

ABC's of Transitioning from Paper to Electronic Documentation

by

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Abstract

Interdisciplinary electronic documentation software is an unavoidable tool of the 21st century. Due to historical information technology (IT) project implementation failures within health care, the introduction of electronic documentation software products has shifted from being an IT project to an interdisciplinary collaborative venture. Interfacing multiple stakeholders has proven to be critical in the planning and implementation of an electronic documentation system. The purpose of this paper is to share the guiding framework used by a collaborative work group to plan and prepare for electronic documentation implementation in a new Women and Children's birthing centre. This paper will focus on three major overlapping elements of a framework used by the project team. Lessons learned will also be discussed.



Introduction

Canada Health Infoway’s vision is for all Canadians to have an electronic health record (EHR) by 2016.

Ontario’s provincial strategy is aligned with this vision, as is the Central East Local Health Integrated Network (CELHIN). Being a part of the CELHIN, Rouge Valley Health System (RVHS) has invested in an electronic documentation system which will help achieve this common vision. The system, OB TraceVue, or more commonly nicknamed OBTV by the clinical staff has the potential to cover the entire continuum of gynecological and obstetrical care, combining surveillance and alarms with comprehensive patient documentation and data storage, all in one system. The system provides comprehensive capabilities and information to clinicians as they document and manage care for mothers and newborns during their stay in the obstetrical units. Implementation of OB TraceVue directly affected approximately 150 clinicians of various disciplines. Clinicians required acquisition or enhancement of electronic documentation skills and experienced a change in their work flow, as they learned to incorporate real time on-line documentation at the point of care.

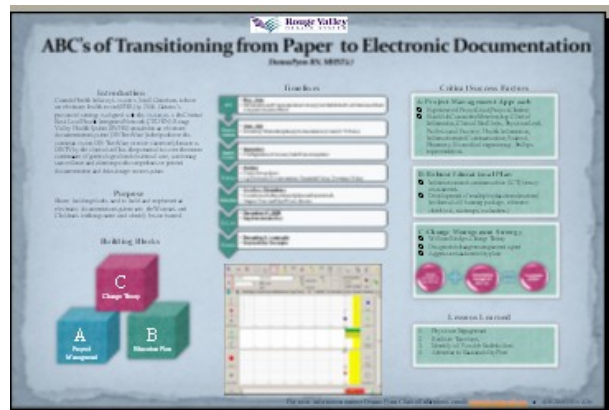
Electronic documentation is often credited with the ability to reduce redundancy, duplication, and errors, while increasing patient safety and improving efficiency (O’Meara, 2007; Sassen, 2009). Alternatively, the literature reveals that there is poor adoption of information technology in health care settings due to inattention to how electronic documentation affects work flow, inability to capture all of the actual work that is being done, and a lack of training and support for

end users (Ball & Lillis, 2000; Nagle & Catford, 2008; Sassen, 2009).

Awareness that a high percentage of information system implementations fail due to lack of user acceptance (Kaplan & Harris-Salamone, 2009), made it necessary for adequate attention to be paid to the end users’ needs and expectations. Viewing the project with a ‘wide angle lens ‘ was critical, bearing in mind that significant changes in practice would occur, and that the diverse learning needs of a multidisciplinary team must be attended to, since team members would have various levels of computer literacy skills. This paper details three major overlapping building blocks used by the project team; (a) an organized project management approach, (b) a robust educational plan, and (c) continued attentiveness to a change management strategy

(Refer to Appendix A: Building Blocks-Electronic Documentation Planning and Implementation) .

While successes were enjoyed lessons were also learned.



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Project Management

Project Charter

In an effort to promote integration of the new system into the current one, the clinical informatics project manager enlisted the participation of a number of stakeholders and end users to establish a high level steering committee and a design and documentation subgroup. The vision, goals and objectives for these groups were clearly defined and supported (*Refer to Appendix B: Project Goals and Objectives*). Clear work plans were articulated to guide and distinguish the two teams. In synchrony, they adhered to their assigned roles and responsibilities, successfully achieving deliverables within predetermined time frames.

According to the author of the project charter, the electronic documentation system would enhance the safety and quality of care for patients by promoting best practice documentation standards, facilitating real time access to integrated information on-site and remotely, and improve outcomes and efficiencies, while contributing to the advancement of the electronic health record at RVHS (L. Tkac, 2009; personal communication, August 2, 2009).

