

# Organizational readiness for innovation in health care: some lessons from the recent literature

Iestyn Williams

Health Services Management Centre, University of Birmingham, Birmingham, UK  
E-mail: i.p.williams@bham.ac.uk

## Summary

There is no single intervention that will trigger or ensure innovation in health care, as the interaction between the innovation and the context of its introduction is necessarily complex and variable. Although academic attention has recently turned to the role of organizations in promoting and embedding innovation, this literature remains light on prescription and tends to ignore the issue of substitution and disengagement. Innovation needs to be adapted as well as adopted into organizational contexts and receptive climates for innovation can only be developed incrementally over time. This paper identifies recommendations for increasing the readiness of health-care organizations for innovation. Key organizational strategies for embedding innovation include: development of incentives; sophisticated knowledge management; interfunctional and interorganizational coordination and collaboration; and development of an innovation infrastructure. More attention is required to substitution and disengagement of interventions and practices (exnovation) in the current economic climate.

## Introduction

The existence of innovation, in any setting, implies progress and improvement. As such, its importance to health-care design and delivery has long been assumed and this assumption is reflected in health policy and reforms in a range of international settings. The rationale for innovation has a number of strands including improving productivity and efficiency, reducing cost, increasing quality and responsiveness, reducing variation in practice and increasing access to health services. On closer inspection, however, the concept is both vague and something of a moving target, as innovation can only be understood in relation to context. In other words, the same intervention may not be innovative in different or changed circumstances. This begs questions such as: how do we decide what is a novel and valuable intervention? And when do innovative practices themselves become outdated and in need of replacement or re-design? In order for systems to be 'innovative' the improvement and replacement of standard practices should be constant and ongoing, not allowing for entrenchment of outdated practices or stagnation in relation to new developments. Innovation therefore requires not just development and discovery but also adoption, routinization and substitution if its benefits are to be fully felt.

Innovation – here defined as the 'multi-stage process whereby organizations transform ideas into new/improved products, service or processes' (p. 1334)<sup>1</sup> – is commonly considered to proceed at a relatively slow rate in many health-care systems across the world with either deficits or variation in service outcomes as a result. This paper sets aside the responsibilities of governments and industry to focus on the *organizational* level and on the *adoption*, *routinization* and *decommissioning* pathway stages. There are a number of reasons for this focus. Firstly, the importance of organizational context is increasingly recognized.<sup>2,3</sup> There is a growing realization that many innovations – and especially those that are complex – are primarily adopted by the organization and therefore the primary determinant of adoption is fit between the technology and the adopting organization's aims, structure and climate.<sup>4</sup> Secondly, interventions at policy and systems levels are limited by current economic pressures. This climate of scarcity and uncertainty means that investment (e.g. via major new funding streams for innovation) is unlikely. Furthermore, innovation must compete with other goals of health-care reform such as efficiency, equity and coverage. At the other extreme, strategies that focus solely on the individual adopter are limited for anything other than the most simple of innovations, just as initiatives that focus primarily on the innovation itself have been consistently shown to be insufficient in driving improvements in practice. Therefore, this paper focuses on contextual determinants of innovation at the interorganizational, organizational and suborganizational levels. The themes presented are

Dr Iestyn Williams, Health Services Management Centre, University of Birmingham, Park House, 40 Edgbaston Park Road, Birmingham B15 2RT, UK.

based on expert commentary rather than a formal review of the published evidence.

## Innovation research in health-care organizations

The evidence base on innovation in health care is growing but remains patchy and methodologically limited. In the words of Rye and Kimberly, ‘We still do not know as much as we would like, and what we do know, we may not know for sure’ (p. 254).<sup>5</sup> A number of local and national mechanisms have been put in place to facilitate innovation in various health-care systems and we are learning more about what works well to promote and embed innovation. However, there remains little by way of evidence-based prescription for local planners and strategic decision makers to follow. Some of the most authoritative recent sources in this field remain either silent or cautious in their prescriptions (see, for example, refs.<sup>3,6</sup>). Such caution reflects a growing acceptance that the interaction between innovation and organizational context is unpredictable. Health care exhibits elements of what have been termed ‘complex systems’ so that where innovation is successfully achieved, this will take place in a multidirectional and iterative fashion. This in turn makes it impossible to predict with any certainty the effects of new interventions and practices as these are introduced. Innovation is therefore necessarily contingent and cannot be entirely preprogrammed. This leads to the frustration of a burgeoning empirical literature, very little of which makes informed recommendations for those seeking to improve their organizations.

