of these outputs and is divided into four domains: economic impact, human capital impact, knowledge impact and social capital impact. These impacts are expressed on a varying spatial scale.

10. Routinely available data most readily supports analysis of impact in the domains of human capital (health care and education) and knowledge (research and development) because these are the areas where performance management of both NHS providers and universities is focused. These two domains of impact have, therefore, been the focus of the phase 1 study.

11. In the phase 2 studies, economic impact is assessed using a multiplier analysis to measure both direct and indirect economic effects. The contribution of ACPs to social capital formation and maintenance is also examined, using a qualitative approach, in these studies.

The Impact of UK Academic Clinical Partnerships

Human Capital Impacts: Health Care

12. The study sought to focus its attention upon those aspects of health care that are mainly delivered by university hospitals or enhanced by the close partnership with the medical school. Our hypothesis was that these fall in two main areas:

    - the provision of specialised services by university hospitals
    - the contribution of university hospitals to managed clinical networks and other forms of integrated service delivery.

13. The main findings in this domain of impact are that:

    - there are 177 acute hospital Trusts in England, of whom 33 are members of AUKUH. These 33 Trusts delivered over 3.3m admission episodes in 2004/5, which amounts to around 28% of the total in-patient workload of the NHS in England
    - the specialised workload of university hospitals (as defined) varies considerably between individual Trusts, but the mean is 18% of total workload by volume and 27% by value. No benchmark is available for the remainder of the acute sector
    - the quality and performance of university hospitals, as measured by the star rating system, is broadly in line with the remainder of the acute sector
    - clinical academics are under–represented in positions of clinical leadership relative to their overall representation in the medical workforce of university hospitals
    - university hospitals are highly engaged in managed clinical networks, reporting membership of an average of 4.3 networks per Trust

Human Capital Impacts: Education, Training and Development

14. Education and training is fundamental to the ACP mission and includes undergraduate medical education, postgraduate specialist training and continuing professional development. Many university hospitals also operate extensive programmes of education and training for a range of staff groups, ranging from basic skills training through NVQs to continuing professional development and post-registration training. Some of this activity is carried out by hospitals themselves and some in partnership with a wide range of education and training providers, including a range of university departments other than medical schools.

15. The main findings in this domain of impact are that:

- over 7,000 new students are now admitted UK medical schools each year and there were around 32,000 undergraduate medical students enrolled in 2003/4.
- nearly 13,000 postgraduate students are enrolled at UK medical schools, with around half of these taking doctorate-level degrees
- university hospitals now account for only 45% of student clinical placement time
- university hospitals employ about a third of all doctors in training grades, which is broadly proportionate to their employment of consultants and other career grade medical staff
- university hospitals received about £1.25bn income to support education, training and research in 2004/5. Education-related training (MPET) remains the most important element of this income (£855m), followed by R&D support funding (£327m).
- university hospitals provide a wide range of educational facilities and a very broad range of education, training and development activities.

Knowledge Impacts

16. ACPs are in a position to make a significant contribution to national health research priorities. They are the obvious setting within which experimental medicine can be taken forward and have been the setting for investment in clinical research facilities by the Wellcome Trust. They can undertake clinical trials and provide the academic leadership for multi-centre or community-based trials. They are able to support research across all parts of the continuum from basic science through to service delivery, or 'from bench to bedside'. They are also likely to make a major contribution, in a number of possible ways, to the development of clinical research networks and provide the institutional homes of the clinical academic workforce.

17. The main findings in this domain of impact are that:

- UK medical schools attract around £0.75bn in grant funding each year

- research activity in university hospitals attracts over £0.5bn in external funding in England, which is around 70% of the total for England
- over 14,000 research projects are currently supported by university hospitals in England
- nearly 20,000 peer-reviewed publications resulted from research projects based in university hospitals in 2004/5
- over 1,100 higher degrees are being supported by research programmes in University Hospitals
- UK-based charities are the largest source of grant funding to both medical schools and university hospitals
- NHS R&D Support Funding amounts to some £375m pa for university hospitals
- medical schools conduct high quality research with between 50% and 75% of departments rated 5 or 5* according to unit of assessment
- most university hospitals have arrangements in place for technology transfer and the management of intellectual property, but income from IP and other measures of outputs remain low
- all medical schools have arrangements in place for technology transfer and the management of intellectual property
- clinical research facilities exist at most university hospitals and this is an area of development.

18. The profile of activities within individual partnerships varies quite considerably, with some Trusts being more teaching-led and others research or clinical care-led. The study shows considerable diversity within the membership of AUKUH and CHMS and between the profiles of individual partnerships.

Implications for AUKUH and CHMS

19. The data assembled in this report demonstrates that academic clinical partnerships deliver a significant proportion of the health care, medical education, and NHS-based health research carried out in England. Although data is not available to demonstrate the point it is reasonable to assume this is also the case in the other countries of the UK. The conclusion we draw from this is that it is essential that public policy is supportive of these partnerships and that the performance management regimes under which they operate do not become overly focused on any one aspect of the wide range of outputs that they produce.

20. The contribution of the membership of AUKUH and CHMS to clinical care, education and research is very substantial and of national importance. The data assembled in this study should be used by AUKUH and CHMS to lobby for more of a voice in policy-making forums and for greater sensitivity of policy-making to the particular circumstances and needs of academic clinical partnerships.

21. In particular, AUKUH and CHMS can use this data as part of a wider argument that is needed to ensure that government has a proper perspective on the possible adverse unintended consequences of policy which is too focused on a narrow agenda or range of issues. For example, if tariff setting for specialised services is too crude or includes unrealistic levels of productivity-gain assumptions, this may have a de-stabilising effect on university hospitals in particular, which in turn will have potential adverse consequences for goals in health research. Other examples could be given, but the key point is to articulate the inter-dependency of missions.

22. More generally, the study reflects the importance of AUKUH and CHMS as 'trade associations' and the fact that the national contribution of the membership of both organisations would merit a much higher profile than has previously been adopted. Contrast with overseas models, such as the Association of American Medical Colleges (AAMC) might be helpful in this context.

23. The membership of AUKUH and, to a lesser extent, CHMS is diverse and the profiles of individual partnerships variable. Neither organisation should avoid discussion about whether what unites them is greater than what divides them, especially as health research funding moves towards a model of greater concentration in fewer centres of excellence. This discussion needs to be conducted in a frank and non-defensive manner.

24. AUKUH should consider its membership criteria and the application of those criteria as there is a number of Trusts nationally that are significant centres for education and research but are not members of AUKUH.

25. A significant number of University Hospitals struggled to answer some of the survey questions, for example those related to specialised services, and some returns were clearly of dubious quality. The burden of compliance reporting for NHS Trusts is clearly extreme, and we fear that it may have 'squeezed out' the capacity to focus on other data which are of business importance. An understanding of specialised service workload, for example, will be fundamental to strategic planning in the era of patient choice.

26. Despite best intentions, the study has ended up being mainly English in its NHS focus and AUKUH needs to consider the implications of this for its UK-wide role.

1 Introduction

1.1 In September 2005 the Association of UK University Hospitals (AUKUH) and Council of Heads of Medical Schools (CHMS) jointly commissioned SQW Ltd to undertake a study to define and quantify the main mission outputs of UK academic clinical partnerships (ACPs). This report summarises the findings of that study and is intended for the use of AUKUH, CHMS and their member organisations.

1.2 The primary objective of this study was to assemble a conceptual framework, data and arguments that will equip AUKUH and CHMS to adopt a more pro-active stance in moving forward the agenda of university hospitals and medical schools in the UK.

1.3 Secondary objectives for the study included

- describing and quantifying the missions of UK academic clinical partnerships
- to support academic medical centres in engaging with the public policy agenda across a broad spectrum
- to enable AUKUH and CHMS to better understand the profile of their membership.
- to provide material that can be used to raise the awareness of stakeholders.

1.4 This study forms the first phase of a programme of work. The second phase will be a number of organisation-specific studies to explore and, where possible, quantity the mission outputs of individual academic clinical partnerships. The final phase, if commissioned, will be an overview and synthesis of the previous two phases.

1.5 The specific objectives of phase 1 were to provide a cross-sectional picture of the range of outputs across the membership of AUKUH and CHMS and to portray the diversity of academic clinical partnerships. This first phase draws mainly on secondary data already available in the public domain, supplemented by survey data from both university hospitals and medical schools. This phase has also provided a platform for the phase 2 impact assessments of individual organisations by building a conceptual framework, as well as providing base data.

1.6 Section 2 of this report describes the background to the study and develops a conceptual framework for assessing the economic and social impact of academic clinical partnerships. Section 3 provides a detailed examination of this impact under the headings of human capital and knowledge impacts, which are the domains that are amenable to study using the methods available within the resource constraints of phase 1. Section 4 briefly describes how economic

and social capital impacts will be approached in phase 2 studies. Section 5 draws together the data for selected 'archetypal' university hospitals and medical school partnerships. Finally, in section 6, we draw out some implications of the study for AUKUH and CHMS. More detail on methodology is provided in the annexes.

1.7 The data assembled in this report demonstrates that academic clinical partnerships deliver a significant proportion of the health care, medical education, and NHS-based health research carried out in England. The conclusion we draw from this is that it is essential that public policy is supportive of these partnerships and that the performance management regimes under which they operate do not become overly focused on any one aspect of the wide range of outputs that they produce to the detriment of others.

2 Background and conceptual framework

2.1 The original basis of this study was an attempt to apply the concept of the academic medical centre (AMC) to the UK context and to operationalise this concept for research purposes. In many other national settings, the concept that the partnership between a medical school and its closely affiliated clinical facilities creates a distinctive entity is widely recognised in public policy-making. This partnership is given various labels including Academic Medical Centre, Academic Health Centre and Academic Health Sciences Centre (Davies and Smith 2004). These labels are applied regardless of variation in organisational forms, partnership mechanisms and governance structures. In fact the concept of the AMC is arguably most strongly established in the USA, which exhibits a greater variety in structure and governance than any other national system (Weiner, Culbertson et al. 2001).

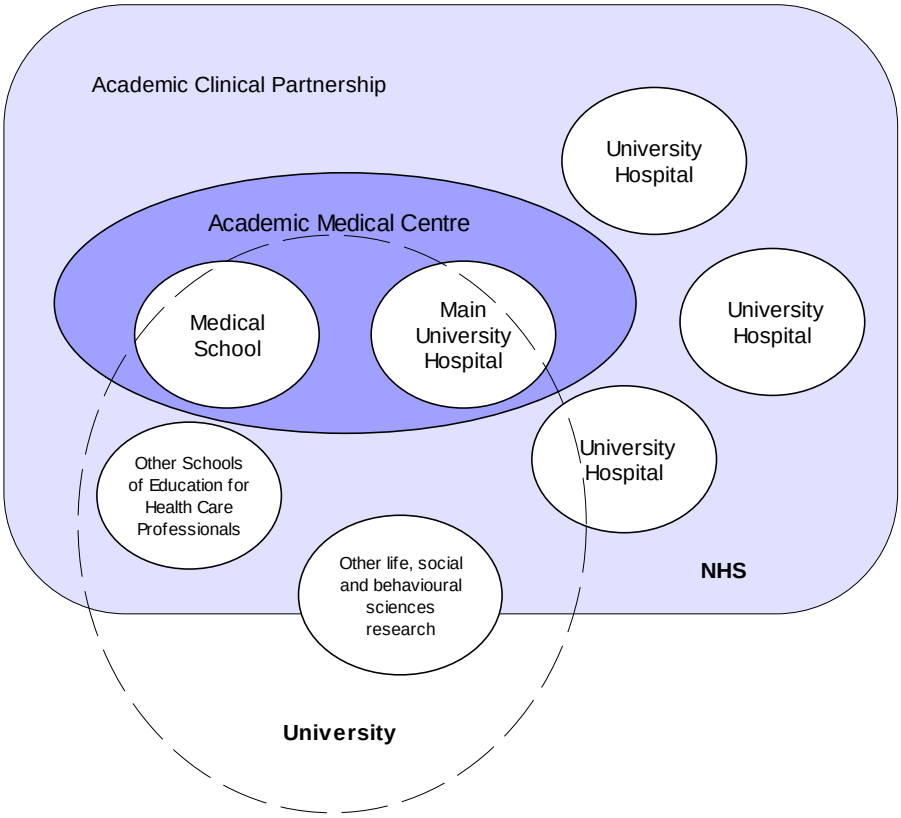
2.2 In contrast, this concept, however labelled, has not historically been much employed in the UK, despite limited variation in organisational form. In this respect, the UK has hitherto been something of an outlier from an international perspective. In 2005, this situation looked set to change when the draft health research strategy for England included proposals to designate and fund a number of 'Academic Medical Centres' as part of the proposed National Institute for Health Research. These centres would be developed as the nation's 'premier research hospitals' and as 'leaders of scientific translation and early adopters of new insights in technologies and techniques for improving health and social care'. The context for these proposals was the recognition that for health research there is increasingly a global market, and that the UK's position in this market is an important contributor to national competitiveness (Department of Health 2005).

2.3 In view of this, the study originally adopted the AMC terminology, with a view to fleshing-out a concept which had been introduced in the public policy arena with very little discussion. However, by the time the final version of the new national health research strategy was published in January 2006, the Department of Health had dropped all use of 'Academic Medical Centre', preferring to talk instead about Biomedical Research Centre (BRC) Grants, although with the underlying concept of centres of excellence clearly unchanged. 'Academic Medical Centre' was, in any event, proving problematical for some medical schools who work in close partnership with a number of NHS Trusts, because it suggests a one to one relationship between a single university hospital and medical school. This was a perception that has since been reinforced by Departmental guidance on BRC bids, which says that these must come from a single Trust rather than from consortia of Trusts.

2.4 Given this shifting terrain, the report adopts the term 'Academic Clinical Partnerships'. This is a more inclusive term, because it allows for multi-Trust partnerships. It also potentially

permits inclusion of a wider range of university schools and departments with interests in health research and education, rather than restricting the university side of partnerships to the medical school alone. The downside of a more inclusive model may be greater ambiguity and loss of salience. Figure 2.1 below illustrates how the way in which these different concepts can co-exist and overlap.

Figure 2.1 – Concepts of Partnership



Operationalising the ACP concept

2.5 For the purposes of this study an Academic Clinical Partnership (ACP) has been defined as 'the combined enterprise of a medical school and its major clinical partner or partners'. We restrict the definition of clinical partners to university hospitals, using the criteria for membership of the Association of UK University Hospitals (AUKUH) to define these organisations. Membership of the Association is restricted to NHS hospitals that can demonstrate that they satisfy a number of criteria:

- substantial participation in research and development
- the presence of outside research interests on the hospital site
- a major academic research presence embedded on the hospital site

- multiple specialities
- a commitment to undergraduate teaching.

2.6 It could be argued that this is too narrow a definition of academic clinical partnership because it excludes a number of entities which make a substantial contribution to the tripartite mission of education, teaching and research. These include other schools of clinical education (for example nursing schools), other research institutes (for example MRC centres) and single specialty hospitals, which usually support substantial educational and research programmes.

2.7 These are valid criticisms but against these must be set the need to arrive at a definition of the ACP that can be operationalised, given that this is the first study of this kind to be attempted in the UK. Experience from the USA suggested that the medical school/university hospital partnership would prove a pragmatic choice of unit of study and produce useful conclusions (Commonwealth Fund 2003) (IOM 2003).

2.8 The study population was thus defined as the 31 members of CHMS plus the 38 members of AUKUH. Following discussion with the client the university hospital population was extended to include 2 Scottish university hospitals that were formerly members of the Association but have allowed their membership to lapse, together with 3 research intensive single-specialty trusts that are closely aligned with medial schools but are not members of AUKUH because of the 'multiple specialty' criteria for membership. The aim was to assemble comprehensive data relating to the population of 31 medical schools and 43 university hospital trusts as thus defined. This has been achieved for medical schools, but not fully on the university hospital as not all Trusts responded to our survey. In addition, a number of indicators for trusts which are routinely made available in England are not available for the devolved administrations.

2.9 At the request of the joint clients, participating organisations are identifiable throughout report, using the key provided in Annex A.

The Missions of Academic Clinical Partnerships: An Overview and Framework

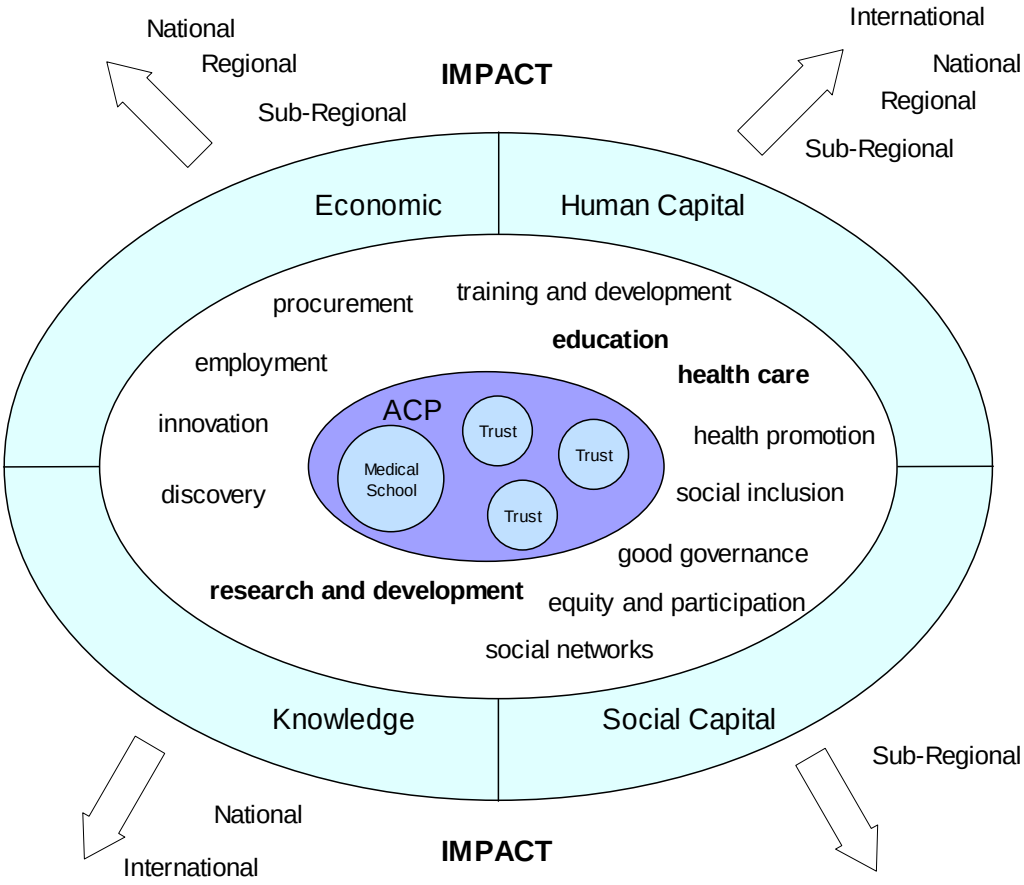
2.10 The starting point for any discussion of mission must be the concept of 'the tripartite mission' of clinical service, clinical education and biomedical research. This concept, which originated in the USA, has become more widely adopted in the UK over recent years.

2.11 The concept of the tripartite mission reflects the interdependency of these three activities. It is applicable to both medical school and hospital and captures the overlapping and interdependent but non-identical goals of these partners. The hospital partner is primarily focused on clinical care and the university partner on research and education. Different accountability lines, performance metrics and funding streams reinforce these different priorities and create tensions, which can become bifurcating forces, within the relationship.

