

Practical planning considerations when interfacing

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Attention to how data are handled by different groups in a hospital is important when interfacing a point-of-care testing system.

Consideration of existing data handling practices and future data evaluation needs - before, during, and after installation - and careful planning in cooperation with each hospital department involved, are essential elements to successful implementation.

In this article Deanna Bogner, POC Coordinator, gives practical planning advice based on experience gained when implementing a POCT system at Christus Santa Rosa Health Care.

The committee that was formed to choose a new glucose meter for your hospital has disbanded. The laboratory comparisons are over; the decision will be beneficial for your patients. Wow! An interface has been approved also.

"Yippee - an interface... no more pencil and paper - no more sneaker time!" After the first flush of elation, reality sets in. "This is a big project!" you think. Your second thought is "I know nothing about computers!" The third one is a panic-filled "Oh, no! What have I gotten myself into?" Three years ago, the above description was applicable to me.

This purpose of this article is to assist you in finding the issues and questions to ask, which are specific to your institution. It will not attempt to teach you computer terms; rather it is to assist you in becoming familiar with your own organization, the systems and groups that "your interface" will affect.

What follows is a primer of some of the things to look for, drawing on the experiences of the Group for South Texas Ancillary Testing (GSTAT), a group of 15 POCT coordinators based in San Antonio, Texas, United States of America.

Coordinator members in GSTAT represent all types of hospital, including not-for-profit, military, for-profit, and public taxpayer-supported hospitals.

Three members of GSTAT have either installed or are in some phase of interface installation. Several meter manufacturers and computer systems vendors are represented. The oldest interface in the group has been "live" since December 1999.

Key aspects to consider

- Map the existing situation and future needs with regard to data handling prior to the purchase and make it a part of your requirements to the POCT device vendor.
- Involve the various staff groups in the mapping and the following implementation.
- Enter a constructive dialogue with the supplier of the POCT device and the LIS/HIS system and involved staff groups during the implementation phase.
- In that dialogue, make requirements, but be ready to be flexible.
- Be ready for surprises.

Nursing considerations

Many groups will be affected by "your interface." The most prominent of these is nursing. The complexities of patient charting can be daunting if your hospital is a multi-hospital organization.

One of the strengths of a nurse is documentation. Nurses understand charting and record keeping.

Find out how the nurses chart. Do all units from different hospitals chart in the same manner using the same forms?

Charting and ordering

For the GSTAT members, charting is not standardized. Pediatric units use one form; adult units utilize a diabetic

flowchart or the Medication Administration Record (MAR).

Some units may still chart in Nurses Notes. Does your institution utilize Electronic Medical Record? If so, do all units use EMR or will the paper chart still be the gold standard?

This knowledge can assist you in the way you set up your interface and make it easier for you to track errors and develop a Quality Assurance (QA) program.

How are orders handled for glucose testing? Are orders entered into the Laboratory Information System (LIS)? Does the unit clerk/nurse use Order Entry (OE)? Does OE affect another system such as Finance?

Patient ID

"Your interface" will require the identification of patients before the results can be transmitted. Do your patients always have identification numbers - even in code or trauma situations?

Do you know what the nursing protocol is for the identification of patients not entered into the Hospital Information System - do they in fact have a system? Is a generic number used - possibly several times per day?

Is the meter capable of adjusting or improving that system? Some meters have alpha as well as numeric entry. Alpha capability offers the option of identification by patient name.

A member of GSTAT researched patient IDs in her Level One trauma center. The meter system she is using lacks alpha capability. She discovered that nurses use the same number several times a day on different patients.

This discovery led to the question, how could these patient tests be identified correctly? What happens if one patient had six tests performed and another patient none?

How to identify which patient is which is a problem that she is still struggling with. She has given herself a huge

advantage by identifying this as a problem. The initial operator training is a perfect time to address solutions to problems such as these.

Another possible obstacle is a multihospital system that uses different patient ID numbers. One of the GSTAT coordinators is responsible for a multihospital system using one interface.

The LIS is the same but the length of the ID string is different for each hospital. To complicate the issue, one of the hospitals has a low trauma level and consequently stabilizes patients for transport to the larger main campus.

The ID number at the main campus is 10 digits and the ID string at the smaller hospital is 8 digits. The patients, during their stay at the larger hospital, retain the initial ID number of 8 digits.

This is a difficult problem to solve. She is working on it from several angles but currently does not have a solution.

Operator ID

Once a standardized ID system is in place for the patients, what about the operators' ID? Do all of the hospitals in the system use a unique number such as a social security number (SS#)?

Some systems may use a number that is artificially generated and reassigned after it is vacated. In either case, does a database need to be created with these ID numbers? Is this database separate from a competency database?

If so, who will maintain it - adding in new operators and removing old ones? Can Human Resources assist in the creation of this database?

