

Quality improvement in action

Innovating across disciplines: report on a national workshop of stakeholders in Australia

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ABSTRACT

The most effective innovations in healthcare require the input of multidisciplinary teams working from white board to bedside. Innovations must ultimately deliver tangible results in the real world. The skills required at each stage of the development from drawing board to bench top and from the lab to the clinic may be entirely unrelated. The key results at each stage also vary depending on perspective; they may be acclaim and awards, sales and profits or improved clinical parameters. As teams are enlisted on a specific challenge they each focus primarily on their own key performance indicators. In this paper we report the deliberations at a workshop involving a variety of disciplines working in healthcare. The

participants emphasised the need for clear agreement on three aspects: the outputs of the project including the financial and intellectual property rights; the risks, costs and benefits; and the timelines for completion. A lead organisation must broker and maintain relationships ideally facilitated by an experienced project manager. The greatest challenges were highlighted as: the return on investment for commercial partners; the timelines for academic outputs; and the potential for disruption of clinical practice routines.

Keywords: health, innovation, multidisciplinary, team.

Introduction

Innovation that could benefit patients may involve the efforts of bench-top researchers, including those working in biology, chemistry, information technology, electronics, nanotechnology and robotics. It may bring to the fore those directly engaged in the health sciences or some who have never previously participated in any research for the direct benefit of

patients. However, for patients to benefit from the endeavours of bench-top scientists, the latter must work in tandem with health practitioners and other experts. These partners are likely to have very different performance indicators, although each contribution is crucial if new technology is to be tested in the field, reported in the scientific literature and teams are to

leverage funding for the many different steps from bench-top to bedside.

At all levels, health innovators are rewarded for reducing healthcare costs and more efficiently serving an ageing population with a growing incidence and prevalence of chronic and complex conditions.^{1,2} Multi-disciplinary partnerships often yield the best and most novel solutions to challenging clinical problems and often derive inspiration from disciplines not directly related to the health sciences.³ The capacity to forge and nurture productive partnerships is a crucial skill and one which requires a proactive and informed approach. Therefore, we report on a workshop to develop a shared understanding of the key issues that relate to effective partnership at the multiple interfaces in health innovation.

Methods

The workshop facilitated by staff from the Curtin Health Innovation Research Institute, Perth, Western Australia was hosted at the annual Health Informatics Conference in Brisbane 2011. The conference showcases health innovation specifically in information technology. This year, it was attended by hundreds of delegates from across Australia and overseas. The 90-minute workshop was divided into three parts:

- 1 preliminary 10-minute presentations of three different innovations initially developed by organisations or individuals not directly involved in patient care
- 2 group work exploring the challenges to forging partnerships across multiple stakeholder groups
- 3 group work highlighting effective strategies to overcome the challenges in establishing and maintaining partnerships.

The participants formed two groups each led by a pair of facilitators. The facilitators took notes during the meeting and the resulting draft report was circulated for comment to participants before a final submission.

Workshop

Three innovations were showcased and presented in four parts:

- 1 introducing the clinical problem(s)
- 2 describing the key partners involved in the innovation
- 3 outlining how the clinical problem was addressed through this innovation

- 4 showcasing the outcome and or progress of each project.

The innovations are described below.

Case study 1: the referral writer

The inadequate flow of information from primary care has been reported to compromise prognosis in life-limiting illness because most specialists rely on written information from primary care to determine the urgency of patient management/treatment required.⁴ At present, it is possible that some patients with significant pathologies who might benefit from urgent attention are being disadvantaged by delayed appointments.⁵ The project involved a partnership between software designers, clinicians in primary care and specialist practice, a state health department, patients and scientists employed at a university. The resulting innovation was developed initially by a software designer working to the specifications of a leading academic researcher in close consultation with clinical colleagues. The innovation was tested and refined in controlled conditions using videotaped standardised patient consultations.⁶ The software was then field tested and finally deployed in a randomised trial as a prelude to widespread dissemination in clinical practice. The major challenges encountered in developing this innovation included:

- adapting a novel innovation within complex and time-limited consultations in primary care
- accommodating differences in opinion about the relative merit of relaying specific clinical information
- negotiating differences in perspectives on the speed of developing a robust innovation
- addressing challenges in field testing an innovation that was not seen to have immediate clinical value within the paradigm of 10-minute patient consultations in primary care.