2.12 We argue that the tripartite mission is too narrow a concept to reflect the full scope of the ACP contribution to society. However, the concept was kept central to the study for two reasons. Firstly, the Department of Health, in its current all-consuming focus on service delivery, sometimes appears to have lost sight of the obligations of the NHS towards education and research. This is reflected, for example, in the omission of any reference to research, other than research governance obligations, in recently issued national standards (Department of Health 2004). Secondly, it does reinforce a focus on the primary missions of each sector. For this reason, and for reasons of data availability, this phase 1 study focuses mainly on indicators in the areas of education, teaching and research.

2.13 Figure 2.2 shows the framework adopted for developing a holistic picture of the impact of ACPs. This has been developed from a number of sources including the development of impact assessments within higher education (Kelly, Marsh et al. 2002), work on the impact of NHS organisations beyond health care (Coote 2002) and sustainability policy (HM Government 2005). The framework shows the expression of impact in four domains: human capital, knowledge, economic and social. A comprehensive sustainability impact appraisal for an ACP would require the addition of a fifth domain – environmental impact – but this is outside the scope of this study.

Figure 2.2: ACP impact and outputs: a holistic framework



2.14 The inner circle in this model represents the Academic Clinical Partnership. This partnership relationship, including issues of governance and structure, is in itself the subject of a substantial international literature (HEFCE 1999) (Rubin 1998) (Follett and Paulson-Ellis 2001), reflecting its complexity and management challenges. The focus of this study is more outward looking and concerned with assessing impact. The middle circle shows a range of outputs from the partnership which includes, but is not confined to, clinical care, education and teaching. The outer circle represents the impact of these outputs and is divided into four domains: economic impact, human capital impact, knowledge impact and social capital impact. These impacts are expressed on a varying spatial scale according to their domain.

2.15 Routinely available data most readily supports analysis of impact in the domains of human capital (health care and education) and knowledge (research and development) because these are the areas where performance management of both NHS providers and universities is focused. These two domains of impact have, therefore, been the focus of the phase 1 study. In the phase 2 studies additional data has been collected for the centres studied to support analysis of impact in the economic and social capital domains.

2.16 Section 3 provides detailed indicators on ACP impact in the human capital and knowledge domains. Policy in each of these areas is briefly reviewed before a series of charts with commentary are presented.

3 The Impact of UK Academic Clinical Partnerships

Human Capital Impacts: Health Care

3.1 Since 2000, the emphasis of UK health policy has been on translating unprecedented increases in spending (around 7.5% real terms growth per annum from 2002/3 onwards, compared to a historical average of about 3% per annum over the period 1948 to 2002) into sustainable improvements in the health systems of the UK administrations. These improvements have been defined using a multi-dimensional model of quality, including access, safety, outcomes, governance and responsiveness. Of these access, and in particular waiting times, have received the most focused attention, reflecting the political salience of this issue. An independent assessment indicates that there is evidence of improvements during this period across most dimensions of quality, with the stubborn exception of health inequalities (Leatherman and Sutherland 2005).

3.2 Specific goals for the NHS in England during this period of investment were originally set out in the NHS Plan (2000) and have been subsequently elaborated by a raft of guidance including the NHS Cancer Plan, National Service Frameworks and Priorities and Planning Guidance. Similar national plans have specified goals for the devolved administrations. The emphasis on delivery of these goals has been accompanied by increased emphasis on accountability and performance management against a range of targets, the most prominent expression of which has been the star-rating system.

3.3 Looking ahead, there is an expectation that financial settlements for the NHS will return to their historic levels of around 3% real terms growth from 2008/9 onwards. This expectation, the evidence of re-emerging structural overspends in some regions of the NHS and the longer term demand picture set out by the Wanless Report are giving rise to serious concerns about the sustainability of the improvements achieved over the period since 2000. This has prompted yet another round of structural reform; the re-introduction of quasi-markets into the NHS; market-making policies to increase ‘contestability’; and even greater emphasis on the importance of innovation.

3.4 This context, and in particular the emphasis on accountability and performance management, have led to an abundance of data available on health care. It would be easy to produce a whole range of statistics on the activity and quality indicators for university hospitals, with the risk that these might do little more than demonstrate that these are large hospitals that deliver a great deal of clinical work to acceptable standards.

3.5 Within this context, the study sought to focus its attention upon those aspects of health care that are mainly delivered by university hospitals or enhanced by the close partnership with the medical school. Our hypothesis was that these fall in two main areas:

- the provision of specialised services by university hospitals
- the contribution of university hospitals to managed clinical networks and other forms of integrated service delivery.

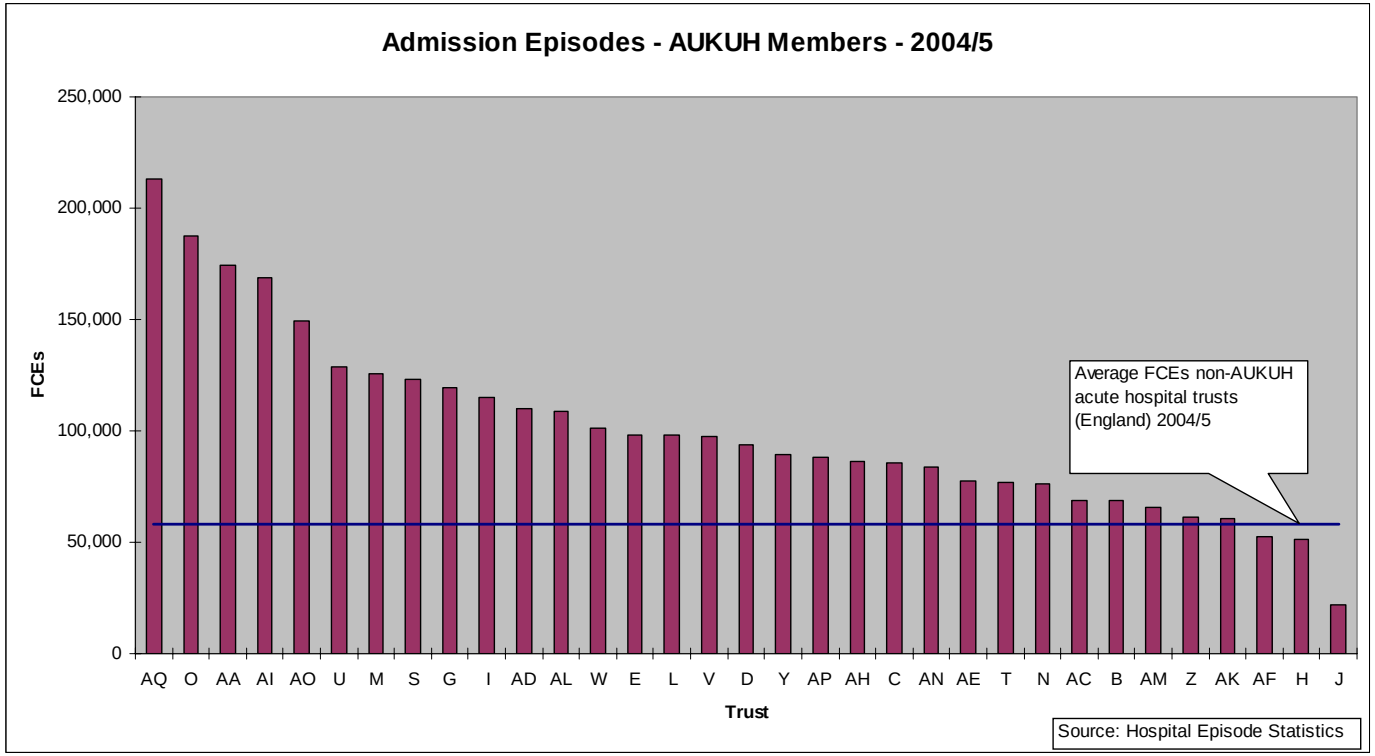
3.6 Specialised services provide care for patients with relatively uncommon conditions or who require complex treatment in terms of equipment or expertise. These services can not be provided in every hospital, because they require a concentration of expertise; special and often expensive equipment or facilities and a high enough volume to meet the requirements of clinical governance. These services will often be associated with research activity. They may also be associated with the introduction of novel technologies.

3.7 Clinical networks provide a model for balancing the need to concentrate expertise with the needs of the population for local access to care. They create horizontal links between organisations and between primary, secondary and tertiary care. They are supposed to focus on the care pathways of patients across these boundaries. Advocates of networks emphasise their social and developmental advantages, in terms of promoting multi-professional interaction and enabling a faster spread of innovation (Edwards 2002). Other considerations include financial efficiency and the association between volume of procedures and clinical outcomes. The term 'clinical networks' has been used fairly loosely to describe a wide variety of organisational arrangements and The Modernisation Agency developed a taxonomy in response to this which was used in this study.

3.8 In the early days of clinical networks, terminology such as 'hub and spoke' models was widely used to describe the model for clinical networks, emphasising the concept of work stratification, with initial diagnosis, simpler treatments and follow-up dealt with in local hospitals and more complex cases directed towards a specialist centre (Ham, Smith et al. 1998). Such terminology was never very comfortable for those hospitals facing the prospect of losing work to specialist centres, and has now fallen out of fashion. However, pressures on the sustainability of smaller specialties in District General Hospitals may mean that university hospitals are now acting as hubs to a greater extent than ever before, supporting regional systems of health care through a range of measures including clinical networks, joint appointments, outreach services and shared departments. We call these 'supporting integrated delivery systems'. The scope of these may extend in the future to include community services if PCTs are relieved of their provider functions, raising the possibility of US-style 'integrated delivery systems' as a model for the future.

3.9 Health promotion is another aspect of human capital impact but is not an obvious area for ACPs which are largely concerned with curative health care. It has already been noted that the main ways in which ACPs contribute to population health (both positively and negatively) may be through their environmental impact and their impact on the social determinants of health. Specific health promotion activities tend to fall in centrally mandated areas like the provision of occupational health services and the banning of smoking on hospital premises. These are activities, of course, in which ACPs will be largely indistinguishable from other hospitals. The question of health promotion has, therefore, been approached indirectly in phase 2 studies through a focus on social and economic impact.

Chart A1: University hospitals' contribution to hospital activity in England



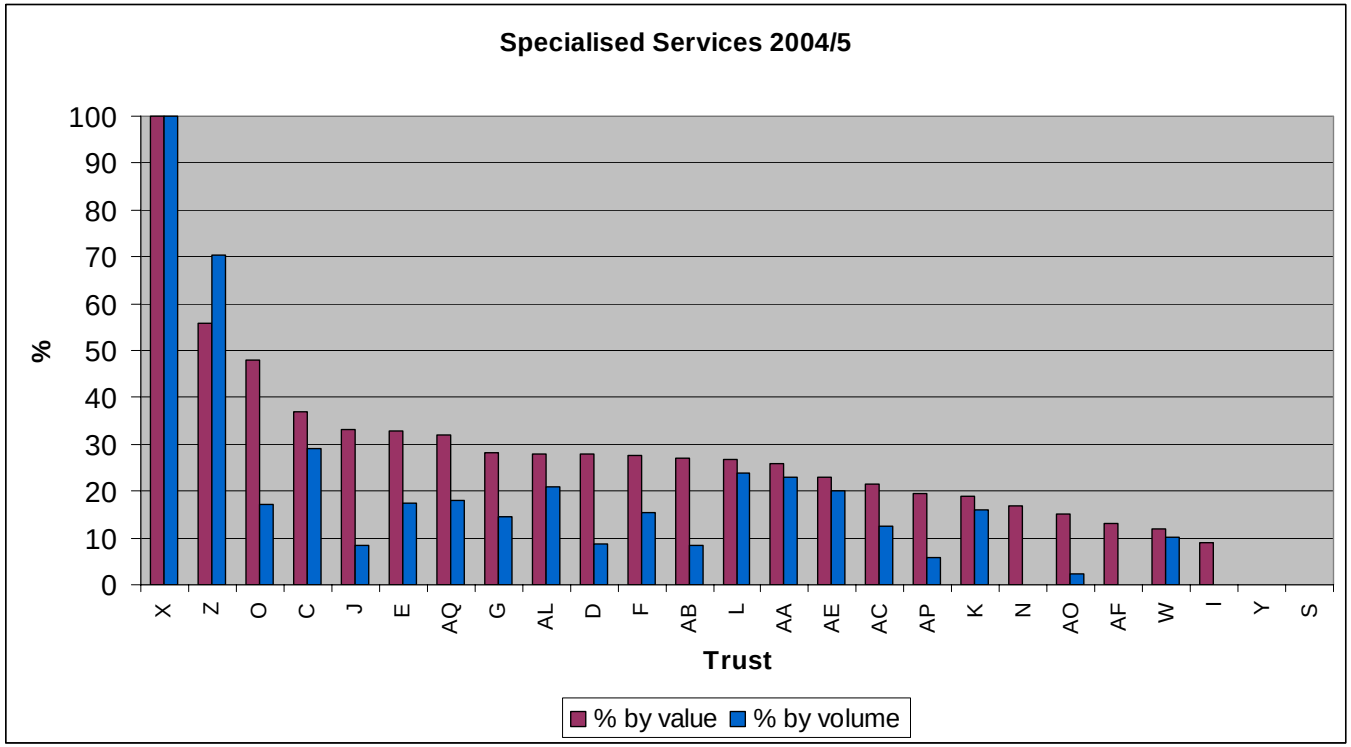
Source: Hospital Episode Statistics 2004/5

33 AUKUH members: England only

There are 177 acute hospital Trusts in England, of which 33 (19%) are members of AUKUH. These university hospitals delivered over 3.3m admission episodes, which amounted to 28.4% of the national total, and 3.8m finished consultant episodes[1] in 2004/5. They delivered a slightly lower proportion of all emergency care admission episodes at 25.8%, reflecting the inclusion of a greater proportion of non-emergency tertiary activity in their overall workload.

[1] An admission episode is the first episode of treatment for an admitted patient (admission code 1). There may be more than one finished consultant episode (FCE) per admission episode.

Chart A2: Proportion of university hospitals work that is specialised



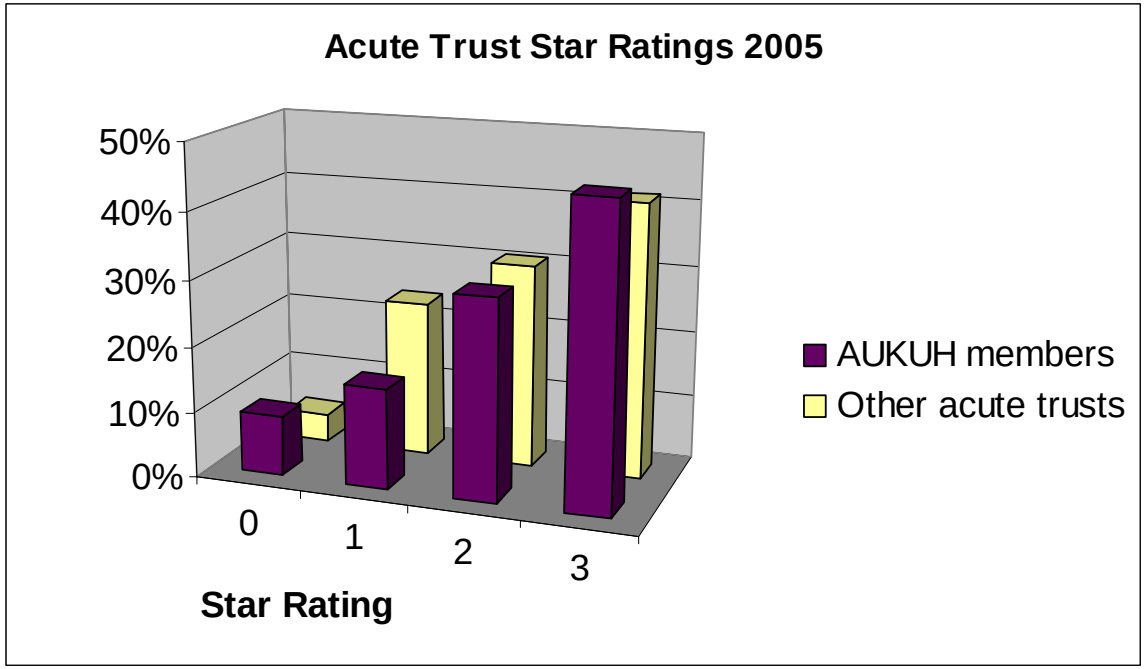
Source: SQW survey

25 Trusts responding to question 2.

Specialised services based on national definitions.

25 Trusts responded with usable data to a question seeking to identify the proportion of their workload that is specialist, using national (England) definitions of specialist services supplied by the Department of Health. Four of these Trusts were only able to provide an analysis by value and not by volume. Trusts in the devolved administrations were not able to answer this question, although one Scottish Trust provided approximate equivalent figures. One specialist trust reported all its workload as specialised but most others were in the range of 10% to 35% with a mean of 18% by volume and 27% by value. The higher proportion by value reflects the above-average cost of specialised services. The relationship between the proportion of total workload that is specialised as reported by volume and that as reported by value is highly variable between Trusts, raising questions about the quality of data. An understanding of workload split between specialised and non-specialised services will become fundamental to Trusts' strategic planning particularly as income streams become more exposed to risk under payment by results. Given this, it was surprising that some Trusts were unable to answer this question or provided data of apparently suspect quality.

Chart A3: Quality in university hospitals



Source: Healthcare Commission

33 AUKUH trusts: England only

In star-ratings for 2005 (based on performance in 2004/5) 41% of English AUKUH members achieved 3 stars, 31% 2 stars, 24% 1 star and 4% zero stars. This distribution is very similar to that demonstrated by non-AUKUH acute trusts. The AUKUH distribution is slightly more skewed towards the extremes of zero and 3 stars but this partly reflects the smaller group size. These findings suggest that the quality range in university hospitals is in line with the rest of the NHS.

Chart A4: Clinical academics in positions of clinical leadership

	Medical Directors	Associate and Hospital Medical Directors	Clinical and Divisional Directors	Service Delivery Unit Directors	Network Medical Directors and other
NHS Appointments	30	87	432	650	32
University Appointments	4	12	31	66	8
Total	34	99	463	716	40
% University	12%	12%	7%	9%	20%

Source: SQW Survey: 32 Trusts answering question 3. Data mostly as at December 2005.

One aspect of university hospitals that might distinguish them from other providers is the extent to which clinical academics can be found in positions of leadership. In 2004, there were around 10,000 consultants and other career grade staff (excluding clinical assistants and hospital practitioners) in English AUKUH member Trusts and around 3,000 clinical academics in England[2], who will be mainly found in university hospitals. It can be inferred, therefore, that clinical academics comprise about 20% of the career grade medical workforce in university hospitals. On the basis of this survey, the proportion of clinical academics found in positions of leadership is lower than the proportion of clinical academics overall in the medical workforce. Clinical academics are more likely to be found as medical directors, associate medical directors or network directors and are least likely to be found running departments or other service delivery units.

