

**BIRTHING CENTER
STANDARDS AND INTEGRATION**

Medical Informatics 405
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SECTION 1: Defining the Problem

When we think of the Labor and delivery area of hospitals, we like to think of women that are not typically viewed as being ill as we do with other inpatients. Most people would likely picture it as a happy place to work assisting to bring new life to moms and dads that after nine months anxiously await meeting the newest member of their family. The reality of it, labor and delivery is risky business. When caring for pregnant women, consideration must be given to providing care that results in the best outcome for two lives, mom and baby. Lack of consideration of this fact can result in complications as severe as death of mom, death of the baby or both. Statistics demonstrate that 50% of all malpractice cases with settlements over a million dollars occur in the obstetrics area of hospitals. The majority of these malpractice cases involve brain injury resulting from birth with medical error making up 30-50% of the cases.

Some of the contributing factors to the current malpractice cases are related to failure or delays in recognizing, anticipating, communicating (both verbally or through documentation) and/or providing timely intervention to signs of problems. Key factors that are missed include interpretation of fetal monitor tracings, acting on prolonged labors and shoulder dystocias

Acting as the system administrator for the past year over the electronic medical record (EMR) installed for the purpose of maintaining documentation for the labor and delivery area of the birthing center, responsibility included evaluating the current functionality of the system, auditing nursing documentation and providing documentation compliance rates along with suggestions for improvement to lessen exposure. The system chosen for installation in 2004 was a non-tailorable version of a Perinatal system provided by a vendor with various other hospital systems (EMR's, Surgical systems, Pharmacy, Lab, etc) that have the ability to integrate.

The Gap analysis of the system revealed many system weaknesses related to standardization and integration. After review of the system functionality and the documentation trends of the staff, the following is a summary of significant findings related to documentation parameters that hinder standardization, integration and interoperability:

- Medication lists do not reflect best-practice (outdated).
- Following outdated guidelines/terminology for fetal strips
- System does not meet regulatory standards for quality and safety. An example is surgical preparation terminology outdated (i.e.: abdomen shaved)
- Laboratory and Radiology results are not interfaced to the system resulting in desperate data
- Currently all fields in the system are optional resulting in the archive of incomplete records including incomplete delivery summaries resulting in inaccurate automated delivery logs.
- Fields allow for inconsistent data entry resulting in inconsistent documentation among staff and therefore inaccurate system reports.
- New monitoring equipment and warmers have integration capabilities that are not being utilized due to system limitations
- Current system unable to integrate with HIM repository (iDoc) resulting in the printing of paper records for scanning purposes.
- Due to the quality of documentation currently being performed by the staff, nursery and post-partum modules have not been implemented.
- System will not accept registrations for patients that originate via the emergency department resulting in the manual addition of patients.

To summarize the problem, the organization is currently maintaining a system that does not have the ability in its current state for customizations that will support best practice. The current state does not meet current standards and regulatory requirements and does not integrate with hospital systems including laboratory and radiology or interface with the system utilized as the repository for medical records. There are many solutions that will be evaluated in addressing the system constraints.

SECTION 2: The Solutions

In determining the solutions, immediate consideration should be given to accommodate evidenced-based practice that is reflective of current standards, as well as integration with current hospital systems with the long term goal of interoperability. Prior to integrating the system, some attention needs to be given to the issues related to standardization and ensuring complete and accurate documentation. For the purpose of this paper, the focus will be placed on standards and integration, however, the long term national goal of complete interoperability should remain in the forefront for the financial benefit of the organization.

There are many solutions that could be considered in the scenario described above. The first issue that will be addressed is standardization. The healthcare industry is currently focused on establishing national standards with the objective of creating interoperability among healthcare providers at a national level. The reasons to achieve national interoperability are centered on healthcare quality, safety and cost savings by eliminating duplicate and unnecessary testing and providing timely and appropriate treatment. In order to achieve interoperability at a national level, standards and integration need to be given consideration within the organization.

Beginning with standards, the first solutions could be to do nothing. The only benefit this provides the organization is the staff are familiar with the system therefore there would be no funding required and no training, however, the disadvantage is that the organization has not taken any steps to achieve standardization, integration and may set them further away from interoperability.

The second solution to accomplishing standards is to develop specifications that are inclusive of all delinquencies within the system that are reflective of best practice. The specifications would include all the fields that should be required as well as the allowable values for each field.

