

# The use of a Social Network Analysis for a Physician Engagement Model for CPOE

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## Abstract

*The use of Social Network Analysis can help us identify key physician communication patterns that form a physician engagement model with CPOE Adoption.*

### Keywords:

CPOE, Social network analysis

## Background

CPOE adoption has grown by 28 percent in the last two years in the US [1]. This represents more than 265,000 physicians and 12.5 percent of U.S. hospitals live with CPOE. This growth has come at the depth of usage with an increasing percentage of orders are physician entered, and a wide variety of orders are being included. However, there are few community hospitals with non-employed physicians that are using CPOE at the rates needed to optimize outcomes (80% adoption rate or more). In community hospitals, physicians are in the hospital for a fairly short period of time during the day. This has made training, getting buy-in, and getting through the transition more challenging.

Thus, there is a need to have a more comprehensive approach to physician engagement with CPOE.

We have taken a comprehensive approach to an engagement model with physicians. These engagement strategies are the following: (a) *Physician segmentation and targeting* (b) *Support strategies for physicians* (c) *Multimodal communication strategies* (d) *Thorough readiness assessments* (e) *Flexible training strategies* (f) *Ongoing support of key physician champions and opinion leaders*. As part of our comprehensive approach to CPOE adoption among physicians, we have identified Social Network Analysis as a strategy to identify key physician opinion leaders.

There has been prior research in using social network analysis to identify physician opinion leaders. Kravitz determined opinion leaders among Obstetricians in their attitudes towards caesarean deliveries [2]. We have developed a physician engagement model based on social network analysis to identify key physician opinion leaders who have influence within the hospital. Physicians within each specialty and discipline (ie. Hospitalists, Intensivists) look to certain opinion leaders for advice on informatics issues. We have found that there is a trust and friendship network among physicians within the hospital. These trust and friendship opinion leaders

can be identified to spread information rapidly through their network.

The key to physician communication and trust in the hospital is that they feel they are similar to the opinion leader. They have similar interests and can turn to the leader for support in a crisis. Communication between leaders and peer physicians is usually informal, but some communication is done at meetings at a steering committee level more formally.

The value of physician trust networks arises principally from the enrichment and extension of the social frameworks. Such features are knowledge sharing and trust, that facilitate coordination and cooperation for mutual benefit. Mutual knowledge can be characterized as shared experiences or close mutual understanding of the respective contexts of individuals. This allows for physicians to identify shared problems and communicate solutions and individual experiences in a meaningful way. Trust is necessary to pass on tacit knowledge from one physician to another. Accepting the contributions and suggestions of another physician requires trust in each individual's expertise. Sharing one's expertise with other network members requires trust that shared knowledge will be used appropriately. Trust in networks is built through repeated rounds of interaction that allows network members to make judgments about the trustworthiness of others.

## Methods

We have designed structured interviews and observation to capture important activities of physicians in their use of CPOE. Interviews and observational data will help us build a graphical representation of the communication network around physician opinion leaders and their peers. Physician opinion leaders have been identified through mapping techniques from social network analysis. Maps of communication networks have been created.

## Conclusion

We have developed and tested a structured interview instrument, and ready to conduct a pilot study to validate the social network approach for engaging physicians in a CPOE implementation for a major hospital in the US. Maps have been developed of the informal leadership and communication networks. Knowing the communication networks is beneficial

in spreading key information across medical specialties. The map can serve as a guide for who the appropriate messenger is to speak to the right physician.

## **References**

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