

Evidence-based administrative decision making and the Ontario hospital CEO: information needs, seeking behaviour, and access to sources

Mary McDiarmid, Sandra Kendall, and Malcolm Binns

Abstract: Introduction – The hospital librarian requires an understanding of the information needs, information-seeking process, and use of information resources by a hospital’s chief executive officer (CEO) so that the librarian may support, promote, and foster evidence-based decision making (EBDM) at the executive level. This research aimed to identify various reasons hospital CEOs seek information and uncover their feelings and thoughts about the process. Method – In this study, funded by the Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA / ABSC), Ontario hospital CEOs were interviewed by telephone in the summer of 2006. Findings – Barriers to EBDM as described by the CEOs included a lack of on-demand information and limited time for the information-seeking process. The CEOs preferences regarding the content and delivery method of needed information and the CEOs specific information needs and wants are described in this paper. Ontario CEOs do not perceive the hospital library as a first source that they turn to for EBDM. Of the 27 CEOs interviewed who directly use a library (on- or off-site), 37% did not know the librarian’s name. CEOs were asked whether they believed a hospital library would exist 5–10 years from now and to forecast the future for library services. The CEOs envision library services as shared or joint services, or virtual, or both. Conclusion – We have concluded from the findings that the hospital librarian who has not already communicated their expertise and demonstrated their ability to link the strategic goals of the hospital to available evidence-based resources will not be around in 10–15 years.

Introduction

The hospital librarian requires an understanding of the information needs, information-seeking process, and use of resources by a hospital’s chief executive officer so that the librarian may support, promote and foster evidence-based decision making (EBDM) at the executive level. By learning the motivation for pursuing information, identifying the sources that are frequently consulted, and specifying any barriers that may exist and thus impede the access to needed information, the hospital librarian can ensure that appropriate resources in the preferred format are available to assist in decision making by administrators.

The practice of evidence-based administrative decision making is growing in Canada. The Canadian Health Services Research Foundation’s Executive Training for Research Application (EXTRA) program is one example of this growth. The program offers leaders in health care the opportunity to

learn to optimize the use of research evidence in managing [1]. Evidence-based decision making has been defined as “the systematic application of the best available evidence to the evaluation of options and to decision making in clinical, management, and policy settings” [2]. Key words in this definition are “best available evidence”. It has been pointed out that in certain instances other sources of information and knowledge, such as personal experience, experiences of others in similar situations, expert opinion, and simple inspection of data trends and patterns, can and should be used if such information is the best available evidence for a given decision [3].

It is not always clear that what decision makers perceive as evidence really fits that description. It has been suggested that CEOs may at times merely settle for the first available answer that meets their minimum requirements. At worst, some CEOs report ignoring evidence if it does not suit their purposes [4,5]. In one study of 68 US health services managers, many respondents indicated that they used evidence in making decisions, but what they referred to as evidence was frequently their own experience, anecdotes that had been communicated to them, information from freely available (and perhaps not reviewed) Internet sites, and advice from consultants and advisory organizations such as the Health Care Advisory Board. None of the managers interviewed reported that in their organizations the “evidentiary process for

M. McDiarmid.¹ Baycrest, Staff Library, 3560 Bathurst Street, Room 2E06, Toronto, ON M6A 2E1, Canada.

S. Kendall. Sidney Liswood Library, Mount Sinai Hospital, 600 University Avenue, Toronto, ON M5G 1X5, Canada.

M. Binns. The Rotman Research Institute, Baycrest, 3560 Bathurst Street, Toronto, ON M6A 2E1, Canada.

¹Corresponding author (e-mail: mmcdiarmid@baycrest.org).

strategic decision-making was regularly reviewed or that there was formal oversight of the deliberative process" [3].

This lack of evidence in health care administrative decision making is further corroborated by the *Canadian Health Accreditation Report 2004* that noted under the category of Ensuring Access to Information that 37% of hospitals surveyed received a recommendation that they needed to use data to support decision making [6]. Another study that surveyed 34 Canadian health care CEOs from various provinces, territories, and facilities (including community health service, long-term care, hospital, and regional health authority sectors) asked the CEOs to describe the degree to which research evidence influenced management decision making regarding nursing-related issues during the previous fiscal year [7]. CEOs perceived research evidence as having only little to some influence on CEO organizational decision making about nursing issues. Although evidence-based practice has emerged as the widely accepted paradigm for professional nursing practice to guide the process and outcomes of patient care, decisions relating to organizational restructuring were perceived by the CEOs as being the least influenced by research literature [8].

