Key success factors behind Electronic Medical Record adoption in Thailand

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Abstract

The concept of Electronic Medical Record (EMR) Systems started in the 1970s, but even today there are still many obstacles to physicians' adoption of computer technology. This study examines factors which personnel in Thailand's health care industry believe may lead to the successful adoption of EMR in Thailand.

Successful application of an EMR system requires good team work between health professionals, but it cannot be classified as successful until health professionals wholly contribute to the system (e.g., Bernstein et al 2007). An EMR system's value depends on the density and consistency of data originating from physicians, nurses, pharmacists, radiologists, medical technologists and cashiers. Unfortunately, due to the shortage of health care workers, data entry has been inconsistent and has therefore, reduced the effectiveness and efficiency of the EMR (e.g., Ilie 2005).

A survey of current literature was used to identify key factors facilitating adoption. Then a small pilot was carried out in a Thai 350-bed hospital which has successfully been using an EMR system for almost a decade. Ten physicians were asked to discuss the key factors, and the list of factors was refined to fit the Thai context. We ended up with 12 key factors, on which respondents were asked whether they agreed that each factor was important in implementing the EMR system. A 10 point Likert Scale from strongly agree (10) to strongly disagree (1) was used.

The sample was taken from 169 hospitals under the Thai Ministry of Public Health (MoPH) of primary (79), secondary (65), and tertiary (25) hospitals. In each hospital 15 people received questionnaires (as much as it was possible to identify the appropriate positions); the breakdown of which was: 1 policy maker, 2 Information Systems (IS) managers, 4 physicians, 2 dentists, 2 pharmacists, 2 professional nurses, and 2 technical nurses. A total of 2,535 questionnaires distributed, and 1069 usable questionnaires were returned.

Table 1 shows that respondents considered all of the factors important, all were rated, on average, well above the scale midpoint of 5.5. However, generally they felt 'clear EMR project goals and scope', 'good electric communications & connectivity', 'adequate budget allocation', and 'clinical staff involvement' ranked highest. Most of these seem to be about managing the implementation process, rather than about technical expertise.

We performed a factor analysis (Varimax rotation) and found two distinct factors which accounted for 65 percent of variance. We call factor1 'managerial expertise', and factor2 technical expertise. Table 1 is shaded to indicate the two factors; it is clear that in general, respondents feel that managerial expertise is even more important than technical expertise in implementing the EMR system.

This clearly indicates that overall, professionals in the Thailand's healthcare industry do not believe that the most critical issues in EMR system implementation are technical.

They certainly do agree that technical expertise is important, but not as important as managerial expertise. The project must have clear goals and scope, an adequate budget, and have user involvement. The technical item which ranked highest was actually about electronic communication and connectivity.

References

Bernstein M.L, T. McCreless, & M.J. Cote. 2007. Five constants of Information Technology adoption in healthcare. Hospital Topics 85(1): 17-25.

Ilie, V. 2005. What Do Physicians Want? Information Technology Acceptance and Usage by Healthcare Professionals. PhD dissertation, University of Central Florida.

Table 1: Means of the 12 key factors for implementing EMR(organized by the two factors)

dimension from factor analysis	n	mean	std dev
question			
dimension1 managerial expertise			
q2 clear EMR project goals and scope	1005	8.88	1.546
q1 adequate budget allocation	1002	8.80	1.554
q6 clinical staff involvement	1006	8.75	1.595
q5 effective EMR project communications	1005	8.67	1.544
q4 EMR functions support medical decisions	998	8.31	1.622
q3 EMR functions support administrative processes	997	8.08	1.783
dimension2 technical expertise			
q7 good electric communications & connectivity	1003	8.83	1.549
q12 knowledge & experience of IT staff	1003	8.64	1.696
q8 EMR suits department user needs	999	8.56	1.624
q9 training to improve computer skills	1004	8.34	1.758
q1 training in the EMR system	1005	8.26	1.784
q11 EMR vendors	992	7.45	2.006
Valid N (listwise)	963		

scale: 10 = strongly agree; 1 = strongly disagree