By placing requirements and guidelines on the fields would force the user to complete minimum documentation required for chart completion and would force the user to choose fields that would be in the format required for reporting. The vendor has the ability to provide coding services based on the specifications allowing customization to the current system. The advantages to this option is the system will be able to meet standards, however, there are many disadvantages that should be taken into consideration with this option.

The disadvantages to the second solution in which the vendor would recode the system are the price to the organization. The vendor charges for all changes at a rate of \$250 per hour with a minimum purchase time of four hours. Initial discussions did occur with the vendor and their initial estimate included spending two weeks on site bringing the system up to code which then leads to incurring travel expenses in addition to the coding fees. Another consideration is that bringing the system up to standards in this manner is not a permanent solution but rather would require ongoing coding changes to maintain the system with changes related to standards including those that are regulatory. This solution would have minimal impact on the staff in regards to training since it is a system they are already accustomed to using and the layout would have little to no impact.

The third solution considered is an upgrade from the current non-tailorable version to a tailorable or customizable version of the same system allowing onsite enhancements by trained personal of the system architecture and tools. The advantage of this solution is similar to those in the second solution including the system will have a similar look and feel to the staff so minimal training would be required. In addition, the system should always be in synchronization with regulatory requirements and best practice standards. The cost involved with this option may be viewed by some as advantage and to others a disadvantage. The approximate cost of the

upgrade was approximately \$75,000, however, the vendor did not account for a required upgrade to the servers in order to accommodate a new database. In addition, hardware would require evaluation to determine if it will support updated versions of software. The option could be considered an advantage to the organization based on the findings with the hardware and based on training required and personal allocation to maintain the system, however, given today's economic situation and the fact that all information technology projects had been placed on hold, this could be a disadvantage.

One final option that could be considered is evaluation and possible acquisition of an entire new system with a different vendor that better meets the needs of the organization or from an existing vendor within the organization that will provide ease in meeting integration goals. If this option is selected, the following should be considered during the evaluation of new systems:

- Clarify and consolidate data
- Documentation supports or has the ability to approved protocols and/or best practice;
- Use of standardized terminology;
- Allows for the ability to build in safety nets and minimizes weakness;
- Tracks and provides reporting capabilities that are accurate and promote quality and safety.

Advantages of this option include the ability of the staff to provide input into a system that meets the needs of the birthing center, along with input from information technology understanding the long term technology direction of the organization. The disadvantages being cost including training expense for both the nursing staff and information technology.

The options discussed so far will address matters of standards but what about integration? None of the solutions discussed will address issues around integrating the system into the current systems and operations of the organization. The integration issues with the system center around the abilities of the interfaces and other systems. The systems under consideration for integration

include the laboratory and radiology as well ensuring that any point of registration creates an account in the Birthing Center system eliminating manual entry. In addition, evaluation would be required to determine if the medical record system can accommodate records from the birthing center through an interface, a flat file or any other electronic format eliminating the need for printing.

SECTION 3: Recommendations

Now that we have defined the problem with the current system as it relates to standards, best practice and integration and discussed options that could be considered to address the systems constraints, based on advantages and disadvantages of each option, the recommendation at this time is to pursue upgrading to a customizable version of the current system. Ideally, based on review of other systems, the best option may be to pursue acquisition of a new system, but based on financial constraints believe that an upgrade is the most reasonable option offering a solution to the standards issues and over time the integration concerns. Although there is certainly some cost involved with the option, comparatively speaking, this seems the most economical and user friendly.

Going back to the first option of doing nothing will not address any of the concerns and will only put the organization further behind as standards and regulations continue to change and evolve. Based on experience working with quality measures, standards are initially rolled out and then evolve becoming more complex frequently leading to other measures or standards. If the organization does not make the decision to purchase a new system (option 4) or pursue the upgrades (option 3), the organization risks having to make more complex changes leading to greater impact and education requirements in the future.

Based on experience working with the system described in this scenario, review of new systems and obtaining a clearer understanding through this course on the drive for standards integration and interoperability I believe vendors need to give serious consideration to the option of offering systems that do not allow for customization. System certification given to systems and with this in mind, I believe as part of the certification process, non customizable systems

should be retired unless, the vendors are going ensure timely release of upgrades/patches/fix kits that will ensure the system is up-to-date with standards and regulatory requirements..

References

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