Case study 2: the photoageing intervention or PAINT study

Cigarette smoking is responsible for a host of health-related adverse outcomes consequent to the effect of nicotine and other poisons inhaled with tobacco smoke.⁷ A key goal for public health is to reduce the number of people smoking tobacco. The limited impact of public health campaigns means that all possible innovations to assist health practitioners with their quit message are welcomed.⁸ A commercial partner launched photo-ageing software to demonstrate the impact of cigarette smoking on facial appearance as an individual ages.⁹ To press, the software has never been tested in clinical practice. This project therefore involved a partnership

between a commercial software vendor, university based academics and health practitioners. The project has previously been demonstrated in a video appearing on an online journal.¹⁰ The challenges addressed in this project included:

- the innovators need for rapid results to support their marketing strategy
- the lack of funding to conduct a randomised trial
- the paradigm in Australian primary care with an emphasis on fee for service and a reticence to commit to the process of unfunded research
- the need for time to develop a robust clinical study with ethics committee approval and the freedom to publish results even if the innovation is found to have limited clinical benefit.

Case study 3: effective communication of health messages to specific target groups

With so much nutritional information now readily available, it is imperative that clinicians, academics and innovators work together to provide patients and clients with user-friendly resources that are both evidence based and specific to the needs of a variety of target groups. This project provided a series of nutrition resources that could be used in a 5–10-minute consultation with those at high risk of developing a number of nutrition-related chronic conditions.

The project involved partnerships between general practitioners (GPs), nutritionists, educators, researchers, clients, nurses, public health practitioners and potential end-users. The stages of the project included: a systematic review of evidence; a desktop review of available nutrition resources; nutritional modelling for high-risk groups; development of a suite of evidence-based resources; extensive consultation; publication and distribution. The suite of five resources is now available on a website and a user-manual for clinicians can be requested freely through that site.¹¹

Challenges associated with this project were:

- convincing partners that health literacy is an issue that must be addressed to maximise the effectiveness of clinician directed, patient self-management
- ensuring that evidence-based nutrition advice can be provided within a 5–10-minute consultation by GPs as an adjunct to specific high-risk populations
- securing funding to produce the additional resources requested by clinicians involved in the evaluation.

The challenges to partnerships exemplified in these case studies were classified as the following:

- lack of resources, including time and competing demands

- lack of a clear understanding of different perspectives or appreciation of the key performance targets for each stakeholder
- a need to clearly articulate the benefits to all concerned, not least the end-users of the innovation
- medico-legal risks when patients are offered evidence-based innovative technologies that are untried or tested in practice.

Following these case studies, 25 participants attending the workshop made the following observations and suggestions.

Brokering the partnership

Differences in perspective among disparate partners were highlighted by all participants. The most effective lead organisation in driving innovation is the one most easily able to negotiate the needs of each stakeholder group. Effective communication was deemed essential to get all parties 'on board' at the onset. The rate of progress towards agreed outputs needs to be defined at the outset. In some cases, one partner's drive for profits will need to be moderated by the academic partner's requirement to publish in high-impact scientific journals often requiring multiple iterations and time-consuming corrections to manuscripts. Commercial partners will need to be informed of the timelines to obtain research ethics committee approval, to register a clinical trial and to negotiate the checks and balances required at university and/or publicly funded agencies. The importance of considering the 'what's in it for me?' question was emphasised particularly in relation to the clinical partners who are not usually financially rewarded for the development of the innovation and often receive nominal recompense for what can be both a time-consuming and frustrating process, especially in the early stages of the development of the innovation.