Furthermore, much of the literature in this area appears to be oblivious to the pressing financial concerns facing budget holders and broader systems. With some exceptions, reviews of the evidence typically overlook the issue of disengagement (or exnovation) of health-care interventions. Despite disclaimers relating to the complexity and context specificity of innovation, it remains important to identify strategies for local decision makers and organizations, and for these to recognize the realities of resource scarcity in health care. This paper therefore draws on recent publications in the area of health-care innovation in order to distil some lessons for organizations and to translate these into recommendations which, although tentative and in some cases general, will be of interest and value to organizations seeking to both innovate and exnovate. This is a high-level discussion which is designed to complement more methodologically rigorous reviews on subthemes.<sup>3,5–9</sup>

## Organizational determinants of innovation

Theoretical insights from commentators, such as Rogers<sup>10</sup> and Van de Ven *et al.*,<sup>11</sup> allied to an ever-growing empirical evidence base, have led to some consensus over the organizational determinants of innovation.<sup>3,5–7,12–14</sup>

These include: structures and governance arrangements, resource levels and organizational culture. For example, functionally differentiated and specialized organizations are seen as preferable to highly centralized and hierarchical structures of governance. Similarly, flatter, more participatory decision-making structures are considered less stifling of innovation than inflexible, top-down models. Larger organizations are considered more likely to have the resources to devote to innovation but much depends on the extent of autonomy of, and nature of the relationship between, constituent organizational parts. This links to the notion of *connectedness*:<sup>5</sup> the extent to which boundaries between different professional groups or organizations have been overcome. Highly connected organizations foster social exchange in place of professional and/or structural isolation.

Connectedness relates as much to culture as it does to structure. Culture – understood as the values and norms that predominate in an organization – is widely considered to be important to innovation.<sup>11,15</sup> Norms that promote change and innovation include high levels of trust in vertical and horizontal relationships and support for risk-taking and experimentation.<sup>16</sup> Although culture is influenced by a variety of factors, receptiveness to innovation – for example, through incentives and reward – should therefore be reflected in the full range of organizational policies and procedures. Furthermore, innovation antecedents, which are more common in organizations with longstanding experience and memory, also contribute to an organizational climate which is receptive to change.<sup>6</sup>

‘Absorptive capacity’ – the extent to which new knowledge is identified, distributed and translated – is another predictor of readiness for innovation.<sup>17</sup> The need to both acquire and exploit knowledge requires mechanisms for the capture and exchange of information of all types. Finally, innovative organizations require a range of resources: as well as covering set-up costs of new practices, ‘slack resources’ are also required for ongoing innovation. This provides a necessary cushion to enable both financial and technical support and the release of human resources from other tasks.<sup>2</sup>

## Becoming ‘innovation ready’

Moving to a state of readiness for innovation *in general* is different from preparing to introduce a *specific* innovation.<sup>3</sup> This discussion is concerned primarily with the former challenge. Given the emerging consensus over the major organizational determinants of innovation, attention is now given to the strategies that might help organizations align with these.

### Structure and culture

Although major organizational restructuring is not always feasible, those planning for innovation can support the decentralization of routine decision-making, relax rigid upward reporting regimes and encourage the development of semi-autonomous, specialized units within organizations.

