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Challenges associated with the use of Computerized Physician Order Entry (CPOE): A physician's perspective

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Computerized Physician Order Entry (CPOE) is a Health Information Technology (HIT) modality that has the potential to decrease medical errors, improve patient safety and quality of care provided to patients especially when it is combined with Clinical Decision Support System (CDSS). Despite its great potential one of the major barriers to adopting this technology has been its associated high cost of implementation as a part of the larger Electronic Health Record (EHR). Moreover, several challenges remain that make this technology difficult to be optimally utilized by many end users especially physicians. Some of these challenges are associated with the complexity of learning a new and complex software and the associated decrease in work production, the discrepancy between the way clinical providers think and the established workflow in the EHR software, and potential harms that may exist with some “work arounds” of the system. Here, we will review available data in the literature on this topic and discuss some of the commonest physician level challenges (system malfunctions, “alert fatigues” and lack of inter-operability with other EHRs) that are associated with the use of CPOE using a physician's perspective. Finally, we will explore the implication of these challenges to patient safety and quality of care.

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Audio video remote guidance and tele-operated echograph and probe for tele sonography on isolated healthy subject in risky environment and on isolated patient

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Objective: To evaluate the performance of tele-echography for on isolated subjects.

Method: Three tele-echography systems were used for deep (abdomen, pelvis, fetus organs) and peripheral (carotid arteries, leg vasculature, muscle) organs. The tele-echography was performed using (a) a robotic arm holding an echographic probe, (b) an echograph and motorized probe, both controlled from the expert center, or (c) remote guidance where the operator at the patient site performed the examination under the guidance of an expert sonographer (peripheral vessels only).

Results: These methods were tested in the same medical center 60km away from the University hospital. During an 18 month period, 340 remote echography examinations were performed (41% teleoperated, 59% remote guidance). The average examination time (15 to 25min) depended on the method used, anatomy of the patient, and the ability of the patient to move or perform breath holds. The tele-echographies with the motorized probe and the robotic arm provided diagnoses in 97% of cases. These system provided the full control of the probe orientation necessary for obtaining correct organ views. The use of remote guidance was sufficient for superficial vessels examination and provided diagnoses in 98% of cases. These methods were successfully tested on healthy isolated subjects (confinement bed rest).

Discussion: Both tele-operated systems provided appropriate views during the examinations but the motorized probe (430g; 400cm³) was much more ergonomic than the robotic arm (3.5kg; 40x35x40cm³). Remote guidance was sufficient for superficial vessels. The control of the echograph functions and settings made the examination quicker and more accurate.

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