[2] CHMS/CDDS

Chart A5: University hospitals and managed clinical networks

	Number of networks in which respondents are participating	Population served – range	Comments
Cancer	27	500,000 to 5m	Both general cancer centres and centres specialising in specific tumour sites
Coronary Heart Disease	20	400,000 to 3m	Various
Critical care	13	400,000 to 3.5m	Most trusts reporting network leadership
Paediatrics (various including PICU and paediatric oncology, cleft lip and palate)	13	2m to 14m	Network leadership
Neonatal	13	800,000 to 4m	Most responding trusts are level 3 centres
Renal	9	1.6m to 5.5m	Most trusts reporting network leadership
Neurosciences	5	500,000 to 6m	Most trusts reporting network leadership
Diabetes	5	300,000 to 900,000	Network leadership
Other	19		Includes vascular, pathology, cystic fibrosis, clinical genetics.
Total	124		

Source SQW Survey. 29 Trusts responding to question 7

29 responding university hospitals reported roles in 124 managed clinical networks[3], an average of 4.3 per Trust with a range from 2 to 12 networks reported. This demonstrates a high level of working in networks and the development of integrated services.

[3] Using Modernisation Agency definitions

Human capital impact: education, training and development

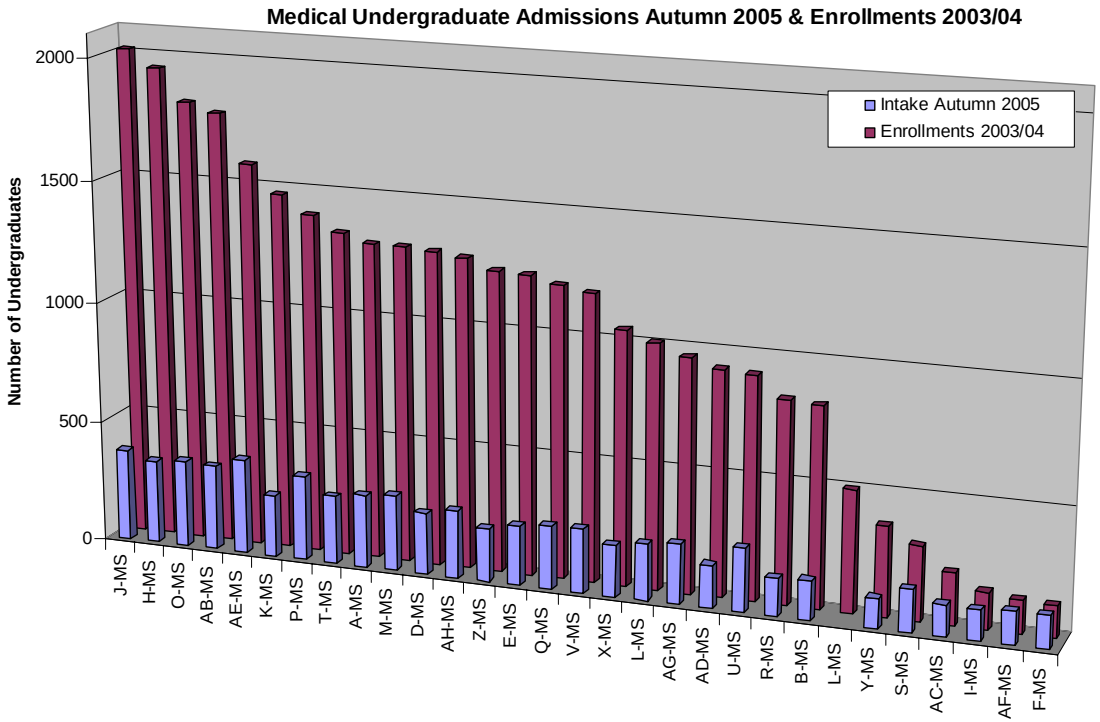
3.10 Education and training is fundamental to the ACP mission and includes undergraduate medical education, postgraduate specialist training and continuing professional development. The wider context for this is the commitment to increasing the number of medical doctors set out in the NHS Plan, which has led to the opening of a number of new medical schools since 2001 and increased places in some of the established medical schools.

3.11 There has been a long standing policy commitment to shifting the clinical placements of medical undergraduates away from the 'teaching hospitals' and into a greater diversity of settings, including community settings (GMC 1993). This has led to a situation where teaching may be one of the least distinctive activities carried out by 'teaching hospitals'. Survey data indicates that university hospitals now provide less than half of all the clinical teaching time for medical undergraduates, a figure which has decreased from over 60% five years ago, suggesting that the term 'teaching hospital' is probably less useful now than ever before.

3.12 Postgraduate medical training is managed by the NHS Postgraduate Deanery, with support from Trust leads. Oversight of standards is maintained by the Postgraduate Medical Education and Training Board (PMETB), an independent statutory body. This aspect of education and professional training is delivered by the NHS Trusts with input from the Royal Colleges. The direct role of the medical school in this stage of training is limited and postgraduate training has always been more widely dispersed than undergraduate medical education, not least because of the historical reliance on doctors in training grades for service delivery. Despite this, there is some evidence to show that university hospitals have delivered a disproportionate amount of postgraduate training (Davies 2002), so data on this activity is included in this section.

3.13 Many university hospitals also operate extensive programmes of education and training for a range of staff groups, ranging from basic skills training through NVQs to continuing professional development and post-registration training. Some of this activity is carried out by hospitals themselves and other in partnership with a wide range of education and training providers, including a range of university departments other than medical schools.

Chart B1: Nearly 32,000 undergraduate students are enrolled at UK medical schools



Source: Students in Higher Education, 2003/04, HESA & HEFCE Return

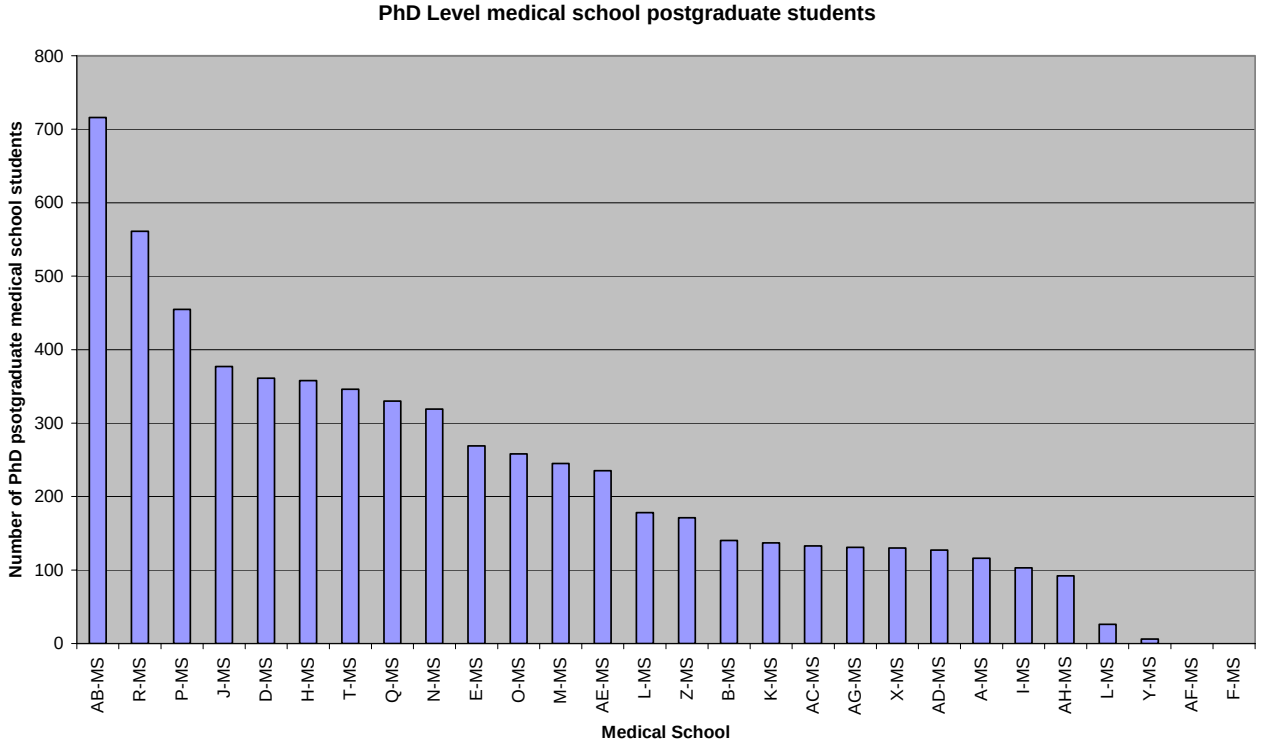
All UK medical schools (one with no undergraduate admissions)

NB In the HEFCE Return University of Brighton submitted a joint return with the University of Sussex. University of Hull submitted a joint return with the University of York. University of Leeds submitted a joint return with the University of Bradford. University of Leicester submitted a joint return with the University of Warwick. University of Newcastle submitted a joint return with the University of Durham. Joint return by University of Plymouth and University of Exeter as Peninsula Medical School.

As of 1st December 2004, Cardiff University and the University of Wales College of Medicine (UWCM) merged to become one institution.

In 2005, UK medical schools provided 7,149 undergraduate admission places. In the academic year 2003/04 there were a total of 31,560 undergraduate students reported as enrolled at that date.

Chart B2: Nearly 13,000 postgraduate students are enrolled at UK medical schools

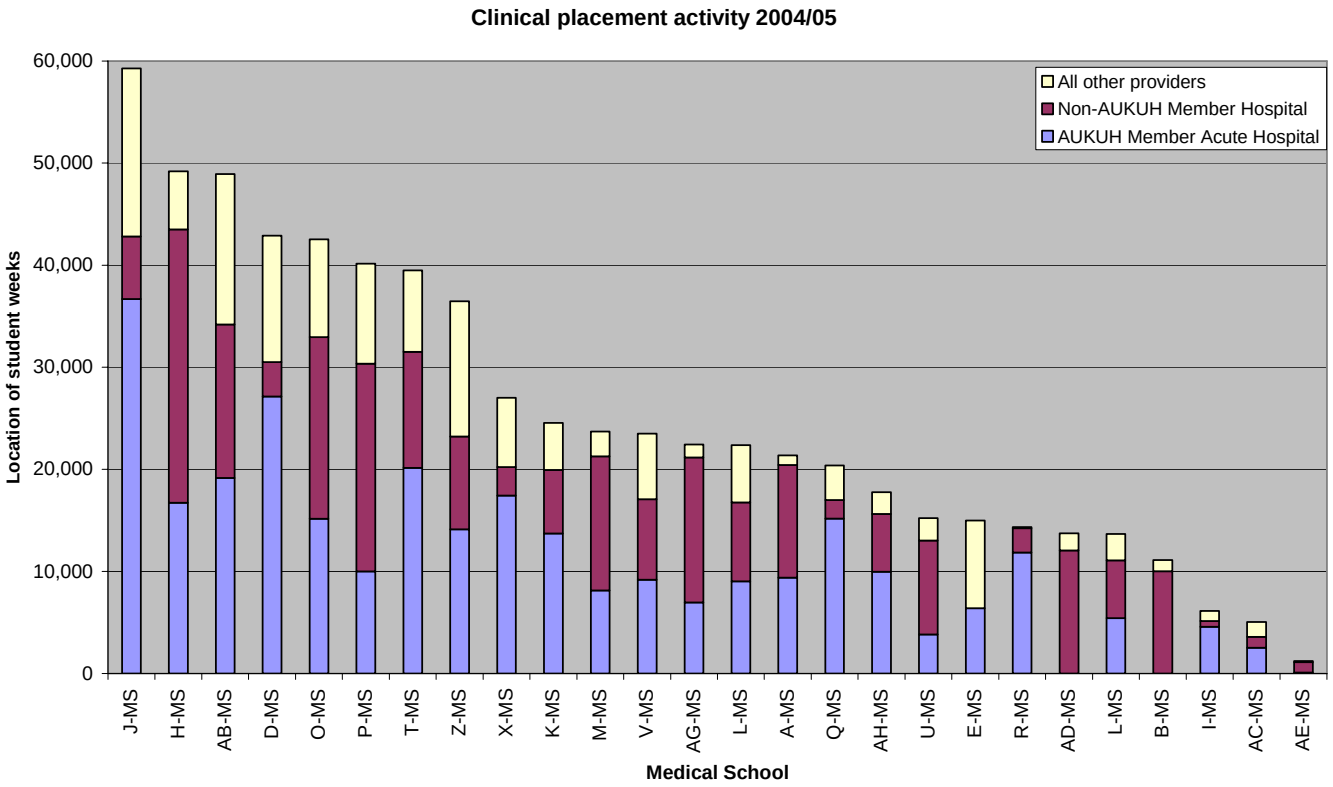


Source: SQW survey

28 UK medical schools responding to question 3

In September 2005, 6,320 students were enrolled in UK medical schools for doctorate-level postgraduate degrees. A further 6,511 students were enrolled on masters level degrees.

Chart B3: University hospitals now provide less than half of all clinical teaching time for undergraduate medical students

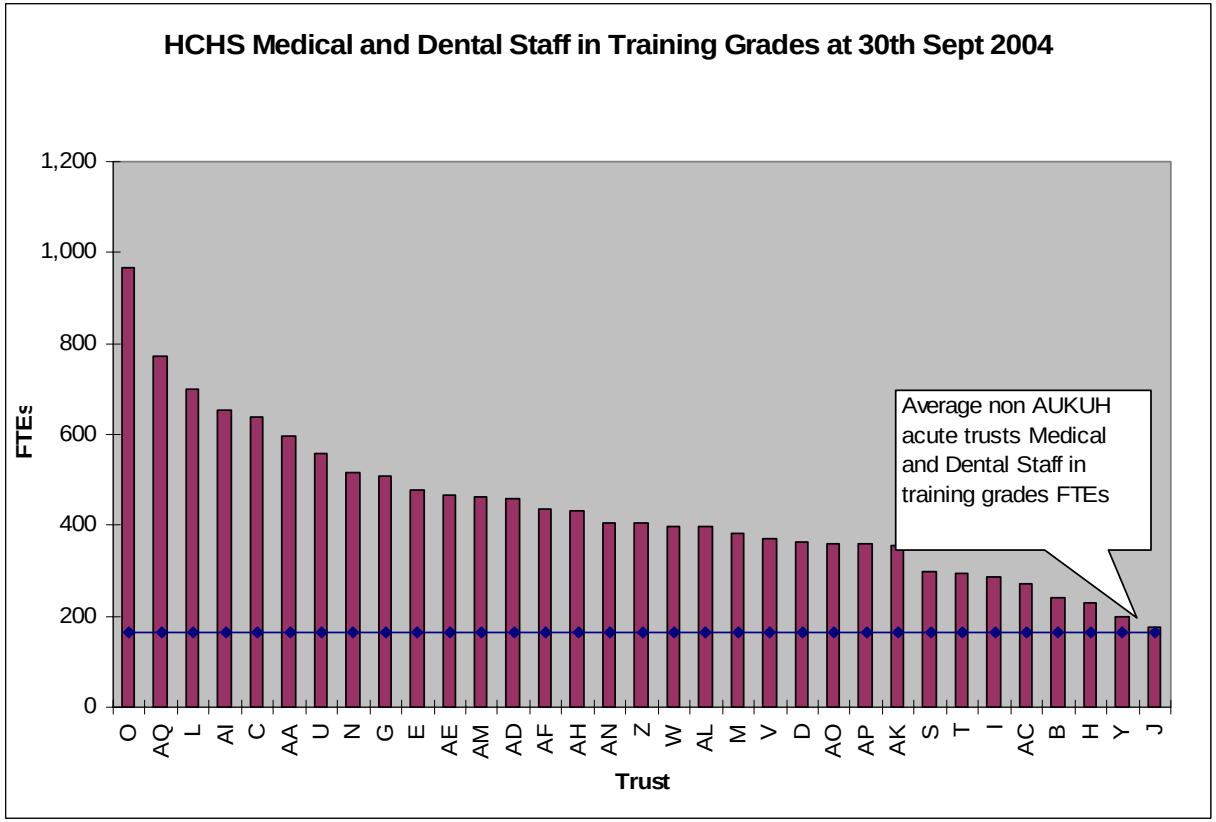


Source: SQW survey

26 medical schools responding to question 4

The 26 UK medical schools that responded to this question reported that in aggregate 45% of student clinical placement time was spent in university hospitals, with a further 34% spent in other acute hospitals and 22% in non-acute hospital settings. For 1999/2000, the last year for which national secondary data was available (for England only), the figure was 62% for university hospitals (Davies 2002). It is not possible to be certain about the extent to which the apparent reduction is real as opposed to being an artefact of differences in data sources but, given the increase in student numbers over this period, it seem reasonable to interpret these figures as showing that the proportion of clinical teaching placements provided in university hospitals has decreased over the period 1999 to 2005 from over 60% to below 50%.

Chart B4: University hospitals employ a third of all doctors in training grades in England

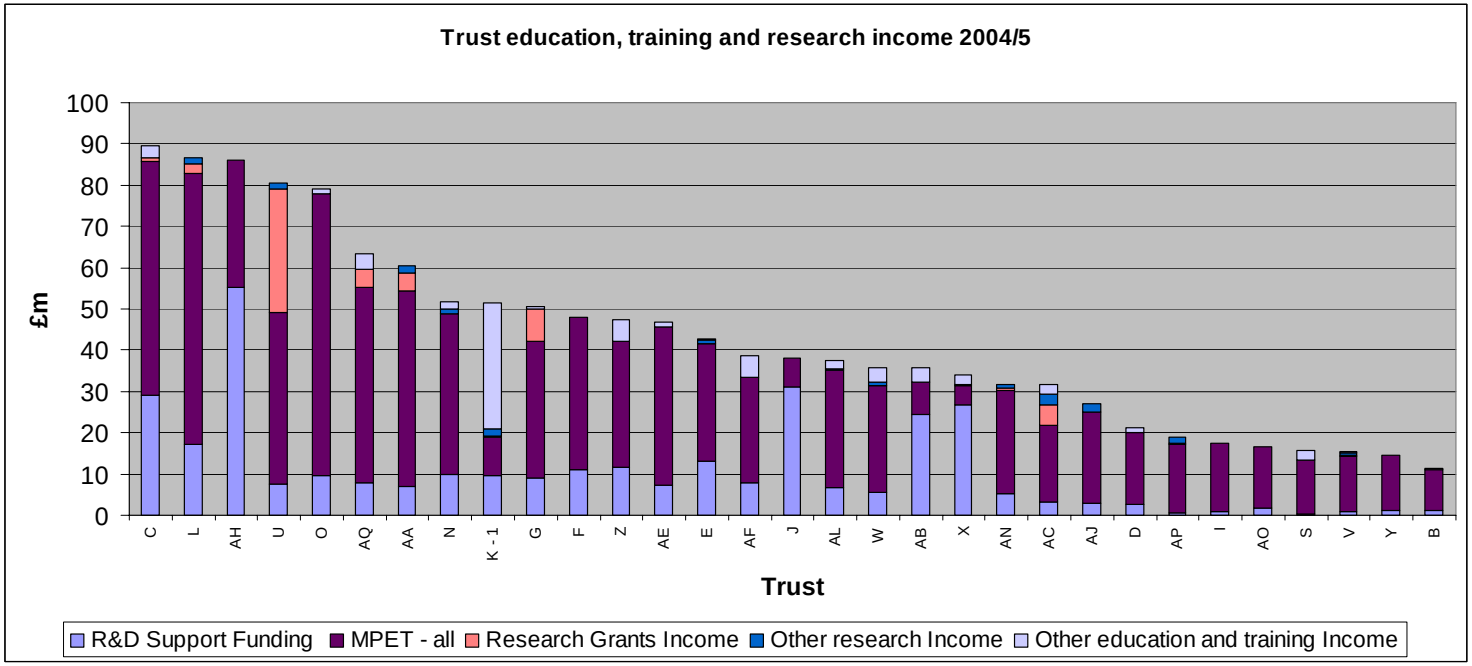


Source: Department of Heath workforce statistics

33 English AUKUH members

English university hospitals employed 33% of all hospital and community medical and dental staff in training grades at 30th September 2004. At the same date, they employed 29% of all hospital and community medical and dental staff, suggesting that their contribution to specialist training is not greatly disproportionate. The equivalent figures for acute trusts only were 34% of all medical and dental staff and 36% of doctors in training grades employed in university hospitals.