Another example is found in a study of Polish health care managers that included CEOs of hospital facilities. Reasons given by decision makers for not using evidence-based sources for decision making in their organizations included (i) a belief that developments in scientific knowledge were not relevant to their decision making, (ii) a belief that data that would be useful in decision making did not exist, and (iii) a lack of financial support to search for information. The remaining reasons revolved around a lack of expertise in searching skills and limited access to a library and (or) librarian [9].

The information needs and seeking behaviour of corporate CEOs offer further insight. Corporate CEOs begin the information-seeking process when they either need an answer to a specific question or are keeping up-to-date with developments in their field and filling gaps in their knowledge [10]. Executives spend more of their time in the fact-gathering phase of the decision-making process than do lower-level managers. One study reported that corporate CEOs devoted a significant amount of time to information seeking and on average spent 4 h per week searching for information to stay informed and current. The authors of that study concluded that corporate CEOs need compressed information without sacrificing the ability to delve into data. They have little time to think about the information they need and less time or energy to analyze it. They want easy-to-read, to the point, and highly relevant pieces of information that can be accessed easily and digested quickly [11]. We anticipate that hospital CEOs will have similar needs.

Consultants and colleagues are frequently used as sources of information by corporate executive officers. The reason given for their use was that key informants were readily available and trusted and were expected to provide a concise synthesis of the problem for the executive [11,12]. The problem of colleague consultation is that the information obtained may not contribute to EBDM because the answers received from colleagues may not be up-to-date or accurate [13]. One study reported on information seeking by professionals other than CEOs, specifically, lawyers, nurses,

physicians, dentists, and engineers [14]. These professionals were more likely to consult an information source if they were already familiar with it and had prior success using that source for an earlier problem or need. They evaluated information sources according to their trustworthiness and made judgments about how reliable or helpful a source was. The information source was also judged on its convenience and usefulness. Sources also had to be cost effective or affordable. The quality and level of accuracy were deemed to be of most importance to the professional seeking information. These lawyers, nurses, physicians, dentists, and engineers also tended to rely on their own personal knowledge and experience first when confronted with work-related decisions or problems.

Overall, the literature suggests that there is a need for the value-added services of screening, summarizing, synthesizing, highlighting, and presenting information for the CEO in a useful and timely manner. If a hospital library does not provide the CEO with timely, accurate, and relevant literature and information to help with the strategic decision-making process, the CEO may turn to alternative sources or may make decisions without investigating best practices.

The aims of this study were to (1) identify the type or types of information needs that compel the hospital CEO to begin the information seeking process; (2) specify the most commonly used sources to find needed information and determine whether these sources are evidence based; (3) identify barriers and (or) access issues perceived by CEOs in the search for information; (4) determine the library's role in providing the CEO with needed information and its impact on decision making; and (5) determine whether CEO characteristics such as education, job experience, and prior experience with the hospital library, or hospital characteristics such as size, differentiate CEOs using libraries from CEOs not using libraries as a source for needed information.

The significance of the current study is that the data gathered may inform the hospital librarian about the CEO's perceptions of the hospital library's role as an information provider for the purpose of EBDM. This study may also inform administrators about what is unique and impactful about the hospital library's services.

Methods

A telephone interview survey was done over a 2-month period in the summer of 2006. The population consisted of CEOs of Ontario hospitals. As of November 2005, there were 162 hospitals in Ontario [15]. The hospitals are directed by 147 CEOs [16]. The telephone interview method was chosen as the quality of data obtained is comparable with data obtained by interviews in person [17]. The researchers designed open-ended questions, arranged in a logical order to cover the ground required. The interview questionnaire was pretested with three CEOs who were not selected for the study. Two additional questions were added to the interview questionnaire as a result of the pretest. The telephone interview questionnaire covered 41 items and lasted an average of 20 min. The same questions were asked of all participants, although not necessarily in the same order, supplementing the main questions with either planned or unplanned probes. The probes were vetted to ensure consis-

tency and elicit clarity of response. Questions were framed to permit the CEO to describe their information needs as they perceived them and then to recount and reflect upon self-chosen accounts when they believed they had been unsuccessful in their search for needed information.

