



Memorial Health Care Systems



Memorial Health Care Systems (MHCS)
300 North Columbia
Seward, NE 68434

Contacts:

Roger Reamer, CEO
Telephone: (402) 646-4629
FAX: (402) 646-4605

Purpose:

Nebraska Hospital Association
"Quest for Excellence" Award Application – August 31, 2006

Topic:

Part of Memorial Health Care Systems three-year strategic plan which includes implementing and enhancing computer technology. This project specifically focuses on the implementation of computer modules for Order Entry and Laboratory System.

Criteria 1:

Leadership/Planning/Human Resources

OVERVIEW

Memorial Hospital, a twenty-five bed Critical Access hospital that services Seward County, is committed to the promotion of continuous quality improvement and patient safety, with the commitment beginning with our Board of Directors. Our strategic Plan focuses on this commitment including one of our Critical Success Factors that is to continuously advance our information technology.

The Board of Directors approved a three-year aggressive strategic plan to implement an electronic medical record. To carry out this plan, administration commissioned an Informational Technology Committee (ITC), a multi-disciplinary approach led by our Information Technology Department, to design and charter the course of the computer technology plan. The overall goal of the project was to improve access to clinical information and financial charges) and improve the overall efficiency of managing information. With this improvement it is believed that it will have a positive impact on the outcome of the patient and patient safety.

ITC researched a variety of software options and selected Dairyland Healthcare System (Dairyland) as the software for the electronic medical record (EMR). Dairyland is manufactured in Glenwood, Minnesota, which is a full hospital management software system. Dairyland offers a broad selection of modules and we have purchased the Financial, Clinical, Scheduler, Pharmacy, and Order Entry modules. With the purchase of the Dairyland software, we began our journey of implementation of the individual modules.

ITC's first responsibility was to sequence the Dairyland computer modules that would be implemented. Data Entry was selected as the first clinical module to be implemented. Order entry provides the capability of staff and providers to do direct

ordering via the computer and at multiple sites throughout the organization. It also provides the capability of orders and charges to match up and flow through the clinical and financial systems. In order for the information to flow through the clinical and financials at both the hospital and the three clinics, merging of patient record data bases and creating one number for each patient was completed. All of the demographics were verified to ensure accuracy of the merging of the data bases. For the first time we are truly one system and can view data from the hospital and the clinics. This took the coordination and cooperation of the ITC in conjunction with the staff of the clinics and hospital. Upon completion, this set the foundation in which we can build the rest of our information technology project.

Once the Order Entry Module was completed it was time to implement the Laboratory Module. Dairyland was selected because of its ability to coordinate with the MHCS Information System (IS) infrastructure. The Dairyland program allows for the information, both clinical and financial, to flow in a coordinated and seamless effort and be available at multiple sites throughout the facility. Dairyland enables the physicians to access laboratory results from their homes as well. These capabilities make patient information readily accessible to the physicians and staff, thereby improve the efficiency of staff and providers and promote improved patient outcomes.

ORDER ENTRY

The Order Entry Module provides staff the capability to enter orders via the computer. The ITC realized they could enhance the process if the databases of the clinics and the hospital were merged to create one number for identifying each patient. That patient record created by the one identifier would be easily accessible to clinical staff and physicians and better meet the needs and regulations of the facility.

This required a great deal of work to ensure that all of the information in each of the databases matched and was accurate prior to the merge. There continues to be some errors which are researched thoroughly and corrected to ensure the mistake is not repeated.

LABORATORY MODULE

Approximately four years ago, a business decision was made to combine the hospital and clinic laboratory services. This was due to changes in the market for contract labor for hospital laboratories. Prior to this merge of services, the hospital laboratory did not utilize any computerized information system. The clinic, on the other hand, had a stand alone IS product, Orchard. During the combining of the laboratories, the Orchard system was used for both hospital and clinic business. This system had some coordination issues and did not interface well, in some cases not at all with the MHCS IS infrastructure.

The selection of the Laboratory Dairyland Module was based on the ability to better coordinate the needs of laboratory processes and interface with work flow associated with the MHCS IS infrastructure. The 'why' of implementing the Dairyland Laboratory

Module was to improve the overall flow of information and to multiple sites, meet specific laboratory department needs, and getting the laboratory results distributed timely. This ultimately serves to improve patient care.

