Does the Emergency Department Information System Support Capital Health Authority's Mission Statement?

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Abstract

This article explores the question of whether an emergency department information system (EDIS) supports the Capital Health mission statement. Capital Health District is one of nine health districts in Nova Scotia consisting of the Halifax Regional Municipality and the western portion of Hants County in Nova Scotia.

The mission statement of Capital District Health Authority (CDHA), Nova Scotia states, "The people of Capital Health work with individuals and communities to improve health. We provide care, educate, conduct research, and advocate". The values endorsed to provide care that meets this mission are; collaboration, accountability, respect, and excellence (Appendix 1).

CHA outlines four strategic directions as being critical to achieving its mission:

1. Improve care for patients, clients and community
2. Create a healthy workplace
3. Build knowledge
4. Show leadership and advocacy

An overview of how well the Emergency Department Information System (EDIS) maps to CDHA's mission statement follows. Some of the costs and benefits of EDIS will be highlighted using the four strategic directions.

1. Improve Care for Patients, Clients and Community

1.1 Managing the Flow and Wait List

The tracking of patients through the emergency department (ED) is one of the primary outcomes of EDIS. Long wait times are well known to the patients who present to the ED for care. EDIS enables emergency care providers to manage the wait list as well as the flow of the patient through the department. Prior to EDIS one white board was manually updated by the nurses and physicians. In contrast, EDIS offers multiple work stations allowing the tracking screen of EDIS to be updated regularly by all users. This keeps the information more current and thus more accurate.

1.2 Organizing Care

EDIS improves patient care through organization of the care provided. The technology aids in treating and diagnosing patients. It is easy to determine the stage of the ED visit that a patient is in through the information on the tracking screen. This information includes length of stay (LOS), Canadian Triage Acuity Score (CTAS) (Murray, Bullard & Grafstein, 2004), priority, comments, consults, lab results, and primary physician fields.

1.3 Integration with Admission, Discharge, Transfer System

EDIS improves care of patients through integration with the hospital admission/ discharge/ transfer (STAR) information system. The records in both systems are linked through a unique client visit account number. This facilitates the auto-populating of demographics from the STAR system into EDIS bringing uniformity to the information. Marrying the two records promotes efficiency when searches are conducted on a patient visit in either system.

One downside is that if the information in STAR is not updated by the registration clerk (RC) then the demographics in EDIS will be incorrect. Inaccurate contact information can result in the inability to reach patients once they have left the department.

2. Create a Healthy Workplace

2.1 Communication Tool: External Communication

One of the defining characteristics of a healthy workplace is that it promotes communication and teamwork. EDIS has influenced both internal and external communication. EDIS facilitates knowledgeable responses to inquiries from staff, family and community health agencies. Prior to EDIS, clerks would have search for information requested by a community physician or pharmacist. This was often time consuming as the requested information was in multiple locations. For instance, the clerks would refer to the manual tracking board, ask a co-worker or search for the paper chart. These searching activities necessitated that the clerk leave his or her desk frequently, sometimes for lengthy intervals of time.

2.2 Communication Tool: Interdepartmental Communication

Interdepartmental communication is also enhanced through the integration of EDIS with the organizational Laboratory Information System (LIS). Results can be viewed electronically in EDIS through the lab viewer feature. End users are alerted that results are available by the appearance of a red "L" on the lab column on the tracking screen. Once viewed the "L" turns blue. In the lab viewer an abnormal results column indicates when results are high or low and the normal ranges are provided for easy comparison. As well, previous lab results since the implementation of EDIS can be viewed. This improves decision making, reduces calls to the lab and time searching for results in LIS.

EDIS is not integrated with health information services (HIS) and the diagnostic imaging (DI) departments. It does however provide a platform for users to communicate with these departments. Old charts are requested through EDIS which sends a requisition to a printer in HIS. Likewise DI investigations are ordered in EDIS prompting a requisition to print in DI. This alerts HIS staff and DI staff of emergency department requests.

With the recent implementation of McKesson's Horizon Patient Folder (HPF) emergency staff are now able to view historical records electronically. This is an excellent adjunct to the current patient information viewable in EDIS. One benefit of this implementation is that staff are more reflective when ordering old charts. Often the information required is that of a previous visit within the last week. In this scenario it is no longer necessary to order the entire chart as all records from the 16th October 2006 forward are scanned into HPF. This reduces the quantity of old chart requests and saves time for both HIS staff and the ED porter.

Similarly, new requests for diagnostic investigations are sent to DI through EDIS. ED staff can communicate to DI staff in a free text box in EDIS if the patient has been taken to their waiting area. This piece of information alone has reduced phone calls from DI to ask the porter to bring the patient over. The investigation tables in EDIS were built and coded according to the radiology codes currently being used in the CDHA Radiology Information System. Standardization of DI terms does facilitate research within Capital Health on radiology investigations.

3. Build Knowledge

3.1 Standardized Languages to Facilitate Research

Standardized languages are also built into the presenting complaints in EDIS. These are coded according to the International Classification of Diseases (ICD) 10. Discharge diagnoses are coded with ICD 9 codes and provide another venue for facilitating research. Research can further be enhanced through a feature called "Projects". Projects can be set up to prompt staff when a study or research is being conducted in the department. It can be triggered by a presenting complaint or a diagnosis which will prompt a pop-up box to appear. The pop-up serves one of two purposes: a) to serve as a reminder that there is a research study being conducted or b) to gather information for a research study.