Chart B5: Analysis of education, training and research income



Source: SQW survey. Analysis of 'education, training and research income' line in notes to trust accounts 2004/5. 31 trusts responding to question 2

31 trusts provided an analysis of the figure for education, training and research income shown as a single line in note 3 to trust annual accounts. Comparative figures for non-AUKUH members are not available for 2004/5, although analysis of Department of Health TAC returns for 2000/2001 showed that 15.2% of university hospital's income was shown under this heading overall, compared to 5.4% for other acute trusts. MPET (multi-professional education and training) is the largest source of funding at £855m (64% of ET&R income for the 31 trusts), followed by R&D support funding at £327m (25%). The amount of research funding received directly by trusts (excluding R&D support funding) is low at £73m (5%), reflecting the routing of most research income through universities or hospital charitable funds. The proportion of E,T&R income from different sources varies significantly between trusts.

Chart B6: Medical schools provide good quality education

	Curriculum design, content and organisation	Teaching, learning and assessment	Student progression and achievement	Student support and guidance	Learning Resources	Quality management and enhancement
No. scoring 4	13	8	17	17	16	7
No. scoring 3	4	11	3	3	3	9
No. scoring 2	3	1	0	0	1	4
Average	3.50	3.35	3.85	3.85	3.37	3.15

Source: QAA – most recent subject review reports for 20 Medical Schools

Medical schools score well on teaching quality assessment measures, although the average total score of 21.07 falls short of the threshold for 'excellent' (22). Areas of particular strength are student progression, achievement and guidance. The area of least strength is quality management and enhancement. Medical and dental schools scored 4.1 on average (maximum 5) for overall student satisfaction in the national student survey.

Chart B7 – University hospitals provide a wide-range of educational facilities

Trusts responding to question 9 (n=32) reported the provision of a wide range of educational resources (in addition to medical and nursing school premises located on their sites). These are named in various ways, reflecting different foci and, in particular, the varying extent of multi-disciplinary educational activities. Examples include:

- Learning and Development Department
- Multi-disciplinary Postgraduate Training Centre
- Medical Education Centre
- Postgraduate Medical Education Centre
- Postgraduate Health Sciences Centre
- Centre for Postgraduate Professional Education
- Multidisciplinary Education Facility
- Healthcare Learning Centre
- Education and Research Centre
- Staff Learning Centre
- Education Centre
- Training Centre

Commonly reported activities within these centres included postgraduate medical education, postgraduate multi-disciplinary education, clinical skills training, conferences, IT training, vocational training, specialist skills training, general training and staff development. Also, education and training for specific professional groups including GPs, practice nurses, dentists, clinical scientists, midwives, etc.

Facilities included libraries, lecture rooms, seminar rooms, multi-purpose teaching rooms, clinical skills training facilities, specialist training facilities in areas like surgery and medical imaging, simulation rooms, e-learning facilities, audio-visual facilities, video-conferencing facilities, IT training rooms and catering facilities.

Knowledge impacts: research and development, innovation and the outcomes of research, especially in terms of improved patient care and patient health.

3.14 The most significant recent development in the policy context for health research and development is the publication of a new national health research strategy for England (Department of Health 2006). The emphasis in this strategy is the full exploitation of the potential of the NHS as an environment for research, drawing on its unique attributes as a highly socialised system increasingly supported by a shared information base. The goals of greater investment in research are the improvement of public health, health sector performance and national competitiveness.

3.15 The wider context for the Department of Health's R&D strategy is the government's *Science and Innovation Investment Framework 2004-2014*, which was published alongside the 2004 Spending Review. This pledged an initial £100m in NHS funding for R&D over the four years to 2007/8, in the context of wider government goals to increase the level of knowledge intensity[4] across the UK economy. Alongside the 2006 budget, the Treasury has now published a 'next steps' discussion paper which proposes the creation of a single national ring-fenced fund in excess of £1bn pa for health R&D through the merger of MRC and Department of Health research funding, a proposal inspired by the US National Institutes of Health.

3.16 Two other important antecedents for these developments, were the DTI's Biotechnology and Growth Team ('BIG-T') report in 2003 and the Academy of Medical Science's report on *Strengthening Clinical Research* in the same year (Academy 2003). BIG-T was concerned with securing and consolidating the UK's global position in bioscience industries, which is currently second only to the USA. The Academy of Medical Sciences Report was a wide-ranging report that identified a number of challenges in maintaining national capacity in clinical research. The government response to both these reports was to set up the *Research for Patient Benefit Working Party* which, in its final report, made a number of recommendations, including the establishment of the UK Clinical Research Collaboration (UKCRC) as a partnership between government, the voluntary sector, patients and industry to oversee and promote clinical research.

3.17 ACPs are in a position to make a significant contribution to most of the UKCRC priority workstreams[5]. They are the obvious, indeed perhaps the only setting, within which experimental medicine can be taken forward and have been the setting for investment in clinical research facilities by the Wellcome Trust. One of the defining characteristic of ACPs is that they are able to support research across all parts of the continuum from basic science

[4] Defined by HM Treasury as the ratio of R&D expenditure to GDP.

[5] www.ukcrc.org

through to service delivery, or 'from bench to bedside'. They are also likely to make a major contribution, in a number of possible ways, to the development of clinical research networks.

3.18 ACPs also provide the institutional homes of the clinical academic workforce, who undertake much of the research carried out in the NHS. Concern over UK clinical academic careers has been growing for a number of years and forms another important part of the background to the establishment of UKCRC, the new national R&D strategy and the modernisation of medical careers (UKCRC 2005). Developing and sustaining academic clinical careers should be seen as major challenge and measure of success for ACPs.

3.19 Some ACPs will, however, be better placed than others to respond to the emerging new environment for health research. This is because *Best Research for Best Health* includes an explicit acknowledgement that to maintain international competitiveness, clinical research is best concentrated in a limited number of centres of excellence. The strategy proposes a number of specific new funding streams:

- Biomedical Research Centre Grants - £100m pa. These are intended to support a critical mass of people and infrastructure focusing on biomedical innovation and translational research for the benefit of patients. These grants will be given to a limited number of centres, expected to be no more than ten in the first round, and will be given to a mixture of centres with a broad portfolio of research and those focused on a specialist area

- Research Centres for NHS Service Quality and Safety - £2m pa. This much smaller fund is intended to support a smaller number of centres, two in the first instance, to bring together NHS professionals with social sciences departments and management schools to create a critical mass of expertise on issues of service delivery and organisation

- Technology Platforms - £8m pa rising to £50m pa over three years. The aim of this funding stream is to provide the research infrastructure to carry out patient-focused research. Initial funding will be specifically targeted at diagnostic imaging

- Programme Grants for applied research - £75m pa 'when this scheme reaches full capacity', to be awarded to investigators in NHS Trusts to support research in priority areas.

3.20 These new funding streams create a major opportunity for England's leading academic health organisations to further consolidate their position and expand their research programmes. For other ACPs these developments are potentially quite threatening, because these new initiatives will be funded largely from money that is currently going to all university hospitals through the R&D Support Levy. This is a stream of funding, totalling around £0.5bn, which has been intended to support the indirect costs of hosting research. The stated intention in *Best*

Research for Best Health is to concentrate at least part of this funding in a smaller number of centres of excellence.

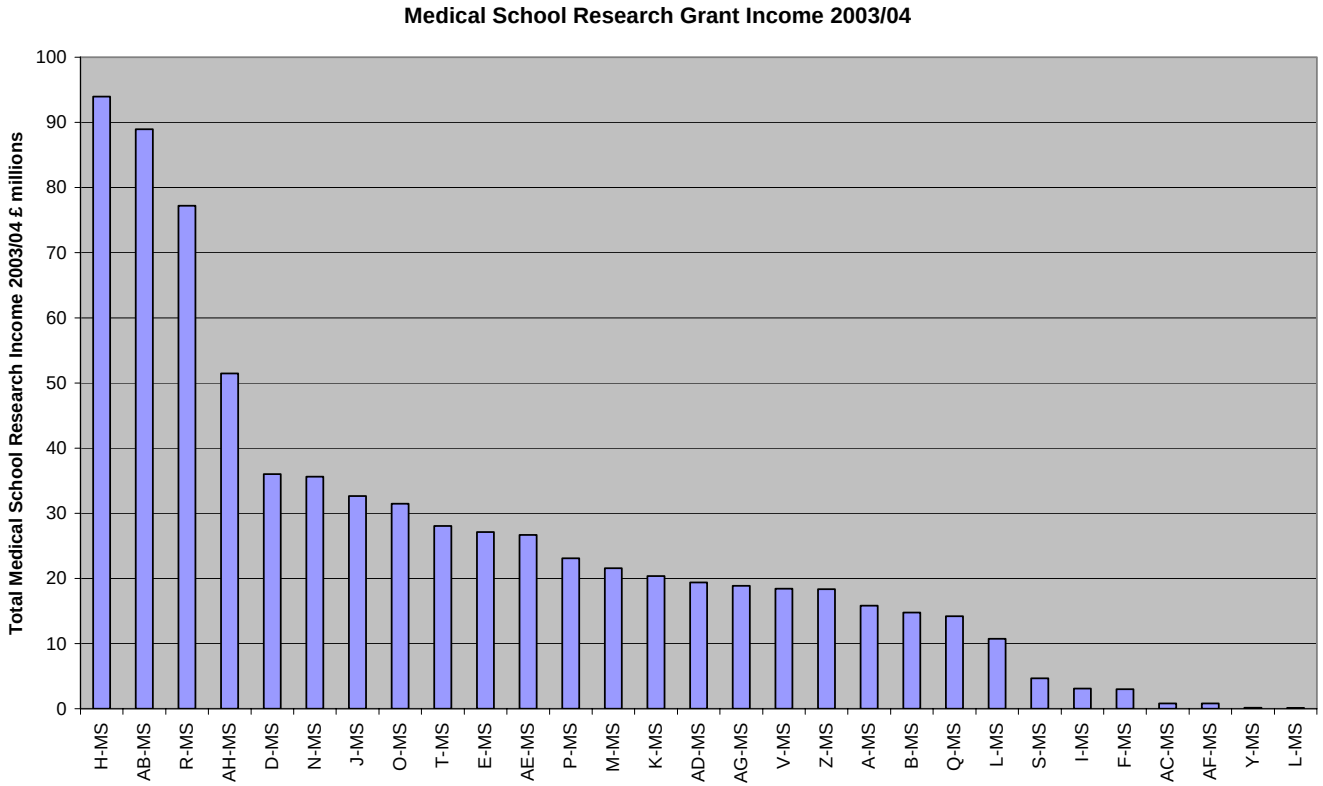
> To ensure that England remains at the leading edge of health research internationally, we will allocate funding on an open, competitive basis to those organisations that are truly outstanding in international research terms. This will result in resources being allocated to a relatively small number of organisations whose location will be determined by excellence' (Best Research for Best Health p33)

3.21 Beyond outputs from research, the government is keen to see innovations in the NHS identified, developed, disseminated and, where they generate intellectual property that can be protected, commercially exploited. Two rounds of Public Sector Research Exploitation Funding (PSRE) from the Office of Science and Technology have led to the establishment of a network of NHS regional innovation hubs. As well as promoting the exploitation, development and diffusion of innovations, whether originating from formal research programmes or from service delivery, these hubs are also intended to increase the permeability of the NHS and universities to businesses who are looking for clinical and academic partners to help them develop products.

3.22 A closely related concern is the ability of the health service to take-up innovative technologies that would lead to an improvement in the efficiency and effectiveness of the NHS as well as, in many cases, boosting demand for British know-how and products. Historically the UK has been a slow-adopter of new health technologies for a variety of reasons, mostly related to the structures and funding of the NHS. In 2004, the Healthcare Industries Task Force advanced a number of recommendations intended to strengthen the sector, not least by expediting procurement processes and promoting innovation diffusion within the NHS (HITF 2004).

3.23 Within the University sector, there has also been a push to promote knowledge transfer, to increase the up-take of R&D by industry and to change university-business interaction (Lambert 2003). The biotechnology-pharmaceuticals sector is one of only two sectors where British R&D intensity is much higher than the international average and is also an area of relative strength for the UK economy. It can be hypothesised that ACPs are an important, possibly the major, arena within which knowledge transfer is taking place between clinical researchers and industry and are thus central to national competitiveness. Lambert stresses that IP-related income is a poor measure of success in knowledge transfer and that creating significant new sources of income for universities from IP should not be the primary focus of 'third-stream' initiatives. From this perspective, ACPs offer an interesting model, where technology transfer is embedded in clinical research and the outputs range from improvements in clinical practice generated by academic leadership, to participation in drugs and devices development to the creation of IP of commercial value, with this last forming only a small part of the whole spectrum of technology transfer activities.

Chart C1: UK medical schools attract over £738m in grant funding each year



Source: SQW Survey

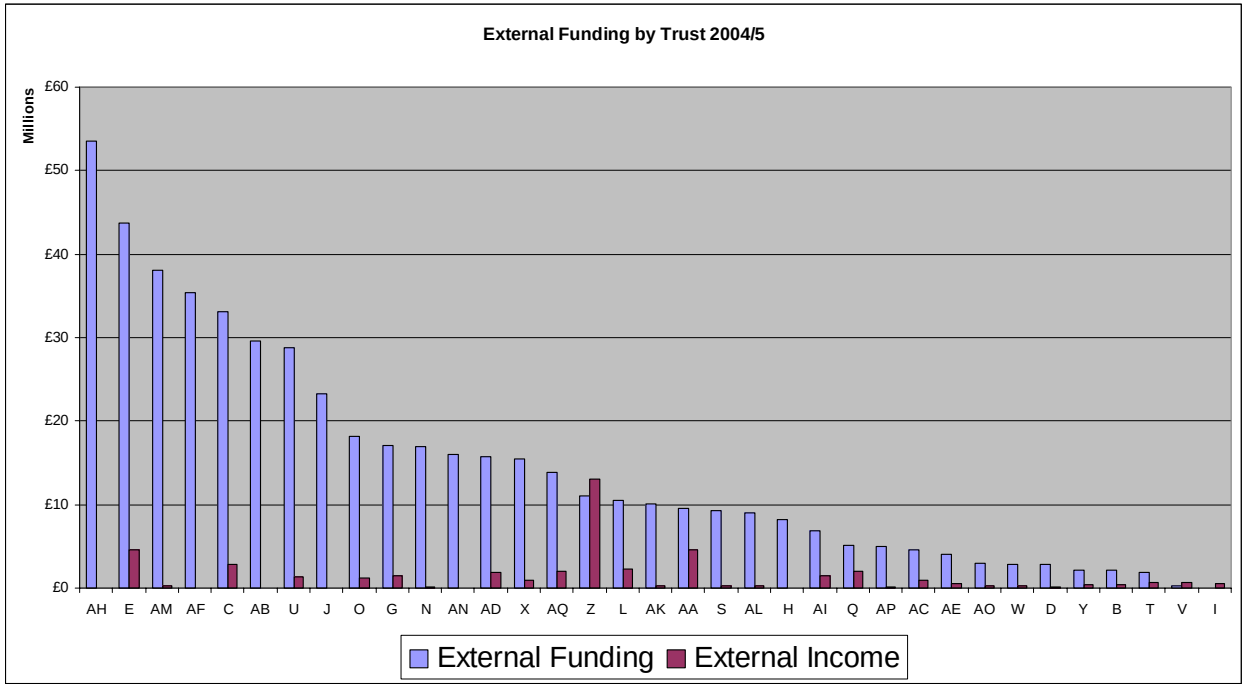
29 medical schools responding to question 6

Research Grant income 2003/4

NB Financial data for Brighton & Sussex Medical School refers to the University of Sussex only and For Peninsula Medical School to the University of Exeter only.

Out of the 31 medical schools responding to the survey, 29 were able to disaggregate medical school grant income from total university grant income. Research grant income for these medical schools totalled £738m in 2003/4, suggesting that a comprehensive return from all 31 medical schools might be in the region of £770m pa (assuming an average of £15m income per non-return). Funding is concentrated with the top 5 medical schools attracting just under half of all grant income. Medical schools, in aggregate, account for 38% of the total grant income of their universities.

Chart C2: Research activity in university hospitals in attracts over £500m in external funding each year



Source : National Research Register www.nrr.nhs.uk.

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

External funding means the amount of money awarded to the trust or an academic partner organisation to carry out non-commercial R&D which utilises NHS R&D Support Funding and where the trust is the main base for the research. **External income** is the income from externally funded R&D which is actually paid over to the trust to meet directly incurred costs of research.

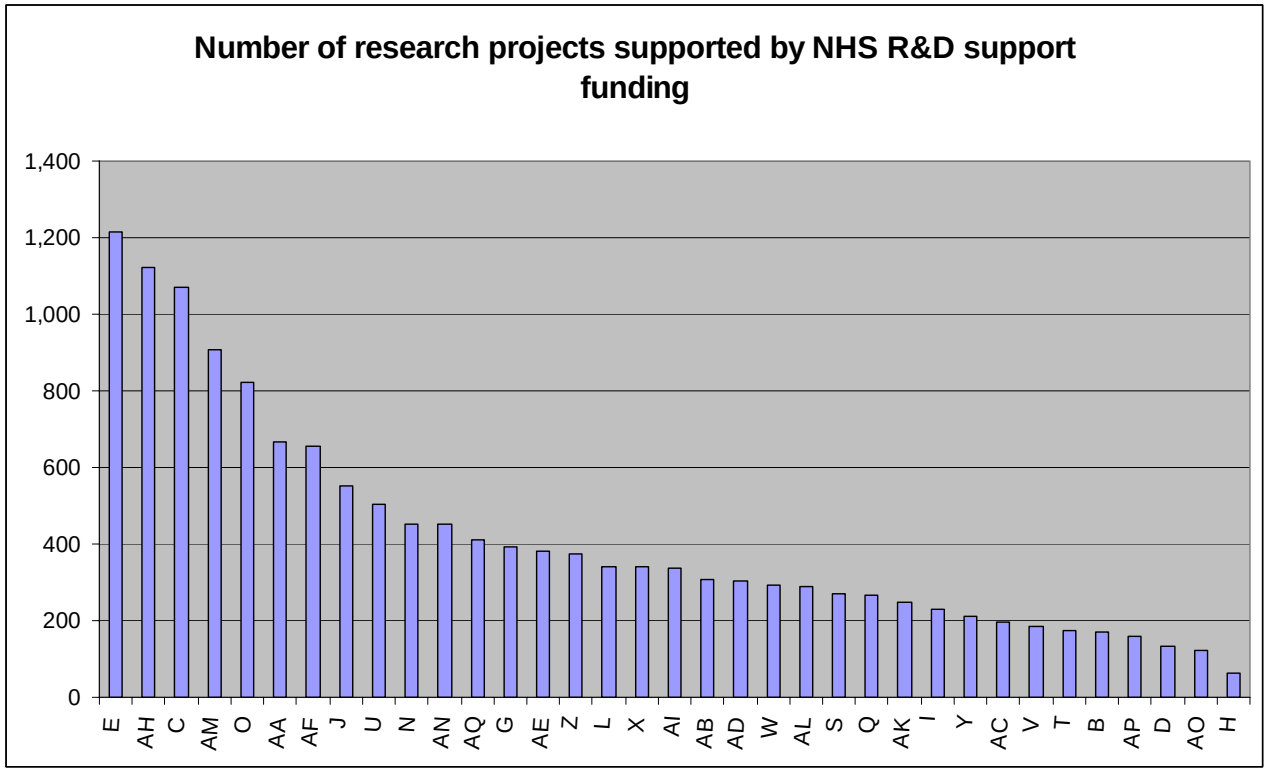
Annual R&D reports for 2005 show that research carried out in university hospitals attracted £509m of external funding for non-commercial research. Average external income was £14.4m but this varied widely, with 5 trusts generating more than £30m in external funding and 18 less than £10m. Only a small part of this funding, on average around £947,000 per trust[6] translated into external income for the NHS, with the remainder presumably spent by academic partners on the costs of research, including overheads. Grant income to medical school (chart C1) exceeds external funding for research in university hospitals because not all medical school research is hospital-based. In addition, some research based in hospitals may be carried out by investigators from life sciences and health schools other than medicine. NHS Trusts may also receive some external funding independently of their university partners, although chart B5 suggests that this is unlikely to be material.