The Dairyland Laboratory Module helped meet CLIA requirements that the Laboratory were not meeting. CLIA requires documentation of the time the order was placed, the time the specimen was collected, the time the specimen was received in the laboratory and the time in which the results were released. The previous system did not provide this and Dairyland provides this information on the permanent medical record copy.

CLIA also requires that all final reports are “reproducible” inclusive of all information and documentation. The space provided for documentation of calling critical alerts in the old system was printed only once on the original report. That documentation was then stored on a log but could not be viewed in the permanent medical record if the original document was destroyed. The Dairyland Laboratory Module will not allow the user to approve a critical value without completing the documentation to who the result was called to. The software then automatically documents the date and time to who the result was given to. This remains a part of the permanent medical record and can be reproduced any time.

This also helps meet one of the 2006 JCAHO Critical Access Hospital National Patient Safety Goals, 2c “Measure, assess and, if appropriate, take action to improve the timeliness of reporting, the timeliness of receipt by the responsible licensed caregiver, of critical test results and values.” The laboratory tech reports the critical results and has the person read back the results. The person who receives and reads

back the critical alerts is documented in the comment section for permanent record. This meets 2006 JCAHO Critical Access Hospital National Patient Safety Goals, 2a referring to "Read Back".

In the old system the documentation had to be stored on a running log which was difficult to link to a specimen. The Dairyland system has a very convenient comment box for use at all stages of receiving specimens and resulting reports which provides excellent communication. Such things as the alert contact and read back can be documented here.

STAKEHOLDERS

The most important stakeholder in this project are the patients we serve and our goal is to improve our processes so we can better care for them and for patient safety. They will benefit from the order entry and the laboratory improvements because their laboratory results will be readily available to their care providers whether they are in the clinic or the hospital and also at the physicians' homes. We also anticipate experiencing a decrease in errors due to "wrong patient" resulting from demographics because of decrease in re-entry of information.

Physicians are key stakeholders in this process because it affects the sequence of patient care and the laboratory reporting process.

Laboratory staff is a major stakeholder because their work has become more efficient, timely, meets CLIA regulations, and meets customer expectations! Additional stakeholders include laboratory, business office, medical records, acute care, specialty clinic, radiology, and other ancillaries that receive orders via the computer.

The accounting is another important stakeholder ensuring that daily charges are completed daily in a timely manner.

TRAINING

To ensure that proper training occurred, the director of laboratory and a staff member went to the Dairy land's headquarters for training. Dairyland staff also provided an extensive onsite training effort for the nursing and ancillary staff for the Order Entry Module.

MONITORING

Indicators that will be monitoring are:

- Critical Alerts – to ensure that 100% of the critical alert values are being captured and reported to ensure CLIA compliance. This was not previously done and we were at 0% compliance.
- Late charges – to ensure that orders are entered timely and accurately. We have had an ongoing problem with late charges. We anticipate some problems as we entered into the project and it will require close monitoring and possibly a process improvement project.

RESULTS

The benefits of implementing the Dairyland Laboratory Module include:

1. Improved patient outcome and patient safety
 - a. Having the laboratory results readily available and at multiple sites; hospital, clinics, physicians' homes.
 - b. Reporting of alerts
 - c. Improved accuracy of demographics
 - d. Timeliness of results
2. Organization advancement in computer technology
 - a. Step closer to EMR
3. Effectiveness.
 - a. Immediate access to information across the clinic and hospital with merged databases
 - b. Improved accuracy due to the decrease in repeated data entry of the demographics
 - c. One medical record for each patient in the hospital and clinic

Two indicators were selected to monitor and evaluate how the new system was functioning:

- The laboratory CLIA "Critical Alert" indicator
- Late charges – charges do not arrive in accounting in a timely manner

The director of laboratory reports that the critical alert results criteria are now met 100% of the time. (See attached graph)

The results of the late charges show variability indicating a need for a review of the process to determine where there is a failure in the system. We are in the process of identifying the problem area(s) at this time and plan to proceed with the Six Sigma Performance Improvement Process to improve system.