3.2 Decision Support

EDIS does not offer a lot of point-of-care decision support for end users. There is an EDIS user group in Alberta currently working on decision rules for triaging. This would guide the triage staff through an assessment. Triage nurses would auto select assessment criteria based on the patient's presenting symptoms. This assessment criterion would

prompt the user to choose the most suitable CTAS score for a patient's presentation. This may also become available for purchase at a later date for users at other sites.

3.3 Discharge Instructions

Another option that is not currently being used is the ability to print discharge instruction forms on the clinical screen. Currently ED staff use standardized discharge instructions that are in paper format on the unit. Alternatively discharge instructions can be located on CDHA's intranet as an e-version. Linking the discharge instructions to EDIS would help both nurses and physicians save time searching for the right information for patients. This is planned for the next upgrade and will bring standardization to the discharge information used throughout the organization.

3.4 Protocols Linked to Organizational Policies

Further development that may enhance practice and support decision at point-of-care is to link the organizational policies and procedures to EDIS. CDHA has standardized procedures and policies available electronically on the intranet for all users. It is possible that these could be linked through an option called "Protocols" (Figure 2). This option enables links to a diagnosis and/or complaints code. Protocols assigned to a complaint code would be viewed on the triage and clinical window. Protocols assigned to a diagnosis would be viewed on the clinical window.

4. Show Leadership and Advocacy

4.1 Support for the Charge Nurse

The charge nurse (CN) is supported to make decisions for using human resources wisely since EDIS provides up to the minute information on the status of the department. Based on the acuity levels, departmental volume, and number of admits the CN can make informed decisions on whether to open the Minor Emergency Treatment (MET) area and for what purpose. This area is used primarily for treating patients of lower acuity and as a holding area for admissions when beds are not available.

EDIS provides a snapshot of the department at any moment and can be used to support decisions assuming divert status. The ability to take before and after snapshots when other ED's go on divert provides support for both the CN and physician when deciding how long this divert can be managed.

4.2 Support for Managerial Decisions

Reports generated from the information stored in EDIS are useful as a managerial tool. These reports can support decisions relating to departmental budget or the amount of human resources required. Information was recently requested by the DGH health services manager for the average length of stay (LOS) for admitted patients in the ED versus the non-admits. The DGH ED had a total of 1697 admissions for the months of April to October 2006. The average LOS for these admitted patients was 18 hours and the average for the non-admitted patients was 4 hours. From this information it was concluded that 14 hours of an admitted patients stay in the emergency department occurred after the decision to admit was made. This knowledge supports the decision to create a separate cost center for ED admissions. It also supports requests for increased staffing requirements.

Conclusion

A reflection of EDIS from the context of whether it supports CDHA's vision has been provided using the four strategic directions as a guide. This reflection resulted in the conclusion that EDIS aligns well with the Capital District Health Authority's mission statement. The overall improved communication and the ability to follow the flow of patients through the department have positively influenced patient care.

References

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Appendix 1

Capital Health Strategic Plan, our 2002 to 2006 plan for ***Changing the Way We Think About Health***

Our Vision - *Healthy people, healthy communities*

Our Mission - *The people of Capital Health work with individuals and communities to improve health. We provide care, educate, conduct research, and advocate.*

Our Values -

- ***Collaboration***
  We work together to improve services and achieve healthier people and communities.
- ***Accountability***
  We are responsible for services that are patient/client-centered and responsive to our communities, and for effective management of resources. We are open and honest in what we do.
- ***Respec***t
  Our decisions, services, and relationships reflect compassion, caring and understanding.
- ***Excellence***
  We strive for high performance through leadership, competence, a spirit of inquiry, and innovation

Four strategic directions are critical to the achievement of the vision and mission of Capital Health:

1. **Improve Care for Patients, Clients and Community**

- Provide care that centers around the patient's needs
- Improve access by strengthening primary care; enabling care closer-to-home; managing wait lists; improving chronic disease management, and using technology for diagnosis and treatment
- Promote health by increasing public and provider awareness of factors that influence health, and developing partnerships and strategies that improve health of our communities
- Improve the quality of our work by adopting best practices, using our resources wisely, integrating services, and continuously striving to improve health outcomes

2. **Create a Healthy Workplace**

- Achieve better balance of work, home and community by planning and recruiting to meet human resource needs; matching the work to available resources, and providing more flexible work arrangements
- Develop work environments that enhance safety, teamwork, communication, and valuing people
- Support career development that encourages personal growth and learning
- Promote informed personal health choices related to smoking, healthy eating, active living, mental health and cancer screening

3. **Build Knowledge**

- Improve access to information for patients, clients, providers and the public
- Foster interdisciplinary care teams and share knowledge to improve care
- Support and promote research and education
- Continuously learn and improve by promoting a culture of evidence-based practice, inquiry, evaluation, and lifelong learning

4. **Show Leadership and Advocacy**

- Work together with other care providers
- Promote partnerships in a broader approach to health
- Develop and support leaders
- Increase public awareness of a shared responsibility for health and reasonable expectations, and encourage appropriate use of health care services
- Strengthen the leadership and advocacy role of the Capital Health Board and Community Health Boards
- Manage our fiscal resources responsibly

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