[6] Excluding the result for trust Z , which is clearly anomalous. Other results also look potentially anomalous, suggesting inconsistent approaches to reporting by Trusts.

The data in charts C1 and C2 overlaps in large measure but to work out exactly how would require a detailed reconciliation at individual centre level. A sample of the national research register indicates that 274 other NHS organisations submitting annual research reports attract around £200m of external grant income[7], meaning that AUKUH members (plus the 3 specialist Trusts) account for over 70% of all external grant funding in England.

[7] This includes some large sums for a small number of organisations who are not AUKUH members eg £20.1m fof The Christie Hospital, £9.8m for the Salford Royal Hospitals Trust, £9m for North Central London Research Consortium, £4.5m for North West London Hospitals NHS Trust.

Chart C3: Over 14,000 research projects are currently supported by university hospitals in England



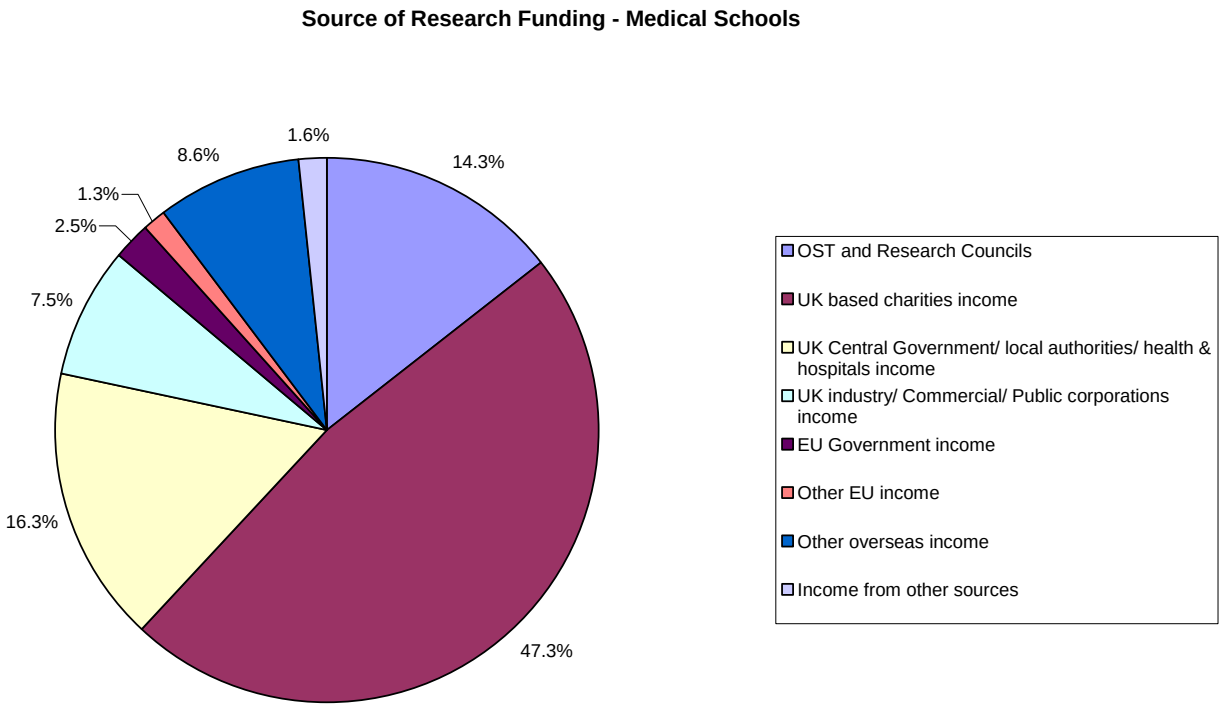
Source: National Research Register www.nrr.nhs.uk

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

Number of externally funded projects under way as at March 2005**.**

At the end of March 2005, 14,619 externally funded research projects were in progress in university hospitals, an average of 418 projects per trust. The distribution of the number of projects appears similar to that for external funding, which would be expected, but it will be noted that there are differences in the ranking of individual trusts between these two indicators. This suggests either significant difference in the size of projects carried out in different centres or, more probably, differences in the way trusts define projects when making returns.

Chart C4: UK-based Charities are the largest source of grant funding to medical schools



Source: SQW Survey

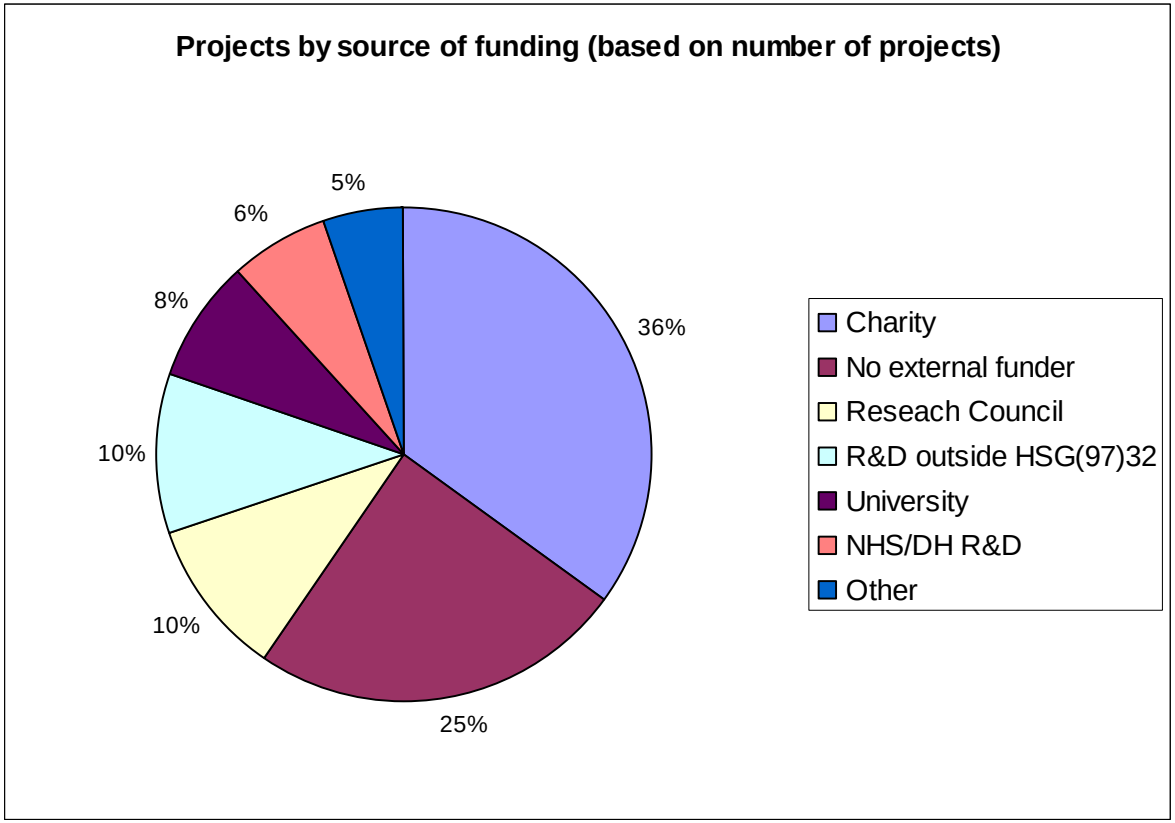
30 medical schools responding to question 6

Research Grant income by funding source 2003/4

NB Hull York Medical School data is for the University of Hull only.

Just under half of all external grant income to medical schools comes from UK charities, with central government/local authorities/the NHS the next largest category followed by the OST and research councils.

Chart C5: Charities fund the greatest number of research projects in university hospitals



Source: National Research Register www.nrr.nhs.uk

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

Number of projects by type of funding organisation – projects under way at March 2005**.**

Charities fund 36% of all the research projects (by number of projects) undertaken within university hospitals. The next largest category is work carried out without an external funder or 'own account' work, a surprisingly high figure given that it was anticipated that tougher research governance and the administration of the R&D support levy would lead to a reduction in this type of research over time. Research councils and the universities (in this context HEFCE funded activity) are important categories as is commercial work and other work outside the scope of HSG(97)32, which is the national statement of partnership on externally funded non-commercial R&D.

Within this global picture, there is considerable variation with Trusts reporting a variation in the allocation of costs to supporting projects ranging from 3% to 60% and for projects with no external funding between 0% and 59%.

Chart C6: UK Medical Schools conduct high-quality research

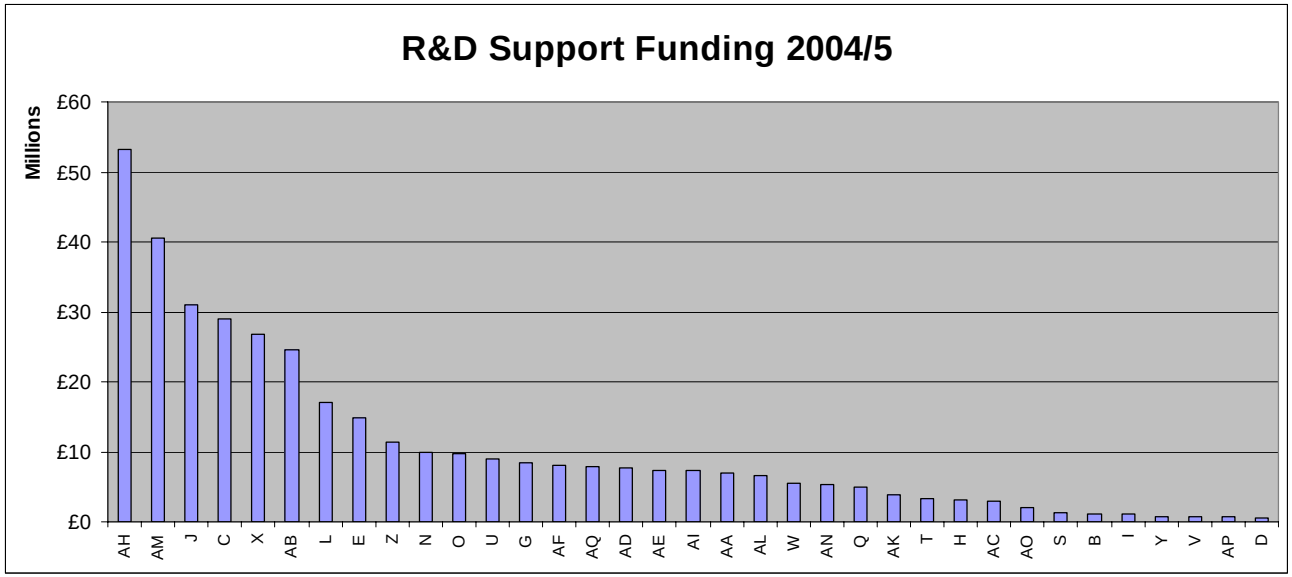
RAE rating 2001	Clinical Laboratory Sciences No.	Community-based clinical subjects No.	Hospital-based clinical subjects No.	Pre-clinical studies No.	
No. rated 5*	**5 (31%)**	**4 (19%)**	**4 (22%)**	**2 (40%)**	Source: HEFCE
No. rated 5	**7 (44%)**	**5 (24%)**	**5 (28%)**	**3 (60%)**	Data for quality-related research funding
No. rated 4	**3 (19%)**	**8 (38%)**	**7 (39%)**	**-**	n.b. England only
No. rated 3a	**1 (6%)**	**4 (19%)**	**2 (11%)**	**-**	

nb some institutions appear more than once due to multiple submissions

Medical schools scored highly in the 2001 Research Assessment Exercise, particularly in clinical laboratory sciences where 75% of departments were rated as 5 or 5*. Hospital-based clinical subjects scored less highly, with only 50% rated as 5 or 5*, but there is a well-rehearsed view that the 2001 RAE was biased against applied research, a criticism that has been explicitly addressed in guidance for 2008. £156m of quality-related research income was awarded to English medical schools in 2005/6 using a formula which includes a component related to RAE rating.

A comparison was made against the RAE ratings for Law for CHMS universities, to provide a benchmark of research in an applied field. Law scored more highly than medicine. Out of 17 departments, 15 were rated as 5 or 5* (88%).

Chart C7: NHS R&D support funding provides £375m of annual income for university hospitals in England



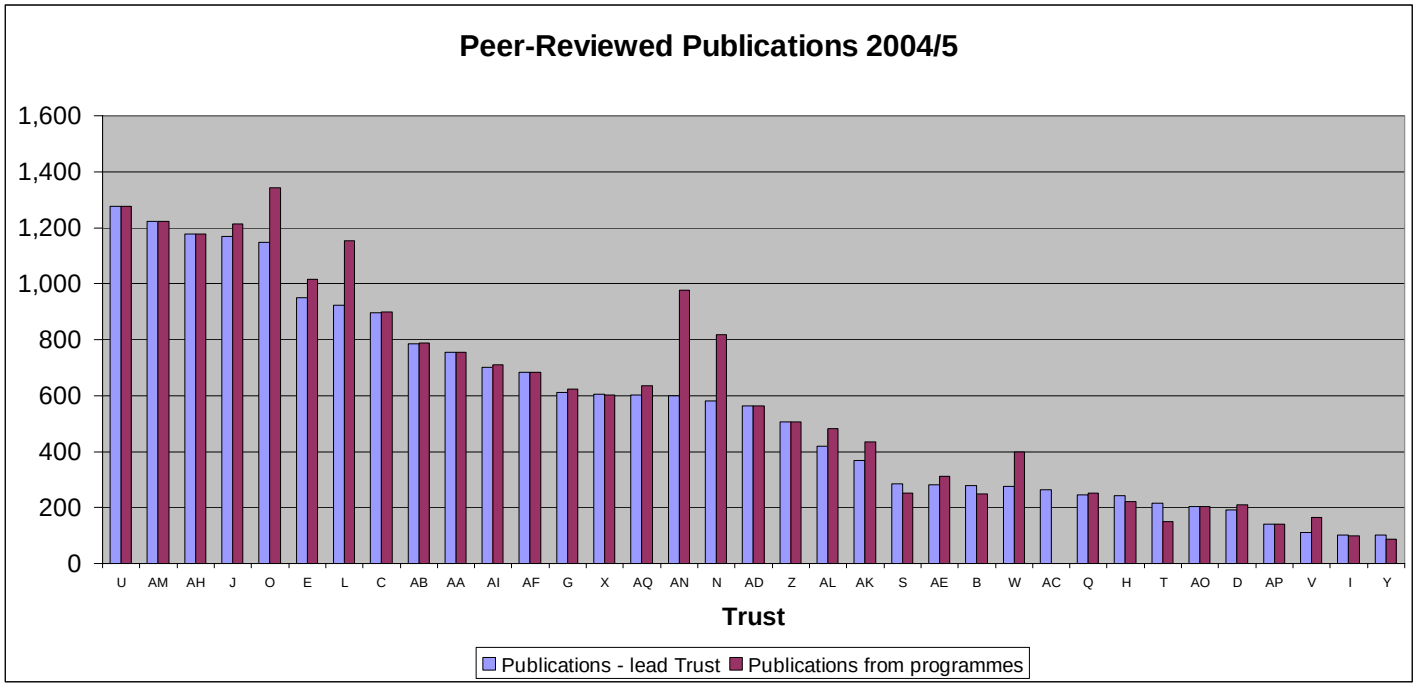
Source: National Research Register
www.nrr.nhs.uk

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

R&D support funding is paid to NHS Trusts to meet the incremental service costs associated with externally funded research ('support for science') and the direct costs of some NHS-relevant health research (priorities and needs).

NHS R&D support funding totalled £375m for university hospitals in 2004/5, 78% of the total amount of R&D support funding paid to the NHS in that year (£480m). Chart 2 shows a distribution which is broadly similar to that for external funding, although with funding rather more concentrated amongst the largest recipients. It is also notable that two of the top five trusts as rated for external funding are not amongst the top five recipients of R&D support funding.

Chart C8: Nearly 20,000 peer-reviewed publications resulted from research projects based in university hospitals in 2004/5



Source: National Research Register **www.nrr.nhs.uk**

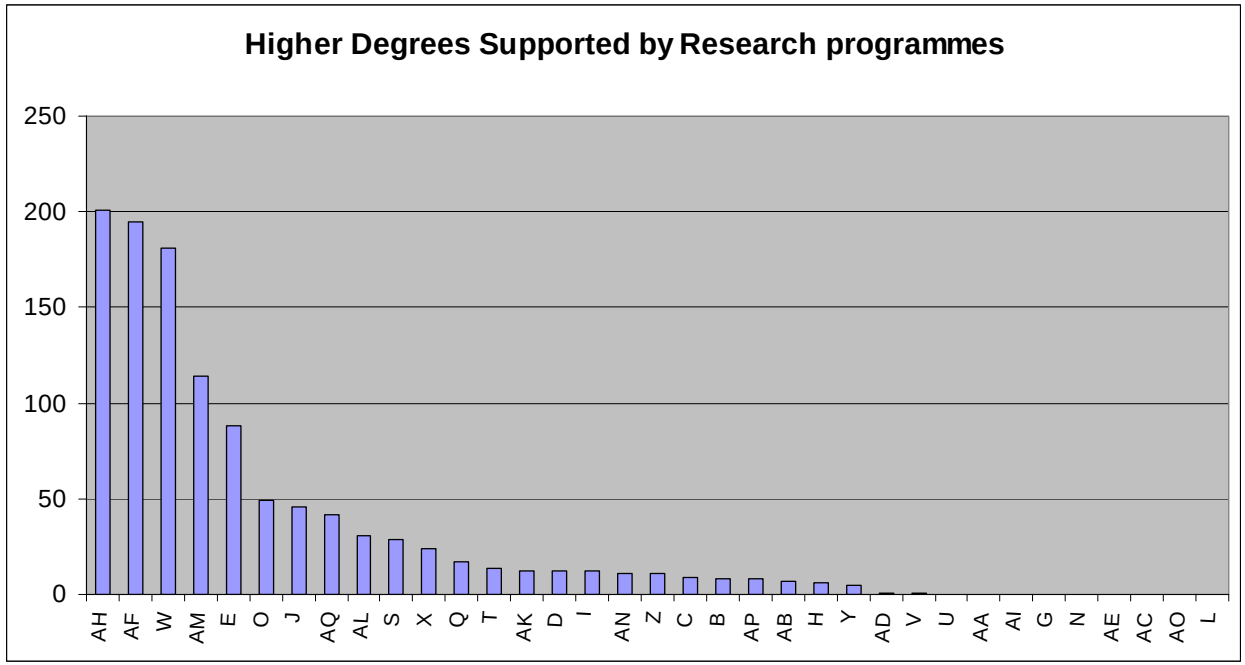
SQW Survey

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

Publications for lead trust and for multi-centre studies lead by trust shown separately.