Christus Santa Rosa Health Care (CSRHC) made the decision to use SS# as the operator ID. The SS# would then be compared to a database with the sign-on password for the hospital computer network.

This sign-on password is also utilized to identify the operator to the LIS. Information Services (IS) maintains the database since they have the responsibility of controlling computer access.

While testing the interface, an unpleasant surprise was discovered. Eighty percent of the testing did not file due to "unknown operator ID." Patient Care Assistants (PCA) had performed this testing.

All involved in the project assumed that all associates were trained on the computer system; however, this was not the case. Information Services and the Laboratory scrambled to place all operators into the computer system database.

CSRHC has four hospitals using the same interface. Using one interface rather than four lowered the initial cost, but caused additional problems that had to be addressed.

Two alpha characters denote the hospital that the patient is admitted to. The alpha characters are different for each hospital and are followed by 10 numbers.

Barcoding or manual identification

At the time the meters were installed, patients were not identified using a barcode. The lack of barcodes meant that nurses needed to enter 12 characters each time a test was performed.

This manual data entry is a large source of possible preanalytical error for an operator who may perform 40 tests per day. The POCT coordinator solved this problem by assigning the meters to a specific hospital.

The meter assignment allowed the LIS to use the meter location to identify the correct hospital. This concept of "one meter is no longer just like another" also needs to be addressed in the meter initial training.

Using meter location to help identify patients required two other problems to be solved. The first problem was that patients occasionally move from one hospital to another.

The second was that departments may share space or equipment, (e.g. shared units may mix medical patients and rehabilitation patients, children and adults may share surgical recovery rooms).

In CSRHC, the solution was to assign each unit its own meter. The meter is clearly marked and this was addressed in the initial training. Errors of meter use for the wrong patient location do happen, although infrequently.

Laboratory and regulatory considerations

While the mechanism of “charting” in the laboratory is relatively standardized, “your interface” will pose questions for the laboratory. These questions concern both regulatory requirements and daily operation.

LIS

The POCT test in the LIS should be established so that the POCT results are excluded from delta check with the main laboratory glucose results. Tests performed at different locations must also be identified by address on the laboratory report for regulatory purposes.

These requirements were accomplished at CSRHC by building a separate LIS module for POCT glucose. This module was designed so additional tests for POCT could be added later.

The address of the testing site is referenced to the hospital-identifying alpha characters discussed earlier.

Quality Assurance

What parameters should be tracked for Quality Assurance (QA) purposes? Some suggestions are items such as patient ID errors, non-certified operators, or operator ID numbers that are unable to be identified by the computer.

Can you offer any additional service to Nursing by providing other specific information the interface can provide? At CSRHC, the Diabetes Educators use

reports generated from the LIS system to assist them in monitoring patient diet and counseling.

Other reports can be generated from the data management system of the glucose meters, if desired.

Several QA parameters are tracked at CSRHC. “Repeat 1” is a defined parameter that tracks testing performed by the same operator on the same patient ID number within a defined length of time.

This parameter is defined in the meter system’s interface management software and is useful in preventing duplicate testing from crossing to the LIS. When a “Repeat 1” appears, it must be rectified.

After a defined number of errors in a certain timeframe by the same associate, the nursing manager is notified. Another example is “NO ID”. Data from this parameter have been utilized by Nursing to justify the addition of staff from Admissions to their units.

Reports

Can reports be defined, or perhaps already exist, that can assist in rectification of mistakes or tracking exceptions such as high glucose values that should be verified by a lab draw?

A report that daily logged all of the patients in the Emergency Room was initially unknown to the author. Gaining access to this report through the LIS cut the daily time for correction of alphabetic patient IDs by 90 %.

An additional LIS report was developed to track abnormal test results and laboratory repeats.

For those hospitals that are JCAHO-inspected for POCT but CAP-inspected for the main laboratory, JCAHO POCT programs that utilize the LIS for reporting POCT results are responsible for the CAP General Laboratory checklist items that pertain to patient reports and computer operations.

Procedures should be developed for auto-verification of laboratory results. Procedures should describe safeguards in place to prevent erroneous results from posting, and guidelines on the rectification of results.

An interface validation will also need to be performed once per quarter.

Help

Remember that person in the first paragraph... panicked... alone with this huge project? One last bit of advice is "Relax! You are not alone!"

The meter vendor and the vendor of the interface software will be there to help you with training, validation, and installation assistance. It is to their benefit to help you to be comfortable with their product's capabilities.

But... you must uphold your part of the bargain. Ask constant questions, even if you think that they are "dumb", and persist until you receive the answers.

Installation of an interface is a big and complicated project. I can hardly wait to do it again! The hope is that this article will help you experience the same benefits I did... the challenge, fulfillment, and excitement during the process and the enormous payoff in timesavings and end-user satisfaction when it is done.

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