(See attached graph)

Lessons Learned

Barriers to the change became evident when we identified unexpected key enhancements would need to take place in areas unplanned which created unique challenges. Communication thorough this was essential. A strong diversified team of staff who understood every aspect of the Dairyland System itself, laboratory processes, admissions, billing, finance, general ledger, information technologies, and report writing were involved. Each of the individual areas needed to be understood and effectively communicated with the vendor so the vendor representative understood what was required to meet their needs. At times communication was not timely and/or effective and resulted in a delay or disagreement. A lesson learned is how important it is to always have the right people involved wit each step and keep communications going, and process feelings when necessary.

One of the barriers that we encountered with Dairyland and actually it was their best asset as well as their worst asset. They had a representative that specialized in each individual step along the way, which provided us a specialist for each step. This was very beneficial for us to complete each of the steps, however, no one person coordinated or facilitated the project as a whole and knew what the overall outcome of

all the steps looked like, only their individual steps. For a project this big it is important to have a person who knows and is coordinating it and can predict the impact of the implementation of the modules on all areas.

We had some fall out on the clinic side after the implementation that we did not expect because we were not prepared by Dairyland. Because of this the clinic business office had to change their process of checking in patients which was a labor intensive project that was not planned. If we had a project coordinator who knew the whole process, we feel this would have been avoided.

CONCLUSION

Overall the implementation process of the Dairyland Order Entry and Laboratory Modules was a success and with some modifications this process can and will be utilized with the other modules. Pharmacy is now beginning their preparation for implementation. Memorial Hospital information technology journey of implementing the electronic medical record is off to a very successful start. Our journey may have a few bumps along the way, but with the strong commitment and perseverance of our staff, physicians, Senior Management, and Board of Directors we will complete our journey and implement the electronic medical record. For now we are very proud to say we have successfully accomplished our first steps of implementing the Data Entry and Laboratory Modules and with a great team effort!

**MEMORIAL HEALTH CARE SYSTEMS
QUALITY IMPROVEMENT PROJECT**

**Laboratory
Department Name**

**Theresa Schroeder
Prepared By**

**October 2005
Date**

Section I – “DEFINE” -Area for Improvement

State the problem or opportunity for improvement. How did you determine this process needs to be monitor for improvement?

- To enhance the computer information system for by merging the databases of the clinics at hospital and implementing the Dairyland Order Entry clinic module.
- Implement the Dairyland clinic module

MEMBERS:

- ILC
- Laboratory staff
- Ancillary staff
- Financial staff
- Business office staff

What is your goal and how will it improve the quality of care.
The goal is to successfully implement the Order Entry and Laboratory Modules

Section II – “MEASURE” & “ANALYZE”

What data will be collected to verify that the process needs improvement? (This will be the measurement tool or quality indicator used for follow-up evaluations)

1. Critical Alerts Values – CLIA compliance
2. Laboratory late charges

Document the frequency and duration that the data will be collected.

1. Critical Alert Values will be monitored weekly
2. Laboratory late charges will be monitored monthly

Who is responsible for the data collection and to who he data will be reported ?

1. Theresa Schroeder and will be reported to her staff and to the Quality Council and Medical

Summary of the data collection:
See attached

Section III. - "IMPROVE" - Action

What action/changes will be implemented to improve the problem or process?

The clinics and hospital databases will be merged.

The Order Entry Module will be implemented.

The Laboratory Module will be implemented

Document the implementation process including time for each step and the responsible person and attach the plan to this form. Build in a method to evaluate the established quality indicator(s) in the new or revised process.

The time line was developed by the ITC

How will this action prevent future problems?

- Improve patient care
- It will ensure CLIA compliance.
- Improve timeliness of reporting of alert results.
- Prevent or decrease late charges

Section IV. - "CONTROL" Evaluation of Action

Evaluate the results of the data collection of the established quality indicator. Determine if the goal was achieved and how it benefited: (to be completed this fall)

- Patient Outcomes
- Operational Outcomes
- Resource Consumption

If not met, determine what else needs to be done to reach the goal. Assign responsibility for additional steps (action) in the process. Repeat Section III as appropriate if goal is not met.

