# How does two Communities of Practice in the same Clinic use CPOE?

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**Abstract**

*This project study the CPOE (computerized physician order entry system) use at two different locations in the same clinic. It is a qualitative case study with ethnographic observation, document analysis and interview. The study explores differences in how two practice communities use of CPOE. How does tacit knowledge and different communities of practice have an influence on how the users utilize the CPOE system. The study look at the organization when the system has become a part of the daily routines.*

*The study show that two local communities choose different way to use the same CPOE no matter they have exactly the same management and the physicians are the same at the two locations.*

**Keywords**: CPOE, evaluation, case study.

## Introduction

This paper is a preliminary part of a PhD project, which isn't finished at the time being. There are only selected and for the time being results.

Before implementation of EPR or CPOE many organizations carry out workflow analyses, interview or focus group interview. However there are IT developers who use observations. It is my experience that observations are estimated too time consuming or troublesome and the vendors and organizations often chooses to do without observations or at least with a very few.

In medicine there are a lot of tacit and phonetic knowledge and a specialized expert knowledge in connection to a concrete medical specialty. This raises a question about how the tacit and organizational knowledge are taken in the CPOE system? How does the CPOE include *know how in action*, understood as the practical and context based knowledge the medical staff use to accomplish the daily work? Or how do the users adapt and adjust the CPOE and the practice after the first implementation period?

Tacit knowledge is knowledge that is learned in practice accomplishing the practical work. The experienced knowledge makes the expert capable of making the right decision in a concrete context. A decision made in the situation based on the experts personal and intuitive knowledge that he can't explain (1). Flyvbjerg describes that phonetics is a kind of tacit knowledge that include doing the ethical and practical right thing. The ability to make a value based decision in a certain context and in a concrete situation. Phonetics request experience and are an analysis method that means understanding for interaction between the general and the concrete (2).

In interview or workshop the users can logically only tell about the explicit part of their daily work, but how about the tacit knowledge and know how in action? One of the objects in this project is to study the influence of tacit and local knowledge. How does tacit knowledge show in use or maybe rejection of a CPOE? And how does the local value show in the way the users choose to use the CPOE?

The theoretical perspective of this study are communities of practice and information ecologies where local units are understood as independent ecologies with their own rules, values, tacit knowledge and where interpersonal relations have influence on the work accomplishment (3; 4).

## Materials and Methods

This study will dig into the dept of how the end users utilize CPOE, when the CPOE is an integrated part of the daily work routines. It is a qualitative case study on two location in the same medical clinic; the locations are a bed ward and an outpatient clinic (5-7). The clinic has used CPOE 1½ year before this study, and the CPOE is a part of the daily routines for doctors and nurses.

The two locations are in separated buildings, the work task and nurses are different. The management is the same for the two locations and the physicians are the same in a week the physicians has typically 1-2 workdays at the bed ward and 1-2 workdays at the out patient clinic.

There has been two periods of data collecting and a year between the two periods. In the first data collecting period an open and explorative method was used to make an overview of the field and single out interesting areas for further in dept study. In the

second period a year later the data collection was more focused on themes. On of the themes are tacit knowledge and local practice ecologies. The two data collecting periods are carried out in the same way in two steps.

*Data collection step 1:*
About 100 hours of ethnographic observations of doctors and nurses work. Typically the observations are focused on a specific situation e.g. doctors round, medication, out patient consultation. In the situation I look for what happens, who does what, do they the same as the others or are there different ways in this work. My focus is to explore how values and actions are made in a local social community that use CPOE (8).
In connection to the observations I do in vivo interview with the staff about there actions. Besides I collect different forms and documents they use in connection with CPOE. It can be new forms that has been necessary to support CPOE or old forms that hasn't been replaced by CPOE.

*Data collection step 2:*
After reading the field notes and sorting out themes for interview, I have carried out 15 personal interviews with doctors, nurses and secretary. The interviews aren't finished.

## Discussion

The two locations where the data are collected can be characterized by Wengers understanding of communities of practice. (4). Wenger describes three areas in a community of practice: shared activity, shared repertoire and mutual engagement. The three areas are based in local present as historical coherence. It can be explained as local knowledge is obtained in debate and discussions and has an element of local history. This local knowledge is invisible to the stranger or newcomer. In the case of the CPOE system it shows the two different ways the same system are used by the same physicians.

On the bed ward the medication for all patients are gone through every day. The physician on round must approve the medication before the nurses can give it to the patient or fill the patient's medication box. At the bed ward the use of CPOE is an integrated part of the daily work to nurses and physicians and they all use the system.

At the out patient clinic the physician doesn't make an update of the patient medication. If a patient need some medicine the physician fill out a paper form. This form the patient then carry to the nurse, who dose the medicine in the patient's box. Then the nurse registers the medicine she has dispensed by filling out a paper form with the patient name in a binder. In the out patient clinic there are very few areas where the nurses and doctors use the CPOE.

There has been several articles that point out lack of management and resistance among doctors as the cause of the problems with CPOE use (9-11), but in this case it is the same doctors and the same management.

This leads to three points this study will continue to work on:

1. In order to implement standard IT systems, what does it mean that practice not is homogenous but is build by different communities of practice?
2. How can the local practise and tacit knowledge be enlightened and communicated to the designers?
3. What are the end users possibilities and strategies to make a standard system fit the local practice?

## Conclusion

Information ecologies, local history and practical experiences with work task have important influence on the way local users utilize or adjust a CPOE system to the practice. Management and organizational focus alone can't determine the way users utilize the CPOE.


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