Rolling out COWs and an electronic documentation system for interdisciplinary staff on two pilot units in a long term care facility

by

Christina Lam
B00453621
clam@cs.dal.ca
Dalhousie University, Health Informatics Internship
course HINF 7000-01, Winter 2006-2007

Performed at
Sunnybrook Health Sciences Centre,
Aging & Veterans Care
2075 Bayview Avenue
Toronto, ON
M4N 3M5
CANADA

In partial fulfillment of the requirements of the Master of Health Informatics Program, Dalhousie University

Report of Internship for the period December 11th 2006 – March 30th, 2007

Date Submitted: April 20, 2007

Acknowledgement and Endorsement

This report has been written by me and has not received any previous academic credit at this or any other institution.

I would like to thank Jane Little for supervising this internship, Derek Westerholm for providing background information about the online documentation project, and Kate Dewhurst for providing information about the nursing process and project on the pilot units, and background information on the problem discussed in this report. I would also like to thank Kevin Kan for taking the time to discuss my solution ideas, providing technical insight, and reviewing the manuscript.

Christina Lam

This report has been reviewed by my placement supervisor Jane Little, Project Manager at Aging & Veterans Care, Sunnybrook Health Sciences Centre.

_____ _____

Jane Little, Project Manager Date

_____ _____

Christina Lam Date

Executive Summary

This report discusses how work performed during the internship at Sunnybrook Health Sciences Centre, Aging & Veterans Care (SHSC, A&VC) relates to the field of health informatics. The objectives of the internship were twofold: to participate in the roll-out of an electronic documentation project; and (2) create comparative reports from various sources of healthcare data to assist management in decision making. There are many Healthcare Information Systems used at SHSC, A&VC and for many purposes: in documenting and providing information related to patient care, and some for reporting purposes used in assessing the effectiveness of the performance of the hospital, and on a greater collective level, in the assessment of the health system. Insight on the flow and use of health information in the provision of patient care and within the health care system was gained during this internship. This report also identifies a problem encountered with the new online documentation system in which it is not accessible to staff in acute care of SHSC (does not interface with their systems). A solution using My Chart initiative and other recommendations were provided by the Intern.

Table of Contents

1. Introduction……5
1.1 Background information……...5
1.2 The organization……...…5
2. The Internship……..…6
2.1 Description of the work performed at the organization……6
2.2 Evaluation of work (by supervisor)……..7
3. Discussion of how the work relates to health informatics……..7
3.1 Health Informatics……7
3.2 Linking comparative reports to the online documentation project……...8
3.3 Nursing documentation…….9
4. Lessons learned……12
5. Discussion of a problem and a corresponding solution……13
5.1 Problem……...13
5.2 Proposed solution……15
6. Conclusions……...16
Recommendations…….18
References…….19

1. Introduction

1.1 Background Information

The Internship placement was at Sunnybrook Health Sciences Centre (SHSC), Aging & Veterans Care (A&VC) from December 11th, 2006 to March 30th, 2007. This internship was supervised by the Directors of the Dalhousie Health Informatics Program and Project Manager of SHSC, A&VC. The objectives of the internship were two-fold:

1) To create a balanced scorecard for A&VC using indicators collected internally such as medication errors/near misses, falls and other injuries, staff sick-time etc. and combining these data with clinical outcomes data reported externally such as the quality indicators derived from the Minimum Data Set (mandated federally by CIHI) and audits of LTC standards (mandated provincially by the Ministry of Health).

2) To participate & evaluate the roll-out of an online documentation system on a pilot unit in A&VC.

1.2 The organization

Sunnybrook Health Sciences Centre (SHSC) was originally founded in 1948 as Sunnybrook Veterans Hospital, the largest Veterans hospital in Canada providing acute and long term care [1]. In 1966 the hospital became a teaching hospital, fully affiliated with the University of Toronto, serving the general public as well as Veterans [1]. By the early 1990s, Sunnybrook had established six major program priorities: Aging, Cancer, Community Health, Heart and Circulation, Mental Health and Trauma, and adopted the name Sunnybrook Health Sciences Centre (SHSC) to recognize the importance of teaching and research excellence [1]. Today, SHSC is a 1,209 bed facility with 666 acute care beds in service, and 543 beds in inpatient Long-Term Care/Veterans [1]. According to their website, “Each year 11,000 staff, physicians, volunteers and students work to improve the lives of literally hundreds of thousands of people”. [1]

The Aging & Veterans Care (A&VC) 543-bed facility of SHSC is comprised of three buildings: Kilgour (K-wing), George Hees (L-wing), and the Dorothy Macham Home (DMH) providing long-term and complex continuing care services to Veterans from across Ontario [1]. The residing patients of A&VC live in units called Patient Service Units, and are grouped according to similar care needs, such as cognitive support for patients with dementia and other mental health problems, physical support for patient with physical mobility issues, palliative care for critically/terminally ill patients, and respite care [1]. There are 17 PSUs in A&VC. The A&VC program practices “patient-focused care”, which means that the patient is at the centre of all that they do [1]. According to their website, “Health care professions, administrative staff, volunteer services, allied health professionals, chaplains and support staff work together to create a safe

and reliable living environment for the patient, and through collaboration they are able to provide the best in well-rounded care". [1]

The Intern's placement with this organization was in the Administrative Office of A&VC, SHSC where the work involved administrative support with various projects.

