# CLINICAL INFORMATION SUCCESS IN A MATERNITY HOSPITAL

Louise Reid (University Regional & Maternity Hospitals, Limerick, Ireland)

Sandra O'Connor (University Regional & Maternity Hospitals, Limerick, Ireland)

Ita Richardson (Lero – the Irish Software Engineering Research Centre, University of Limerick)

Jennifer Hogan (University Regional & Maternity Hospitals, Limerick, Ireland)

Theresa O'Donnoghue (University Regional & Maternity Hospitals, Limerick, Ireland)

Roy Philip (University Regional & Maternity Hospitals, Limerick, Ireland)

Gerard Burke (University Regional & Maternity Hospitals, Limerick, Ireland)

## Abstract

Clinical staff must have access to high quality information in order to provide safe care to patients. This cannot be provided by clinical information systems (CIS) that are not correctly managed and regularly used. Ensuring the success of CIS in the healthcare environment presents a particular set of difficulties. This paper describes an action research study aimed at improving information success in a maternity hospital.

Following a literature review and an in-house observational case studies, a generic model for a hospital quality assurance program (HQAP), was developed and applied. Modifications to improve the model for use in the clinical environment were applied, resulting in reliable and comprehensive data being made available to clinicians in a timely manner. This was achieved by optimising the in-house Obstetric Management CIS (OMCIS) and by developing a dashboard system, which highlights the most critical interventions and outcomes. A set of organisational benefits and key performance indicators, influenced by the Delone-McLean model [1], were developed to measure the success of OMCIS.

| | Organisational Benefits and Performance Indicators | Score Prior to Intervention | Score Following Intervention |
|---|---|---|---|
| ***Organisational Benefits*** | Annual report (25%) | 0% | 0% |
| | Assurance that obstetric management is efficient (25%) | 0% | 25% |
| | Quality shortfalls in obstetric management flagged (25%) | 0% | 25% |
| | Information is actioned in a timely manner (25%) | 0% | 0% |
| ***Total*** | **Organisational Benefit Score** | **0%** | **50%** |
| ***KPI 1** Governance established for:* | Data entry (5%) | 5% | 5% |
| | Data retrieval (5%) | 0% | 5% |
| | Technical management (5%) | 0% | 5% |
| | Data dissemination (5%) | 0% | 5% |
| ***KPI 2** Supports in place for staff:* | Entering data (5%) | 0% | 5% |
| | Retrieving data (5%) | 0% | 5% |
| | Generating reports (5%) | 0% | 5% |
| | Disseminating reports (5%) | 0% | 5% |
| ***KPI 3** Quality and accuracy of data:* | 10% of data reviewed (10%) | 0% | 10% |
| | >95% accuracy (10%) | 0% | 10% |
| ***KPI 4** Report availability:* | All reports available *within an acceptable predefined timeframe* (20%) | 0% | 5% |
| ***KPI 5** Information from reports is used:* | Action where data quality low (5%) | 0% | 5% |
| | Action where information quality low (5%) | 0% | 5% |
| | Action where user satisfaction | 0% | 5% |

| | | | |
|---|---|---|---|
| | indicates. (5%) | | |
| | All reports actioned where clinical quality low (5%) | 0% | 0% |
| ***Total*** | **Performance Indicator Score** | **7%** | **95%** |
| ***Overall Total*** | **Organisational Benefits/Performance Indicators** | **3.5%** | **72.5%** |

Table 1 provides an overview of the improvements to the OMCIS following implementation of the model. Some organisational benefits have been achieved. The publication of an annual clinical report remains on schedule. A number of items, such as breast-feeding rates, have been identified for improvement. The organisational benefit score increased from 0% to 50% and the performance indicator score increased from 7% to 95%, giving an overall combined score of 72.5%.

Application of the model resulted in a decrease in the amount of re-inputting of data into the OMCIS by staff members and an increase in the completeness, timeliness and accuracy of the data. Most importantly, valid data are now readily available with potential to inform improvements in patient care.

1. Delone WH, McLean E, The DeLone and McLean model of information systems success: A ten-year update. JMIS. 2003 Spr;19(4): 9-30.