

The interactions between universities and hospitals : Problems and possibilities

Universitas 21 Working Party on University-Healthcare Systems Interactions ⁱ

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Abstract

In theory, university health science faculties and teaching hospitals share common interests in education, research and clinical practice. In reality, structural role differences cause significant divergence in the priorities of these institutions. A sample of the opinions of medical academics and health care managers suggests that this divergence is increasing, and that this is impairing both organisational relationships and the capacity for education and research within hospitals. This is unfortunate at a time when there is an extensive and growing list of problems affecting health care delivery that would benefit from joint approaches by academic staff and health managers. It is proposed that relationships could be rebuilt through carefully selected joint research. This will however need to address the intrinsic tension between the collaborative and competitive driving forces within such joint ventures.

Introduction

Universitas 21 (U21) is a network of 17 universities in 9 countries formed in 1997 to encourage international collaboration in research and education.¹ Recent meetings of the Health Sciences Group have discussed the interactions between faculties of health sciences and health care systems, and have concluded that these interactions are often less than ideal. A working group was therefore convened to discuss the basis of these concerns and to consider possible remedies. This paper summarises the key issues and is offered for wider discussion. The focus thus far has been mostly upon schools of medicine and teaching hospitals, but there is no intent that debate should be limited to this domain.

Shared goals – theory and practice

In theory, medical schools and teaching hospitals share similar goals in research, education and clinical service delivery. In practice, there are some important differences in organisational drivers (table). In more tranquil times, these differences usually had little operational impact, as they were managed by sharing staff through informal bartering arrangements that were determined by local needs, skills and interests. More recently however, resource constraints and efficiency-driven business models have re-defined roles and priorities in both organisations in ways that have disturbed this delicate web of mutual obligation.

In universities, the traditional goals of high research productivity and reputation, and the associated revenue have assumed an even greater importance. This has intensified the normal competitive ethos of research, and moved the field of competition towards topics of explanatory significance and high methodological rigour. In many cases this has:

- ∞ narrowed the width and increased the depth of the areas of investigation,

- ∞ reduced the size of the peer group qualified to judge the significance and quality of the work, and;
- ∞ made it difficult for clinicians with substantial educational and clinical responsibilities to compete in this research environment.²

In hospitals the pressure for efficiency has increased clinical service demands and brought additional responsibilities for service and budget management. This has eroded the time previously available to clinicians for both research and education. In parallel with these changes, the opinion of many hospital and health service managers of the intrinsic value of research has apparently declined. This is probably due to:

- ∞ the specialised nature of much biomedical research, and the consequent lack of a clear perception of its relevance,
- ∞ the time lag between the conclusion of basic research and its ultimate application.

The end result is that many hospital executives now view time spent in research by clinicians less sympathetically. This is probably contributing to the job dissatisfaction of clinicians,³ and to the associated concerns for the future of academic clinical practice.^{4,5} There are also concerns that pressure to train clinicians for managerial tasks will reduce time available for clinical learning needs.

Problems in healthcare delivery

This university-hospital separation is especially unfortunate at a time when there are increasing concerns about the performance of health care delivery systems.^{6,7} These include the wide variability in healthcare outcomes and costs,⁸ the lack of correlation between expenditure and outcomes,^{9,10} and the significant risks of adverse events associated with hospital admission.^{11,12,13} It is now recognised that many of these problems arise from multifactorial interactions,^{14,15} and that these interactions generate organisational complex adaptive systems that are not easily understood, or managed through traditional hierarchical structures.^{16,17,18} It is also known that lack of team development in such complex environments is associated with higher mortality,¹⁹ and that this may be part of dysfunctional organisational cultures that may cause recurrent harm to patients^{20,21}

To meet these challenges it has been suggested that new approaches will be required in professional organisations,²² and leadership,^{23,24} and that clinical education should encompass quality and safety,^{25,26} and the sort of team training,²⁷ and simulation techniques^{28,29,30} that have been successfully employed in other industries. New workforce models,³¹ and networked organisational structures,^{32,33,34} are also emerging to replace or supplement those that are no longer sufficient for the task.

Shared perceptions

In order to assess these perceptions a brief survey was performed of the opinions of the deans of the U21 medical schools. Of the 14 deans 11 responses were received from 6 countries (Australia, New Zealand, Hong Kong, Sweden, Singapore and UK). The survey provided a list of statements based upon the above issues, and respondents asked how strongly they agreed or disagreed with each statement and how important they considered the issue to be on a 5 point scale. Data from these two evaluations were then combined and calculated as a percentage of a maximum possible score of both agreement and perceived importance.

