Understanding South Australian GP Attitudes Towards Health Informatics Systems

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Research Background and Context

Health Care and Health Informatics

Health Care

• Expenditure on health care unsustainable (9.8% of GDP in 2004-05) and unfundable by 2040 unless a change in approach toward health and aged care

Health Informatics (HI)

• Emergent Interdisciplinary label for the '…application of computers to assist the gathering, storage, processing and use of information to improve the procedures or outcomes of health care…' (Sullivan 2001:251)

Seen to be Accepted by the medical practitioner : - If perceived to reproduce accepted models of clinical reasoning or to provide immediate patient benefit

Seen to be Resisted by the medical practitioner: - If perceived to be aimed at macro efficiency and effectiveness of health care

Research Background and Context

Medical Practitioners and General Practice

Medical Practitioners

• Classic examples of ‘professional’ populations

• Adopting HI systems potentially needs reengineering of traditional workflows, and existing business and clinical processes

• HI systems have the potential to prevent 76% of unintended events that could or did ‘harm a patient’ in General Practice (Bhalsale, Miller, Reid and Britt, 1999)

Hence need to identify factors affecting Medical Practitioner decision-making BUT: -

Understanding why people accept (or not) innovation remains one of the most challenging and complex issues in IS research (Davis et al 1989; Frambach and Schillerwaett 2002)

Research Background and Context

General Practice Medicine

GPs

• Integral to delivering any comprehensive coordinated and continuing health care strategy

•See 85% of health care consumers annually - gatekeepers to the wider health system

•Most have access to computers yet some choose not to use them

•Only 32.8% keep all patient data in an electronic form

HI systems (e.g. the largely defunct Health*connect*) initiative are dependent on an electronic record populated by sources across the continuum of health care BUT the majority of data would come from General Practice. Hence: -

What do GPs perceive as barriers to implementing Health Informatics systems that can potentially routinely collect, analyse and redistribute information?

Previous Research and Theoretical Underpinning

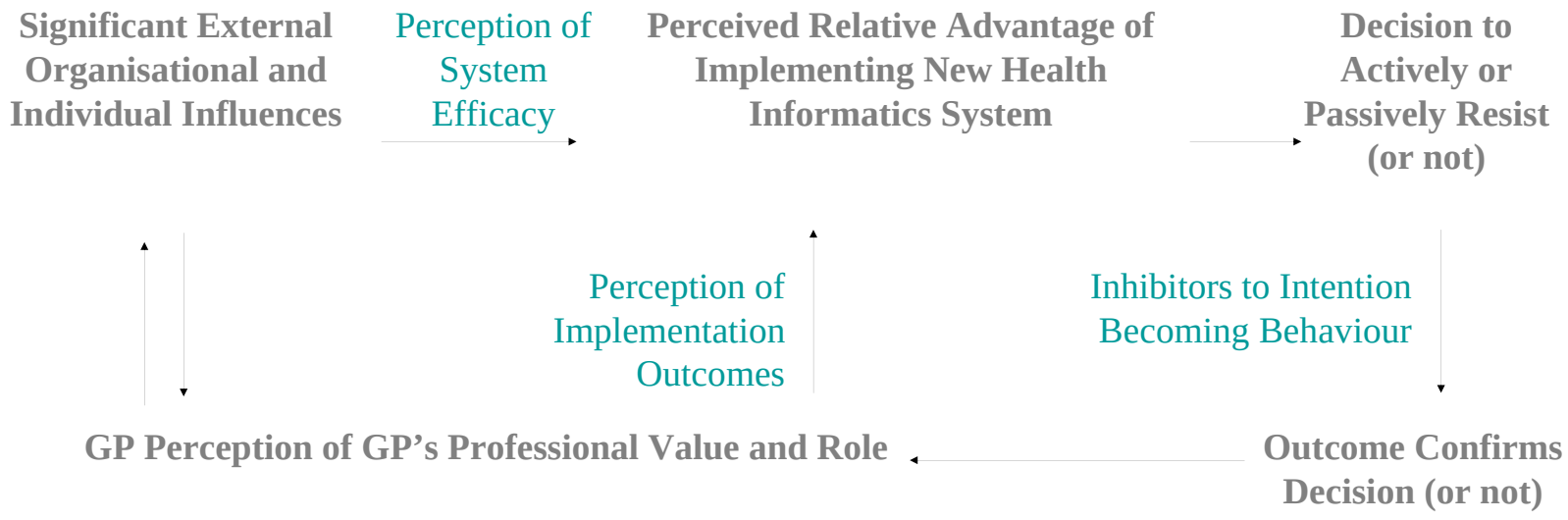
Critique of Innovation Adoption/Technology Acceptance Models

