Workarounds: straddling or widening gaps in the safe delivery of healthcare?

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Abstract

Background: Gaps are everywhere in healthcare, for example between policy, practice and patients’ expectations. To negotiate gaps, create order, and standardise conduct, there has been a proliferation of rules, guidelines and policies. Information technology (IT), the mechanism for encoding rules, guidelines and policies, is indispensible in managing the increasing complexity. Paradoxically, IT has added new layers of complexity and created unintended consequences. How do organisations and clinicians respond? They adapt, shape, and resist, that is, they develop workarounds to get the job done. Workarounds are used, for example, when completing assessment forms, referring patients and delivering medication. Workarounds can potentially erode attempts at standardisation and undermine intended benefits. They can compromise data integrity, and place people at risk by circumventing quality and safety mechanisms. Conversely, workarounds are often economic practices and address systems glitches.

Aim: The overall research project’s aim is to develop and test a theory of workarounds. The aim of the study reported here is to address the question: are workarounds straddling or widening gaps in the safe delivery of healthcare?

Method: The study comprises an analysis of the information received from a focus group and follow up informal interviews.

Findings: Five main findings have emerged from this study. Clinicians employ workarounds to deliver services in a timely manner and in so doing workaround organisational safety mechanisms. Localised workarounds affect other microsystems. Data created by procedures involving workarounds may not reflect clinical practice. Finally, managers are unaware of or choose to ignore staff workaround behaviour.

Conclusions and implications: Workarounds can both straddle and widen gaps in the delivery of healthcare. Workarounds simultaneously undermine and enable attempts to standardise healthcare quality and safety strategies. The better our understanding of them and the factors that shape their development and proliferation, the more effective will be our attempts to understand and improve healthcare.
Workarounds: straddling or widening gaps in the safe delivery of healthcare?

Introduction

A myriad of gaps exist in healthcare. There is a separation between policy, practice and empirical knowledge (Nugus and Braithwaite 2010; Timmermans and Berg 2003). The uptake of research findings by clinicians does not reflect the knowledge of evidence based practice (Evensen et al. 2010; Grimshaw et al. 2002; Eccles et al. 2005). Within the one organisation, and even the one department, there can be little uniformity in clinical practices (Mano-Negrin and Mittman 2001; Mohr et al. 2004). There is a gulf between perceptions about and use of electronic incident reporting among healthcare workers (Travaglia et al. 2009). In many instances, senior managers’ mental models of organisations and the complex organisational reality they reside in do not match (Anderson and McDaniel 2000; Braithwaite et al. 2009). Similarly, the espoused and enacted leadership of healthcare teams can be worlds apart (Greenfield 2007; Braithwaite 2008).

Information technology (IT), bureaucratic rules and clinical guidelines have proliferated in an attempt to negotiate such gaps, create order and standardise conduct. Through strategies such as these, organisations strive to manage the complexity they face. In response, clinicians adapt and shape their environments, and resist, that is, they develop behaviours to get the job done, manage gaps and employ strategies to address them. These behaviours are known by a variety of terms including workarounds (Morath and Turnbull 2005), violations (Runciman et al. 2007) and shortcuts (Halbesleben et al. 2008). A difficulty is that there is no common framework for the analysis of these behaviours. Definitions are infrequently offered and those that are presented are ambiguous (Halbesleben et al. 2008). Workarounds are explained as “work patterns an individual or a group of individuals create to accomplish a crucial work goal within a system of dysfunctional work processes that prohibits the accomplishment of that goal or makes it difficult” (Morath and Turnbull 2005: 52).

In a step toward understanding workarounds, Hablesleben et al (2008) have delineated them by contrasting workarounds to similar constructs, that is, errors or mistakes, blockages, deviance and shortcuts. They argue that workarounds can be differentiated by motive. That is, workarounds are primarily motivated by a need to get around a blockage to complete a task, whereas deviance is motivated by other factors including self gain (Halbesleben et al. 2008). However, behaviours such as violations match definitions for workarounds. Violations have been defined as “deliberate – but not necessarily reprehensible – deviation from safe operating procedures, standards or rules” (Runciman et al. 2007: 122). In light of these definitions, it is not clear whether workarounds are synonymous with a category of or a broader class of violations. Further research is needed to
investigate this issue. This paper is concerned with behaviours that health professionals employ to address the gaps in healthcare. The term ‘workarounds’ will be employed to cover the variations of conduct that exist and the above definition is adopted.