The same survey was also sent to approximately 3000 members the Australian Council of Health Service Executives. (ACHSE) Only 78 responses were received, the low rate probably reflecting an assumption (not specified but not unreasonable) that only those members in university-associated hospitals were expected to respond. Given the small sample sizes and the selected nature of the populations therefore, caution is therefore obviously required in the interpretation, but some interesting patterns are apparent (Figure). There would thus seem to be agreement from these groups that there has indeed been a separation due to the increasing financial pressures, and that this has impaired teaching capacity. The managers were strongly of the view that new organisational skills were needed for the new environment, and that these should be part of medical undergraduate education. The academics were less convinced in this regard, but both groups agreed that there were valuable joint research opportunities in health systems delivery. The managers were invited to nominate research priorities, and 120 were provided covering a wide range of issues.

A new research agenda

It would therefore appear that there are ample opportunities for rebuilding university-hospital relationships through joint research, but some challenges are apparent:

Analytical methods Research usually requires comparison of matched control and intervention groups and inferential statistical analysis. This provides a high degree of confidence in the results where the impact of a single or limited number of defined interventions is sought. Such designs are often inappropriate however in the operational workplace where populations cannot be easily controlled, or if they can, give answers of high precision but limited applicability. There are nonetheless alternative analytical approaches such as statistical process control that have been used in industry for many years, and that are now being increasingly applied in health care.^{35,36} They have been used for example, to analyse patient flow³⁷; to demonstrate significant aberrations in clinical practice many years before they finally crossed the threshold of organisational tolerance,³⁸ and to measure competency in acquiring clinical skills.^{39,40} These methods deserve wider use for linear time-series data sets, but are not adequate to untangle the multiple non-linear variables that characterise the complex adaptive systems of

healthcare. These require different methods of analysis to reveal critical interactions that may otherwise remain hidden.^{41, 42, 43}

Balancing collaboration and competition

Collaborative methods are being increasingly used to improve healthcare outcomes,^{44,45,46} and the factors that lead to successful collaboration are now better understood.⁴⁷ It has recently been argued however that competition is essential if health care delivery is to be improved, but that this must be based on measured patient outcome-value rather than on the costs and efficiency of care delivery.⁴⁸ Collaboration is also now expected in the traditionally competitive world of research.⁴⁹ This does apparently increase productivity if measured by papers published, but not if “fractional counts” are used where the number of authors per paper is included in the assessment.⁵⁰ It also seems that multi-disciplinary collaborations are more successful within than between institutions.⁵¹ Any research partnership between healthcare managers and researchers must therefore address these intrinsic competitive-collaborative tensions not only between research and managerial communities but within research groups themselves.

Harnessing the collective mind

The central challenge would therefore seem to be to define important but complex healthcare managerial problem in a form that captures the interest of researchers and is accessible to the scientific method. This requires clarification of the problem, linkage of interested sources of expertise, and a model that accommodates the apparent conflicts of collaboration and competition. Enterprises of this type usually develop slowly as experience and trust accumulate through informal networks and the chance associations of location and learning. It may be however that this could be expedited and more appropriately shaped by a process that has recently emerged on the World Wide Web. This is as yet poorly defined but might perhaps be termed ‘automated cumulative critical review.’ In essence, a piece of information or an opinion is posted on a website and all are then free to comment, criticise and to rate the value of the posting. The rating system can be applied to the content itself or to the value of the review. This allows cumulative opinion to rapidly emerge in a quantifiable and attributable form. For the viewer the reward is access to the opinion, for the reviewer the reward is quantifiable reputation. These assessment systems are being used for consumer goods,⁵² book reviews;⁵³ and technical knowledge.⁵⁴ An intriguing variant in which all users are also free to edit or expand the text has been used to build an on-line encyclopaedia.⁵⁵ Moderation is used to filter out inappropriate material or “edit-wars” but this only seems to occur in a minority of cases and the system is essentially self regulating. This encyclopaedia has only been available for 3 years but has already grown to several million pages, with entries that rival the accuracy of a leading orthodox encyclopaedia.⁵⁶ This power of the collective mind has aptly been described as “the wisdom of crowds”,⁵⁷ but it is only recently that access to this wisdom has been widened and expedited through the internet.

Facilitation of a collective mind is not without risk however especially as it is known that under high growth conditions, the mathematics of preferential attachment favour well connected centres whose origins may be as much due to accident as to intrinsic worth.⁵⁸ The hazards of inappropriate amplification of the conventional wisdom or capture by the sectional interests of zealots therefore have to be considered. Nonetheless, these new resources do provide valuable opportunities for access to knowledge and opinion. They also raise possibilities for the development of research collaboration in general, and for university-hospital interactions in particular. The diverse environments within the Universitas 21 institutions provide a valuable platform for such a venture. The Working Group is currently exploring these possibilities.

