Chapter 3.10
Electronic Patient Monitoring in Mental Health Services

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ABSTRACT

This chapter reviews advances in electronic patient monitoring in mental health service delivery. The first part focuses on interactive-voice-response (IVR) technology and its dual role of enhancing the efficient and reliable access to vital patient information and reducing the need for human resources in using that information to guide patient care. Future directions for IVR-mediated mental healthcare are outlined and challenges to dissemination and routine implementation are discussed. The second part of the chapter focuses on touch screen technology as a clinical tool for continuing, flexible treatment planning in mental health inpatient clinics. It reports on a successful trial of linking an innovative mental health 'well-being thermometer' to a touch screen interface for keeping electronic patient reported outcome data at the clinician's finger tips. The authors argue that the field needs to move beyond feasibility studies and identify the drivers of and barriers to routine implementation.

INTRODUCTION

In this chapter we review innovative uses of two emerging technologies in mental health service delivery. The first part of the chapter focuses on interactive-voice-response (IVR) technology and its dual role of enhancing the efficient and reliable access to vital patient information and reducing the need for human resources in using that information to guide patient care. The second part of the chapter

will focus on touchscreen technology as a clinical tool for continuing, flexible treatment planning in mental health inpatient clinics.

INTERACTIVE VOICE RESPONSE (IVR) TECHNOLOGY EXTENDS THE REACH OF MENTAL HEALTH OUTPATIENT CARE

Information captured directly from patients using electronic methods is known as electronic patient reported outcome data. In developed countries almost every patient owns or has access to a telephone, making it a potentially ubiquitous portal for interactive data exchange and feedback between mental health service providers and patients. Interactive Voice Response (IVR) is a mode of data collection that uses an automated telephone interview, where a computer controls the administration of pre-recorded questions, and the respondents indicate their answers by pressing one of the keys on their telephone key pad or, as voice-recognition technologies become increasingly sophisticated, by saying out aloud the number corresponding to their answer. Such automated consumer-provider interactions are already commonplace in many business and service applications (e.g., phone banking, airline flight information). The scope of automated information exchange is very flexible. IVR systems for mental health care can be programmed to collect information in three basic modes: interval contingent (e.g., having patients report daily the frequency and intensity of symptoms of a presenting problem), signal contingent (e.g., calling patients on multiple occasions to elicit patient reports for those specific points in time), and event contingent (e.g., patients initiate calls to the system to report their acute status at the moment a particular target event occurs). Conditional branching of IVR administered questions based on decision algorithms acting on patient input can be adapted for many clinical applications such as diagnostic screening, aftercare monitoring, and triggering system-initiated proactive support mechanisms (e.g., automated voice and email messages describing coping strategies). If a patient fails to call the system at the expected times, automated reminder calls can be sent and treatment providers can be electronically notified to asses the need for an in-person follow-up. Likewise, clinicians can be alerted by the system if changes in patient status trigger programmed thresholds for stepped-up risk management or treatment intensity.

There are several advantages of IVR systems that are particularly relevant to mental health care applications. Patient-initiated calls can be recorded and processed at any time of day or night. Provider-initiated calls reach patients in their home without requiring an office visit. IVR systems are ideally suited for providing continuing care to hard-to-reach groups such as the homeless and drug users, or patients living in remote locations. Previous reviews of IVR studies (e.g., Corkrey & Parkinson, 2002) noted that the privacy afforded by interacting with automated, standardized interview protocols facilitates the accurate and honest reporting of potentially stigmatizing behaviors such as drug use or sexually risky behaviors. The automated patient-provider interface and standardization of interviewing formats eliminates interviewer bias and other unintended observer effects (Shaw & Verma, 2007). The verbal nature of IVR-based interviewing benefits patients with low levels of reading ability, including children. Children especially appreciate the high level of confidentiality in IVR communications, because questions presented by the IVR system cannot be overhead by others even within earshot, and the children's responses are keyed in unobtrusively via the touch-tone telephone (Stritzke, Dandy, Durkin, & Houghton, 2005).

Despite these potential advantages of IVR technology in enhancing mental health service delivery, the routine integration of IVR systems in mental health care is yet to be realized. In a review of first-generation IVR studies published

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