In 2004/5, research in university trusts resulted in 19,464 identified peer-reviewed publications. Some Trusts were also able to identify publications across the whole of a multi-centre study for which they were the administrative organisation (normally meaning the lead trust) and this increases the reported total to 20,617. During the same period (some reporting for calendar year 2004) 22 medical schools answering this question produced 17,640 peer reviewed publications suggesting that if all 31 medical schools were included the total would have been between 21,000 and 22,000. The fact that this figure is only slightly greater than that reported by trusts when a significant proportion of medical school work is non-clinical (see charts K1 and K2) suggests that NHS staff and academic staff from departments other than medical schools are, between them, contributing substantially to knowledge production and dissemination.

Chart C9: Over 1,100 higher degrees are being supported by research programmes in university hospitals.



Source: National Research Register
www.nrr.nhs.uk

Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.

Successfully completed masters degrees in health services research, PhDs and post-doctoral qualifications.

University hospital trusts reported that 1,134 higher degrees were supported by research projects based in their organisations. On these reporting figures, this contribution to research capacity building is highly concentrated with 5 Trusts accounting for 68% of degrees. However, the quality of this field in R&D annual reports appears suspect with a large number of nil or very low returns.

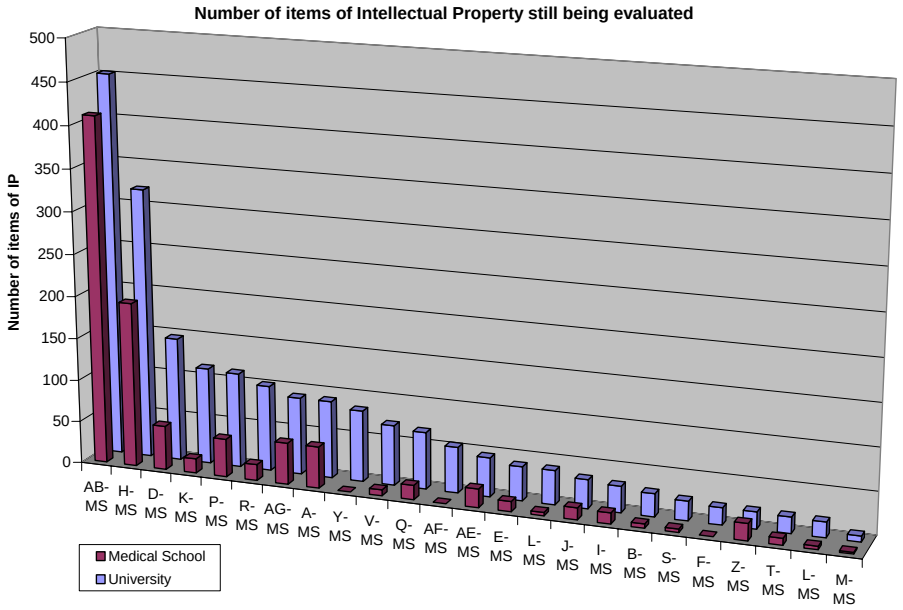
Chart C10: Most university hospital have arrangements in place for the management of intellectual property and technology transfer but output appears low

	Yes	No	
Has an internal policy based on the new Framework & Guidance been approved by your Board?	37	6	Source: National Research Register
Has an external body been engaged for the technology audit process?	35	8	Data for 32 English AUKUH member trusts submitting 2005 R&D Reports to DH by December 2005 plus 3 specialist trusts.
Have arrangements in place with universities for joint management of Intellectual Property?	40	3	

Most university hospital trusts have joint arrangements in place with universities for management of IT and have some systematic programme and activities in place to identify, develop and exploit innovations. Despite this, relatively low levels of IP were reported by Trusts for 2004/5, for example 35 Trusts reported a total of 272 items of potentially valuable IP as having been identified during the year, an average of just under 8 items per Trust but with considerable variation between 0 and 32. Of these, only 124 items were identified as having arisen from joint work with universities, which is a surprisingly low figure given the intensity of the research relationship within academic clinical partnerships. University hospital trusts own 164 patents, an average of 4.7 per trust, with only four trusts owning more than 10 patents. Reported income from IP in 2004/5 was only £790,000 across all university hospital trusts, with £585,000 reported by just two organisations, indicating that this is still a very minor part of overall income.

Chart C11: All medical schools have arrangements in place for the management of intellectual property and technology transfer

	Yes	No	
Does your institution have a technology transfer policy in place?	30	0	Source: SQW Survey Data for 30 medical schools responding to q9.
Does your institution have a technology transfer office?	30	0	
Have arrangements in place with the NHS for joint management of Intellectual Property?	25	5	
Does your institution employ an external body for the management of IP and technology transfer?	2	28	



The picture on IP and technology transfer is more consistent than that for university hospitals, with every returning medical school having policies and infrastructure in place. Unlike university hospitals, most universities manage their technology transfer activities themselves, rather than contracting them out. Medical schools account for just over one third of all IP identified in their universities (based on 28 medical schools responding to this question) and nearly 50% of all IP still being evaluated (based on 24 medical schools responding to this question). Medical schools accounted for over half of all patents and about a third of all licences (based on 27 and 28 medical schools responding to these questions respectively). They generated £18.1m of IP income, which amounted to 61% of total income from IP for their universities (based on 26 medical schools responding to this question). Medical schools were able to identify 167 items of IP that had arisen as a result of joint work between medical school and NHS trusts (based on 25 medical schools responding to this

question). This latter was a higher figure than that identified by trusts in response to the same question, suggesting medical schools have better information systems in this area.

Chart C12: Clinical research facilities exist at most university hospitals

	Yes	No	
Does your trust have a clinical research facility or facilities?	24[8]	11	Source: SQW survey of NHS university hospital trusts – 35 Trusts responding to question 14.

University hospital trusts report a wide range of dedicated facilities for clinical research described in various ways including: clinical research centre; clinical investigation and research unit, clinical research facility, clinical investigation ward, clinical research centre, clinical trial and evaluation unit. This survey question was really intended to identify dedicated clinical research facilities, providing core infrastructure for trust-based researchers, as opposed to NHS service facilities in which research is carried out alongside routine patient care. In addition to identifying such facilities many respondents also pointed out the extent to which research is embedded in their clinical facilities and carried out in many specialist units across their hospitals. Respondents also provided a picture of varying focus for dedicated units, with some specialising in clinical trials and others on experimental medicine. One respondent also detailed the extent to which the availability of a dedicated clinical research facility supported commercially-funded research. Some units are focused on specific disease groups whereas others are open to researchers from all specialties. A small number of respondents detailed a range of treatment and diagnostic technologies in their clinical research facilities which would provide a technology platform for a range of research programmes. Several respondents emphasised the centrality of dedicated clinical research facilities to their organisation's R&D strategy. About a fifth of the respondents either mentioned that their facilities were recently completed, under development or at an advanced stage of planning, suggesting a dynamic picture in which clinical research facilities are seen as a strategic asset for trusts and their academic partners.

The 35 trust's responding positively to this question identified over 4,000 studies as having been carried out in their clinical research facilities in 2004/5, but the data quality on this item is clearly poor, with some Trusts apparently including a cumulative figure for completed studies and others leaving the question blank.

[8] Includes facilities opening during 2006

Chart C13: Adoption of leading-edge technology by university hospitals

	PET and/or combined PET-CT	Robot-assisted minimally-invasive surgery	Photodynamic therapy	Liquid-based cytology	Drug-delivery implants	Laser angioplasty
In use for routine clinical care	11	8	23	20	20	5
Not in use for routine clinical care	19	18	7	9	5	20
Not in use now but planning to introduce in next year	12	2	1	4	3	1

Trusts were asked about their adoption of new technologies for routine patient care, using technologies selected from the 2001 Medpac Report to Congress (i.e. assuming a list of technologies regarded as novel in the USA in 2001 would equate to novel technologies for the UK in 2005). Responses paint a relatively favourable picture of university hospital trusts as early adopters of new technology, although without a benchmark of the rest of the NHS it is difficult to draw firm conclusions.

4 Economic impact and social capital impact: discussion and proposed approach for phase 2

Social Impacts: social inclusion and equity, participation, good governance, social networks

4.1 The UK government's concept of sustainable development goes beyond environmental and economic sustainability to encompass the notion of social sustainability. This includes 'ensuring a strong, health and just society' and 'promoting good governance'(HM Government 2005).

4.2 A strong, health and just society is about 'meeting the diverse needs of all people in existing and future communities, promoting personal well-being, social cohesion and inclusion, and creating equal opportunity for all'. There is an obvious resonance between this and the traditional emphasis of the NHS on equity (in both funding and access), universality and, increasingly, choice. The emphasis on inclusion and equality of opportunity is reflected in participation goals for higher education. This is an area where care will again be needed to identify aspects that are more relevant to ACPs then to any other hospital or university department. Two considerations suggest themselves here. One is the potency of medical education as a vehicle for promoting social inclusion and mobility, given the high standing in society of medicine as a profession. This has long been recognised by those American medical schools that have, not without challenge, sought to promote affirmative action in their admissions policies. The other is the location of many university hospitals and medical schools in urban centres that include significant disadvantaged populations.

4.3 There is growing awareness of the importance of social capital as a determinant of health (Pevalin and Rose 2003). Social capital is a multi-dimensional concept that refers to the processes between people that establish norms, networks and social trust and facilitate mutuality and cooperation for mutual benefit. It can be hypothesised that, in common with all large hospitals, ACPs provide a resource for building social networks, encouraging participation and promoting shared values through employment and through their encouragement of volunteers, friend's groups and other forms of association. These effects may be heightened in university hospitals by their educational and research ethos and the civic pride attached to highly-esteemed research.

4.4 'Good governance' is described as 'actively promoting effective, participative systems of governance in all levels of society by promoting people's creativity, energy and diversity'. For all ACPs this can translate into public and patient participation initiatives. For those ACPs who are NHS Foundation Trusts, there is the opportunity and challenge to extend engagement further through membership.

4.5 These issues of measuring social capital impact are approached qualitatively in the phase 2 studies.

Economic Impacts: Direct effects, multiplier effects, human capital and other spillover effects.

4.6 For the assessment of economic impact in the phase 2 studies we have adapted extended input-output models, which have been developed in the context of higher education (Kelly, Marsh et al. 2002). This method builds up total economic impact from both direct and indirect effects. More generally, input-output models are widely used to review the importance of an industry or sector and how it is connected to the rest of the economy.

4.7 Direct effects are the income and employment generated by the service activities of ACPs in health, education and research. These activities then create 'multiplier effects', which may be indirect or induced. University hospitals and medical schools purchase good and services from other sectors in order to support their own activity, thereby stimulating activity in those industries. The supplying industries also make purchases from other suppliers, creating a rippling-out effect along supply chains. This is referred to as the indirect effect. Induced effects come from the spending of disposable income by employees on consumer goods and services which also creates a rippling-out effect through the retail and service sectors.

4.8 The definition of an appropriate spatial scale is important in economic impact assessment, especially when studying sectors which are largely publicly funded. What may appear as income from a regional perspective may become expenditure when a national perspective is adopted. In phase 2 studies, a multi-level perspective has been adopted (sub-regional, regional, national, global).

5 Profiles of selected Academic Clinical Partnerships

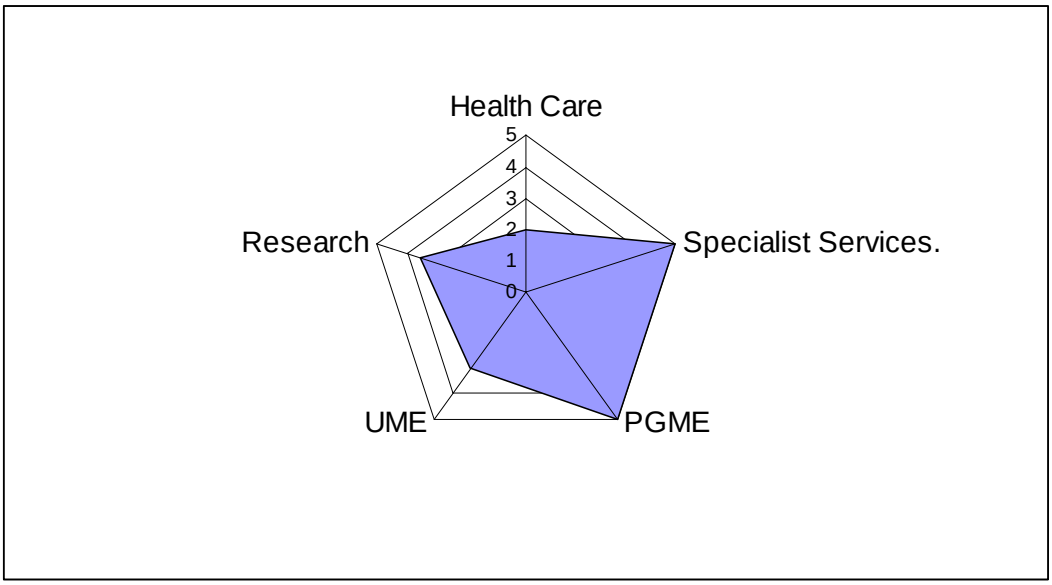
5.1 The data presented in section 3 indicates that there is considerable variation in the distribution of different indicators of outputs with the membership of AUKUH and CHMS. Data is also presented separately for medical schools and Trusts. In this section, we pull this data together to present profiles of individual partnerships. This is of interest because it gives a picture of how far different partnerships are teaching, research or service-led and of the extent of correlation between different mission activities.

5.2 The challenge in presenting different profiles is the volume of data available, which can be overwhelming. We have taken the approach, therefore, of selecting a small number of indicators relating to key outputs (see table 5.1) and of ranking these within quintiles for all centres. We then use spider diagrams to give a visual representation of the balance of an individual centre's activities and rankings (1 shows that the organisation is placed in the bottom quintile, 5 in the top quintile). Where there is more than one partner Trust we have used an average of the quintiles for all the partner Trusts. We have presented a selection of 'archetype ACPs' using this approach.

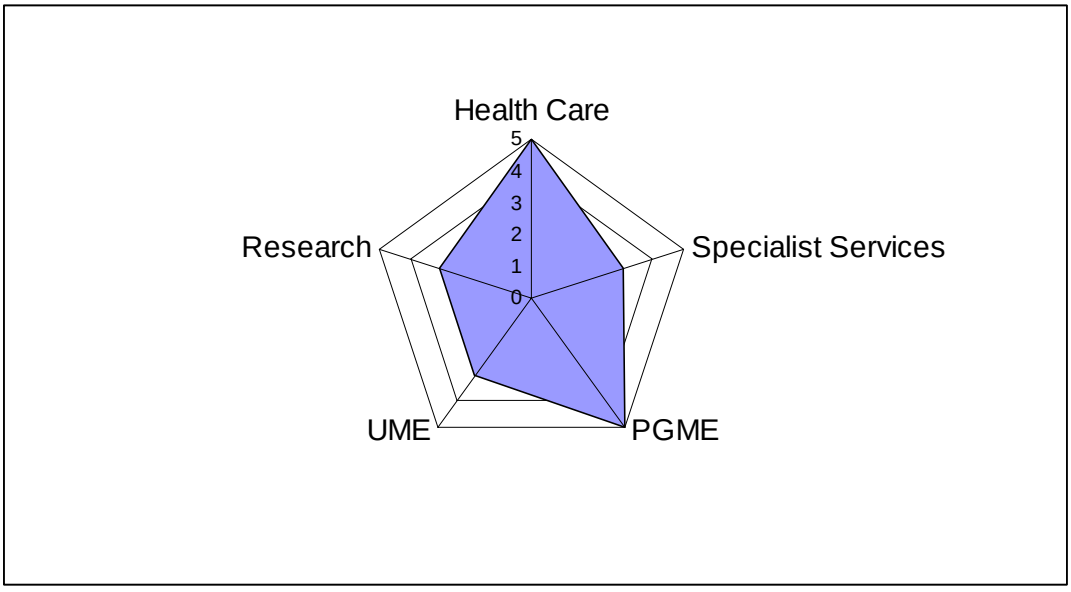
Table 5.1 – Indicators used for selected ACP profiles

Output	Indicator	Comments
Health care delivery	Admission episodes 2004/5	
Specialist services	Proportion of services specialised (by value) reported by Trusts	
Postgraduate Medical Education	Doctors in training grades at 30/09/2004	
Undergraduate Medical Education	Enrolled Undergraduate Medical Students 2003/4	
Research	External Grant Income (Medical School) External Grant Income (NHS Trust)	Average of quintile score for Trust(s) and Medical School

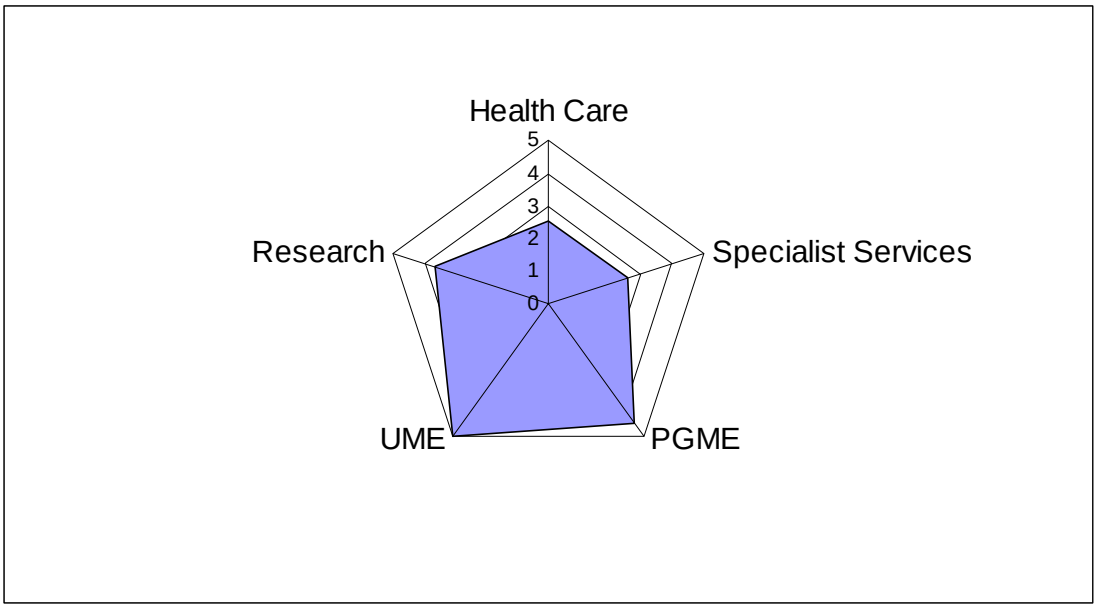
London partnership – single trust partner (Barts and the London NHS Trust and Queen Mary's School of Medicine and Dentistry)