Initial contact with each hospital CEO was made through a personalized letter in which were stated the study's aims, funding, sponsors, and the reasons for requesting an interview with the CEO. To elicit cooperation, the initial contact letter informed potential participants of the names of their peers who had been interviewed during the pretest. It has been shown that this practice can be influential in obtaining participation [18]. The CEOs were asked to return a pre-addressed, stamped informed consent postcard providing the researchers with their choice of three dates and times at which they could be contacted for an interview. Appointments with the CEOs were confirmed by telephone. A follow-up contact letter was mailed 2 weeks following the initial mailing to those who had not yet responded.

Approval by the research ethics councils at the authors' workplace was obtained. The initial contact letter informed the CEOs that the return of the postcard indicated their consent to participate in the research and that they agreed that the interview would be tape-recorded and later transcribed. Confidentiality was maintained through the coding of the names of the CEOs and the institutions.

Statistics

Summary statistics for the measures of the CEOs' information needs and information availability were calculated in Microsoft[®] Excel 2003. Hypothesis tests comparing the responders and nonresponders were generated using SAS[®] Version 9.1 and were performed at an alpha level of 5%.

Qualitative content from the interviews was analyzed with systematic and comprehensive coding to identify categories of commonalities. Data was examined repeatedly until all cited influences were coded in terms of these categories. Transcripts were analyzed independently by one of the authors who did not participate in the interviews and who then compared emergent themes and categories. Discrepancies were discussed among all the authors before final categorization and conceptualization were agreed upon.

Findings

Sample characteristics

The 35 CEOs who responded to our request for an interview had been CEOs for the past 1–35 years (median = 3, Q1 = 1.6, Q3 = 12.5) and were responsible for hospitals (or groups of merged hospitals) with 19–1214 beds (median = 251, Q1 = 139, Q3 = 428). The highest level of schooling for most (30 out of 35) of these incumbents was a master's degree. One had a bachelor's degree, one had a medical degree, and three reported that they had other levels of schooling.

Are the responders different from the nonresponders?

Apart from two omissions, both teaching hospitals, one from the South West Local Health Integration Network (LHIN) and the other from the Central South LHIN, 145 CEOs were invited to participate in this study. Three were

Table 1. Number and characteristics of responders and nonresponders.

| | Responded ^a | Did not respond | Total contacted |
|---------------------------|------------------------|-----------------|-----------------|
| Overall frequency | 35 (25) | 106 | 141 |
| Hospital category | | | |
| Teaching | 4 (50) | 4 | 8 |
| Specialty | 4 (44) | 5 | 9 |
| Chronic or rehabilitation | 7 (44) | 9 | 16 |
| Large | 15 (22) | 53 | 68 |
| Small | 5 (13) | 35 | 40 |
| Medical school | | | |
| Yes | 13 (36) | 23 | 36 |
| No | 22 (21) | 83 | 105 |
| LHIN | | | |
| Central West | 2 (100) | 0 | 2 |
| Waterloo Wellington | 4 (50) | 4 | 8 |
| Toronto Central | 6 (43) | 8 | 14 |
| North Simcoe Muskoka | 3 (43) | 4 | 7 |
| Erie St Clair | 2 (40) | 3 | 5 |
| South West | 5 (38) | 8 | 13 |
| Champlain | 6 (33) | 12 | 18 |
| Hamilton Niagara | 2 (20) | 8 | 10 |
| North East | 2 (8) | 22 | 24 |
| Other ^b | 3 (8) | 37 | 40 |
| Bed count | | | |
| | Q3 | 452 | 307 |
| | Median | 251 | 102 |
| | Q1 | 120 | 52 |

Note: LHIN, Local Health Integrated Network; Q1, 25th percentile; Q3, 75th percentile.

^a% of total CEOs contacted in parentheses.

