Project Development Phase

Exception Handling

Team Id	NM2023TMID04415
Project Name	Block Chain Technology For Electronic Health Records

Introduction:

A medical facility is a complex, oftentimes turbulent environment full of unpredictable yet frequently occurring situations that require contingent actions deviating from normal practice, referred to as 'anticipated exceptions' in this paper. Failing to accommodate such anticipated exceptions in the design of a health information technology (HIT) system can introduce severe disruptions to clinical work.[1–5] For example, Han *et al* reported that not allowing medication orders to be placed prior to patient arrival, even for critically ill patients, was among the reasons for a suspected mortality increase following the implementation of a computerized prescriber order entry system.[2 3] Recent studies have also shown that many HIT-associated unintended consequences were attributable to simplistic, linear designs that hampered HIT systems' capability to manage complex exception situations.[6 7]

Materials & Methods:

Setting:

The empirical study was conducted in an ambulatory primary care practice at the Western Pennsylvania Hospital (WPH), a large urban teaching hospital located in Pittsburgh, Pennsylvania, USA. The EHR system, jointly developed by WPH practitioners and the research team (KZ, RP, MPJ, HSD), was designed to help the practice manage its daily operations and provide clinicians with electronic documentation and computerized decision-support capabilities.

Types of exit strategies:

The EHR system incorporated several exit strategies to accommodate a variety of clinical purposes. In this paper, we focus on the exit strategies specifically designed to assist in clinicians' structured documentation of clinical data, collectively referred to as 'data entry exit strategies.'

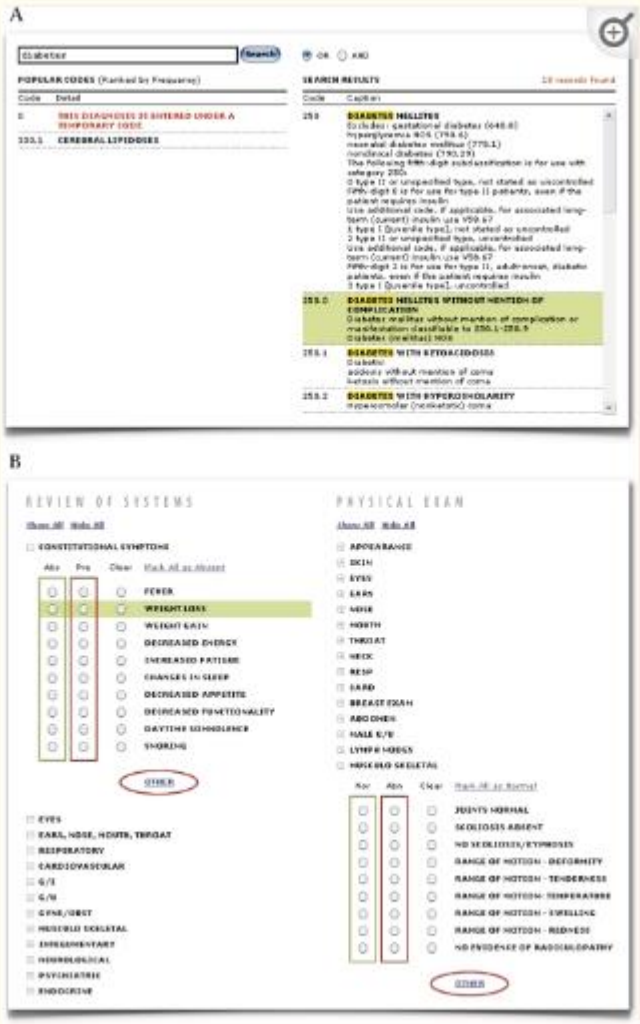

Figure 1

In the EHR system, clinical observations and physical examination results are documented using itemized templates provided on the 'Review of Systems' form and the 'Physical Exam' form, together referred to as 'RSPE' forms. These itemized templates (provided in appendix 1) were developed by the attending physicians in the study practice to encompass what they collectively considered to be most common and most essential RSPE

data elements for capture in a structured format. Although documenting RSPE findings using the itemized templates is strongly preferred, categories labeled as 'Other' were made available on both forms in case the predefined classification schema might not be able to accommodate all types of RSPE data (figure 1B). In this paper, we refer to this exit strategy as 'RSPE-Other.'