2. The Internship

2.1 Description of the work performed at the organization

The project to create a balanced scorecard for A&VC did not take off during the internship because of shifting priorities to the launch and roll-out of the online system. However, the Intern had the opportunity to draft up a Quality Plan which included internal indicators such as medication errors/near misses, falls and other injuries, staff sick-time etc. for the Director of Operations and her meeting with the Compliance Officer. The Intern also compiled and produced comparative reports from various sources of healthcare data, such as quality indicators from Minimum Data Set and audits of Long Term Care standards, for the Project Manager and Director of Operations' use at operations and management meetings.

The Intern's major role during the internship was supporting the Project Team in preparing for the launch and roll-out of two Computer on Wheels (COWS) and the online electronic documentation system, Care Management Organizer (CMO), for interdisciplinary staff on two pilot units in A&VC. In this supportive role, the Intern:

- Coordinated (booked room, equipment, set-up, etc) and attended various meetings involving the Online Documentation Committee, Pilot Unit, Project Team, and other various stakeholder groups; and recorded, transcribed, and distributed meeting minutes.
- Assisted Project Manager in preparing forms and other documents for Forms Committee and Health Records Committee meetings in getting electronic forms approved for Go-Live.
- Assisted in drafting documents in preparation for Go-Live on the pilot units:
    - Troubleshooting common problems,
    - Downtime Procedures,
    - Security Matrix (access privileges by discipline) for CMO access,
    - Security Clearance Forms for Electronic Signature,
    - Process for staff and student access to the system,
    - Support Staff Coverage,
    - Training Procedures,
    - Other Procedures relating to the functioning of the CMO system.
- Did some Procedures documentation for the CMO system (early screen shots)

- Was the initial point of contact person for requests for Care Management Organizer (CMO) system upgrades, user training, questionnaire/report printouts from the system, Security Clearance forms for Staff E-Signature.
- Logged, filed, and kept track of Staff Security Clearance forms collected, and coordinated the process with the System Administrator and Trainer for user training and access to the CMO system.
- Created a "Library of Assessments and Care Plans" binder for staff (without online access) to access care planning reports, questionnaires and focus libraries; Created Focus Group packages of questionnaire and report printouts from the CMO system and distributed to interested staff for review during Questionnaire Day for discussion of modifications to the forms.
- Consulted other facilities regarding their online documentation project experiences.
- Worked with the Project Manager in creating Information Flow Diagrams for the Privacy Officer regarding Access procedures.
- Researched, designed, distributed, analyzed, and compiled results of an online documentation system User Survey for the Project Team.
- Coordinated the update of old chart and requisition forms on all seventeen Patient Service Units.
- Assisted in coordinating the Online Documentation Launch party.
- Made sure resources were available and in place on the pilot units for Go-Live, e.g. chart insert to notify staff of new electronic module used as of Go-Live date, user/reference binder at each workstation, etc.

2.2 Evaluation of work (by supervisor)

An evaluation letter regarding the Intern's job performance was written and sent by the supervising Project Manager directly to the Directors of the Dalhousie Health Informatics Program.

3. Discussion of how the work relates to health informatics

3.1 Health Informatics

Generally, Health Informatics can be defined as "the systematic application of information management and technology to the planning and delivery of high-quality and cost-effective healthcare" [2]. More specifically, health informatics focuses on,

- Understanding the fundamental nature of information and communication systems, and describing the principles which shape them,
- Developing interventions which can improve upon existing information and communication systems,
- Developing methods and principles which allow such interventions to be designed,

- Evaluating the impact of these interventions on the way individuals or organizations work, or on the outcome of the work. [3]

This section of the report will discuss how the Intern's work relates to health informatics.

3.2 Linking comparative reports to the online documentation project

During the internship, the Intern compiled and produced comparative reports from various sources of healthcare data for the Project Manager and Director of Operations' use at operations and management meetings. The big picture of how the flow and use of healthcare data, particularly the data the Intern was working with, and its relation to the online documentation project came to light when the Intern interviewed the MDS Coordinator about the project's history.

The online documentation project began four years ago in 2003 when the Canadian Institute for Health Information (CIHI) mandated the collection and submission of MDS 2.0 (Minimum Data Set) data to be electronic, and A&VC decided to replace their outdated system. CIHI is an independent, not-for-profit organization that provides data and analysis on Canada's health system from information collected and provided by hospitals, regional health authorities, medical practitioners and governments [4]. MDS is a comprehensive assessment instrument containing over 500 data elements documenting clinical and functional characteristics of residents living in long term care / nursing home institutions [4]. This data is collected by nursing staff and other health providers [4] at the institution, and is submitted to CIHI for analysis and reporting. The data and reports generated by CIHI, which focus on health care services, health spending, health human resources, and population health, are used by government bodies, hospitals, health authorities and professional associations to assess the effectiveness of different parts of the health system and plan for the future [4], such as funding, budgets, etc. In leading the initiative in mandating the electronic submission of MDS data and providing electronic reports to their clients, CIHI has enabled their users more timely access to reports for evidence-based decision making in providing appropriate and cost-effective care.

