Overcoming the Barriers to the Implementing Computerized Physician Order Entry Systems in US Hospitals: Perspectives from Senior Management

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Abstract: We sought to identify the barriers to CPOE implementation and the strategies for overcoming them. By analyzing 57 transcripts of interviews with management officials at 25 US hospitals, we identified costs and physician resistance as the two most significant barriers. Hospitals often overcome the high cost of CPOE implementation by placing patient safety at the top of their agenda. Other hospitals manage physician resistance by leveraging strong leadership, external influence, vendor commitment and the presence of house staff and hospitalists. Efforts to promote the adoption of CPOE should therefore focus on these strategies.

Background: Computerized physician order entry (CPOE) is effective at preventing medication errors in hospitals. However, only 5-10% of US hospitals have implemented these systems. We sought to identify the barriers to CPOE implementation and the strategies to overcome them.

Methods: We conducted a multi-site qualitative study of US hospitals at various stages of CPOE implementation. We contacted up to 3 senior management officials at each hospital for semi-structured, audio-taped telephone interviews. We used a subset of interview transcripts to develop a list of provisional themes, which were divided into barriers and facilitators to the implementation of CPOE. Provisional themes were confirmed using the remaining interview transcripts and validated through iterative discussions within the research team.

Results: 57 senior management officials in 25 US hospitals participated in the study. Virtually all management officials, including those that have successfully implemented CPOE, cited significant barriers to adoption, including: 1) cost, as high as 10-30 million dollars for a large hospital; 2) uncertain return on investment; 3) potential negative impact on physician workflow; 4) concern about physician rebellion, and 5) difficulty training physicians, particularly at community hospitals. Costs and physician resistance were cited most often as the top barriers.

However, strategies have been successfully adopted to overcome these barriers. They include: 1) prioritizing patient safety above other concerns, which allows hospitals to find the resources to implement CPOE; 2) channeling external pressures from groups such as LeapFrog to facilitate the decision to adopt CPOE; 3) identifying physician leaders and champions who can overcome staff resistance; 4) selecting vendors that are committed to addressing physicians´ workflow concerns through customization and improvement of the CPOE product, and 5) leveraging house-staff or hospitalists to decrease physician resistance.

Conclusion: Senior management at hospitals identified several barriers to the implementation of CPOE, among which costs and physician resistance were most commonly cited. Strategies to overcome these barriers have been successfully adopted by many institutions. Some institutions were able to overcome the high cost of CPOE implementation by prioritizing patient safety above other concerns. Other institutions were able to manage physician resistance by leveraging strong leadership, external influence, vendor commitment and the presence of house staff and hospitalists. Policy makers and advocacy groups interested in speeding the adoption of this expensive yet effective intervention in US hospitals should focus their efforts on these facilitators.