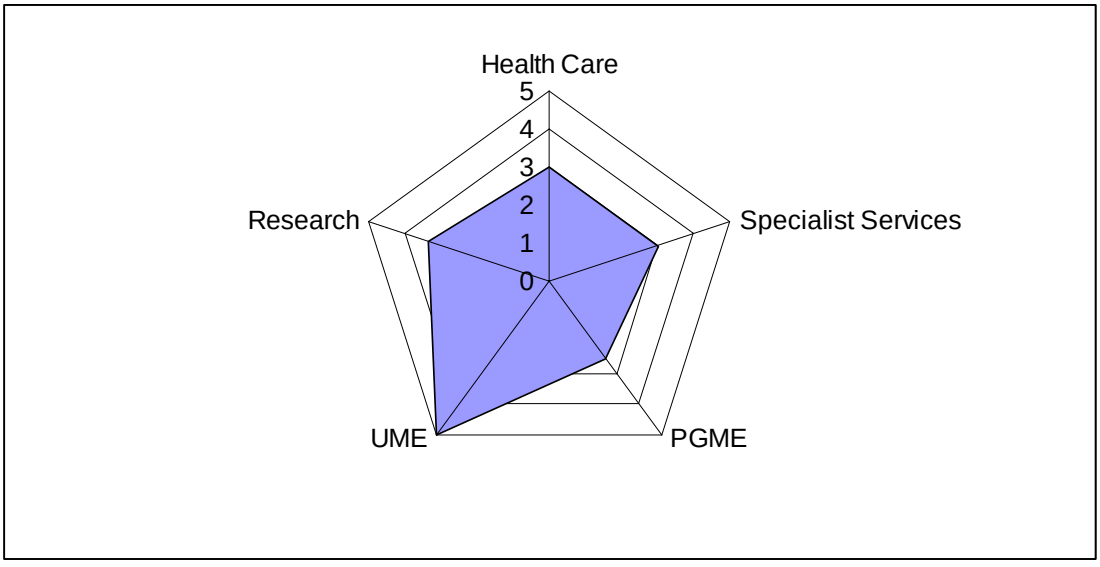
Urban partnership – outside London - single trust partner (Sheffield Teaching Hospitals NHS Foundation Trust and The University of Sheffield School of Medicine and Biomedical Sciences)



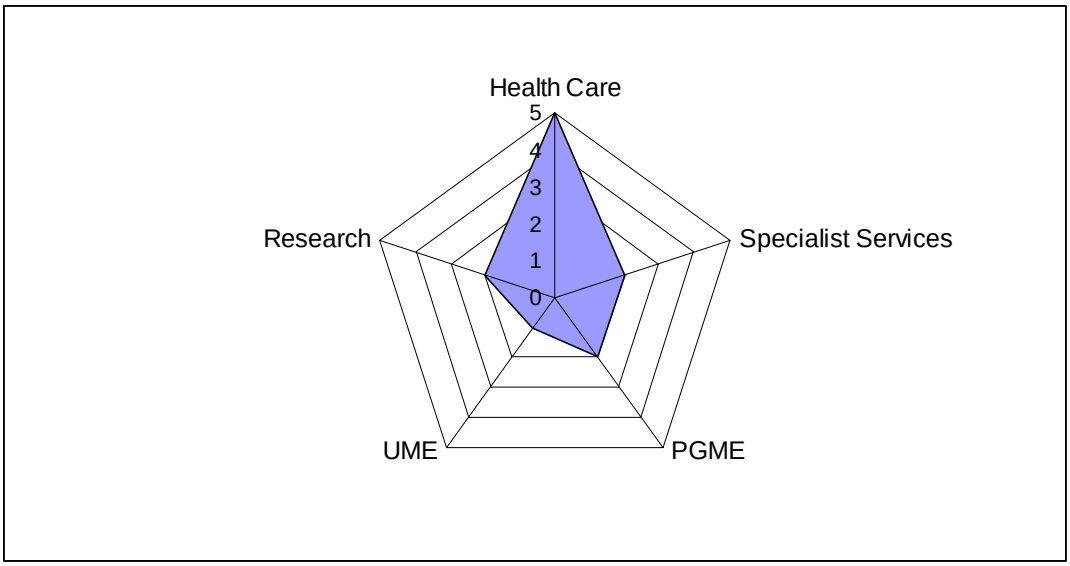
London partnership – more than one trust partner (King's College Hospital NHS Trust, Guy's and St Thomas's NHS Foundation Trust and Guy's, Kings and St Thomas' School of Medicine)



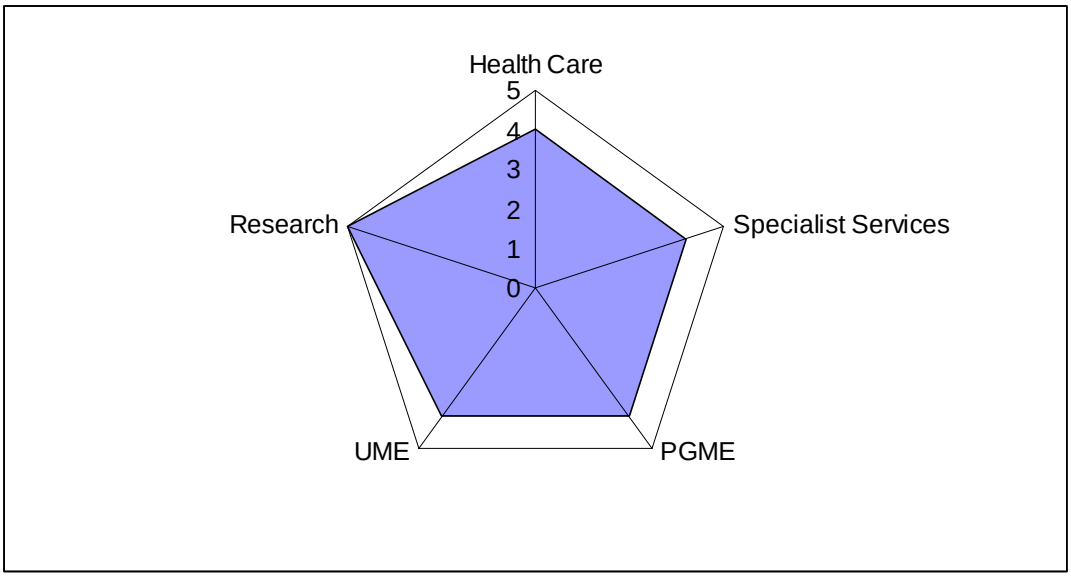
Urban partnership – outside London more than one trust partner (Central Manchester and Manchester Children's Hospital NHS Trust, South Manchester University Hospitals NHS Trust and the University of Manchester, School of Medicine)



New medical school partnership – single partner trust (University Hospitals of North Staffordshire NHS Trust and Keele University. School of Medicine)



'Golden Triangle' Partnership – single partner trust (Cambridge University Hospitals NHS Foundation Trust and the University of Cambridge School of Clinical Medicine)



6 Implications for AUKUH and CHMS

6.1 The primary purpose of this study has been to develop a conceptual framework that captures the impact of academic clinical partnerships and to assemble data within that framework. The original brief did not include making recommendations to AUKUH and CHMS on how best to advance their shared and separate interests. Nevertheless, in this section we briefly set out some of the implications that seem to us to follow from the study.

6.2 The contribution of the membership of AUKUH and CHMS to clinical care, education and research is very substantial and of national importance. The data assembled in this study should be used by AUKUH and CHMS to lobby for more of a voice in policy-making forums and for greater sensitivity of policy-making to the particular circumstances and needs of academic clinical partnerships.

6.3 In particular, AUKUH and CHMS can use this data as part of a wider argument that is needed to ensure that government has a proper perspective on the possible adverse unintended consequences of policy which is too focused on a narrow agenda or range of issues. For example, if tariff setting for specialised services is too crude or includes unrealistic levels of productivity-gain assumptions, this may have a de-stabilising effect on university hospitals in particular, which in turn will have potential adverse consequences for goals in health research. Other example could be given, but the key point is to articulate the inter-dependency of missions.

6.4 More generally, the study reflects the importance of AUKUH and CHMS as 'trade associations' and the fact that the national contribution of the membership of both organisations would merit a much higher profile than has previously been adopted. Contrast with overseas models, such as the Association of American Medical Colleges (AAMC) might be helpful in this context.

6.5 The membership of AUKUH and, to a lesser extent, CHMS is diverse and the profiles of individual partnerships variable. Neither organisation should avoid discussion about whether what unites them is greater than what divides them, especially as health research funding moves towards a model of greater concentration in fewer centres of excellence. This discussion needs to be conducted in a frank and non-defensive manner.

6.6 AUKUH should consider its membership criteria and the application of those criteria as there is a number of Trusts nationally that are significant centres for education and research but are not members of AUKUH.

6.7 A significant number of University Hospitals struggled to answer some of the survey questions, for example those related to specialised services, and some returns were clearly of dubious quality. The burden of compliance reporting for NHS Trusts is clearly extreme, and we fear that it may have 'squeezed out' the capacity to focus on other data which are of business importance. An understanding of specialised service workload, for example, will be fundamental to strategic planning in the era of patient choice.

6.8 Despite best intentions, the study has ended up being mainly English in its NHS focus and AUKUH needs to consider the implications of this for its UK-wide role.

ANNEX A

Medical Schools and Partner Trusts

Annex A: Medical Schools and Partner Trusts

Key: NHS Trusts

A	Grampian University Hospitals Trust (Aberdeen Royal Infirmary)
B	Aintree Hospitals NHS Trust
C	Barts and the London NHS Trust
D	Brighton & Sussex University Hospitals NHS Trust
E	Cambridge University Hospitals NHS Foundation Trust
F	Cardiff & Vale NHS Trust
G	Central Manchester & Manchester Children's University Hospitals NHS Trust
H	Chelsea & Westminster Healthcare NHS Trust
I	Derby Hospitals NHS Foundation Trust
J	Great Ormond Street Hospital for Children NHS Trust
K	NHS Greater Glasgow
L	Guy's& St Thomas' NHS Foundation Trust
M	Hull & East Yorkshire Hospitals NHS Trust
N	King's College Hospital NHS Trust
O	Leeds Teaching Hospitals NHS Trust
P	NHS Lothian – University Hospitals Division
Q	Moorfields Eye Hospital NHS Foundation Trust
R	Ninewells Hospital
S	Norfolk & Norwich University Hospital NHS Trust
T	Nottingham City Hospital NHS Trust
U	Oxford Radcliffe Hospitals NHS Trust
V	Plymouth Hospitals NHS Trust
W	Queen's Medical Centre Nottingham University Hospital NHS Trust
X	Royal Brompton & Harefield NHS Trust
Y	Royal Devon & Exeter NHS Foundation Trust
Z	Royal Free Hampstead NHS Trust
AA	Sheffield Teaching Hospitals NHS Foundation Trust
AB	South London & Maudsley NHS Trust
AC	South Manchester University Hospitals NHS Trust
AD	Southampton University Hospitals NHS Trust
AE	St George's Healthcare NHS Trust
AF	St Mary's NHS Trust
AG	Swansea NHS Trust
AH	The Hammersmith Hospitals NHS Trust
AI	The Newcastle upon Tyne Hospitals NHS Trust
AJ	The Royal Group of Hospitals and Dental Hospital Health and Social Services Trust
AK	The Royal Liverpool & Broadgreen University Hospitals NHS Trust
AL	United Bristol Healthcare NHS Trust
AM	University College London Hospitals NHS Foundation Trust
AN	University Hospital Birmingham NHS Foundation Trust
AO	University Hospital of North Staffordshire NHS Trust
AP	University Hospitals Coventry & Warwickshire NHS Trust
AQ	University Hospitals of Leicester NHS Trust

Key: Medical Schools

AB-MS	University College London; Medical School
AC-MS	University of East Anglia; School of Medicine, Health Policy & Practice
AD-MS	University of Aberdeen; School of Medicine
AE-MS	University of Birmingham; School of Medicine
AF-MS	The Brighton & Sussex Medical School (University of Sussex)
AG-MS	University of Bristol; School of Medicine
AH-MS	University of Cambridge; School of Clinical Medicine
A-MS	Cardiff University; School of Medicine
B-MS	University of Dundee; Faculty of Medicine, Dentistry, Nursing and Midwifery
D-MS	University of Edinburgh; The College of Medicine & Veterinary Medicine
E-MS	University of Glasgow; Faculty of Medicine
F-MS	Hull York Medical School (University of Hull)
F-MS	Hull York Medical School (University of York)
H-MS	Imperial College London; Faculty of Medicine
I-MS	Keele University; School of Medicine
J-MS	Guy's King's and St Thomas' School of Medicine
K-MS	University of Leeds; Faculty of Medicine & Health
L-MSa	University of Leicester;
L-MSb	University of Warwick; Warwick Medical School
M-MS	University of Liverpool; Faculty of Medicine
N-MS	London School of Hygiene & Tropical Medicine
O-MS	University of Manchester; Faculty of Medical and Human Sciences
P-MS	University of Newcastle; The Medical School
Q-MS	University of Nottingham; Faculty of Medicine & Health Sciences
R-MS	University of Oxford; Medical Sciences Division
S-MS	Penninsula Medical School; (Universities of Exeter and Plymouth)
T-MS	Barts and the London, Queen Mary's School of Medicine and Dentistry
U-MS	Queen's University Belfast; School of Medicine
V-MS	The University of Sheffield; School of Medicine & Biomedical Sciences
X-MS	University of Southampton; School of Medicine
Y-MS	University of St Andrews; Bute Medical School
Z-MS	St George's; University of London

ANNEX B

Study Methodology

Annex B

Introduction

1. In order to define and quantify the missions of UK Academic Medical Centres a combination of data from secondary sources available in the public domain and data collected directly from hospitals and medical schools through a survey was used. This section provides commentary on the response rates to the surveys and the quality of the data obtained.

Survey sample

2. AUKUH is "the key representative body for university hospitals, with major teaching and research interests".[9] Criteria for membership of AUKUH are set out in paragraph 2.5:

3. CHMS was established in 1992 with the main purpose to[10]:

   - be a principal source for informed opinion and advice on all matters concerning basic medical education and medical school research in the UK and on the relationship between medical schools and the NHS
   - improve and maintain quality in basic medical education and general clinical training and to facilitate sharing of experience
   - promote medical education and research through collaboration with the NHS, Government Departments, the General Medical Council, the Royal Colleges, the Research Councils and the Medical Research Charities
   - promote and develop relationships with medical schools and universities in other countries concerning medical education and research
   - serve as a point of reference for the media.

4. The survey sample was composed of 31 CHMS member Medical Schools and 38 AUKUH member Trust partners of these Medical Schools. In addition, after discussion with the study Working Group it was agreed to also include three non-AUKUH member specialist Trusts; Moorfields, Royal Brompton and Harefield, and South London and Maudsley since they have substantial participation in research and development and two lapsed members of AUKUH Aberdeen Royal Infirmary and Ninewells Hospitals since their partner Medical Schools are still CHMS members.

[9] http://www.aukuh.co.uk/what_we_do/wwd.htm

[10] http://www.chms.ac.uk/what_we_do/index.htm

Survey administration

5. With any survey there is a risk of low returns. For large organisations such as hospitals and universities where data may be held in a variety of administrative departments this is particularly true. In order to try to minimise the risk of low returns a warm up letter was sent via the AUKUH/CHMS secretariat to the Deans of the Medical Schools and the Chief Executives of AUKUH member Trusts. The purpose of this email was to alert them to SQW's piece of work and to provide a contact name who would be prepared to take ownership of the survey and ensure that it was completed and returned to SQW. In addition Trusts were asked to provide SQW with copies of their Annual Reports and Full Annual Accounts from which secondary data could be taken.

6. The request for contact names was sent on 27th September 2005 to a total of 69 CHMS/AUKUH members (31 Medical Schools and 38 Trusts). The surveys were launched on 21st November.

Development of the Survey

7. Two surveys were developed (see Annex C and Annex D); one for Medical Schools and one for Trusts. The purpose of the surveys was to collect data around the following themes which could not be readily obtained through secondary data sources:

   - healthcare and health improvement
   - education and training
   - research and development
   - innovation and knowledge transfer
   - outcomes of research – improving patient care and patient health

8. The survey questions were piloted with three academic medical centres i.e. three Medical Schools and their partner Trusts prior to launching the surveys. The purpose of these pilots was to ensure that the terminology used in questions was correct and readily understood and that the data being requested was readily available through existing databases and would not be creating an unacceptable burden of additional work for the survey respondents. Feedback was received from one of the Medical Schools and two of the Trusts.

9. In light of the comments received from the pilot the surveys were amended and launched on 21st November 2005 (29th November for the five additional Trusts). The surveys were sent out via an email to the key contact or if no contact name had been supplied to the Chief Executive/ Dean. A deadline for return of completed surveys to SQW was given of the 9th December (16th December for the five additional Trusts) i.e. two weeks after launch. A reminder email was sent by SQW mid way through the two week return period.

Response rates

10. As of 19th April 2006 a total of 31 Medical Schools and 34 Trusts had returned the surveys either in full or part. This is a response rate of 100% for Medical Schools and 79% for Trusts.

11. Of these returns there were 21 complete academic medical centre returns i.e. returns from a Medical School and all of its Trust partners.

Data quality

General

12. It was outside of the remit of this study for the data supplied to be verified by SQW. Both Trust and Medical School respondents were requested to indicate clearly where data was not available rather than leaving a question blank. This request was not always adhered to and where a question or part of a question has been left blank this has been taken as a non-response.

13. Of the 34 Trusts returning surveys 30 (88%) supplied good quality data. The remaining 4 (20%) of returns were of poorer quality in that the survey was incomplete (either whole or parts of questions were incomplete) and some data was obviously incorrect. Trusts struggled in particular with question 5 relating to joint appointments and question 10 relating to continuing professional development (CPD). With regard to difficulties in completing question 10 this was because for many Trusts CPD is multidisciplinary in nature and as such could not be assigned to the categories requested in the question. In the revised version of the survey reissued in January 2006 these questions were removed.

14. Of the 31 Medical Schools returning surveys 29 (94%) returned good quality data overall. Only 3 (10%) returned poor responses overall but an additional 14 (45%) returned incomplete surveys; mainly due to the data not being easily available or recorded. Separating out the additional income for the Medical School, Question 7, proved to be difficult for a third of respondents – it is not requested by HESA but some Medical Schools were still able to provide the breakdown. Questions 16 to 18 on multi-centre studies proved problematic for nearly 39% of respondents; from conversations with respondents this data is not always recorded in a readily accessible form. Data on IP and income was also patchy; partly through concerns over confidentiality and partly as it appears that several Universities were unable to separate out this data for individual departments.

Medical Schools

15. Several medical school survey respondents raised the issue that the survey was based on a "stand alone" model of a medical school and that in many universities this is not the case. Medical Schools are often part of a larger faculty which may incorporate departments such as dentistry, biomedical and health sciences. Thus it can be difficult to disaggregate data relating to the medical school from the faculty as a whole.

16. Secondly, medical school staff may well be affiliated with research groups in various departments across the university; some of which may also be outside of the faculty within which the medical school is located. The impacts of this collaborative and cross-disciplinary

research and activity may not be fully accounted for in a survey such as that used in this piece of work.

New medical schools

17. Three of the new medical schools surveyed are joint projects between two universities. For one of the medical schools concerned two returns were made segregating out the data relating to each partner university and this data has been aggregated in the survey analysis. In discussion with one of the other new medical schools it emerged that one of the partners leads on the financial and the other on the research and development activity. For this medical school and the other new medical school some of the survey questions were completed for one of the partners and some questions for the other partner. The three new medical schools are included in the data analysis presented in the main report but it should be noted that the data presented may be under-representative of their activity in certain areas such as income.