The information flow diagram in *Figure 1* shows how three integrated information systems (ADT, CMO, and MDS) at SHSC, A&VC make the generation, flow and use of MDS data collected efficient and effective.

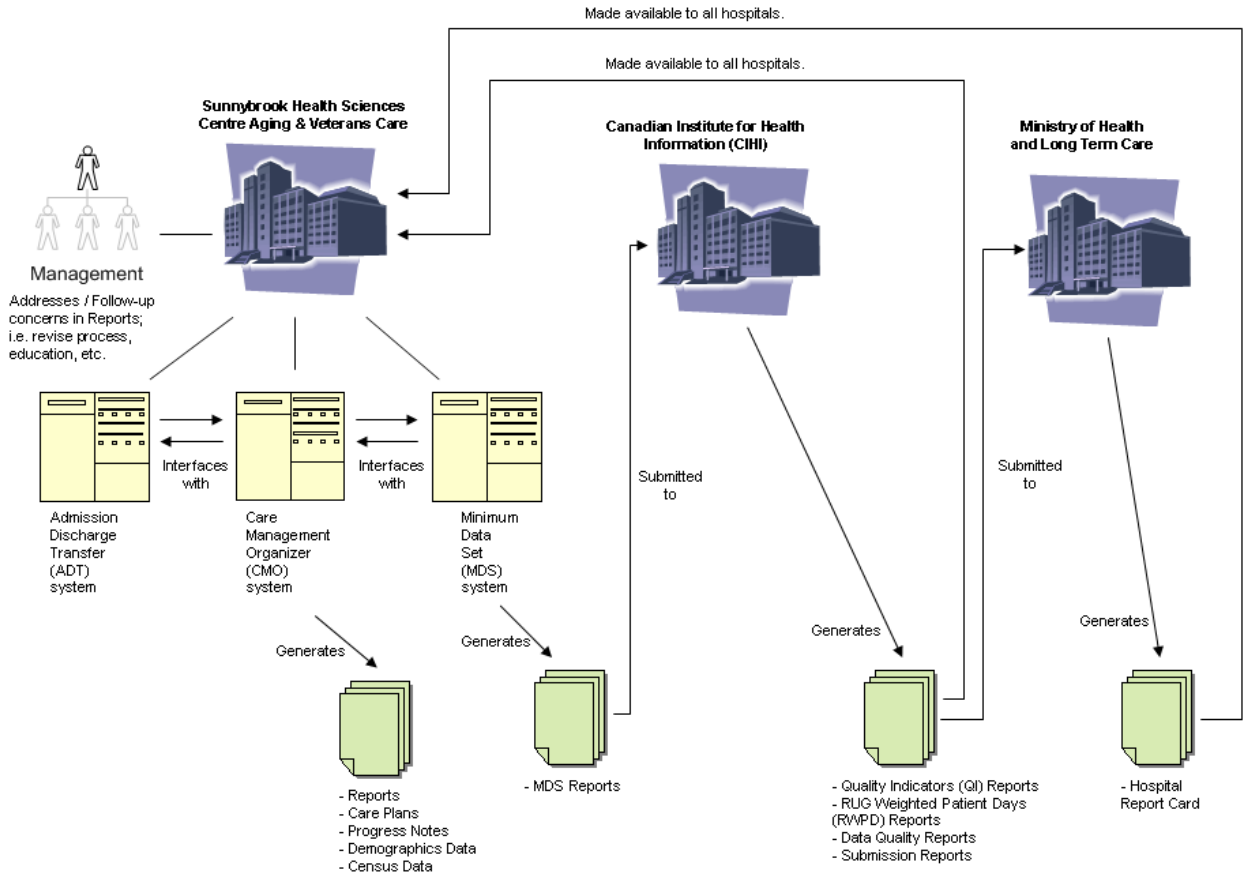

Figure 1. The generation, flow and use of MDS data collected at SHSC, A&VC.

Because the three systems interface with each other, demographics data from Admission Discharge Transfer (ADT) system automatically populate into the Care Management Organizer (CMO) and Minimum Data Set (MDS) systems so nursing staff do not need to re-enter this data and can just input data related to the assessment and care provided. Also, the new MDS system is more user-friendly than the previous outdated system mentioned earlier, making the generation of MDS reports for submission to CIHI easier, faster, and more complete (speedier process of finding which patients' MDS are due/overdue and completing the assessments right away, making data capture more accurate). Receiving more timely and complete data from their clients, CIHI is able to provide more accurate and timely reports back to their clients (SHSC A&VC), which in turn ensures that management at SHSC, A&VC can make effective evidence-based decisions in delivering appropriate, high-quality, cost-effective health care.