^bCentral, Central East, Mississauga Halton, North West, and South East.

interviewed as part of prestudy pilot work, and one of the CEOs was in the process of retiring and did not participate. Thirty-five of the remaining 141 CEOs (24.8%) agreed to be interviewed for this study. The characteristics of the CEOs who did respond to our request for an interview and the characteristics of the CEOs who did not respond to our request for an interview are presented in Table 1. A significantly higher percentage of CEOs from teaching, specialty, and chronic–rehabilitation hospitals responded (about 45%) than the overall response rate (binomial test $P_0 = 0.248$, $p = 0.02$). Relatively few CEOs from small community hospitals responded (12.5%). Thirteen of the 36 (36%) CEOs from hospitals in cities with medical schools (i.e., Ottawa, London, Hamilton, Toronto, Kingston, Thunder Bay, and Sudbury) responded, while a slightly lower response rate (21%) was observed for hospital CEOs in cities without medical schools ($\chi^2_1 = 3.3$, $p = 0.07$). There was a significantly higher bed count for hospitals whose CEO responded (median = 251) than for hospitals whose CEO did not respond (median = 102, Wilcoxon test $p = 0.001$).

We also looked at response rates across LHIN geographic areas. The Toronto Central region had a relatively high re-

sponse rate (43%). The response rate for hospitals in the other LHIN areas adjacent to Lake Ontario (i.e., Hamilton Niagara Haldimand Brant, Mississauga Halton, Central, Central East, and South East) was relatively low (11%) as was the response rate for hospitals in the North East and North West LHIN areas (8%). Hospitals in LHIN areas sandwiched between the northern and Lake Ontario areas (i.e., Erie St. Clair, South West, Waterloo Wellington, Central West, North Simcoe Muskoka, and Champlain) had a relatively high response rate (42%).

Information needs

Among the 33 CEOs that reported having access to a library on- or off-site, 91% said they seek information at times, not necessarily for decision making, but just to keep current or up-to-date (95% confidence interval (CI): 82%–100%), 88% said that when they start looking for information it is sometimes just to confirm knowledge (95% CI: 78%–98%), and 85% said they seek information because they are curious about something (95% CI: 74%–96%). CEOs reported needing information for report preparation, technology issues, human resource issues, and legislative issues. Among the 33 CEOs that reported having access to a library on- or off-site, 82% believed that the library has information they need for the preparation of reports (95% CI: 70%–93%), 70% said that they believed that the library has information regarding technology questions (95% CI: 56%–84%), 67% said that they believed the library has information on human resources issues such as staff retention and recruitment (95% CI: 52%–81%), and 52% said they believed the library has information regarding questions about legislative issues (95% CI: 36%–67%).

Information sources

Among the CEOs with access to an on- or off-site library, our study found the following:

- 91% often used the Internet as a source of information to find an answer or solve a problem (95% CI: 82%–100%),
- 58% often used library journals as a source of information (95% CI: 43%–73%),
- 55% often used personal journals as a source of information (95% CI: 39%–70%),
- 55% often used experts as a source of information (95% CI: 39%–70%),
- 48% often used other CEOs as a source of information (95% CI: 33%–64%),
- 30% often used a library database as a source of information (95% CI: 16%–44%),
- 30% often used personal books as a source of information (95% CI: 16%–44%),
- 27% often used a librarian as a source of information (95% CI: 14%–41%), and
- 6.1% often used library books as a source of information (95% CI: 0%–13%).

The CEOs were also asked to name their three favourite sources for finding needed information. The Internet was ranked first in a listing of 13 sources named by the CEOs (Table 2). Of the top six ranked as favourites by the CEOs, only one of the sources, journals and (or) books, refers to literature. The other four favourite sources are people such as

Table 2. Favourite sources for finding needed information as ranked by CEOs.

