Chapter 4

The Impact of the Electronic Medical Records (EMRs) on Hospital Pathology Services:
An Organisational Communication Perspective

Andrew Georgiou
University of New South Wales, Australia

ABSTRACT

This chapter reviews what is currently known about the effect of the Electronic Medical Records (EMRs) on aspects of laboratory test ordering, their impact on laboratory efficiency, and the contribution this makes to the quality of patient care. The EMR can be defined as a functioning electronic database within a given organisation that contains patient information. Although laboratory services are expected to gain from the introduction of the EMRs, the evidence to date has highlighted many challenges associated with the implementation of EMRs, including their potential to cause major shifts in responsibilities, work processes, and practices. The chapter outlines an organisational communication framework that has been derived from empirical evidence. This framework considers the interplay between communication, temporal, and organisational factors, as a way to help health information technology designers, clinicians, and hospital and laboratory professionals meet the important challenges associated with EMR design, implementation, and sustainability.

INTRODUCTION

The chapter reviews what is currently known about the effect of the electronic medical record (EMR) on aspects of laboratory test ordering, its impact on laboratory efficiency and the contribution this makes to the quality of patient care. The

chapter identifies the key challenges associated with the introduction of the EMR and the organisational context in which it is used in pathology laboratories. It examines how communication is undertaken within the laboratory and its effect on the way that work is carried out. Particular consideration is given to key concepts such as:

a) the synchronicity of communication required within sections of the laboratory (e.g., real time communication between the laboratory and clinicians versus asynchronous messages and notes); b) the role of feed-back mechanisms which provide confirmation of the receipt of information; and c) considerations of what (and how much) information is needed by different recipients. The chapter also incorporates an examination of temporal and spatial factors, particularly as they relate to where work is carried out, how it is allocated, prioritised and coordinated. The objective of the chapter is thus to outline an empirically-derived organisational communication framework, which can be used to help enhance the design, implementation and sustainability of EMR systems and hospital pathology services.

BACKGROUND

Hospital laboratory services are involved in the examination of clinical and pathologic data which are incorporated into a broader context and used to provide meaningful information to physicians and patients(Deeble & Lewis-Hughes, 1991). In the last few decades, this important task has become increasingly reliant on sophisticated information technology systems to assist in the management, storage and communication of data(Pantanowitz, Henricks, & Beckwith, 2007).

The EMR can be defined as a functioning electronic database that contains patient information within a given organisation (Aller, Georgiou, & Pantanowitz, 2012). EMRs can encompass a wide range of systems including computerised provider order entry (CPOE) systems that allow clinicians to place orders directly into computers (Birkmeyer, Lee, Bates, & Birkmeyer, 2002). They may also incorporate clinical information databases, which can be used to provide decision support to assist diagnosis, or to help understand and interpret laboratory results (Georgiou, Williamson, Westbrook, & Ray, 2007). The EMR

is therefore more than just a replacement for the previous paper-based medical record system, it has the potential to expand modes of communication and improve access to information and knowledge across the hospital and the wider community (Aller et al., 2012).

There is an expanding body of literature which has identified many benefits associated with the EMR, including the ability to provide timely access to patient information and electronic decision support to enhance clinical decision-making and the delivery of quality care(Buntin, Burke, Hoaglin, & Blumenthal, 2011). Nevertheless, there remain major international reservations about the slow pace of EMR diffusion amid concerns about the failure of the existing evidence base to clearly demonstrate benefits (Black et al., 2011). Literature reviews continue to point to the need to improve our knowledge of why some EMR implementations succeed and others do not (Jones, Rudin, Perry, & Shekelle, 2014). This has led to a growing international imperative to examine and improve our understanding of the context of EMR system implementations, particularly as regards the circumstances that may (or may not) contribute to their success and sustainability (Aarts, Ash, & Berg, 2007).

THE IMPACT OF THE EMR ON HOSPITAL LABORATORY SERVICES

Hospital pathology services are widely seen as an area where information and communication technologies (ICT) like the EMR can have a major impact on the efficiency and effectiveness of service delivery. Pathology laboratories are information-intense bodies that provide services across primary, secondary and tertiary care. It is estimated that pathology laboratory services are responsible for leveraging 60-70% of all critical decision-making involving admittance, discharge and medication (Forsman, 1996). Within this context the EMR has been identified as an important means to:

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