In a context of health care, these freedoms will need to be balanced against the need to ensure that minimum quality and safety standards are met. A focus on clinical microsystems – the smallest units of organization and delivery within health-care systems – is in keeping with this pursuit of flatter structures and ‘bottom-up’ approaches to innovation.<sup>18</sup> However, differentiation should be accompanied by attention to the relationships between organization subunits. In this, boundary spanners, cross-team training and even cross-functional teams can be helpful in promoting shared understanding, a flow of information and the high levels of trust required for innovation. Each of these prescriptions comes with the disclaimer that organizational stability and longevity also has its benefits – experience and memory are powerful resources that can be destabilized when structural change is introduced arbitrarily.

The importance of effective management is often overlooked in prescriptions for innovation and yet it seems self-evident that effective project and people management will enhance innovation initiatives.<sup>15,19</sup> As well as discharging formal responsibilities, managers are key to embedding the values and norms – such as trust and tolerance of risk-taking – associated with innovation. Innovation is as much a cultural as technical process and managers must, therefore, contribute to a climate in which task orientation is encouraged and occasional mistakes are accepted as inevitable.<sup>20</sup> These values will also need to be reflected in systems of recognition and reward, for example, through innovation ‘awards’ and ‘fellowships’.<sup>2</sup> However, the temptation to individualize innovation must be balanced against collective considerations such as communication, teamwork and participation. Because innovation implies some disruption and discontinuity, managers will also play a key role in mediating between the organization and the wider authorizing environment, negotiating acceptance of new ways of working which depart from established norms and procedures.<sup>21</sup>

### Leadership

Although structures and cultures are important, much is made in the literature of the need to nurture leaders or innovation ‘champions’. Fitzgerald *et al.*<sup>12</sup> distinguish three types of opinion leader:

- Those who channel information across organizations and networks, linking with innovators, experts and practitioners;
- Those bestowed with expertise (often clinical) and local credibility;
- Those with strategic management and political skills.

Therefore, effective management is only one dimension of leadership which also involves, for example, exercising of charisma and demonstrating commitment to innovation.<sup>22</sup> Leaders can: drive innovation set-up; monitor implementation; and provide feedback and guidance to stakeholders<sup>10</sup> as well as assisting with presentation of a financial ‘business case’ to the adopting

organization.<sup>23</sup> The style of leadership required is therefore consultative, facilitative and flexible. Ideally, several leaders will be operating simultaneously at multiple organizational levels.<sup>24</sup> In particular, the health-care literature underlines the importance of nurturing clinical champions for innovation generally as well as for specific interventions.

### Local determinant analysis

If context is crucial to innovation it follows that a thorough understanding of existing infrastructure, skills, relationships and practices (as well as potential obstacles) will be essential to successful innovation strategies within local health organizations and systems. A local determinant analysis will pick up information around: current resources (including financial and human); the attitudes and experiences of professional groups; current channels and levels of information sharing and so on. The timing, pacing and sequencing of the innovation process will need to reflect this local context as will setting of resource levels and training and development programmes.

### External linkage

The tools and resources required for innovation cannot all be found or nurtured internally. Therefore, there should be formal and informal systems for identifying relevant external sources of ideas, evidence and implementation guidance, and here networks can be a vital source of such linkage. Through such vehicles, individuals and organizations at local levels can sift and adapt knowledge to suit local context.<sup>25</sup> This ‘brokerage’ is important as medical communities are considered less likely to trust sources of authority that are either distant or unfamiliar.<sup>2</sup> For these external links to be worthwhile, they need to be matched by internal knowledge diffusion through regular and multiple forms of knowledge exchange, including both formal mechanisms such as meetings and reporting and through informal sharing where possible.