3.3 Nursing Documentation

Review of literature on nursing documentation reveal that "a thorough nursing documentation is a precondition for good patient care and for efficient communication and cooperation within the

healthcare professional team" [5], [6]. To get a better understanding of the nursing process at SHSC A&VC, the Intern asked a nurse on the pilot unit to walk her through a typical day on the job (prior to the electronic documentation project). The Intern was surprised at how much information related to a patient's care is communicated and the many places where this information can be found on the nursing unit. Figure 2 below depicts some of the numerous pieces of information a nurse needs to access in order to provide appropriate care to a patient.

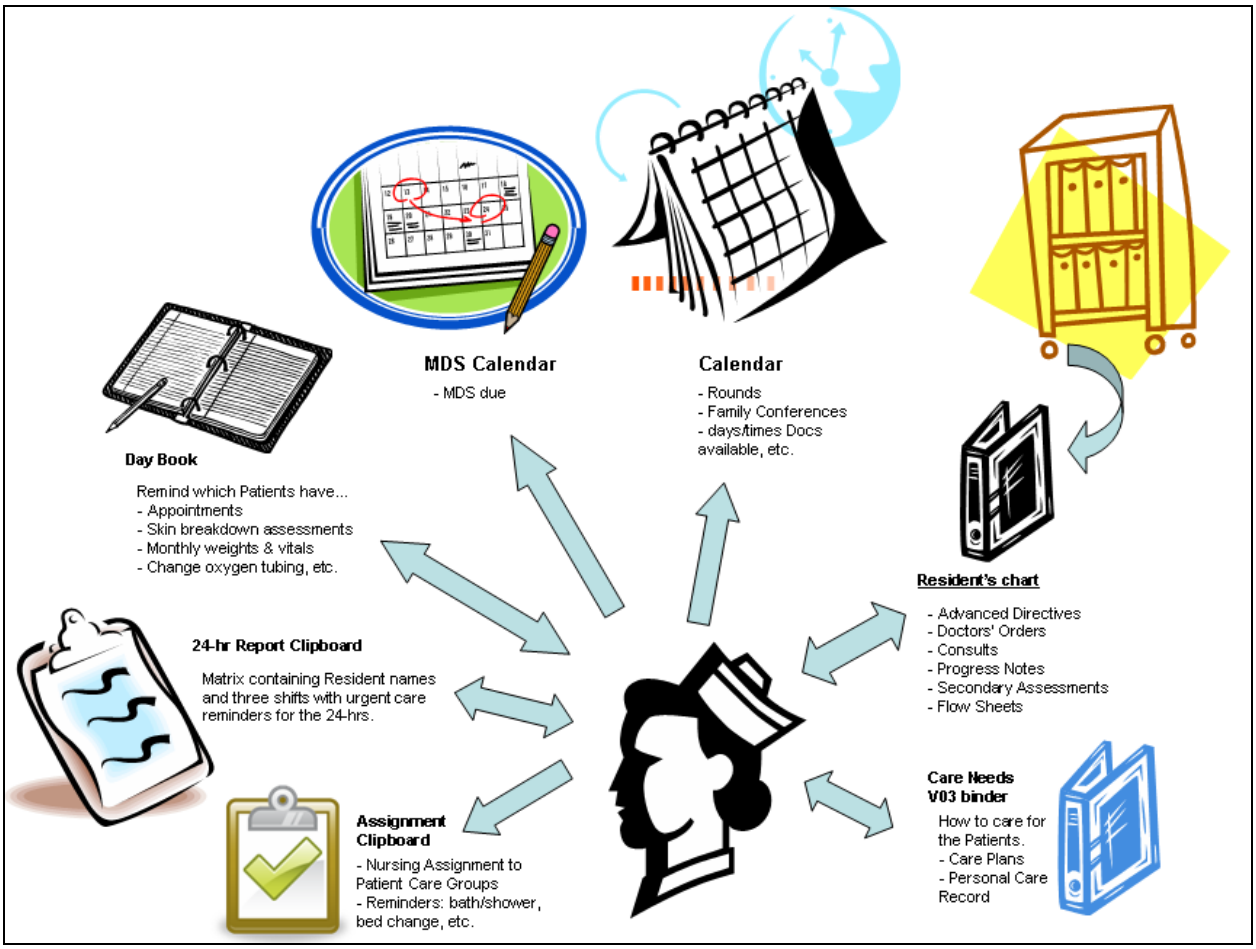

Figure 2. Sources of nursing information in providing care to a patient at SHSC, A&VC.

The arrows radiating from the nurse indicate whether the communication channel is one-way (single-headed arrow = nurse just retrieves and reads the information), or two-ways (double-headed arrow = nurse retrieves the information, reads it, and may document information to communicate to the rest of the care team). At the beginning of the shift, nurses gather in the Nursing Conference room for report. The nurse checks the Assignment Clipboard to see which patients are assigned to her care – each nurse is assigned eight to ten patients in her care group on a weekday day shift, and twelve patients during the weekend. Next, the nurse checks the 24-hour Report Clipboard to see if there are any urgent care reminders for each resident in her care group during her shift. She then checks the day book for other non-urgent care reminders, such as which patients have what appointments, assessments, additional care needed for the shift, etc.

