Use of Health Encounter Information for Outcomes Management and Resource Planning

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Abstract

Increasingly Canadian communities have been attempting to participate in decisions related to the allocation of health services resources. Governments have responded by developing regional and community health boards.

Operating in the Dark: The Gathering Crisis in Canada’s Public Health Care System (www.aims.ca) suggests that health care is not and cannot be managed because of the absence of pertinent information. We routinely lack information about access to care, waiting times, the fate of patients on waiting lists, and the outcomes of care.

This paper reports on how new technologies may be employed to provide real time monitoring and feedback to support care while it is being delivered, and simultaneously provide information about the activities and results of care for program planning and resource allocation.

Work in Nova Scotia has been aimed at learning how to capture pertinent information from health system encounters so that we can have reliable information about health status and changes in health associated with care. We have worked with acute care hospitals, providers, community and regional boards to identify the information about hospital patients which is necessary to determine whether a patient is in the appropriate setting for care and the information which is necessary to support resource allocation decisions to distribute resources between acute care and continuing care organizations.

This presentation discusses the types of information communities need for resource allocation, sources of that information and what is necessary to capture information from clinical encounters to support outcomes measurement and resource allocation.

1. Background

Operating in the Dark: The Gathering Crisis in Canada’s Public Health Care System (www.aims.ca) suggests, today, health care is not and cannot be managed because of the absence of pertinent information.

This paper reflects on problems with available information and discusses how we can use information collected in the normal course of care to gather, store, analyze, mine and disseminate information about clinical care and health system performance.

Increasingly Canadian communities have been attempting to participate in decisions related to the allocation of health services resources. Governments have responded by developing regional and community health boards. One aim of regionalization is to insure that information available in local communities is made available and used by those making decisions about health care delivery. The goal is to have decisions which are pertinent and in each community’s best interest.
Unfortunately, most boards rarely have adequate information on which to base decisions or the resources to gather scientifically pertinent and valid information [1,2]. In particular, throughout Canada, there is a lack of information about access to care, waiting times, the fate of patients on waiting lists, or the beneficial and adverse outcomes resulting from health care activities.

A consequence of this lack of meaningful information is a continued reliance on irrelevant but available information or even worse, information which is certainly misunderstood and at worse misrepresented.

A report, on health care in Canada, produced by Maclean’s magazine using Canadian Institute for Health Information (CIHI) data recognizes the serious lack of information and at the same time misuses and misstates the meaning of available information.

For example, one indicator used by Maclean’s article is “early discharge”. Maclean’s gets the information from the Canadian Institute for Health Information and reports that early discharge is “The amount of time patients spend in hospital relative to a national standard for particular conditions. Shorter stays generally indicating efficient treatment … mean higher scores.”. However, there is no agreed on Canadian standard for length of stay and both CIHI [3] and others [4] clearly state that length of stay is either an objective measure of severity or is closely related to disease severity. The important question for those studying length of stay is “What is the proportion of days in which patients are in the most appropriate setting for care and how did their health status change as a result.”

Moreover, efficiency measures must relate cost and benefit. Length of stay alone relates to cost, but without any information about the benefits associated with longer or shorter stays it is not possible to speak to efficiency of care. Sadly, despite a large investment in human resources to collect discharge abstracts no one bothers to ask how and how much a person’s health has improved [5] and health care workers are unable to report if particular stays are costworthy or not.

A second Maclean’s/CIHI indicator, “Cesarean Sections” is described as “The percentage of women who deliver babies by c-section. Health authorities attribute above standard rates in most reasons to some c-sections being done unnecessarily. The best standings go to the lowest rates.”

Again this is a serious misstatement. There are no “standard” rates for c-section, and in any event it is futile to examine a rate alone without the associated information about the consequences of the surgery and infant and maternal well being [6]. No person should have unnecessary surgery and it is important to discuss the rate of appropriate surgery rather than the rate of surgery alone. Indeed, as Groom [6] notes “To suggest that one cesarean section rate (15%) is optimal for all populations in all countries cannot be sound.” As found in the United States, the recent drive to reduce the overall rate to 15% is causing problems of its own.

Another CIHI indicator is Births after C-Section which is described as “Vaginal births in hospital by women who have previously delivered a baby by c-section. The higher the number the better the score.”

However, among pregnant women who have had a cesarean section, major maternal complications are almost twice as likely among those whose deliveries are managed with a trial of labor as among those who undergo an elective second cesarean section [6]. Were the cesarean sections needed in those communities? Did patients benefit or were they harmed? Existing data and methods do not answer these important questions. High rates of use do not necessarily flag high rates of inappropriate use.

What is surprising is that despite pronouncements from the World Health Organization as long ago as 1985 [7], the CIHI and Maclean’s continue to seduce Canadians with the idea that administrative data about rates of procedures, without any measure of outcomes or appropriateness, can be helpful for health services administration.

Both the Board Chair, Michael Decter, and the Minister of Health, Allan Rock, recognize the current state of health information as being inadequate.
Michael Decter shares the frustration of the public at large -- that much of the most clearly illuminating information is still unavailable on a nationally comparable basis: waits in emergency; the time it takes to see a specialist; the survival rate after cancer or heart attacks strike. "I think the questions at the top of the public's mind," says Decter, "have to do with speed, quality and appropriateness of service delivered" [2]. Allan Rock [9] stated, "I fully agree that indicators of the effectiveness of treatment at the clinical level would be of great value".


CIHI and Maclean's produce league or ranking tables which claim to allow organizations to compare themselves one with another as an impetus to improvement. However it seems that in the absence of adjustments for severity, appropriateness and benefit that actions prompted by these league tables are equally likely to be irrelevant, harmful or beneficial [12].

The two people who potentially have the greatest influence over the nature of health information recognize that what the public is receiving, at great cost, is of little value.