Name _____

Date _____

Attach Supporting Documentation

Section V. - "CONTROL" Monitoring for reoccurrence of problem

Evaluate the results of the monitoring of the established quality indicator. Determine if the goal was achieved and how it benefited:

- Patient Outcomes
- Organizational Outcomes
- Resource Consumption

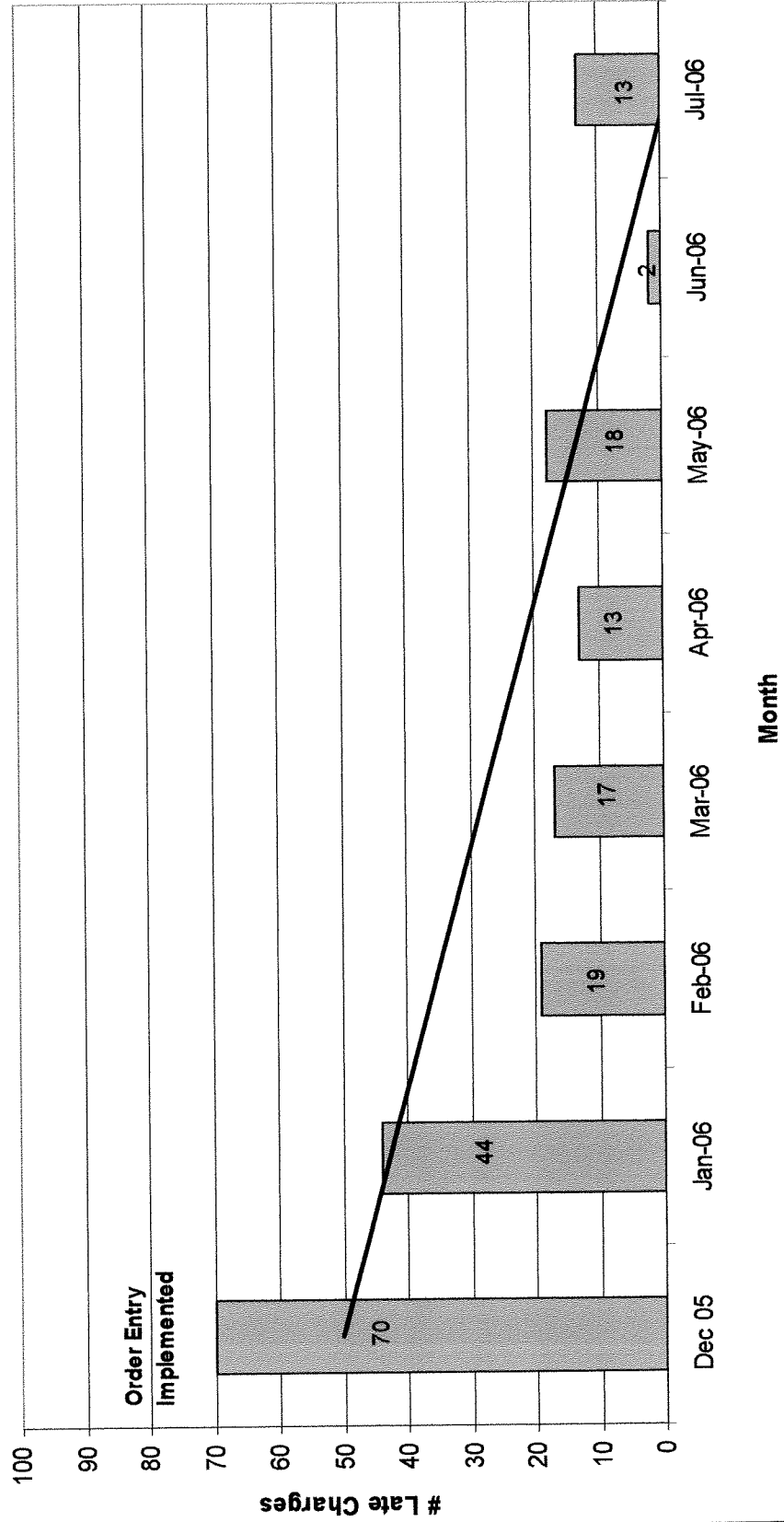
If goal(s) not met, determine what else needs to be done to reach the goal(s). Assign responsibility for additional steps in the process. Repeat Section III as appropriate if goal is not met.

Name _____

Date _____

Attach Supporting Documentation

MEMORIAL HEALTH CARE SYSTEMS Laboratory Late Charges



Order Entry
Implemented

MEMORIAL HEALTH CARE SYSTEMS Laboratory Critical Alert Values

Series 1