The nurse also checks the MDS calendar to see whether there are any MDS assessments due, and another calendar for any scheduled rounds or family conferences she may need to attend. Because there is a lot of information the nurse needs to remember in providing care to eight to twelve patients during the shift, the nurse jots down notes on a piece of paper (like a "To Do" list) and carries it in her pocket to remind her during the course of her shift. What is not depicted in the picture is the Nurse will check the MAR (Medication Administration Record) at the Nursing Station to see what medications she needs to give to her patients and when, and documents in the binder when she administers it. Juggling the needs of the patients assigned to her care, the nurse gets her patients up (especially those who need to take their morning medications), sets them up with their breakfast (provides assistance to those who need it), provides their morning care (bath/shower, dressed, grooming, etc) and sets them up with their lunch (again, providing assistance as required). It is not as busy after lunch as some residents may go off the unit for activities or have visitors, so the nurse does her scheduled assessments (i.e. MDS assessment, weights/vitals) and other care duties (i.e. change dressings, etc.) in the afternoon, and documents (care provided, anything out of the ordinary, etc.) in her patients' chart, the 24-hour Report Clipboard, and Day Book before the end of her shift. She'll update the Care Needs V03 binder for her patients, as necessary (any change to the Care Plan, Personal Care Record, etc). She may document at the nursing station where the patients' charts and Care Needs V03 binders are filed, or take the charts to document in a quieter place in the Conference room or back room.

Provided above was a very general description of the nursing process and the information communicated in order to provide the appropriate care to patients at the right time. What was not depicted above was that many other healthcare providers, such as physicians and other Allied Health disciplines (social work, physical and occupational therapy, nutrition, etc.) provide care to patients as well and communicate this to the care team through documenting in the patient's chart (or elsewhere). Retrieving information from the patient's chart, i.e. documentation on a past treatment or condition, then becomes a time consuming task if one does not know where the information is filed (in A&VC, all staff document the progress of a patient on the "Interdisciplinary Progress Note" and is entered by chronological / sequential date order), or if the information is misfiled, or if the information was ever documented, or if this documentation was available it may not be legible.

Having an online documentation system for interdisciplinary staff resolves some of the problems mentioned above:

- typed notes / documentation is now legible,
- search function allows easy retrieval of filed information,
- "sort by" function can now sort progress notes by discipline instead of sifting through chronological entries by all disciples (although this option is still available),
- there is also a "To Do" list function in the CMO system where staff can print up a "To Do" list (no more jotting down reminder notes!),
- there is an "Alerts" / "Reminders" function to alert staff / care team of any urgent issues.

LaDuke's article on online nursing documentation listed the advantages of providing structure for collecting desired data from users which allowed for automated aggregation of data and the generation of automated reports in minutes:

> "…Automated reports were created to send data gathered by nurses to others who had a role to play in the patient's care. For example, advance directives information is sent to the patient advocate. Immunization information prints to a daily report, triggering the placement of a "physician alert" sticker on the charts of patients who are candidates for immunization. Pressure ulcer risk assessment scores go to the wound and skin committee. Multidisciplinary screening criteria print to the offices of Physical Therapy, Pharmacy, Nutrition, Respiratory Therapy and Care, and Resource Management. [7]

However, as Norris (2002) and Hammer & Champy (1993) indicate, "simply automating existing processes will not release the full benefits of information management and technology…it is necessary to identify the stages (or processes) that add no value and reconstitute the modified process using information technology" [2], [8].

Finally, Langowski's paper on effects of online nursing documentation system argue that computer documentation can help nurses organize information and improve workflow:

> "…Computer charting offers patient-centered care, allowing all disciplines to make improved decisions in a timely manner, based on all of the patient information. This will lead to more confidence in the quality of care received because decreased errors improve safety ratings. Health care professionals will be happier as workflow processes will be streamlined." [9]

4. Lessons learned

During the internship, the Intern got a first-hand overview of the complex nursing process, and the flow and use of health information at SHSC, A&VC.

User acceptance is a crucial factor in determining the success or failure of a new project. The Intern heavily researched publications on user acceptance in preparation for her internship to help identify and minimize user resistance to technology and the new CMO system, and strategies to effectively implement a useful product tool. The Intern even researched, designed, distributed, analyzed, and compiled results of an online documentation system User Survey for the Project Team in order to identify and address concerns staff may have with the project that may not be apparent to the Project Team.