Roles and Responsibilities

Members of the two committees were from various departments and included obstetrical nurses (director, managers, educators, and clinicians), the clinical informatics team, pharmacists, IT staff, Health Information Management (HIM) staff, Biomedical

engineers (Biomed), vendors, and professional practice leaders. The primary function of the steering group was to oversee the overall progress of the project and to track and approve deliverables.

In unison, the design and documentation subgroup were responsible for four major tasks (a) completing a work flow analysis, (b) building and testing the OBTV system, (c) the development of policies and procedures to support electronic documentation, and (d) developing an educational plan for the interdisciplinary team.

Work flow Analysis.

A work flow analysis was conducted to examine processes and documentation practices at several different points of care for obstetrical patients, both mothers and newborns (*See Appendix C: Workflow Chart*). An inventory of paper documents used by the multidisciplinary team revealed that more than 70 different paper forms existed. Once this information had been collated it became clear there was an enormous amount of duplication and redundancy. Much of the documentation was consistent with the literature, revealing that many documentation forms are obsolete; contain redundant information, inconsistent nomenclature and unapproved acronyms and abbreviations (Eng, 2006; Nagle, 2007). In Lynn Nagle's words, (2007, p.34), "there is an opportunity to rethink our approaches to the documentation of nursing practice...and reverse the emerging burden." The work flow analysis inspired us to enhance documentation and eliminate duplication of effort and redundancies in an effort to avoid a mere duplication of the paper forms.

created with a plan of action to accomplish the tasks.

Building and Testing.

Four system managers were assigned to build the system over a three week period. Two managers were clinical informatics nurses, one, a birthing centre educator, and another, an expert obstetrical nurse. The literature often emphasizes the importance of clinical champions and end users being actively involved in this phase to ensure better integration of the system into the actual work flow of the users (Ball & Lillis, 2000; Eng, 2006, Nagle, 2007; O'Meara 2007; Smith, 2007). During the building phase, clinicians were encouraged to visit the computer room where the construction was taking place. This gave them the opportunity to view the progress to provide input or feedback. Only a few clinicians were able to visit during working hours.

The challenge of configuring screens, and building forms and statistical templates required the four system managers to dedicate full time hours plus substantial overtime over a three week period. Although it would be easiest to recreate the paper record, the screen layouts did not facilitate this replication. Instead, the focus was to avoid paper records as much as possible, while simultaneously designing a clinical documentation flow that was logical and free of duplication. Forms that could not be built into the electronic documentation system were scanned into the system. All mandatory statistical reporting (for instance the Niday perinatal database) was also incorporated into the system, which replaced the need to manually audit charts. Although much work was completed during the building stage, the system managers saw great potential for additional enhancement to meet work flow needs. An impressive “to- build” list was

Policies and Procedures.

The creation and approval of professional practice policies to support electronic clinical documentation was necessary. A total of five policies were drafted:

Policy #1 - Clinical Documentation. The basic underlying documentation principles remained the same. That is to say, charting by exception (CBE) and narrative charting would continue to be supported by OBTV electronic methodology. Additional standards and guidelines were documented in the policy adhering to the College of Nurses of Ontario (CNO) documentation standards and Personal Health Information Protections Act (PHIPA) privacy principles.

Policy # 2 - Roles and Responsibilities of Clinical Users: This policy focused on the differences in system access for administrators, system managers, superusers and end-users. Clarification of roles was important in determining who to call for concerns or troubleshooting assistance.

Policy # 3 - Downtime Procedures: This policy outlined the process to follow when the main hospital information system experienced planned or unplanned downtime, or if the OB TraceVue system was not available. This policy detailed exactly which paper forms would be used when electronic documentation was not possible.

Policy # 4 - *Quick Admit Procedure*: To ensure patient safety, two patient identifiers are always needed. However, in emergency cases or during downtime nurses may not have access to the required identifiers. In this case they would use the quick admit function. Policies to support this practice were critical to enhance safe identification of the obstetrical patient.

Policy # 5 - Auto Charting: The pros of a system that can automatically record maternal vital signs and fetal heart tracings also brings with it some risk. Consequently a policy with stringent standards to guide the practice of auto charting was developed.