Clearly, more than comparative rates, the public must be informed about the amount of appropriate care which is delivered and the outcomes. Systems which collect pertinent patient information in real time are most likely to produce valuable information.

1.1 Can we afford meaningful information?

Canadians spend large amounts to gather health information. Diverting these valuable human resources to the collection of pertinent information would provide major information benefits without increasing the cost.

CIHI recently received a $95 million Federal Government Grant. One of their initiatives is a hospital discharge abstract database (DAD). The chart of every patient discharged from a Canadian hospital is abstracted and the information sent to CIHI. Although trained health record reviewers examine each page of every chart, no information is collected about changes in health associated with care. Information about the admitting diagnoses is not collected nor does the abstract provide data about changes in comfort, function, or likelihood of dying following hospitalization. No information is gathered about waiting times for admission or for particular components of care. A hospital with 500 acute care beds could spend $1 million or more for this abstracting service and still not have regular information about waiting times, the effectiveness of care, or which groups of patients are most likely to have worse health following care.

1.2 What information is necessary to manage

![Comfort, Function, Severity, Access/Waiting Times](image)

Figure 1. is an example of the type of information necessary to manage.

The purpose of health care is to improve health and the dimensions of care are comfort, function and likelihood of dying.
Consequently, it is important to measure health before and after health care activities in order to learn if the health care system is achieving its goals.

Figure 2 (from Tan Chapter) is a diagram which shows the flow of information during a clinical encounter.

A patient presents to the clinical office with a particular health status, comfort, function and life expectancy. Clinicians generate prompts for care, either from their own knowledge or with technical assistance. The clinician then tests the conclusion to see if there is any contraindication to proceeding. Proceeding generates data about activities and changes in health, which could be added to the repository to generate new knowledge.

In addition, appropriate resource allocation requires proper information about the current waiting times. To understand waiting times we must know the following:

a) Who is waiting today, and how long have they waited
b) What is the likelihood of each of the various consequences of a wait for care.

In order to specify these consequences we must track waiting patients and learn about the consequences of the wait. Information about groups of patients who have waited permit clinicians and administrators to learn about the consequences of waiting and to stratify risk and consequently develop reasonable recommendations about urgency of treatment and referral for particular conditions [13,14].

2. Methods

In 1994 the Federal/Provincial/Territorial Deputy Ministers of Health made important commitments which, despite huge Federal and Provincial investments have not yet been implemented [15]. Two important recommendations from When Less is Better were (a) that timely access to services either in the hospital or the community must be guaranteed and information about waiting times made public and (b) that quality of care will be ensured by ongoing monitoring and publication of patient outcomes as changes are implemented.

Health care workers, today, routinely collect much of the information necessary to manage and support clinical care, research, teaching and health services administration. Unfortunately, large amounts are lost because little effort is made to collect and display the information systematically.
Measuring waiting times has been described as a complex process [16], but it is not complicated. Patients know how long they have waited for service and are able to report how long they have waited for each component of care. For a patient, waiting time starts when they first try to make a physician appointment, and waiting times for each component of the care process are evident to the people who are waiting. Wait time information can be gathered at the time of a service by asking patients how long they have waited for care and using information from the admitting process to learn how long patients report they have waited.

Alternatively, in Canada, insurers routinely send audit letters to patients asking if the patient has seen a physician on a particular day and received a particular service. These routine audit letters have been used to measure patient presence alone. Unfortunately, they have not yet been used to gather essential information for health system management such as waiting time for service or perceived benefits of care.

In any event, for health system management the critical question is not how long was the wait? Rather, the vital questions are “How many people wait too long for care given their clinical condition” and “Can we identify those people while they are waiting in order to decide whether to accelerate care or not”. Although cardiologists and cardiac surgeons have been able to develop risk stratification [17,18] methods, few jurisdictions routinely track the fate of all waiting patients and this is what is necessary to further stratify risk.

2.1 Concurrent Review, Appropriateness of Setting, Community Context and Outcomes

Several projects have been done in Nova Scotia used Caretrak software developed by Drs. Donald Fay, Neil Ritchie and David Zitner [19]. Our working assumption is that patients must be in an acute care hospital if they need services which are unique to hospital. Clearly, what is unique is defined by community context. Consequently, what is appropriate in a particular hospital is closely related to what is available in each community. Patients need service if they have markedly decreased function, regardless of the uniqueness of the services they require.

Communities, therefore, must identify the appropriate setting for each type of service. For our most recent project at the Dartmouth General Hospital, administrators, care providers including doctors and nurses, and the community health board identified the services which are unique to the Dartmouth General Hospital.

Nurses routinely estimate patient function so patients can be identified who have poor function and do not require unique hospital services. These patients require long term (either nursing home or home care) care services.

Providers are prompted regularly regarding discharge for those patients who no longer require hospital care.

Results over several studies have shown that concurrent review and prompting reduces the proportion of days occupied by people who do not require acute care services and helps to identify those patients who require supportive services outside of hospital.

Our most recent concurrent review project clearly showed that patients in the lowest quartile for function are more likely to have non-unique hospital days, when compared with patients with better function.

The discharge summary provides another opportunity to collect vital outcome information. Normally the hospital discharge report is used only as an encounter record and a communication tool between the organization and other providers. A project at the QEII in Halifax is using the discharge summary process to ask for and gather information about patient health status (comfort and function) at admission and subsequently so that the organization will be able to provide its community with some estimate of the health benefits of care at our hospital.
3. Summary

Canadians have a thirst for meaningful health system information but squander the opportunities to collect and use information collected in the normal course of care. Diversion of resources from retrospective to concurrent reviews and prompting systems would permit us to modify care as it is provided and also collect aggregate information for health systems research and planning.

4. References