Oftentimes we are passionate about our field and work and the potential it has in improving quality of health care that we don't think about the unintended side effects. Gell's paper (2001) on side effects and responsibility of medical informatics brings this issue to the forefront: "MI-systems have great potential to improve the quality of health care, but there is also a potential to compromise the quality of health care by unintended side effects, improper use, etc." [10]. In this paper, Gell makes a very good point on the issue of data protection and privacy: "Logging and control of accesses is needed but the really important and effective way is to create an

awareness for the protection of privacy within the personnel of the hospital and also within the public at large" [10]. During the internship, the Intern had the opportunity of consulting with the Assistant Privacy Officer at SHSC on several occasions, and she had stressed the importance of creating this awareness of privacy and security of health data among staff. The Assistant Privacy Officer had assisted the Intern and Project Manager in re-drafting the Security Clearance Form for Staff Electronic Signature with reference to SHSC's corporate policy on "Use of Electronic Signature" and "Privacy and Security of Personal Health Information", met and gave a talk with the pilot unit staff during one of the pilot unit meetings, and created a PowerPoint slideshow for staff to view.

Nagle also makes another important point about considering new risks and inefficiencies that may arise when introducing new technologies into the work environment:

> "Incorporating new applications of technology without rethinking existing practices is likely to result in inefficient and potentially unsafe workarounds…Redesigning workflow processes is likely to uncover organizational inconsistencies in practice and the inadequacies in existing policies with respect to new processes. Organizations need to be willing to acknowledge and address the discovery of practices that violate accepted standards and policies. In addition, new strategies may need to be developed to replace lost functions and mitigate new risks." [11]

5. Discussion of a problem and a corresponding solution

5.1 Problem

This section addresses a problem encountered during the internship which holds potential for a health informatics solution.

Figure 3 illustrates the identified problem: the health information of patients in A&VC on the Care Management System will be accessible to A&VC staff with access to the system, but not on the acute care side in emergency or clinics.

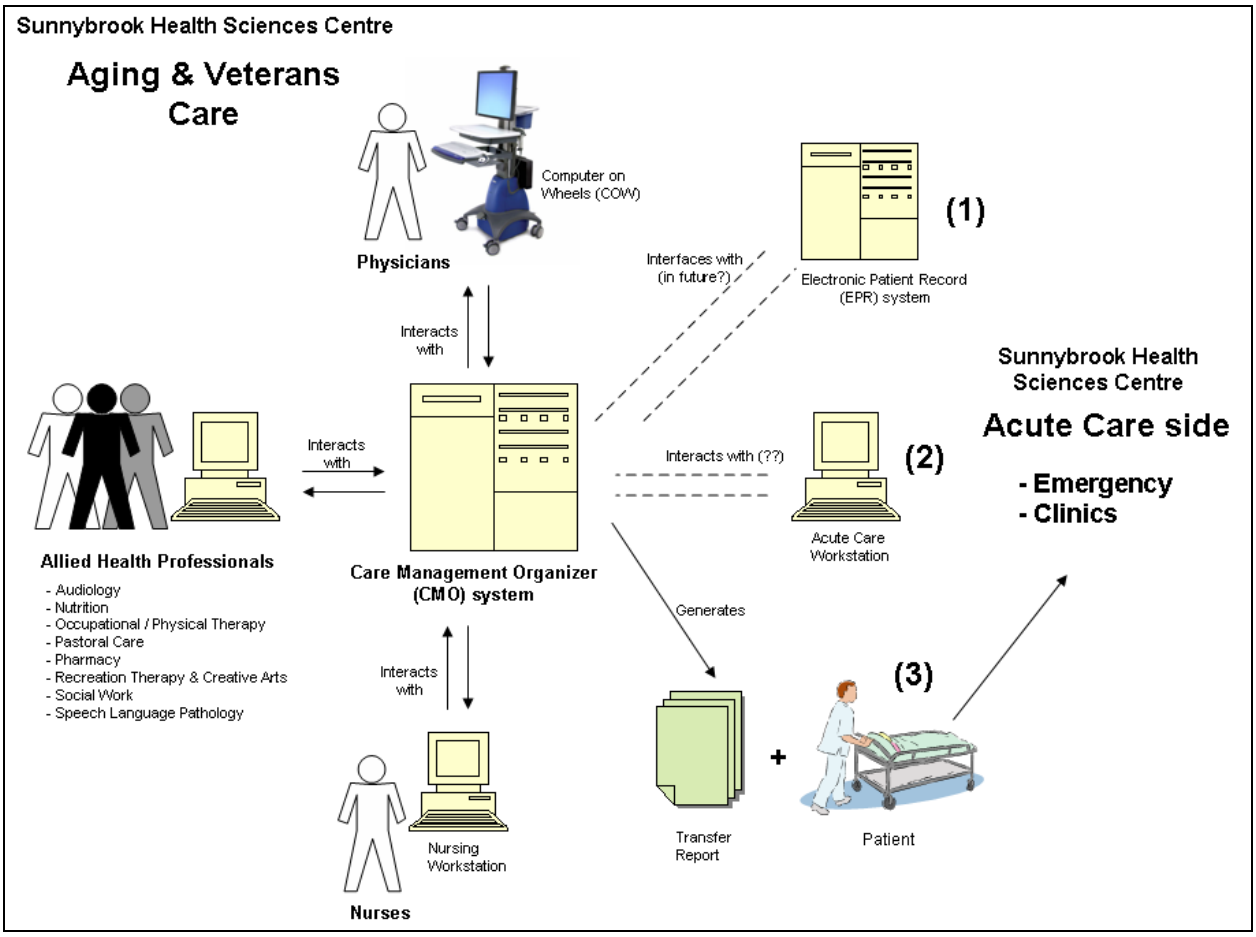

Figure 3. Accessing patient information in CMO system in A&VC and Acute Care.