Workarounds provide first order solutions to problems (Tucker and Edmondson 2003), enabling tasks to be completed albeit not in the prescribed or expected way. Workarounds are ubiquitous, occurring at all levels of the organisation and morphing in response to changes in policies, procedures, technologies, situations and perceptions of those involved. Healthcare workers are touted as the “masters at work-arounds” (Morath and Turnbull 2005 p.52), with their use noted in relation to: electronic health records (EHR) (Varpio et al. 2006; Varpio et al. 2009; Saleem et al. 2009); high pressured workloads (Espin et al. 2006; Kobayashi et al. 2005; Hakimzada et al. 2008; McKeon et al. 2006); managing system inefficiencies (Mohr and Arora 2004); and electronic medication systems (Rayo et al. 2007; Pirnejad et al. 2009; Patterson et al. 2002; Patterson et al. 2006; Marini and Hasman 2009; Hsieh et al. 2004; Vogelsmeier et al. 2008; Barber et al. 2007; McAlearney et al. 2007; Koppel et al. 2008; Andersen et al. 2009; Elganzouri et al. 2009; Schoville 2009; Ash et al. 2009). Nevertheless, the current understanding of workarounds in healthcare is in its infancy. To date the literature on workarounds is predominantly descriptive and discussion of the consequences of workarounds speculative or deductive rather than empirical (Halbesleben et al. 2008). Workarounds are described as both supporting and disturbing workflow. They are perceived to facilitate and confuse EHR mediated communication (Varpio et al. 2006; Varpio et al. 2009; Saleem et al. 2009), and assist and disrupt work processes in high pressured situations (Kobayashi et al. 2005; Ferneley and Sobreperz 2006; Hakimzada et al. 2008). Workarounds have been observed to enable short term navigation of problematic organisational processes (Mohr and Arora 2004) but in doing so can create additional unexpected problems elsewhere in the system (Mohr and Arora 2004; Kobayashi et al. 2005). Health professionals’ use of workarounds are thought to negate the safety features provided by electronic medication systems (Rayo et al. 2007; Patterson et al. 2006; McAlearney et al. 2007; Vogelsmeier et al. 2008; Koppel et al. 2008), and they are believed to compromise data integrity (Ferneley and Sobreperz 2006). It is argued that workarounds potentially contribute to medical error and create error prone organisations (Spear and Schmidhofer 2005). Therefore, workarounds have the potential to erode attempts at improvement and standardisation and undermine benefits they seek to achieve. Conversely workarounds are also perceived as quick fixes that get tasks accomplished economically, address systems glitches and provide opportunities to identify areas for improvement.
In summary, there remains a lack of empirical research as to how workarounds can be understood, classified and their consequences. This paper seeks to examine how workarounds are understood by health professionals and to examine their views on whether workarounds straddle or widen gaps in the safe delivery of healthcare.

Method

Design

A research project is being conducted to develop a theory of workarounds. The study uses electronic medication systems as an exemplar. The research considers a range of factors - cultural, organisational and systemic - that experts in the field believe contribute to the development, maintenance, proliferation and normalisation of workarounds. The present research study, phase one of the larger project, comprises a focus group interview and opportunistic follow-up interviews.

The focus group interview was conducted in August 2009 to investigate health professionals’ interpretations and perspectives of workarounds in the healthcare setting. Focus groups have been used to elude clarifying information and to generate new ideas (Brooks et al. 2005; Spehar et al. 2005). The focus group method uses group interaction, taking advantage of participants questioning each other and offering explanations to gain insights, expose articulated concepts and discuss perceptions that may be unavailable from individual interviews (Liamputtong 2009; Morgan 1996; Kitzinger 1996; Bowling 1997). The focus group was conducted in a meeting room at a university and facilitated by the primary author. Discussion was initiated with the statement “Let’s talk about workarounds”. A definition of workaround was not offered to the participants so that the study could examine, through the participants’ discussion, how they conceptually understood workarounds. The focus group interview was audio recorded and transcribed by the first named author. Informal interviews were conducted with four participants following the group interview. These opportunistic interviews, in the form of spontaneous conversations, aimed to further explore issues that they had raised during the group interview (see Greenfield 2009).