- Traditional frameworks do not reflect the reality of adoption/acceptance (Gallivan, 2001)
- Studies in healthcare lack consistency with studies using non-professionals (Chau and Hu, 2002)
- Little diffusion research examines the impact of organisational context (Larsen, 2003)
- Research has tended to take place within large and complex organisations while General Practices in South Australia average 2.9 GPs each (AMWAC Report 2000)

Technology adoption models have arguably been generalised to a commonality of factors that lacks regard for contexts and settings and **clinician behaviour studies suggest innovation is not always better, resistance always bad, nor adoption more worthy of study than resistance (**Greenhalgh et al, 2004)

BUT : - rejection is not simply the mirror image of adoption (Gatignon and Robertson, 1989**)**

Research Model of Influences on GP Attitude towards a new HI System



Research Methodology

- Semi-structured interviews were conducted with 20 (of 2000) South Australian GPs of various experience and qualifications in 20 (of 700) various sized practices with various structures and locations

- Questions probed deeply held attitudinal information and associated underlying tacit or informal knowledge and aimed at determining individual, organisational and external sources of influence on the interviewee's attitude,

- Each interview was later transcribed, delivering transcripts of almost 23 hours of interviews which served as the unit of analysis. The transcriptions were analysed by manual content coding using NVIVO to arrive at the key concerns/themes expressed.

- The data was approached from a logic of discovery with no advance hypotheses or a priori categories.

Results and Discussion

- Only one practice had no clinical software (and no computer on the GP's desk).
- 19 interviewees used clinical software to some extent, 4 did not record clinical notes electronically.
- Many attributed slow HI system take up to be in part the result of little available time for GPs to spend addressing 'non-medical' issues.
- All interviewees identified electronic interaction with specialists as an important driver.
- HI systems were generally recognised as an integral part of contemporary healthcare provision
- A desire to improve the holistic and longitudinal outcomes of patient healthcare was always expressed.
- There was little to no interest in potential usage of de-identified (not linked to a unique individual) and delinked (not linked to other data such as demographic) amalgamated medical data as this was perceived to offer '…nothing more than Medicare data could…'
- **All recognised potential patient and GP benefits if able to access consolidated longitudinal patient records, and to a lesser extent linked statistical data.**

Barriers

Health Informatics Medical Practitioners and Health Care

- Perceptions of the need to standardise processes (5) and share clinical notes (16)
- the potential for competitive disadvantage (5)
- the resolution of ethical moral and legal issues (12)
- the availability of technology (6)
- the motivations for political and policy decision making (17)
- Attracting numbers of patients was not generally perceived as a competitive issue - rather concern was expressed for the loss of GPs (2) to other practices.
- **The nature of professional work had greater appeal than effective organisational use of technology**

Four attitudes

1: Resist unless certain and demonstrable advantage

First attitude

• Despite general recognition and even advocacy for technology utilisation associated with this attitude, the utilisation of particular technologies was seen to be a process too far removed from the GP's 'style' of 'thinking', 'reflecting', 'observing' or 'recording.'

•The primary inhibitor to adoption was seen to be unwanted change in the GP's ways of working. In this instance it is argued the GP will adopt the technology only if there is perceived to be a clear and certain advantage to the GP performing their role

Improved patient outcomes (health and attitude) must be clearly perceived to outweigh any need for the GP to adapt to new ways of working

Attitudes

2: A Tool to Support Current Processes

Second Attitude

• A consistent outcome of this attitude was the need for a practice structure able to support both electronic and manual processes for the same task.

•The progressive implementation of different vendor systems was seen to increase the likelihood of new software being perceived as less intuitive and incompatibility leading to overall system instability.

• In this instance the GP perceives benefits of technology adoption as a clear and certain potential for organisational advantage

Fundamental to this attitude is costs are perceived primarily in terms of the cost of changing organisational processes and not as changes to individual GP workflows or autonomy

Attitudes

3: A Tool to Integrate Current Processes

Third Attitude

• Adopting more complex, less understood, less available and more integrative systems aligned with concerns about change in the organisational ways of working by autonomous members, migrating existing systems, and system reliability and capability.

