

Chapter 16

Workarounds: Risk or Benevolence for Patient Safety?

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ABSTRACT

Patient safety and the quality of clinical interventions rely on the application of best practices in clinical processes to achieve clinical and service specifications for patients. However, outcomes vary due to variations in work activity performance in terms of efficiency and quality, and variations in what is done. This chapter explores the concept of deviations from formal work processes as workarounds in health interventions. It examines workaround evolution and development, the motivation for them, and types. It identifies their positive and negative impact on patient safety and quality. The chapter is based on primary research and workaround case studies of 14 staff in three hospitals. The approach supports the work to develop a generic conceptual normative analysis model of workarounds and adopts BPMN and organisational semiotics to qualitatively and quantitatively define and compare the original work process and workaround. This chapter extends definitions of workaround types and the relationship between actors in the formal work process and informal workaround process. The authors propose a conceptual model to identify the relative safety risk of workarounds and hence their likely patient impact. The discussion focuses on the initial findings of this model on patient safety and how different workaround types impact patient safety. The chapter highlights examples of the clinical work deviations and shows that they can have both positive and negative benefits for patient safety. It emphasises how, using an informatics approach, workarounds need to be considered in detail to understand the motivation and potential impact on health activities.

1. INTRODUCTION

Major investments have been made in the introduction of information systems into health activities (Pollock & Williams, 2010). The use of such

systems has helped to standardise administrative processes, capture and disseminate information and automate and speed up activities for the benefit of the patient (Ciampa & Revels, 2012) and also improve patient safety by careful work

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system design (Carayon *et. al.*, 2006). This has also helped to reduce ineffective and inefficient work and improve the quality of information that is vital for all aspects of medical decision making efficiency (Hunt *et. al.*, 1998; Anderson *et. al.*, 2002). However, formal health information systems provide a constrained approach to capturing and using information and executing health activities. The provision of a formal and technical method means that variations in user input and the way a system is used can be limited. This is acceptable when systems represent the state of the art and meet all the current process requirements. However, many systems take time to design or select, train for and implement. In this timescale user needs, policies and requirements may change. Systems can often become out of date very fast in the rapidly developing technological medical world and long development lead times add to this pressure (Mikkelsen & Aasly, 2001). Even with fast development times, the growth and improvement in medical procedures can make many existing processes obsolete or inaccurate, due to this system development lag.

The recent massive growth and innovation in end user and particularly personal user devices such as mobile phones and pads (Marceglia *et. al.*, 2012) can mean faster, cheaper and simpler ways to capture transfer and add information than that provided by a formal health system (Banitsas *et. al.*, 2004). This can result in a formal system's procedures such as mechanism of communication or image handling being outmoded by simple alternatives in personal devices. With the growth in the use of integrated systems such as electronic patient records, the complexity of systems and their interactions has increased. This together with high costs, organisational issues and lack of training increases the pressure on already overburdened and hardworking staff who often have little time to become familiar with such systems (Boonstra & Broekhuis, 2010). The opportunity to take short cuts to reduce time can also be a highly motivating driver, especially with the lack

of available resources and increased demands on many clinicians (Yang *et. al.*, 2012).

A further pressure that can drive deviations from formal systems is cultural. This may take two forms. Firstly clinicians are trained as professional problem solvers 'it's part of being a nurse' (Debono *et. al.*, 2013) and hence seeking alternative actions to better meet the clinical goal is a potent driver. Secondly medicine by its nature is a very human focused activity that depends highly on cooperation and common behaviours. This raises the tendency to follow and comply with professional and team norms. Such norms may encourage users to reject certain parts of formal systems and processes (Harrod *et. al.*, 2013). These drivers are summed up in Figure 1.

2. DEVIATION AND THE CONCEPT OF WORKAROUND

These themes all combine to create a pressure to what reason called 'deviate' from the prescribed, expected and formal method and system (Reason, 1990; Debono *et. al.*, 2010). We refer interchangeably to formal system and formal process as they both represent a planned and organised set of required activities and information processing, whether executed electronically or via human agents.

Formal systems and processes are often a key means of control and safety checks on a wide variety of aspects of clinical action, from ensuring timely and accurate information to key safety decisions. Hence any deviation from an established formal practice may increase safety risk and reduce patient safety. But, medicine is an event driven activity that depends on the correct perception of a situation and adjustment to it, so some deviation can be beneficial and necessary.

We define deviation as the failure to follow the formal and expected process, as embodied in our context by the prescribed medical systems. This failure may potentially endanger or reduce

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