Possible solution (1) and (2) diagrammed above were discussed with the Project Manager and are not feasible at this time, possible solution (3) proposed by the Project Team may be possible but some issues need to be resolved first.

Possible solution (2), to provide acute care staff with training and access on their workstations similar to staff in A&VC, is not feasible at all. First, staff in acute care do not want to learn or have access to another system, especially when things are done differently on both sides (i.e. patient charts in A&VC are different from acute care charts in terms of the forms used, the way they are filed, etc). Secondly, because SHSC is a teaching hospital and receives hundreds of students / residents doing clinical rotations, training all the students on another system which they may not use often (one veteran patient may be admitted to emergency every two weeks) during their short clinical placement was not a feasible solution.

Possible solution (1), the most ideal solution, was to have the CMO system interface with EPR (Electronic Patient Record) system since staff on the acute side are trained to use this system, which is interfaced with other information systems in the hospital to access lab results, imaging, diet orders, transcription notes, etc. Unfortunately, this solution of interfacing CMO with EPR is

not feasible at this time because, as noted by the Project Manager, "the technology is not currently available". The Intern was not able to ascertain whether it was an Health Level 7 solution that did not exist, or if the integration problem was on the vendor side (with the CMO system) or customer side (EPR system). The Intern was able to find out from another source that the SHSC EPR system was implemented about ten years ago and the vendor has gone bankrupt since then, and the Information Services (IS) department at SHSC has taken over in writing programs for interfacing / integrating with other corporate systems.

Currently, when a patient in A&VC needs to be admitted to the Emergency Department, an ambulance is called to transfer the patient, with their chart, to the acute side. An issue identified has been that the patient's chart sometimes gets "lost / misplaced" during the transfer and does not immediately return with the patient when they return to A&VC. Sometimes, the patient's chart is reviewed in the Emergency Department, sometimes it is not. With A&VC staff documenting online in the new CMO system and staff in acute care not having access to the system to view the patient's care history [possible solution (1) and (2) not feasible at this time], the proposed solution at the moment [option (3)] is to have A&VC staff print up a Transfer Report from the CMO system which gives a brief summary of the patient's care history to be sent over with the patient and their chart to the Emergency Department. However, there is a problem yet to be resolved with the Transfer Report: The report prints the last date of discharge, which is not accurate since the last discharge could have been a couple years ago and does not capture current data, which means the nurse would need to discharge the patient from A&VC if the clerk is not available, or call the Admissions office to discharge the patient in the system first, before printing the Transfer Note. Another issue relating to this is that only some nurses, such as those working night shift, have access to the ADT system. However, another issue to be resolved is that when a patient is taken to the Emergency Department, but is not admitted to acute care (no overnight visit), the patient returns to A&VC without needing a discharge / readmission entry in the ADT system.

5.2 Proposed Solution

As more modules are rolled out and documentation occurs more in the online CMO system, sending a thinned paper chart containing a fraction of a patient's history (as the other fraction is online and not accessible to the acute side) with the patient to the emergency department, along with a summarized transfer note is not a sufficient solution, even if the emergency physician may not review the patient's record and treats the patient like any other walking into the emergency department without a medical history.

The Intern came up with this proposed solution after the internship period while the Project Manager was away on holidays and has not had a chance to discuss it with her as yet. To get around the problems identified above, the Intern proposes to implement the *My Chart* (also known as the Continuity of Care Record system) service for patients in A&VC. This proposed solution is feasible, as this service has recently been made available to SHSC patients by the SHSC's eHealth initiative. *My Chart* is meant to streamline the way health record information is

delivered and exchanged between healthcare providers and patients at SHSC, and to improve efficiency in the healthcare system by improving workflow [1]. Sunnybrook's website describes *My Chart* as "an online website where patients can create and manage their personal health information based on clinical and personal information" [1]. Although some if not many of the patients in A&VC may not be able to manage their personal health information because of cognitive and/or physical limitations, they can grant access to family substitute decision makers, hospital clinicians, primary physicians, Community Care Access Centres, and pharmacists who can update their health information for them. According to the website, My Chart allows access to:

- Personal and family health details (including allergies and current medications)
- Online appointment requests
- Online patient questionnaires
- Clinic visit notes
- Medication refill requests
- Personal address book, compiled by the patients – physicians, caregivers, labs, clinics, etc.
- Personal diary
- Test results (i.e. Labs, CT and MRI reports) which are gathered from Sunnybrook's Electronic Patient Record (EPR) system
- E-messaging with physicians or clinic administrators. If they are listed as accepting e-messages, their name will be highlighted in the directory.
- Links to relevant disease-specific information and online events
- Personalized health information (e.g. FAQs on procedures, etc). [1]

The security of confidential patient information should not be a concern as the website indicates that My Chart is secured through the same encryption technologies used by major banks for online banking [1]. More information about the *My Chart* service for SHSC patients can be obtained by visiting the Sunnybrook website.