Study participants

Thirteen health professionals (nine female and four male) with health services research or clinical experience (medicine, nursing and allied health) were purposively selected to participate. The objective of purposive sampling (Creswell 2003; Liamputtong 2009) is to draw on the experience, knowledge and opinions of participants with appropriate experience of the topic under
investigation. Participants are affiliated with the Australian Institute of Health Innovation at University of New South Wales.

Analysis

Content analysis (Sandelowski and Barroso 2003; Bowling 1997) was undertaken to identify recurrent concepts in the interview transcripts. The concepts were grouped into key themes. Triangulation of analysis, providing a rich explanation of the data (Gawel and Godden 2008; Creswell and Miller 2000; Mathison 1988), was achieved through independent blinded concurrent analysis by two of the researchers. The analyses were then compared and variations were discussed by the reviewing researchers. Resolution of differences through discussion added layers of description unavailable with a single perspective (Gawel and Godden 2008; Mathison 1988; Creswell and Miller 2000).

Results

Analysis of the data identified five key themes which are presented in Table 1. These are described below.

## Table 1 here

**Clinicians conduct workarounds to deliver services in a timely manner**

Participants identified that at times clinicians experience organisational requirements, such as policies, guidelines and IT systems, as hindrances to delivering care. Clinicians act to overcome these perceived obstacles so as to meet their patients’ needs, manage their workloads or a combination of both. For example, administering analgesia to a patient in pain or a cardiac drug to a patient with ischaemic heart disease requires the update of a medication order in the EHR. This task may be delayed because the EHR is not current. At this point a clinician may choose to circumvent the delay by administering the medication before it has been entered into the EHR and complete the documentation afterwards. Similarly, clinicians engage in other behaviours to deliver care in real time, as they believe necessary. For example, guidelines instruct that procedure and resuscitation trolleys be stocked with enough equipment for a single procedure. Clinicians over-stock these trolleys in order to avoid spending time restocking between procedures. These types of actions are implemented by clinicians and justified as necessary to meet their patients’ needs while managing their workloads in a timely manner.
Clinicians workaround organisational safety mechanisms

The tension between clinicians’ desires for autonomy and the need for practice to be standardised within an organisation was discussed by participants. Strategies such as the implementation of organisational policies, clinical guidelines and the use of electronic ordering and recording systems were noted as drivers for standardisation. The discussion covered, for example, how guidelines for clinical practices such as the insertion of central lines specify when and how such interventions should take place. Similarly, electronic medication systems require a predefined sequence of steps to be completed for the administration of medication. The group discussed that clinicians, in formal settings, state that strategies such as these provide guidance for and promote safe practice. However, participants recounted many instances whereby individual clinicians perceived that they applied to others, who in their judgement, were not as careful, knowledgeable, skilful or experienced as themselves. That is, that their individual clinical judgement exempts them from following the policy, guidelines or electronic systems requirements. Clinicians take actions whereby they deliberately ignore or bypass such organisational safety mechanisms, thereby maintaining their independence. They often justify their actions claiming they are exercising their clinical autonomy for the benefit of the patient.

Localised workarounds affect other microsystems

The group discussed the impact of clinicians’ non-compliance behaviours at local and systems levels. For example, clinicians may mark the non critical tests as “urgent” to get results quickly. The outcome of this action for the individual patient and clinician is that the results of the blood test are received more quickly than they would otherwise be. However there is a flow-on impact through the integrated systems that changes the work priorities of other personnel and services, and ultimately the care delivered to patients. For example, phlebotomists prioritise and take bloods that are marked urgent thus delaying taking bloods not marked as critical. As a result, pharmacists are delayed in preparing specific drugs (e.g. chemotherapy) the composition of which is dependent on daily blood results. The porters are occupied taking “urgent” bloods to the lab and are therefore unavailable to transport patients. The lab technicians are required to process urgent blood tests before non urgent tests so delaying the processing of other blood tests. In this way individual practices that deviate from those prescribed in policies and guidelines have an impact on systems other than those within which the clinician and patient are operating. However, clinicians focused on their delivery of care to individual patients may not consider, or be unaware of, the impact of their behaviour on the system within the local and broader organisational environment.
Data created by workarounds may not reflect clinical practice