| Information source | Rank | First | Second | Third |
|-------------------------------|------|-------|--------|-------|
| Internet | 1 | 9 | 12 | 4 |
| Journals and (or) books | 2 | 9 | 7 | 6 |
| Experts | 3 | 3 | 5 | 2 |
| Colleagues, peers, other CEOs | 4 | 3 | 3 | 3 |
| My staff | 5 | 3 | 3 | 2 |
| Library and (or) librarian | 6 | 2 | 0 | 6 |
| OHA | 7 | 1 | 2 | 2 |
| Databases | 8 | 1 | 1 | 0 |
| Conferences and (or) forums | 8 | 1 | 1 | 0 |
| CIHI | 10 | 1 | 0 | 1 |
| Professional associations | 10 | 1 | 0 | 1 |
| Advisory board | 12 | 1 | 0 | 0 |
| E-mails | 13 | 0 | 0 | 2 |
| Decision support department | 13 | 0 | 1 | 0 |

Note: OHA, Ontario Hospital Association; CIHI, Canadian Institute for Health Information.

experts, colleagues, peers, other CEOs, and members of the CEOs' internal staff.

Are the sources used by CEOs evidence based?

CEOs were asked whether they believed they practiced evidence-based administrative decision making in their facilities. Participants who answered "yes" and believed that they practiced EBDM were compared with those in the group who answered "no", "maybe", or "don't know", and none of the following variables were different between the two groups to account for their viewpoint: number of years as a CEO; hospital size; and the sources they consult to find needed information, including journals, databases, Internet, experts, other CEOs, and librarians. Only one CEO reported that he did not practice EBDM:

Me, no. I'm an intuitive person; I do everything by gut. But I've got VPs who I'm sending off for training so they can refine their empirical decision-making skills. I say I do it intuitively, but there's probably a bit more process to it than I can admit to. You've got to be able to back up your decisions with facts and figures more and more. We're seeing the necessity of that, and you then make better decisions on data, and you can convince people of your decisions and your directions if you've got the data, so it's clearly the way of the future.

One CEO did not know whether he practiced EBDM as he explained, "I'm not a big enough clinician and haven't been in this business long enough. We're just pumping it out, but no one is tailoring it to the people who use it, making it sensible, making it easy to get at, and weaving it into your accountabilities."

Eighteen of the 35 participants responded that "yes" they practiced evidence-based administrative decision making but added qualifications to their response. A very experienced CEO responded:

Yes. I've been a CEO for over 20 years, so the numbers of new types of issues that are coming my way are not significant. It's not as if we're being faced with fundamentally, on a day-by-day basis, different sorts of ques-

tions that we haven't been faced with before. You draw a lot on your experience and the experience of your team. I often see what other organizations are doing, not that I want to do it that way, but it's a reference point. If you apply evidence as something that must prove what you must do, then I think most management literature would say it doesn't really exist. Most management literature would say there are general tendencies. There are no scientific studies. There's lots of information out here, but it's not evidence based in that my circumstances and those of another institution are going to be identical. It's instead going to be prescriptive.

One CEO who responded "yes" justified the answer:

For example, we did research on healthy workplaces and looked at the literature to identify key elements and standards and then looked at the evidence to see how others apply it and how we could apply it in our setting. It's a little easier when the questions are clinical in nature as they're used to searching for evidence to support their decision making.

Another CEO who answered "yes" clarified the response by stating, "I think if you're at the leading edge, there's not always a lot of information, but you can usually glean enough from the arguments presented in other cases to back it up. So I think, generally speaking, there is some evidence." The importance of evidence for decision making is noted by this CEO:

It's very important to me to understand what the evidence is saying at all levels, whether it's at the bedside, at management, or with administration, I mean safety, risk management, we absolutely as an organization make sure that's a touchstone for us. We understand what the world is doing and then we try to look at how we fit into that.

Further on this theme was the following statement:

Yes, we try to monitor as best we can evidence-based practices and indicators that are related to them and monitor how we fare in relation to those indicators. I run a hospital not a bank. My decisions have influence on the clinical area, and they have to be influenced by clinical best practice. It doesn't mean to say that we're not also trying to apply best practices in how we conduct business.

Fifteen of the 35 CEOs answered that "they try" to practice evidence-based administrative decision making and could do better: "I wish. I try to, but I think that I repeatedly fail. I would be happy if my decisions were at least informed, but to say they're based on evidence, the evidence isn't developed fast enough to help me in the kind of world I live in." This position was also expressed by another CEO: "I think we are working toward using evidence-informed decision making, but a lot of the management decisions have to take into account the context and do-ability questions. Those are not all necessarily going to be evidence informed."