### Knowledge management

These activities should form part of a broader knowledge management strategy enabling organizations to ‘acquire, conserve, organize, retrieve, display and distribute what is known’ (p. 74).<sup>26</sup> Proactive knowledge management is at the heart of all recent prescriptions for innovation in health care and can be seen as encapsulating both the need to access and interpret knowledge, and the capacity to adapt and apply that knowledge within specific local circumstances.<sup>17</sup> In order to capitalize on both explicit and tacit knowledge<sup>27</sup> the full range of strategies should be introduced including: transfer or dissemination of best practice; network development; information systems and decision tools; skill development; and sense-making and story-telling. The importance of tacit knowledge sharing alongside formal systems of evidence transfer cannot be overstated. This implies the need for learning-by-observation, sharing of

ideas and experiences, towards the development of reciprocal and open organizational cultures.<sup>28,29</sup>

New ways of working can be made more palatable if framed in ways which make sense to end users. Complex systems require multiple feedback loops and opportunities for reflection and learning at all levels.<sup>3</sup> It is imperative that benefits of innovations and pitfalls to avoid in their diffusion are routinely and widely communicated. One option is the creation of an innovation website where organizations upload short case studies of what they are doing and how they are doing it. A regional network of innovation champions from all local organizations could also be set-up. Members would receive training and time to promote innovation in their organization and to use the network to spread and 'sell' best practice. These developments could be supplemented by a short guide with advice on how to adopt and spread innovation that is distributed around the region.

### *Adoption and adaption*

Although much of the discussion has hitherto centred on how the innovation pathway in health care can be travelled more rapidly, it is important to achieve an appropriate pace of adoption and spread. Optimal implementation timescales will vary according to the nature of the intervention and the context of its introduction and rushing change can lead to fatigue and ultimately failure.<sup>8</sup> The desire for speedy innovation processes should also not overlook the need to avoid diffusion beyond effective areas (over-adoption) or adoption that creates or exacerbates inequities of access and outcome. No two innovation solutions are entirely the same<sup>2</sup> and although innovations will come from outside of the 'usual channels', in order to be successfully spread they will be adapted to fit with the demands and constraints of local context. This means that timelines may need to be flexible.

### *Evaluation*

The complexity of innovation makes it unsuitable for experimental evaluation design.<sup>30,31</sup> In order to capture the range of individual, group and organizational level processes and outcomes, a combination of approaches might be adopted. For example, qualitative individual reflections, evaluation of group process through action research and quality assurance in relation to organizational processes.<sup>30</sup> Crucially, evaluation should not be confined to the pilot or early introduction phase at the expense of ongoing evaluation of processes and outcomes. Freeman *et al.*<sup>32</sup> suggest that evaluation objectives should include:

- Extent of fit between the innovation and context
- Stakeholder perceptions and experiences of the innovation
- Extent of change to services and outcomes
- Extent to which new practices have become embedded
- The effects (and unintended consequences) of the innovation on services, services users, and the wider system

- Learning that can be transferred to other settings and how this relates to the broader literature on innovation.

When measuring inputs and outputs of innovations, the former are likely to include quantifiable financial, human and physical resources alongside the more difficult to measure tacit knowledge.<sup>33</sup> Issues to bear in mind when drawing up a list of outcome measures include not just benefits to the organization and patients, but also the distribution of positive net benefits, for example, between organizations, functions and user groups.<sup>34</sup> Authors caution against 'reverse access' problems where, for example, disadvantaged groups continue to access less effective or harmful innovations.<sup>5</sup> Ultimately, outcome measures should reflect the underlying objectives of the innovation process and measures should be carefully screened according to appropriateness and relevance.<sup>35</sup>

### *Networks*

As already indicated, knowledge management and communication can be enhanced by the development of specific network forms within health-care settings. Indeed, there are instances where networks might themselves constitute an innovative model of service delivery. For example, in chronic care where traditional models of health service delivery are poorly equipped to meet patient need, networks including patients and service users have been found to lead to better self-management.<sup>36</sup> However, to be effective, these need to go beyond traditional professional network formations.<sup>37</sup> Instead, innovation networks should strengthen the 'weak ties' between divergent groups thereby enabling new ideas and experiences to be exchanged.<sup>2</sup> The interpersonal exchange and interaction facilitated by networks can engender the 'predisposing, enabling and reinforcing' required for innovation (p. 58).<sup>38</sup> This, in turn, can enhance observability, and make visible the benefits of new practices as well as familiarizing end-users with features of proposed innovations.<sup>12</sup> Such networks can be especially valuable for smaller organizations lacking the scale and resources to introduce major new ways of working.