Perhaps the SHSC, A&VC Project Team can work with the vendor to integrate some patient information contained in CMO (progress notes, vitals, etc) with *My Chart* so that acute care staff can access A&VC patient information without accessing the CMO system when the patient goes to the Emergency Department or acute care clinics.

6.0 Conclusions

During the internship period at Sunnybrook Health Sciences Centre, Aging & Veterans Care, the Intern had the opportunity to participate in the roll-out of an online documentation system on two pilot units. The majority of the work performed in preparation for the roll-out included coordinating meetings, mobilizing resources, and preparing necessary documents and having them in place for the Go-Live, gave the Intern an appreciation for all the preparatory behind the scenes work necessary in undertaking such an initiative, which made the launch party held on March 20th, and the Go-Lives on March 30th and April 2nd all worthwhile.

Because of shifting priorities to the launch and roll-out of the online system, the project to create a balanced scorecard for A&VC did not take off during the internship period. However, the Intern had the opportunity to draft up a Quality Plan which included internal indicators such as medication errors/near misses, falls and other injuries, staff sick-time etc. for the Compliance Officer visit; as well as comparative reports from various sources of healthcare data, such as quality indicators from Minimum Data Set and audits of Long Term Care standards which were used in operations and management meetings. Insight on the flow and use of health information in the provision of patient care and within the health care system was gained during this internship.

Recommendations

Listed below are some recommendations made by the Intern following her internship experience working with the online documentation project. These proposed plans of action are intended for the Project Team to consider.

(1) Implement *My Chart* service for A&VC patients as a feasible solution to the problem identified in this report. Integrate information from CMO system (i.e. monitoring results, progress notes, etc) with *My Chart* so that acute care staff can access in order to treat A&VC patients in Emergency Department or acute care clinics

(2) University Health Network's MOE/MAR (Medication Order Entry/Medication Administration Record) project team had developed a competency assessment tool for MOE/MAR based on required skills for independent functioning at the end of the support period of the project and administered it to end-users two months after the go-live to help ameliorate skill gaps and identify areas for additional tutoring / coaching [12]. Since SHSC A&VC has just gone live with their first module (Monitoring Results), the author recommends the project team start designing a similar competency assessment tool for the CMO system end-users specific to this module to identify skill gaps and areas for additional training and address them before rolling out the next module. Doing so would allow the end-users to feel more comfortable and confident using the system and more prepared and open to tackling the next module.

(3) Two COWs (Computer On Wheels) were purchased for this online documentation project and were on hand for demonstration at the project launch party on March 20th. However, they were held back and not included in the March 30th and April 2nd roll-out of the Monitoring Results module of the CMO system, so as not to overwhelm Users with learning not only a new electronic documentation system, but also the use of a new piece of computer equipment. The Intern recommends rolling the COWs onto the unit for use since it has been two weeks since go-live (so as not to lose momentum) and staff appeared to be very excited about the new COWs and did not have any problems using it during the demonstration at the launch party.

References

[1] Sunnybrook Health Sciences Centre website: www.sunnybrook.ca; accessed April 12, 2007.

[2] Norris AC. Current trends and challenges in health informatics. *Health Informatics Journal*. 2002;8:205-213.

[3] Coiera E. *Guide to Health Informatics*. 2nd Ed. London: Arnold; 2003.

[4] Canadian Institute for Health Information website: www.cihi.ca; accessed April 12, 2007.

[5] Ammenwerth E, Kutscha U, Kutscha A, Mahler C, Eichstadter R, Haux R. Nursing process documentation systems in clinical routine – prerequisites and experiences. *International Journal of Medical Informatics*. 2001;64:187-200.

[6] Ammenwerth E, Mansmann U, Iller C, Eichstadter R. Factors affecting and affected by user acceptance of computer-based nursing documentation: Results of a two year study. *Journal of the American Medical Informatics Association*. 2003;10(1):69-84.

[7] LaDuke S. Online nursing documentation: Finding a middle ground. *JONA*. 2001;31(6):283-286.

[8] Hammer M, Champy J. *Re-engineering the corporation*. London: Brearley, 1993.

[9] Langowski C. The times they are a changing: Effects of online nursing documentation systems. *Quality Management in Health Care*. 2005;14(2):121-125.

[10] Gell G. Side effects and responsibility of medical informatics. *International Journal of Medical Informatics*. 2001;64:69-81.

[11] Nagle LM. (Commentary) Nursing perspective: Focus on clinical best practices, patient safety and operational efficiency. *Healthcare Quarterly*. 2006;10:57.

[12] Laurie-Shaw B, Taylor W, Roach C. Focus on clinical best practices, patient safety and operational efficiency. *Healthcare Quarterly*. 2006;10:50-56.