• Generally looking to integrate billing and clinical software for ‘greater system stability’. However this was also seen to create tension with GPs reluctant to consider changing vendors or existing ways of software use.

• Generally associated with GPs that had access to experience of technology use in their environment (both inside and outside the practice) and who recognised the need for change in processes or workflows as potential adoption outcomes

The GP primarily perceives costs of technology adoption in financial terms and benefits in terms of the potential for improvement in individual workflow or organisational process and hence for patient outcomes.

Attitudes

4: A Tool to Transform Processes

Fourth Attitude

•GPs that had access to detailed experience of technology use in similar environments and who perceived themselves and their organisation to be technologically capable.

•Dominant driver was the potential to improve individual patient health outcomes through improved use of healthcare delivery system resources.

• Change in individual workflow and/or organisational process seen to be acceptable outcomes, but change primarily perceived in terms of transforming external entities.

•In this instance the GP is not only pursuing individual or organisational relative advantage, but is also adopting a less isolationist perspective of the quality and management of individual healthcare.

However healthcare entity interoperability was also seen to be complex and difficult and to generate the least immediate concern for GPs in general

Conclusions

Attitude	Manifests as: -	Benefits perceived primarily in terms of: -	Costs perceived primarily in terms of: -	Other Concerns in considering Relative Advantage	Adoption if: -
1) Resist unless Certain and Demonstrable Individual Advantage	Lack of technology or available technology not used	Individual Patient Outcomes	Changes in individual workflows	'unreimbursed' time commitment; patient expectations; patient trust;	Improved patient outcomes (health and attitude) clearly perceived to outweigh the need for the GP to adapt to new ways of working
2) Use to Support Existing Individual and Organisational Processes	Available technology not used: Electronic and manual processes	Organisational Advantage	Financial Terms	Costs are perceived primarily in terms of the cost of changing organisational processes and not as changes to individual GP workflows or autonomy	Clear and certain potential for organisational advantage
3) Use to Integrate Existing Individual and Organisational Processes	Strategic acquisition of hardware and more integrative software	Costs are perceived primarily in terms of the cost of changing organisational processes and not as changes to individual GP workflows or autonomy	Financial Terms	Change in organisational ways of working by autonomous members; Migrating existing systems; System reliability and capability	Improved individual workflow or organisational process (and hence for patient outcomes) clearly perceived to outweigh financial costs
4) Use to Transform Healthcare System	Practice active in activities external to the practice	Organisational capability as part of a healthcare delivery system	Financial Terms	Trust in other entities; paucity of sanctioned software; indifference of software vendors; onus to use in-house resources; unresolved, changing or ambiguous policy issues; 'top down' yet 'piecemeal' approach of government	Facilitates the transforming of external entities and improves own organisational interoperability

Conclusions

GPs see their role as dispensers of complex health knowledge that is irreplaceable by technology or other disciplines in medicine and this sense of professionalism moderates resistance towards and information about HI systems.

• GP attitudes towards implementing HI innovations influenced by concerns relating to the potential for changes in their role and value and perceptions of organisational and external antecedents.

• GPs perceive the relative advantage of adopting technological innovations in terms of financial and time cost, task performance, patient outcomes and organisational (and individual) revenue

• Hence relative advantage influenced by GP perspectives of role and value, need for self-validation and by exposure to using HI systems as part of their workflow.

The potential for undesirable change in GP value and role was seen to be the primary trigger for active or passive resistance to adoption. GP resistance exacerbated by a lack of exposure to utilising HI systems as part of GP workflow.

Conclusions

- The pressure for SA GPs to implement technology influenced by whether the GP adopted an individual, organisational or healthcare system perspective of potential implementation outcomes.
- Resistance and the propensity to experiment were seen to be positively influenced by an increased exposure to HI systems use and an increased awareness of the implementation and adoption issues
- The ability for the GP to easily source ‘appropriate’ (peer sourced) information was also seen to facilitate a more favourable attitude towards adoption and willingness to experiment.
- This research provides a theoretical grounding for the development of counteracting strategies to overcome resistance and improve adoption in this context and helps to predict potential adopter barriers and professional concerns regarding new technology.

Findings highlight the desirability of ensuring that HI systems are associated with benefits to patient outcomes (health and well being), the practitioner and the practice rather than with burdens for the practitioner

Thank you and questions?