The workshop participants recognised the need for a business case involving all the partners in the venture, encouraging explicit disclosure of expectations over the course of the project, the sharing of rewards and benefits of the innovation. Thus all members of the team must feel ownership of the business case unfolding. It was emphasised by participants that although clinicians offer a proxy for the voice of the patient, ultimately the patient, as an increasingly empowered end-user, should be considered a stakeholder in their own right when developing innovations. The patient or the representatives of this stakeholder group are likely to have their own expectations about what is required to engage them formally. Ultimately, effective partnerships include a robust assessment of need, a review of resources available, forward planning to ensure all parties understand the process, agreement on 'realistic' timelines, encouragement of flexible workloads, acknowledgement of the time commitment from

each partner, brokering the skills and experience needed in the project and agreeing a method of information flow.

It was also recommended that at the onset of any partnership, a face-to-face planning meeting should be held to develop the first version of the project plan including realistic outcomes. The draft document should then be provided to all participants to allow them to consider the plan and provided feedback for revisions of the plan. This two-step process would allow time to hone the plan and elicit agreement and ownership of the plan from the onset. This 'bottom-up' approach was considered best practice and should provide a clear outline of the roles, responsibilities and needs of each of the partners.

Maintaining relationships

The need to ensure that all parties in the partnership were kept fully informed on explicit timelines was repeatedly underlined by many participants. In some cases, it was recommended that a project manager is appointed to ensure that all parties had a point of reference for the innovative endeavour. However, it was also acknowledged that funding may be severely limited in so-called blue skies research and that in some cases, the most that we can expect is that a postgraduate student on a shoestring budget can be enlisted to do some of the project as part of qualification or training. In that instance, the need to clarify the intellectual property issues should be a first step in the process. Where funding is limited, the ability to leverage support from students and therefore, their more experienced supervisors make academic partnerships very attractive.

Managing the innovation

Innovating in eHealth often involves partnerships across a multidisciplinary network, with a wide range of expertise. The inclusion of patients and various clinical professionals in the process of innovation management can introduce a particularly difficult set of challenges. Being able to get the contribution of each of the stakeholders involves a specific focus on the first steps of the project, with an emphasis on understanding the working environment through a dedicated task analysis. Also, a comprehensive understanding of the proposed innovation by all stakeholders is imperative and can be developed through participatory design methods. Taking these initial steps to manage the innovation can avoid some of the drawbacks raised during the workshop, such as a poor level of understanding (of the health activity), uncertainty regarding the compliance of the technology to the task, and doubts over the acceptability of the innovation in the practice/clinical environment. If not managed appropriately, differences in expectation will begin to fracture the partnership, particularly in relation to slippage over timelines.

Sharing the spoils

The need for outputs that satisfy each stakeholder needs to be carefully considered. Innovators are likely to need to demonstrate profit or at least recoup their investment of time and or resources. Academics will need to justify investing time on the project, cover researchers' salaries and retain the freedom to produce scientific publications and presentation at conferences. Policy makers will want to see a clear pathway from research to practice. Clinicians will ultimately be interested in benefits to patients, recompense for the time spent on the innovation and minimise or obviate disruption or risk to patient care.

Conclusions

This national workshop featured participants from all three stakeholder groups; innovators, clinicians and university employed academic staff. A key group missing from the discussion were end-users, although it was accepted that for the purposes of the discussion, health practitioners offered the patient perspective. A key milestone at the beginning of any multidisciplinary project was the need for a clear agreement on three aspects: the outputs of the project including the financial and intellectual property rights; the risks, costs and benefits; and the timelines for completion. A lead organisation was required to broker and maintain the relationships and in an ideal world, a skilled and experienced project manager. The greatest areas of disagreement or misunderstanding were highlighted as: the return on investment for commercial partners; the timelines for academic outputs; and the potential for disruption of clinical practice routines. Finally, despite a heavy emphasis on information technology, the group were unanimous about the superior benefits of face-to-face or telephone contact between research partners ahead of email and other web-based communication.

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