Education.

The development of a strong comprehensive educational plan to meet the learning needs of various interdisciplinary staff was a challenge within the allocated time lines that had to be met.

Educational Plan

Information and Communication Technology (ICT) Assessment

In an effort to establish a baseline of computer literacy an ICT core competency test was distributed to all clinicians before OBTV training began. According to the principles of adult learning, “Teaching begins at the level of the learner” (Gaberson & Oermann, 1999, p.60). Out of a return rate of 75 staff approximately 40% rated themselves as competent, 30% rated themselves as developing competency while 30% rated themselves as unskilled. It was evident from

the ICT test that learners were of different ages, genders, and came with a range of unique past experiences, different levels of knowledge, skills and various learning needs and learning styles. Being cognizant of the principles of adult learning, we knew “one size would not fit all” with regard to our educational approach. Staff that self-identified themselves as unskilled in computer use were required to attend a paid in-house basic computer class prior to attending the OBTV training class.

Superuser Training

A cohort of ten clinical superusers were the first to be trained in OBTV. The clinical superusers were selected based on their high ICT test results, clinical experience, positive attitude, leadership traits and communication skills. They would assist in teaching end users during a three week educational blitz and later support end-users post implementation. Over a three-day period they were given advanced software training and were provided with educational tools to use during end user classroom training.

Development of Educational Tools

Following superuser training the four system managers took on the challenge of developing multiple educational tools for various disciplines. A variety of methods were used to appeal to the visual, auditory, tactual and kinesthetic learner. In three working days agendas, educational objectives, Power Point presentations, self learning packages, speaker notes, quick reference charts, and finally, evaluations measuring learner satisfaction were created.

End User Training

Staff training schedules were the responsibility of the unit manager and project manager. Nurses, midwives and allied health were scheduled to attend an eight hour training class. Unskilled staff were organized into a cohort and their training was scheduled closer to the implementation date. Biomedical and Health Information staff were invited to a 2- hour training session. Physicians were allotted three- hour private training sessions. All identified clinical users received training within the allotted three week period with the exception of nurses on maternity leave. Overall, learners were very satisfied with the educational sessions as evidenced in the final Learner Satisfaction Survey results.

Implementation

Implementation day or 'GO LIVE' of OB TraceVue occurred as scheduled on November 4th. A combination of superusers, system managers, administrative staff and a vendor were available to assist end users. To reduce complexity, no inductions or caesarean sections were pre-booked on implementation day. Staff were instructed to chart only in the electronic record with the exception of paper forms that could not be entered electronically. All other paper forms were removed from the unit to reduce the temptation to resort to paper charting.

To ensure around the clock support a superuser (without a patient assignment) was scheduled for every shift for a two week period. Thereafter, the unit professional practice leaders and clinical informatics department were available via pager or telephone as

needed. An algorithm was developed by the project manager to direct the staff on the process to follow if they encountered problems. Generally, all superusers felt more support would have been helpful during the first week, to help troubleshoot technical issues and spend time with staff with weaker computer skills who struggled with the process.

In addition to the constant visibility of superusers to address issues or concerns during implementation and beyond, a superuser email group was also created. to share frequently asked questions (FAQ's) and solutions. These FAQ's were tracked and widely shared among the end users.

As far as sustainability is concerned, the design and documentation team have made recommendations to the Woman and Children's program outlining the continued work that will need to be addressed. Although the larger project team will disband shortly after implementation a smaller working group will continue to meet regularly. Evaluations are planned at three and six month intervals to assess user satisfaction, utilization, and completeness of documentation.

Change Management Theory

Communication

A rigorous change management plan was critical for planning the implementation of OBTV. The transition from charting with pen to keyboard while simultaneously changing the familiar routine of charting at the 'nursing station' to charting at the point of care was a considerable change for clinicians. Knowing this, we realized the need to be prepared for clinicians who might be skeptical of electronic documentations systems and oppose learning

it, accepting it and more importantly, using it.

To mitigate risk of hearing “Nobody Ever Tells Me Anything” (NETMA) the project manager assigned a corporate professional practice leader to assist in communicating information and marketing the project. Although communication remained a collaborative effort by the team this leader was our ‘firewall’ and in collaboration with the project manager was responsible for correctly relaying the bulk of the information that flowed throughout the organization. Both were articulate communicators who sent clear and consistent messaging using a multi modal approach.