18. It should also be noted that the new medical schools are still in their start-up phase and are still building capacity such as in research infrastructure. Responses to questions relating to number of patents held by the medical school and research income are therefore currently considerably lower than what they expect them to be in the next couple of years.

Devolved administrations

19. Survey responses were received from the Scottish and Northern Irish Medical Schools but not from the Welsh. However, a survey response was only received from one of the Scottish Trusts. The devolved administration medical schools were able to provide responses because the majority of the questions were asking for data which is returned to the Higher Education Statistics Agency (HESA) as part of an annual return. The questions asked of the Trusts, however, were less applicable to the devolved administrations. In particular, questions relating to specialised services and income.

Conclusions

20. The following bullets summarise the conclusions resulting from the survey data collection exercise:

- medical schools are more responsive to this type of request for data both in terms of completing the survey and providing contact and update information on progress with completing the survey

- the size of Trusts as organisations is a hindrance to this type of data collection. From correspondence and handling of queries it appeared that the questions were distributed to many different individuals some of whom were not fully aware of the purpose of providing the data

- there needs to be buy-in at a senior level to ensure surveys are completed and returned

- senior management buy-in will only happen if requests by AUKUH and CHMS for collaboration with such surveys are seen as being important. This will only happen if these associations are seen as significant and influential bodies. CHMS appears to be able to command more engagement from its members than AUKUH

- the impact of devolved administrations within the UK on exercises of this nature appears to be much more significant for the NHS, and therefore for AUKUH, than it is for the universities.

ANNEX C

Trust Survey

Annex C: Trust Survey

Association of UK University Hospitals

The Social and Economic Impact of UK Academic Medical Centre: Phase 1 Survey of University Hospital Trusts/Foundation Trusts/Divisions.

Introduction

1. SQW Ltd has been engaged by the Association of UK University Hospitals and the Council of Heads of Medical Schools to conduct a study into the economic and social impact of UK Academic Medical Centres (AMCs), which we define as being the combined enterprise of a medical school and its major clinical partner or partners.
2. In the first phase of this study, we will be bringing together data from both university hospitals and medical schools to describe and quantify the most important outputs of AMCs. The analysis of this data will be made available to all AUKUH and CHMS members early in 2006.
3. Much of the data we need is available from published or otherwise readily available sources and the data we will be collecting in this way is summarised in Annex 1 **for information only**. The following short survey is designed to capture data that is **not** available in this way. A separate but related survey is being sent to your partner medical school.
4. **The value of this exercise will be directly related to the level of participation by AUKUH and CHMS members. Please do take the time to complete this survey and return it by Friday 9th December 2005** to Alison Rothery at SQW Ltd arothery@sqw.co.uk
5. If you have any queries on this survey or would like further information on the study please contact Alison Rothery (email above) 01223 209400.

A note for organisations in the devolved administrations

6. This questionnaire has been developed with reference to the English policy context and we realise that 'read across' to the devolved administrations may not be entirely straightforward. It will be necessary in Scotland, for example, to read 'University Hospital Division' for 'Trust'. Some questions, for example, 6 and 7, may be of limited or no relevance to administrations with single system structures. Other questions will be generic across the UK.
7. Please answer the questions as best as you are able in the context of your devolved administration. If questions are not applicable in this context then please indicate that this is the case, rather than leaving the question blank.

Provision of specialised services

Q1. Using the specialised services national definition set[11], please complete the sections of this table to indicate what proportion of your total work in 2004/5 by value and volume was specialised:

	A **Specialised Services**	**B** **All Services**	**C** **% Specialised (A as % of B)**
Value:	£'000s	£'000s	%
Income from patient care			
Volume:	Finished Consultant Episode	Finished Consultant Episode	%
In-patient and day care episodes			

Education, Training and Research Income

Q2. How does your total income for education, training and research break down between these categories?

Guidance: the total income for education and training and research is shown as a single line under 'other operating income' in Trust annual accounts. Please provide a breakdown of your education, training and research income as follows for 2004/5:

Type of income	**£'000s**
R&D Support Funding	
MPET-SIFT	
MPET-MADEL	
MPET-NMET	
Research Grants	
Other research	
Other education and training	
Total (should reconcile to annual accounts)	

[11] 36 specialised services are covered by the Specialised Services National Definitions Set (2nd edition). The definitions were developed through national working groups (one for each service). More information can be found at the following link:
http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/SpecialisedServicesDefinition/fs/en

Clinical Leadership

Q3. How many medical doctors do you have in positions of leadership and what proportion of these are university employees?

Guidance: exact terminology may vary between Trusts, so we define positions of leadership as follows:

***Medical Director**: Executive Director on the Trust Board*

***Associate Medical Director**: Will have delegated responsibility from the Medical Director for aspects of medical management*

***Hospital Medical Director**: For a multi-hospital Trust, a position providing leadership for a specific hospital or site.*

***Clinical Director**: The senior clinician for a major unit of service delivery, such as a clinical division, clinical directorate or multi-speciality service grouping within the Trust.*

***Service Delivery Unit Director**: The senior clinician for a smaller unit of service delivery, such as a department.*

***Network Director**: the senior clinician for a formally constituted clinical network spanning organisational boundaries.*

'University employees' are those for whom the substantive contract of employment is held by a University (as opposed to honorary contracts) regardless of the source of funding for the post. 'NHS Employees' are those for whom the substantive contract is held by an NHS organisation.

For this question and questions 4 to 7 inclusive please provide the most recent available information. Please give the date for which the data refers e.g. data as of 15th November 2005.

	NHS employees (number: headcount)	**University employees (number: headcount)**
Medical Director		
Associate Medical Directors		
Hospital Medical Directors		
Clinical Directors		
Service Delivery Unit Directors		
Network Clinical Directors		
Other (please specify)		
Date of data		

Participation in managed clinical networks

Q4. Which managed clinical networks is your Trust involved in? What is the nature of that involvement?

Guidance: to decide whether or not a managed clinical network exists please use the Modernisation Agency matrix attached as Annex 2

Name/Description of Network	**Approximate population. served**	**Role(s) of your Trust in the network[12]**
Date of data		

Please continue on a separate sheet if necessary.

Other mechanisms for integrated service delivery

Q5. What joint appointments are in place with other NHS organisations for medical staffing?

Guidance: For either 2004/5, or based on current job plans, and including only consultant medical staff with some form of joint appointment with another NHS provider, please analyse Direct Clinical Care Programmed Activities (DCCPAs) as follows:

	DCCPAs at your Trust	**DCCPAs at other NHS providers**
NHS Employees		
University Employees		
Date of data		

[12] Where NSFs, expert working groups or other guidance has produced role definitions eg 'cancer centre', 'cancer unit' or 'level 3 centre for neonatal care' please use these definitions.

Q6. What outreach sessions are provided by your Trust at locations managed by other NHS organisations?

Guidance: an outreach session is a session provided by a Trust employee in at location not owned or managed by the Trust where there is no shared department, managed clinical network or shared appointment.

Type of location	**Number of locations**	**Number of sessions per week**	**Type of activity**
Other hospitals			
Primary Care Settings			
Other (please detail)			
Date of data			

Q7. Does your Trust have any clinical departments which are organised as integrated single departments across hospital sites either within your Trust or with neighbouring Trusts?

Clinical Department	**Shared across hospital sites within multi-hospital Trust?**	**Shared with a hospital that is part of another Trust?**
	Please delete as appropriate	
	YES/ NO	YES/ NO
	YES/ NO	YES/ NO
	YES/ NO	YES/ NO
	YES/ NO	YES/ NO
Date of data		

Please continue on a separate sheet if necessary.

Q8. Are there any other ways in which your Trust supports integrated delivery of services across local health economies which have not been covered in the answers to questions 4 to 7? If so, please describe them briefly.

Education Training and Development

Q9. What education, training and development (ETD) facilities are provided by your Trust?

Guidance: e.g. Postgraduate Medical Education Centre or Staff Learning Centre. Any information on the size of the facilities (e.g. floor areas or number of rooms) would be useful here.

Q10. What post-registration Continuing Professional Development (CPD) opportunities are provided by the Trust through its education, training and development facilities?

Guidance: this question relates to the CPD being provided by the Trust through its educational facilities to both its own employees and others, not the CPD being undertaken by Trust staff (much of which may be provided elsewhere).

Category	**Period**[13]	**Number of training days in period**
Hospital education		
GP education		
Dental education		
Nurse Education		
Other Education		

Innovation and Technology Transfer

Q11. Is the Trust a member of an NHS Regional Innovation Hub? Please tick.

YES	
NO	

Q12. Does the Trust have its own technology transfer infrastructure (including that shared with a partner University/Medical School? Please tick.

YES	
NO	

[13] Default period of reporting should be one year but if it is easier to provide this for a shorter period because that is how courses are scheduled, for example for a quarter, then please feel free to do so but make sure this is indicated in the 'period' column.

Q13. Has the Trust used the services of the Regional Innovation Hub? Please tick.

YES	
NO	

Clinical Research Facilities

Q14a. Does the Trust have a clinical research facility or facilities? Please tick.

YES	
NO	

Q14b. If yes, please describe it/them (e.g. inpatient or outpatient, number of beds if inpatient)

Q15a. What number of clinical studies were hosted in the clinical research facility or facilities in 2004/5?

No of studies	

Q15b. What was the total value of the clinical studies hosted in the clinical research facility or facilities in 2004/5?

Total value £ '000s	

Adoption of new technologies

Q16. Which of the following marker technologies does the Trust either have in use for routine clinical care or is planning to introduce in the next 6 to 12 months?

Guidance: do not include technologies which are used solely for research.

Marker Technology	**In use now**	**Planning to introduce in next 6-12 months**
	Please delete as appropriate	
PET and/or combined PET/CT scanning	YES/ NO	YES/ NO
Robot-assisted minimally invasive surgery	YES/ NO	YES/ NO
Photodynamic therapy	YES/ NO	YES/ NO
Liquid-based cytology	YES/ NO	YES/ NO
Drug-delivery implants	YES/ NO	YES/ NO
Laser angioplasty	YES/ NO	YES/ NO
Other (please detail)		

Source: MedPAC overview of new health technologies for the fiscal year 2002

http://www.medpac.gov/publications/congressional_reports/Mar%2001%20AppA.pdf

Thank you for taking time to complete this survey.

ANNEX D

Medical School Survey

Annex D: Medical School Survey

Association of UK University Hospitals

The Social & Economic Impact of UK Academic Medical Centres: Phase 1 Survey of Academic Medical Centres Medical School Partner

Introduction

1. SQW Ltd has been engaged by the Association of UK University Hospitals and the Council of Heads of Medical Schools to conduct a study into the economic and social impact of UK Academic Medical Centres (AMCs), which we define as being the combined enterprise of a medical school and its major clinical partner or partners.
2. In the first phase of this study, we will be bringing together data from both university hospitals and medical schools to describe and quantify the most important outputs of AMCs. The analysis of this data will be made available to all AUKUH and CHMS members early in 2006.
3. Much of the data we need is available from published or otherwise readily available sources. This short survey is designed to capture data that is not available in this way. A separate but related survey is being sent to your partner university hospital(s).
4. **The value of this exercise will be directly related to the level of participation by AUKUH and CHMS members. Please do take the time to complete this survey and return it by Friday 9th December 2005 to** Alison Rothery at SQW Ltd arothery@sqw.co.uk
5. If you have any queries on this survey or would like further information on the study please contact Alison Rothery (email above) 01223 209400.

A note for organisations in the devolved administrations

6. Please answer the questions as best as you are able in the context of your devolved administration. **If questions are not applicable in this context then please indicate that this is the case, rather than leaving the question blank.**

Education and Training

Q1. Please give the number of medical undergraduate admission places in September 2005.

Number of undergraduate medical admissions (Sept 2005)	

Q2. Please give the number of enrolled medical undergraduates in September 2005.

Number of enrolled medical undergraduates (Sept 2005)	

Q3. Please complete the table below on numbers of postgraduate medical school students.

Postgraduate medical school students	**Number of students (2005/06 academic year)**
Masters level	
PhD	

Q4. Please complete the table below on clinical placement activity in 2004/05

Clinical placement activity		**Number of student weeks**
Acute hospital	Specify	
Acute hospital	Specify	
Acute hospital	Specify	
Acute hospital	Specify	
All other providers		

Research and Development

Q5. Please complete the table below on ***income*** received by the University (data as supplied in Table 1 the 2003/04 HESA Financial Return)

Income source	**University income (2003/04) £**
Funding Council grants	
Tuition fees and education grants and contracts	
Research grants and contracts	
Other income	
Endowment and investment income	
Total income	

Q6. Please complete the table below on ***research grant income*** received by the Medical School and the other University Academic Departments (data as supplied in Table 4 section 1 in the 2003/04 HESA Financial Return)

Research grant income source	**University Research Grant Income (All Academic Departments including Clinical Medicine) (2003/04) £**	**Medical School Research Grant Income (Clinical Medicine cost centre) (2003/04) £**
OST and Research Councils		
UK based charities income		
UK Central Government/ local authorities/ health & hospitals income		
UK industry/ Commercial/ Public corporations income		
EU Government income		
Other EU income		
Other overseas income		
Income from other sources		
Total research grant income		

Q7. Please complete the table below on ***other income*** received by the Medical School and the other University Academic Departments (data as supplied in Table 5b part 4 OTHER INCOME in the 2003/04 HESA Financial Return)

Other income source	**University Other income (All Academic Departments including Clinical Medicine) 2003/04**	**Clinical Medicine Other income 2003/04**
Knowledge Transfer Partnership Income		
UK Central Government/ local authorities/ health & hospitals income (NOT Research Grant income)		
UK industry/ Commercial/ Public corporations income		
EU Government bodies		
Other EU income		
Other overseas income		
Income from other sources		
Total income for other services rendered		
Income from Health & hospital authorities		
Income from intellectual property rights		

Q8. Please state the number of peer-reviewed publications published by the Medical School in academic year 2004/05.

Number of peer-reviewed publications published by the Medical School in 2004/05	

Innovation and Knowledge Transfer

Q9. Please complete the table below on technology transfer infrastructure.

	Please delete as appropriate
Does your institution have a technology transfer policy in place?	YES/ NO
Does your institution have a technology transfer office?	YES/ NO
Does your institution employ an external body for management of IP and technology transfer?	YES/ NO
Does your institution have a process for management of joint IP e.g. IP developed in partnership between the medical school and an NHS Trust?	YES/ NO

Q10. In 2004/05 how many items of potentially valuable IP were identified in:

- the University as a whole?
- the Medical School?

Number of items of IP identified in the University as a whole (2004/05)	
Number of items of IP identified in the Medical School (2004/05)	

Q11. How many IP items are still being evaluated (including those from previous years):

- across the University as a whole?
- in the Medical School?

Number of items of IP still being evaluated in the University as a whole	
Number of items of IP still being evaluated in the Medical School	

Q12. To date, how many items of potentially valuable IP have arisen from joint work between the Medical School and NHS Trusts?

Number of items of IP that have arisen from joint work between the Medical School and NHS Trusts	

Q13. How many patents are held:

- by the University as a whole?
- by the Medical School?

Number of patents held by the University as a whole	
Number of patents held by the Medical School	

Q14. In 2004/05 what was the total number of licence agreements concluded:

- in the University as a whole?
- by the Medical School?

Total number of licence agreements concluded in the University as a whole (2004/05)	
Total number of licence agreements concluded by the Medical School (2004/05)	

Q15. In 2004/05 what income was received from Intellectual Property (IP) by:

- the University as a whole?
- the Medical School?

Income received from IP by the University as a whole (2004/05)	£
Income received from IP by the Medical School (2004/05)	£

Q16. In 2004/05 how many Medical School Principal Investigators were leading multi-centre studies?

Number of Medical School Principal Investigators leading multi-centre studies in 2004/05	

Q17. In 2004/05 how many multi-centre studies were on-going in which the Medical School was the hub?

Number of multi-centre studies on-going in which the Medical School was the hub in 2004/05	

Q18. For all of these studies how many

- NHS organisations were involved?
- UK academic partners were involved?
- non-UK academic partners were involved?
- other partners were involved?

For the multi-centre studies for which the Medical School is the hub or a Medical School PI is leading give the number of	**Number**
NHS organisations involved	
UK academic partners (other than the Medical School itself) involved	
Non-UK academic partners involved	
Other partners involved (e.g. local authorities)	

Thank you for taking time to complete this survey.

References

Academy (2003). Strengthening Clinical Research. London, The Academy of Medical Sciences.

Commonwealth Fund (2003). Envisioning the Future of Academic Health Centres. New York, The Commonwealth Fund.

Coote, A. (2002). Claiming the Health Dividend. Unlocking the Benefits of NHS Spending. London, King's Fund.

Davies, S. (2002). Ideology and Identity. A comparative study of academic health organisations in the UK and USA. London, The Nuffield Trust.

Davies, S. and T. Smith (2004). "Managing University Clinical Partnership. Learning from International Experience." Higher Education Management and Policy (Journal of the Programme on Institutional Management in Higher Education). **16**(2): 63-72.

Department of Health (2004). National Standards, Local Action. Health and Social Care Standards and Planning Framework 2005/6 to 2007/8. London.

Department of Health (2005). Best research for best health: a new national health research strategy. The NHS contribution to health research in England: a consultation. London.

Edwards, N. (2002). "Clinical networks. Advantages include flexibility, strength, speed and focus on clinical issues." British Medical Journal **324**: 63.

Follett, S. B. and M. Paulson-Ellis (2001). A Review of Appraisal, Disciplinary and Reporting Arrangements for Senior NHS and University Staff with Academic and Clinical Duties. London, Depart,ment for Education and Skills.

GMC (1993). Tomorrow's Doctors. London, General Medical Council.

Ham, C., J. Smith, et al. (1998). Hubs, spokes and policy cycles. London, King's Fund.

HEFCE (1999). Developing a joint university/NHS planning culture. Bristol, Higher Education Funding Council for England.

HITF (2004). Better Health Through Partnership: A Programme for Action. Healthcare Industries Task Force.

HM Government (2005). The UK Sustainable Development Strategy. Secretary of State for Environment Food and Rural Affairs. **cm6467**.

IOM (2003). Academic Health Centers. Leading Change in the 21st Century. Washington D.C., Institute of Medicine of the National Academies.

Kelly, U., R. Marsh, et al. (2002). The impact of higher education institutions on the UK economy. London, Universities UK.

Lambert (2003). Lambert Review of Business-University Collaboration. Final Report. London, HM Treasury.

Leatherman, S. and K. Sutherland (2005). The Quest for Quality in the NHS. A Chartbook on Quality of Care in the UK. London, The Nuffield Trust.

Pevalin, D. and D. Rose (2003). Social Capital for Health. Investigating the links between social capital and health using the British Household Panel Survey. London, Health Development Agency.

Rubin, E. R., Ed. (1998). Mission Management. A New Synthesis. Washington DC, Association of Academic Health Centers.

UKCRC (2005). Medically and dentally -qualified academic staff: recommendations for training the researchers and educators of the future., Report of the Academic Careers Sub-Committee of Modernising Medical Careers and the UK Clinical Research Collaboration.

Weiner, B. J., R. Culbertson, et al. (2001). "Organizational Models for Medical School- Clinical Enterprise Relationships." Academic Medicine **76**(2): 113-124.