Tables and Figures

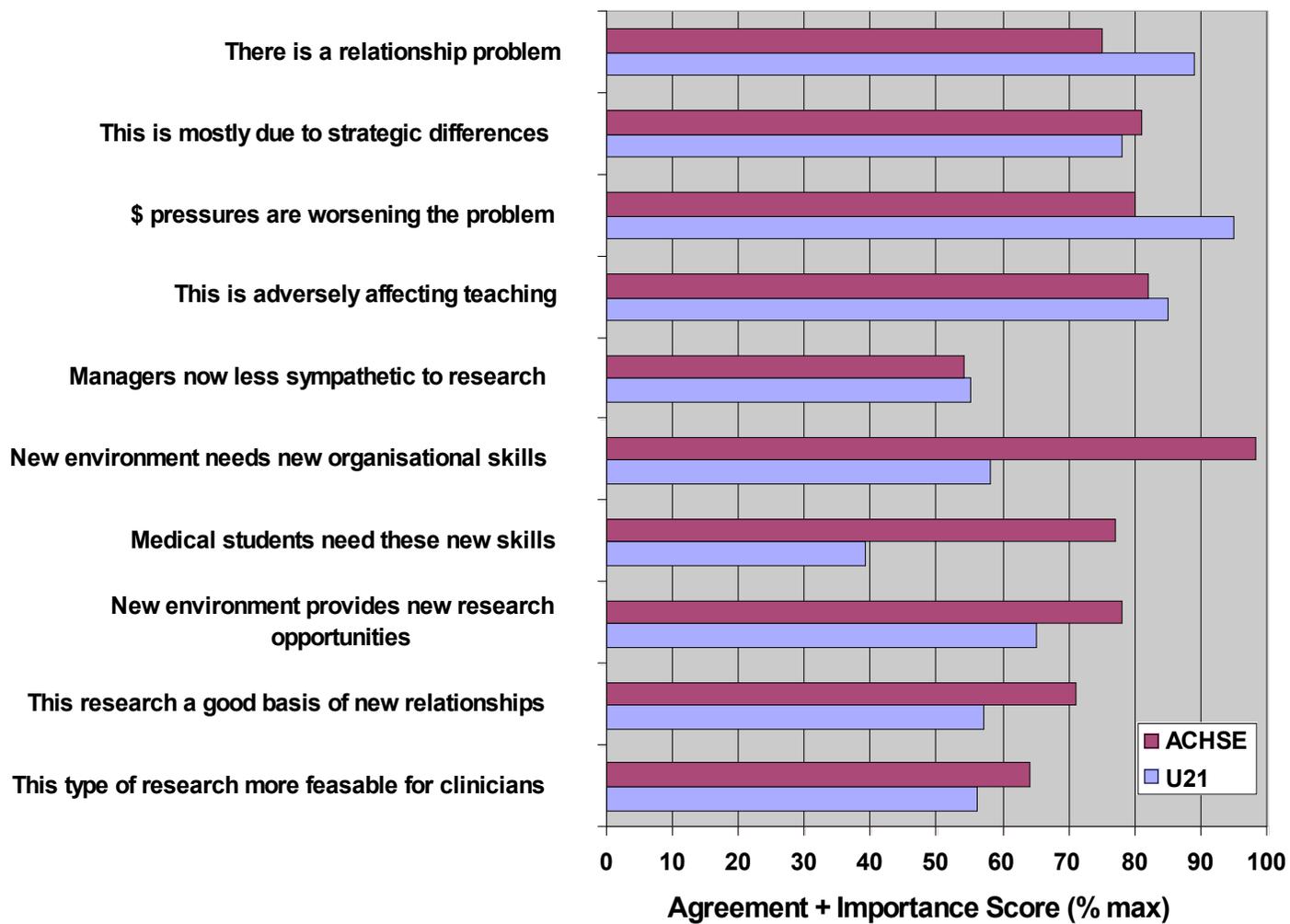
Key Points

- ∞ *Relationships between universities and healthcare delivery systems carry implicit assumptions of common interests in education, research and clinical practice*
- ∞ *Closer inspection reveals significant structural divergence in these interests, and a recent economically driven widening of the gap as universities have focused more attention on research and hospitals on clinical services*
- ∞ *These changes have increased specialisation and competition in research which has made it difficult:*
 - *for clinical academics to compete as researchers*
 - *for health service managers to unreservedly support traditional biomedical models of research.*
- ∞ *This is unfortunate as there is an extensive and growing list of problems affecting health care delivery that would benefit from joint approaches in both research and education.*
- ∞ *This paper describes how the gap might be narrowed and the partnership re-built through the development of a new research agenda and a web enabled approach to building collaboration.*

Table Strategic Drivers

	Universities & Schools of Medicine	Health Systems & Hospitals
Research - Role - Financial implications	Central Revenue source	Optional Indirect cost
Education (undergraduate) - Role / responsibility - Financial implications	Central Revenue source	Clinical education Consumers of interns Indirect cost
Clinical Service - Role - Financial implications	Model dependent but often peripheral Model dependent but often an indirect cost	Central Revenue source

Figure : Perceptions of academics and health service managers



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