However, it should be noted that networks are rarely either self-creating or self-sustaining – especially in contexts where there is little prior history of collaboration.<sup>39</sup> They therefore rely on leadership and institutional support but must avoid becoming overly bureaucratic or hierarchical.<sup>40</sup> There is support in the literature for institution of a multidisciplinary work group to oversee networks<sup>41</sup> and for close attention to membership to be paid. Although 'cosmopolitan' (externally networked) networks are preferable, they are also more challenging to create and maintain.<sup>9</sup> Ideally, networks will also find mechanisms for inclusion of service users especially where co-production of care is involved.<sup>42</sup>

### *Innovation infrastructure*

Although no two innovation journeys are identical there is a strong case for the development of an infrastructure,

combining many of the elements described here to support adoption and diffusion of new ways of working. These will include, for example,

- A steering committee with a suitably broad and senior membership
- Expert, dedicated project management capacity
- A formal technical group and technical support systems
- Access to expert facilitators
- Procedures for problem-solving and conflict resolution
- Senior management time and support
- Training for staff, both in terms of generic innovation and in relation to specific interventions
- Effective team working
- Quality management systems.

The financial resources required to set up the new ways of working, provide marketing, training and education, resolve implementation problems, promote spread outside of the initial context of introduction and ensure that succession and routinization should all be carefully planned and costed.<sup>43</sup>

### Disengagement

It is often assumed that successful innovation is cost-effective and this assumption has led to ignorance over the real costs and outcomes (i.e. efficiency) of interventions in a context of resource scarcity. Establishing return on investment is of course difficult in complex systems. One way to address this is to redouble focus on disinvestment in, or disengagement of, existing practices.<sup>44</sup> However, as noted earlier, the literature in this area tends to confine itself to innovation and glosses over the question of how we replace or discontinue practices that are shown to be outdated. As a result, innovation strategies have often neglected the issue of substitution and disengagement. Rye and Kimberly<sup>5</sup>(p. 262) emphasize the importance of addressing this gap:

Understanding the process and conditions under which organizations disengage from innovations they have previously adopted is just as important, in our view, to solving cost, quality and access issues as understanding the factors influencing the adoption of innovation.

At a time when the gap between demand and supply in health care appears set to grow wider, budget holders will be required to find innovative ways to allocate dwindling (as opposed to expanding) resources and to make savings while preserving standards of care. When dealing with exnovation of this kind many of the same tools and strategies apply. High-quality leadership and management become even more important in overcoming the potential blockages to controversial service decisions. Local knowledge, information exchange and trust will also be paramount as those involved take on the role of stewarding scarce resources.<sup>45</sup> Formal evidence (including comparative analysis of health technologies) can inform disinvestment decisions<sup>46</sup> but the full effects of decisions to remove outdated practices can only be fully predicted by drawing

on the experience and knowledge of those working in local systems.

## Conclusions

There is no single solution which will trigger or ensure innovation in health care, as the interaction between the innovation and the context of its introduction is necessarily complex and variable. However, this paper has argued that a multideterminant and multilayer approach is essential. Organizations are important in this as are broader systems, markets and politics. It is increasingly clear that innovation needs to be adapted as well as adopted into the organizational context and that a receptive climate for innovation will develop incrementally and over varying periods of time. This said it is possible to identify some key organizational strategies for enhancing innovation readiness including development of incentives to support adoption of new ideas and services and sophisticated knowledge management. The latter should go beyond formal systems of monitor, review and evaluation, and accessing the formal evidence base: this explicit knowledge should be supplemented by development of tacit knowledge exchange, including through interfunctional and interorganizational coordination and collaboration. It is also important to build up capacity and capability within frontline organizations by devoting expertise and resources to innovation. Time, energy and money will be required to incentivize and facilitate innovation processes, as will leadership at all levels. Overall, these features map closely onto the notion of the 'learning organization' in which boundaries are permeable; structures evolve over time; substantial resources are dedicated to learning; and hierarchical groupings are replaced with open, multifunctional networks.<sup>47</sup> Finally, in a context of resource scarcity, greater attention is required, in both research and practice, to the challenges of exnovation in health-care organizations.