Participants talked about the data collection practices employed to create a desired image rather than to report actual activity. For example, emergency departments may be required to triage and examine patients within a specified time period set by the Department of Health. Data on wait times contributes to the performance indicators of a hospital. Those patients who have been triaged as not urgent may be kept waiting as more urgent cases present. When the “cut off” time approaches, that is, the timeframe specified by the Department of Health in which patients must be treated following triage, the examination may be initiated and paused, and only completed later. As only the initiation of examination data is collected, the collected data indicate that patients have been triaged, assessed and treated within the required time. While the benchmark is met, in reality, the collected data do not reflect the actuality of clinical practice. Similarly, research data collected in healthcare settings may not reflect actual behaviour. Participants, for example, described how in some studies, failure to provide a response in a questionnaire is recorded as non compliance to the study protocol. When research studies request information that staff do not want to provide, or when the questions do not make sense in a given setting, rather than be recorded as non compliant, staff have been known to record nonsensical, inaccurate or irrelevant responses.

Managers are unaware of or choose to ignore workaround behaviour

Consideration, by participants, was given to how clinician compliance with organisational standardisation requirements enables managers and executives to direct and gauge the practices within their department and organisation. When clinicians bypass standardisation initiatives the organisation and delivery of care is compromised. Clinicians are reported to pass on non-compliance conduct to new staff informally. Senior managers may be unaware that some clinicians’ behaviours are not officially endorsed. This is problematic when management decisions are based on expectations that there is complicit conduct in their organisation. In some instances, managers choose to ignore workaround behaviours. For example, clinicians have been observed to locate equipment in areas that facilitate immediate access rather than in its designated place. Managers may overlook this behaviour when there appears to be no direct compromise to patient care. However, when required to locate equipment in the correct place so as to comply with accreditation requirements, managers may direct that staff relocate equipment in the designated area. This has potential ramifications should the equipment be required in an emergency situation as staff firstly look for equipment in its unofficial place. As one focus group participant reported, “the worst time
to have a ‘Code Blue’ (an emergency code) is when the compliance team is about to arrive because no one knows where anything is because it has all been put in the right place”.

Discussion

Themes and implications

The themes emerging from the study underline the byzantine nature of workarounds in the healthcare setting, the multiple dimensions of workarounds and the different ways in which they are understood. The impact of workarounds in healthcare systems is double edged as they both straddle and widen gaps in the delivery of healthcare.

This study confirms the belief that clinicians conduct workarounds to overcome policies, guidelines and system requirements at times perceived and experienced as obstacles when delivering care (Koppel et al. 2008; Georgiou et al. 2007; Owen et al. 2009). Non-compliance behaviours are implemented to address organisational requirements that stand between the clinician and the patient, and are justified on that basis. Administering medication before it has been confirmed in the EHR, and entering it later crosses the divide created by clinicians’ desire to deliver care and the requirement that medication administration be firstly documented in the patient’s EHR. Likewise, clinicians bridge physical and time spaces caused by equipment related policies. In these ways, in the immediate patient encounter, workarounds can be used to straddle gaps in the delivery of patient care.