Modes of communication included face to face communication through staff meetings, newsletters, weekly OBTV updates through the internal emails network, posting of minutes on the hospital intranet, providing OBTV communication books for staff to write concerns or questions, and finally a bulletin board with an OBTV countdown calendar.

Using William Bridges’ (2003) model the project team utilized several strategies to keep the lines of communication open. Bridges reminds us that change is situational while transition is psychological. In keeping with his model the project team recognized that clinicians will go through a three phase transitional process before they come to terms with the new electronic documentation system. The three phases include (a) saying goodbye, (b) the neutral zone, and (3) a new beginning.

Saying Good-bye

According to Bridges (2003) the letting go stage is the first phase of transition. He describes it as an ending of old ways: a time of loss. Bridges goes on to explain that the main reason organizational changes fail is because the planners do not think about what impact

the change will have on people, how to acknowledge their losses, or how to convince them to let go and say good-bye to the old ways. Most people inherently distrust change, preferring the familiar or the status quo, as they cling to the past (Beech, 1999). Many nurses felt threatened and scared throughout end user training fearing they would not be able to keep up. One nurse made the comment, “I am not smart enough for this new way of thinking. I may be forced to retire”.

The three phases include

- (a) saying goodbye,
- (b) the neutral zone, and
- (3) a new beginning.

Neutral Zone

During the first few days post implementation, some staff were predictably disorientated and felt overloaded. During this time some wanted to just get on with it while others requested old paper forms to document. According to Bridges this is expected as those faced with change enter the neutral zone or the middle phase where there may be more chaos and uncertainty. Strong effective leadership is crucial at this point as leaders protect, encourage and provide structure for the clinicians (Anderson, Kimmel, Newbolds, Osteen, & Sauls, 2007). Even though a plan had been established to ensure support during this period, the superusers requested that more

support persons be visible on the unit during the first two weeks.

New Beginning

A new beginning emerges, after leaving the neutral zone. This is the time period when clinicians develop a new sense of identity, and become a part of the new energy that makes the change work (Bridges 2003). We look forward to reaching that stage.

Lessons Learned

No plan is perfect including this one. Four areas of concern that developed during the two months of preparation and planning were: (a) engaging physicians, (b) identifying all stakeholders, (c) negotiating for adequate preparation time, and (d) consideration for sustainability after implementation.

Physician Engagement

Physicians were the most difficult group to engage, reporting they did not have time to attend meetings or demonstrations. Nonetheless, once the individualized physician end user training started, they began to show more interest, and contributed by making several recommendations for improvement.

The literature suggests investing time and resources into personalized individual hands-on training for physicians (Anderson et al. 2007; Sassen, 2009). It proved to be a worthwhile strategy for our team and it is vital to have support from physicians who will negatively or positively impact other clinicians.

Stakeholders

Initially we did not identify all stakeholders. For example, although training had been arranged for clinicians, we later learned that staff from biomedical engineering and health records would also require training. It is important to educate all identified and potential stakeholders; so that they have a common understanding of the functionality and features and how it will affect them (if at all).

Preparation Time

The biggest lesson learned was how important it is to establish and adhere to realistic timelines and time commitments. Our experience showed it takes an enormous amount of time and resources to configure screens, build templates, develop policies and procedures, in addition to developing an educational plan. Although the system managers built as much as could be completed in the three week period allotted it became evident that not everything could be completed prior to go-live. The OBTV system has great potential and much more work could have been completed to make the system as powerful and sustainable as possible but this requires more realistic timelines.

Sustainability

Sustainability of the system requires a great deal of consideration. Who maintains the system after go-live must be clearly articulated and supported. New initiatives as well as change requests from end users will continue to be made, which in turn, means revisions to tables, templates and statistical logs. It became evident that additional resources were needed for continued maintenance and growth of the system, far beyond the ten-week planning

period and implementation period. The recommendation was to seconde one of the system managers, a clinical end user, to manage the system for a minimum of 33 hours per week for three months post implementation, then support requirements would be reassessed.