**Declarations:** None.

## References

- 1 Baregheh A, Rowley J, Sambrook S. Towards a multidisciplinary definition of innovation. *Manag Decis* 2009;**47**:1323–39
- 2 Berwick DM. Disseminating innovations in health care. *JAMA* 2003;**289**:1969–75
- 3 Robert G, Greenhalgh T, MacFarlane F, Peacock R. *Organisational Factors Influencing Technology Adoption and Assimilation in the NHS: A Systematic Review*. National Institute for Health Research, Service Delivery Programme, UK, 2009
- 4 Shortell SM, Kaluzny AD. *Health Care Management Organization Design and Behavior*. New York: Thomson Delmar Learning, 2006
- 5 Rye CB, Kimberly JR. The adoption of innovations by provider organisations in health care. *Med Care Res Rev* 2007;**64**:235–78
- 6 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic Review of the Literature on Diffusion, Dissemination and Sustainability of Innovations in Health Service Delivery and Organisation*. Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R (NCCSDO), 2004

- 7 Fleuren M, Wiefferink K, Paulussen T. Determinants of innovation within health care organisations: literature review and Delphi study. *Int J Qual Health Care* 2004;16:107–23
- 8 Buchanan D, Fitzgerald L, Ketley D, et al. No going back: a review of the literature on sustaining organisational change. *Int J Manag Rev* 2005;7:189–205
- 9 Williams I, Dickinson H. Can knowledge management enhance technology adoption in health care? A review of the literature. *Evid Policy* 2010;6:309–31
- 10 Rogers EM. *Diffusion of Innovations*. NY: Free Press, 2003
- 11 Van de Ven A, Polley DE, Garud R, Venkataraman S. *The Innovation Journey*. Oxford: Oxford University Press, 1999
- 12 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions: the diffusion of innovations in health care. *Hum Relations* 2002;55:1429–49
- 13 Lämsäalmi H, Kivimäki M, Aalto P, Ruoronen R. Innovation in healthcare: a systematic review of recent research. *Nurs Sci Q* 2006;19:66–80
- 14 Djellal F, Gallouj F. Innovation in hospitals: a survey of the literature. *Eur J Health Econ* 2007;8:181–93
- 15 Caccia-Bava M, Guimaraes T, Harrington SJ. Hospital organisation culture, capacity to innovate and success in technology adoption. *J Health Organ Manag* 2006;20:194–217
- 16 Anderson N, de Dreu CKW, Nijstad BA. The routinisation of innovation research: a constructively critical review of the state-of-the-science. *J Organ Behav* 2004;35:147–73
- 17 Zahra AS, George G. Absorptive capacity: a review, reconceptualization and extension. *Acad Manag Rev* 2002;7:185–203
- 18 Nelson E, Batalden PB, Huber TP, et al. Microsystems in health care: Part 1. Learning from high-performing front-line clinical units. *J Qual Improv* 2002;28:472–93
- 19 Walker RM. Evidence on the management of public services innovation. *Public Money Manag* 2003;23:93–102
- 20 Caldwell DE, O'Reilly CA. The determinants of team-based innovation in organisations: the role of social influence. *Small Group Res* 2003;34:497–517
- 21 Phillips AS, Garman AN. Barriers to entrepreneurship in healthcare organisations. *J Health Hum Serv Adm* 2006;28:472–83
- 22 Leeman J, Baernholdt M, Sandelowski M. Developing a theory-based taxonomy of methods for implementing change in practice. *J Adv Nurs* 2007;58:191–200
- Q2 23 Bodenheimer T. *The Science of Spread: How Care Innovations become the Norm*. California Healthcare Foundation, 2007
- 24 Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex interventions. *Med Care Res Rev* 2007;64:279–303
- 25 Adam R, McCreedy S. A critical review of knowledge management models. *Learn Organ* 1999;6:91–100
- 26 Matheson NW. Things to come: postmodern digital knowledge management and medical informatics. *J Med Inform Assoc* 1995;2:73–8
