影響醫師使用「可攜式電子病歷」意願之相關因素

The Influential Factors of Physicians' Acceptance to Portable Electronic Health Record

中文摘要

美國國家研究院醫學研究所(Institute Of Medicine of the National Academies, IOM)2000 年「To Err Is Human」報告顯示，美國每年約有 98,000 人因醫療疏失而死亡，但藉由適當的資訊科技輔助，至少可將死亡人數降低 45%，而目前電子病歷(Electronic Health Record)已成爲國際間，以資訊科技提升醫療照護品質的主要發展趨勢，像美國、加拿大、英國及日本等國的大學、研究機構及廠商皆展開電子病歷標準制訂及推行各種資訊交換計畫。我國衛生署於 2007 年推動「建構以病人爲中心之電子病歷跨院資訊交換環境案」，提出以病人爲中心之電子病歷交換模式，期望將分散於各醫療院所內之電子病歷、檢驗報告與醫學影像等資訊做交換。而病歷的主要製作與使用者爲醫師，若無臨床醫師的支持及參與，電子病歷導入的益處將無法發揮，故本研究目的爲瞭解醫師對於醫院資訊科技之使用現況，及對可攜式電子病歷之認知及使用意願，並探討影響醫師使用可攜式電子病歷之相關因素。

本研究乃一橫斷式量性研究，研究對象爲參與衛生署「建構以病人爲中心之電子病歷跨院資訊交換環境案」計畫試辦醫院內之醫師，涵括了北、中、南及東部共計九家醫學中心。研究工具採自填式結構性問卷，以 Likert 量表五點尺度衡量，經信度及效度檢定後，以定額方式每家醫院寄發 200 份問卷，共計回收問卷 437 份，有效問卷爲 426 份，有效樣本回收率爲 25.6%。所得研究資料利用 SPSS12.0 版統計套裝軟體進行描述性統計、獨立樣本 t 檢定、變異數分析、相關分析及複迴歸分析等統計方法進行資料分析。

結果發現樣本醫師對紙本病歷整體環境之滿意度不高，平均值僅爲 3.05，而對院內現有資訊系統滿意度之評價亦不高，平均值爲 3.22，但對電子病歷安全性及隱私權的擔心，平均值則高達 4.28；另樣本醫師對於可攜式電子病歷瞭解使用流程程度較低，平均值爲 2.53，且對於可攜式電子病歷的使用意願爲同意或非常同意者僅爲 30.1%。另變項間之相關統計發現，使用意願與電腦自我效能(γ = 0.267)、院內資訊系統功能滿意度(γ = 0.131)、科技認知-瞭解使用流程程度(γ = 0.330)、科技認知-知覺有用性(γ = 0.584)及科技認知-知覺易用性(γ = 0.532)呈現顯著的正相關，而與外在環境因素(γ = -0.155)呈現顯著的負相關。進一步複迴歸分析發現，影響醫師使用可攜式電子病歷之因素爲：花費於教學研究時間較多($p = 0.024$)、專科別爲小兒科的醫師($p < 0.001$)、科技認知因素(包含知覺有用性、知覺易用性及瞭解使用流程程度)($p < 0.001$)、電腦自我效能($p = 0.006$)及外在環境因素(包含加註電子簽章、時戳與使用權限及管控機制)($p = 0.021$)，可解釋 53.6%之變異量(Adjusted R2 = 0.536)。

由於樣本醫師對紙本病歷整體環境滿意度不高，及對於可攜式電子病歷瞭解使用流程程度亦偏低，此結果或可視爲醫院推動電子病歷發展的契機，並督促醫院加強宣傳推廣、教育訓練及服務之提供，進而提升電子病歷可用性、易用性，增強醫師電腦自我效能，並減少其在安全性及隱私權的擔心，可增加其對電子病歷之使用意願，另政府主管機關提供對醫療院所的補貼或獎勵誘因，將有助其於電子病歷的研究及推廣。

英文摘要

"To Err Is Human" was issued by Institute Of Medicine of the National Academies (IOM) in 2000, and it showed perhaps as many as 98,000 people died in hospitals each year as a result of medical errors that at least 45% mortality could have been prevented by used appropriate information technology (IT). At present the electronic health record (EHR) had already become a main-stream of IT development in international to enhance quality of care. The universities, research institutions and vendors of the United States, Canada, Britain and Japan all have established the EHR standards and promoted various kinds of information exchange plans. The Taiwan Department of Health (DOH) also launched "Building of an Information Exchange Environment for Cross-Hospital Digital Medical Record" project in 2007, which exchanged patinets' labatory, examination reports and images scattered in different hospitals. Due to health records were documented and used mainly by physicians, the advantages of EHR could not be performed without their support and participation. The main purposes of this study were to understand the current EHR systems used by physicians, the cognition and willingness of using portable EHR, and to explore the influential factors of physicians' acceptance to portable EHR.

This study adopted quantitative cross-sectional approach, and subjects were physicians from nine medical centers which participated in Taiwan DOH "Building of an Information Exchange Environment for Cross-Hospital Digital Medical Record" project. We used structured questionnaire and 5-points Likert Scale as our research tool. After the reliability and content validity test, 200 questionnaires were sent to each of nine medical centers. The effective response rate was 25.6% (426 were valid from total 437 responses). The SPSS 12.0 statistic software was used to analyze data by descriptive statistics, independent t test, One-Way ANOVA, correlation analysis and multiple regression.

The results showed physicians were not satisfied to the traditional paper medical record environment (mean=3.05) and the current EHR systems (mean=3.22). However, physicians quite worried about security and privacy of EHR (mean=4.28), they were not familiar with the process of portable EHR (mean=2.53). Regarding willingness of using portable EHR, only 30.1% physicians responded to agree or

toally agree. The factors had significant positive correlation with willingness of usung portable EHR were computer self-efficacy (γ=0.267), satisfaction of current EHR systems (γ=0.131), technical cognition: familiar with portable EHR process (γ=0.330), perceived usefulness (γ=0.584) and perceived easiness of use (γ=0.532), except the external environmental factor (γ=-0.155). The factors affected physicians' acceptance to portable EHR were: physicians spent more time on teaching and research (p=0.024), pediatrics physicians (p<0.001), technical cognition (perceived usefulness, perceived easiness of use and familiar with portable EHR process) (p<0.001), computer self-efficacy (p=0.006) and the external environmental (ectronic signature, time stamp and access control) (p=0.021). The explanation power of model R2 was 53.6% (Adjusted R2 = 0.536).

Since physicians were not satisfied the traditional paper medical record environment and also not familiar with portable EHR process, it could be the opportunity for hospitals to promote and develop EHR. Hospitals should provid more EHR educations and trainings and enhance EHR functions of usefulness and easiness. To strengthen physicians' computer self-efficacy, reduces the security and privacy concern may also increase their willingness of using EHR. Moreover, Health care organizations would be more dedicated in EHR research and promotion, if government offers incentives or subsidies.