Conclusion

The transition from paper to electronic documentation begins in the planning phase. Critical success factors in the planning and implementation of an electronic documentation system included utilizing a three part model of compatible building elements: an organized project management approach with a collaborative interface amongst stakeholders; a change management strategy in which perseverance in communication throughout the three stages of change is unrelenting; and, finally robust educational training plans that meet the needs of the adult learner who may or may not be comfortable or skilled with computer use.

Lessons learned included ensuring physician engagement from the beginning, involving all the potential stakeholders, negotiating with vendors for realistic preparation time, and most importantly a plan for resources to sustain the system past the implementation date. The teams looked forward to booting up OBTV with a mixture of trepidation and excitement. Up till now all efforts have paid off, evidenced by a successful implementation day. Yet, this is only the end of an old way of doing things; we still have a long way to go before we reach a new beginning.

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About the Author

Donna Pynn is a registered nurse employed as a Clinical Informatics Specialist at a busy urban health centre. The national vision of having an electronic health record (EHR) for all Canadians within the next few years has caused a sense of urgency for the introduction of interdisciplinary electronic documentation in many organizations. This has inspired Donna to begin writing about her experience in planning for an electronic documentation implementation project, with the intention of sharing successes and lessons learned, and enabling others to benefit from the project planners' strategies and experiences.

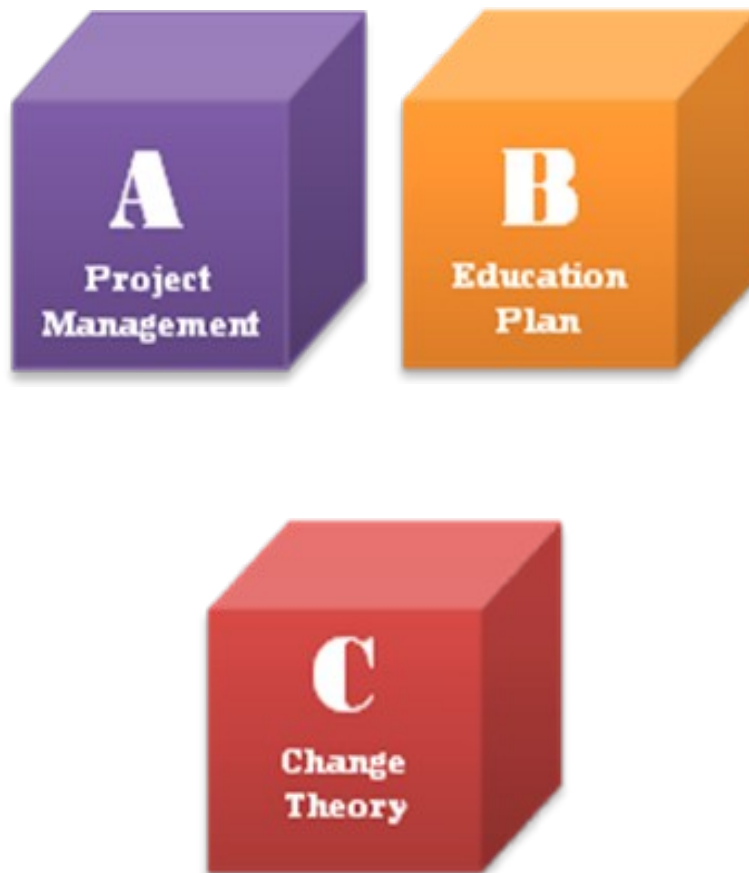
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Lessons learned included:

- a) ensuring physician engagement from the beginning,
- b) involving all the potential stakeholders,
- c) negotiating with vendors for realistic preparation time,
- and most importantly
- d) a plan for resources to sustain the system past the implementation date.

Appendix A

Building Blocks: Electronic Documentation Planning and Implementation



Appendix B

Goal:

To plan and implement the introduction of OB TraceVue software in the Birthing Centre within 10 weeks

Objectives:

1. Streamline workflow and decrease duplication of effort;
2. Reduce/eliminate duplication/redundancy of charting;
3. Adopt a new system electronic design;
4. Develop policies and procedures relevant to electronic documentation;
5. Enhance electronic documentation computer literacy of interdisciplinary team, and
6. Improve access to a more comprehensive patient record.

Appendix C

WorkFlow Chart

