

## 摘要

近年來病人安全的議題受到世界各國的重視，特別是探討醫療疏失的幾個大型流行病學研究，揭露了目前的醫療環境其實存在了相當程度的疏失或危險，而這些問題卻長期被醫療機構所忽視。病人安全的問題相當複雜，因為問題不僅來自於個人，有很大的比例其實是整個醫療機構系統性的問題，所以須建構一個病人安全通報平台，讓醫院的同仁可以即時反應各種問題，並針對問題的根本原因，及早提出解決方案，避免對病人的安全造成重大傷害。

本研究主要目的是提出一個新的系統建置模式來幫助醫院醫護人員以不需撰寫任何程式碼的方式，即可依照其臨床實際需求，快速建立醫療通報資訊平台，不僅可以快速產生所需通報表單，同時具有統計分析與資料安全控管的能力，藉此改善過去系統建置時間過長與維護不易等問題。

本研究所設計的通報系統開發模式，主要包括即時性的通報表單設計模組、即時性的報表產生模組以及外掛式系統功能模組等三部份。即時性的通報表單設計模組主要利用 XML 資料交換格式定義出通報表單型態，讓使用者可以自己輸入通報表單的欄位及答題方式，並透過通報格式解析及程式產生器，自動產生表單內容所需程式碼。其次，即時性的報表產生模組將商業智慧技術導入至醫療通報系統當中，透過 XML-based 的報表定義語言來設定報表內容各部分資訊，讓使用者透過報表產生介面，即可產生百分比、視覺化圖表或是多維度報表等各式報表。最後外掛式系統功能模組則是透過新的程式架構，將

權限控管、資料加解密、網路安全等資訊平台所需的基本功能以各自獨立的模組來開發，各功能可以在任何時間點動態加入至通報系統中，以增加使用者建置系統的彈性。

研究所提之模式已經被成功應用於台灣病人安全通報系統之建置，其中記錄十二種與病人安全有關的事件類別。該通報系統於 2005 年 7 月上線後，已有 172 家醫院採用本計劃所設計的通報系統，其中包含醫學中心、區域醫院、地區醫院，以及精神科專科醫院，總共累積 2500 多筆通報案件。透過使用者意見調查結果得知有 73% 的品管者認為本通報系統對院內病人安全文化的推廣具實質效益，79% 的品管者認為對工作上有所助益。在即時性的報表產生功能方面也有 83.3% 的使用者認為此系統對品質管理者的工作有明顯幫助，並且可以有效提升品質管理者工作效率。由此可知本研究所規劃的系統架構確實可以幫助使用者快速地建立所需的醫療事件通報系統，並證明具有臨床實用性。

關鍵字：病人安全、通報系統、統計分析、醫療品質、商業智慧

# Abstract

The patient safety has been noticed recent years. Many research results show that if the administrator of hospital neglects this issue, it will affect the quality of patient care seriously. The topic of patient safety is quite complicated, it not only come from individuals, but also come from the systematic problem in hospital organization. For this reason, to construct a reporting system that let quality manager of hospital react to various problems and find out the root of cause is very important.

The goal of this study is to propose a new system developing model in order to assists staff without any programming experiences to establish the medical reporting system. It can overcome the problem that not easily maintained and spending too much time on constructing system by traditional working model.

This developing model includes the real-time form generation module, the real-time data analytical module and the seamless system function plug-in module. The real-time report form generation module takes advantage of the XML data exchanging format to define the content of the field and answering method. And then, these metadata can output automatically as application program codes through the format parser and the programming producer. Staff can create various medical report forms without writing any codes. Secondly, the real-time data analytical module brings the business intelligence technique into the reporting system. We use XML as report type definition language to describe the data source and type of statistic charts (i.e. percentage table, visual Chart or multidimensional chart). It can help staff to design just-in-time report more flexibly. Finally, we develop the fundamental functions of reporting system (i.e. en/decrypt data, limits of authority controlling, and network security) as individual program block. It is seamless with first two modules. User can add different system functions in any time when they need.

The proposed model successfully has been applied to the patient safety reporting system in Taiwan. This system that records 12 adverse events has been adopted by 172 hospitals and has collected more than 2500 cases on July, 2005. A survey shows that there are 73% of administrators consider this reporting system is good for improving their patient safety culture, and there are 79% think this reporting system is good for increasing their work efficiently. About the real-time data analytical module survey, there are 83.3% satisfy its performance.

Keyword: patient safety, reporting system, statistical analysis, medical quality and business intelligence.