- 27 Nonaka I. A dynamic theory of organizational knowledge creation. *Organ Sci* 1994;5:14–37
- 28 Bosua R, Scheepers R. Towards a model to explain knowledge sharing in complex organizational environments. *Knowledge Manag Res Pract* 2007;5:93–109
- 29 Söderquist K. Organising knowledge management and dissemination in new product development: lessons from 12 global corporations'. *Long Range Planning* 2006;39:497–523
- 30 Booth A, Falzon F. Evaluating information service innovations in the health service: 'If I was planning on going there I wouldn't start from here'. *Health Inform J* 2001;7:13–9
- 31 Berwick DM. The Science of Improvement. *JAMA* 2008;299:1182–4
- 32 Freeman T, Dickinson H, McIver S, McLeod H. *Innovation in Service Delivery: A Literature Review on the Characteristics of Innovation and Improvement*. Health Services Management Centre, University of Birmingham, 2006
- Q3 33 Adams R, Bessant J, Phelps R. Innovation management measurement: a review. *I J Manag Rev* 2006;8:21–47
- 34 Coyte PC, Holmes D. Health care technology adoption and diffusion in a social context. *Policy Polit Nurs Pract* 2007;8:47–54
- 35 Kimberly J, Cook JM. Organizational measurement and the implementation of innovations in mental health services. *Adm Policy Ment Health Ment Health Serv Res* 2008;25:11–20
- 36 Hwang J, Christensen CM. Disruptive innovation in health care delivery: a framework for business-model innovation. *Health Aff* 2007;27:1329–35
- 37 Ferlie E, Fitzgerald L, Wood M, Hawkins C. The non-spread of innovations: the mediating role of professionals. *Acad Manag J* 2005;48:117–34
- 38 Grol R, Wensing M. What drives change? Barriers and incentives for achieving evidence-based practice. *Med J Aust* 2004;180:7–60
- 39 Dobbins M, Rosenbaum P, Plews N, Law M, Fysh A. Information transfer: what do decision makers want and need from researchers? *Implement Sci* 2007;2:20
- 40 Bate SP, Robert G. Knowledge management and communities of practice in the private sector: lessons for modernising the National Health Service in England and Wales. *Public Adm* 2002;80:643–63
- 41 Leeman J, Jackson B, Sandelowski M. An evaluation of how well research reports facilitate the use of findings in practice. *J Nurs Scholarsh* 2006;38:171–7
- 42 Batalden P, Splaine M. What will it take to lead the continual improvement and innovation of health care in the 21st century? *Qual Manag Health Care* 2002;11:45–54
- 43 Bradley EH, Webster TR, Baker D et al. *Translating Research Into Practice: Speeding the Adoption of Innovative Health Care Programs*. Commonwealth Fund, Issue Brief, July, 2004
- 44 Clancy TR, Delaney C-W. Complex nursing systems. *J Nurs Manag* 2005;13:192–201
- 45 Tauber AI. Medicine, public health and the ethics of rationing. *Perspect Biol Med* 2002;45:16–30
- 46 Elshaug A, Hiller JE, Tunis JE, Moss JR. Challenges in Australian policy processes for disinvestment from existing, ineffective health care practices. *Aust N Z Health Policy* 2007;4:23
- 47 Garratt B. The learning organisation 15 years on: some personal reflections. *Learn Organ* 1999;6:202–6

# QUERY FORM

## Royal Society of Medicine

Journal Title: **HSMR**

Article No: **11-14**

**AUTHOR:** The following queries have arisen during the editing of your manuscript. Please answer the queries by making the requisite corrections at the appropriate positions in the text.

<b>Query No.</b>	<b>Nature of Query</b>	<b>Author's Response</b>
Q1	Please provide up to two qualifications of the author.	
Q2	Please provide the place of publication in reference 23.	
Q3	Please provide the place of publication in reference 32.	