In the case of people bridging gaps in the delivery of immediate care, the findings reveal that these same behaviours can create gaps. Those activities that bypass safety mechanisms increase the risk of error and so augment clefts in providing high quality and safe care. Atypical compliance with official organisational requirements, such as the location of equipment, can create confusion when this behaviour is not the norm of a service. Failure to immediately locate an item such as the resuscitation trolley in an emergency could have severe ramifications. Additionally, such behaviours can result in confusion between prescribed policy and unofficial managerial support that only becomes apparent at times of critical incidents or adverse events. Should an adverse event occur as a result of a breach in protocol, the clinicians involved may find themselves unsupported by their manager or supervising clinician, and professionally exposed. This has particular implications for new staff as workarounds are passed on informally and established as organisational norms (Mohr and Arora 2004).
Practitioners employing workarounds to navigate gaps in the immediate delivery of patient care may be unaware of their cascading effect at clinical, administrative and managerial levels. The cumulative effect of workarounds on limited resources may choke an organisation’s ability to deliver care efficiently. In destabilising the standardisation of practice and compromising data collection, they enhance the potential for error and undermine managers’ abilities to gauge service and system needs within their organisation and respond appropriately.

The findings provide further insight into how workarounds widen and bridge gaps in healthcare delivery. Additionally, they support the call for a clearer definition and delineation of non-compliance behaviours, such as workarounds (Halbesleben et al. 2008). However, limitations to the study include the use of a single focus group and the interests of the members of that group. The effect of workarounds on compliance and the ability of an organisation to measure what is practiced within itself was a salient thread. This may reflect the participants’ particular interest in clinical governance more than the immediate concerns of current frontline staff in health organisations. Additional research with current clinicians, managers and administrators will shed further light on this.

Towards a classification matrix for workarounds in health care?

Whether or not an action is perceived to create or straddle a gap in healthcare is a complex question. This research suggests that a decision must consider the motive, who benefits and the consequences attributed to the workaround, coupled with an analysis of the perspective of the person viewing it. Difficulties in understanding the complexity of workarounds are compounded by the lack of clear definitions and the fact that it is hard to differentiate workarounds from other constructs in the health care literature (Halbesleben et al. 2008). A scarcity of complimentary classification systems and the absence of a distinct framework with which to analyse workarounds adds to the research challenges. Workarounds may be discussed as only those behaviours that violate prescribed work practices to get the job done with self-gain a secondary motive (Halbesleben et al. 2008). Alternatively, they may be defined as practices that benefit the patient or the clinician (Eisenhauer et al. 2007). Participants in this study held that while some workarounds benefit only the patient (e.g. breaching protocols to administer required medication), others benefit only the clinician (e.g. overstocking procedure trolleys) while still others benefit both (e.g. marking non-urgent blood test orders as urgent). Some workaround practices are justified in the name of professional autonomy, which is to primarily benefit individual clinicians. This finding is supported by research which reported that other professionals engage in similar conduct, e.g. “Fire Officers
ignore or misuse a system that does not allow them the perceived appropriate level of discretion and autonomy” (Ferneley and Sobreperez 2006:352). Thus the motive for and the beneficiary of workarounds are important variables in understanding them.

The perspective of those viewing an action influences whether it is perceived to straddle or widen a gap in healthcare. While clinicians may perceive a workaround as bridging, managers may perceive the same behaviour as deviant, and perhaps creating a gap in the delivery of healthcare. Whether behaviour is seen to bridge a problem or create shortfalls in the delivery of care is shaped by the consequences that flow from it. Workaround behaviours in emergency situations are perceived by both managers and clinicians as bridging gaps in immediate healthcare delivery. The perspective of those viewing an action and what they conclude from it, and the consequences of the behaviour, are two further important variables.

From this analysis, a four-factor matrix for the classification of workarounds is proposed. The matrix has four categories by which behaviours are analysed: motive; beneficiary; perspective of the viewer; and consequences of the conduct. More extensive empirical research across a range of organisational and clinical settings to test the veracity of the matrix is required.

Conclusion

Workarounds are complex and the answer to the question we started with is: they both straddle and widen gaps in the delivery of healthcare. They can simultaneously undermine and enable attempts to standardise clinical and organisational services, and quality and safety strategies. The proposed four-factor matrix offers a tool by which the range of non-compliant behaviours can be investigated and analysed. We can foresee that health professionals will continue to employ such conduct i.e. these forms of organisational behaviours will not cease. The better our understanding of them and the factors that shape their development and proliferation, the more effective will be our attempts to understand and improve healthcare.
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### Table 1: Key themes about workarounds identified in the focus group

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