A detailed explanation from one CEO attributes difficulties to the information systems:

I think where evidence exists, we try. Evidence decisions are a buzzword. Most evidence is expert opinion; the leading academics say that's the way we're going to do it. The evidence in clinical practice is of expert consensus and that's medicine. In the management world, how-

ever, there's not even that. In health, the information systems in IT [information technology] is so behind the rest of the world that we still make a lot of decisions based on, really, experience and gut. But with what we've been talking about for the last 10 minutes or so, bringing that into an organized situation, and you know it is at the library leadership level, would be huge in giving it a first step in evidence-based practice."

Another CEO explains that despite what the evidence says, sometimes reality demands a different solution or action:

It's one thing to get all the evidence, in terms of what's currently known, but because of the limitations on the way research is written and conducted, context, as you actually go to implement something in a hospital or health care environment, is really important, and sometimes there needs to be an interface that takes a look at where's the relevant context consideration in terms of how to move stuff forward. For example, we have research evidence that says, in order to do this surgery with this complication rate, you need to do this volume, but what it doesn't take into account is the challenges we have in our geography about emergency capabilities to respond. You end up in a situation where the evidence is pointing you toward one decision, but in context it becomes far more complex than that. One thing we need to be careful about as we move toward evidence-based decision making is to have some support to help people deal with relevant context questions because the real world is not as controllable as a research study. We'll do better if we take a look at what is the currently available knowledge, the evidence we do have available, in front of us. If you don't discipline yourself to take a look at what is known, flying by the seat of your pants only gets you so far.

Barriers to information

A group of six CEOs reported they experienced no problems in finding needed information. This group is characterized by their perseverance. As stated by one CEO, "I can't really describe a situation [of being unsuccessful in finding needed information]. I sometimes have to take longer or clarify or narrow my search for information, but I usually persevere until I'm satisfied." The remaining CEOs described three barriers to finding evidence-based information for decision making. One barrier that was identified is a format issue, data not available in an accessible or extractable format. For example, one CEO stated, "Internal information and data are quite often challenging to get that internal data that I think we need to be able to see before we make good decisions. Mainly the reason for that has been our IT structure."

A second barrier that was noted is a cataloging issue; the type of information sought was difficult to find, and CEOs believed it was not available through the literature. One CEO described the following situation:

The barrier is usually because the information doesn't exist. The most recent example was the avian flu and pandemic preparedness. I wanted to see the latest in terms of vaccination and preventive prophylaxis. There is no evidence that exists in terms of comparing pandemic flu for stockpiling the Tamiflu®. I used expert opinion of my

staff and colleagues, which is all you can really do without evidence.

An often-mentioned type of information that was difficult to find was benchmarking data:

Comparative data hospital to hospital for Ontario, so I guess in a word or two, it would be benchmark data. We almost had to create it ourselves for our need. Practical benchmark data, like insurance costs for our hospitals so we could really compare claims and experiences hospital to hospital. We always think if the province doesn't have it, and the OHA doesn't have it, then it doesn't exist, but in talking with you, perhaps this is the wrong way to think about these things.

The proprietary nature of data and costliness was a third barrier identified by CEOs. They believe needed information is available, but it is not affordable or it is not deliverable in a timely way. One CEO stated, "[One barrier] that comes to mind is the timeliness of the data that might be available, but that's no fault of the librarian. I would want something in real time, but it's not available because the collector of that information doesn't report it in a timely way."

A CEO from a small hospital described the financial challenges they face in finding needed information: "It's hard in a small hospital when you don't have access to a research librarian. At this time I use the Internet and experts. If I really need something I have to go and recruit experts; I have to pay for it. It's occasional. I've considered asking for assistance from a larger hospital or nearby university, but the difficulty is that it's not set up. There's no easy way to get access at this time."

Another CEO commented, "I'm looking at information technology management systems for patient registration and the existence of solutions in the marketplace. There just isn't anything that is useful for Canada that is doable and based on our reality. There just didn't seem to be an ability to connect what was doable with what was, and I reached a dead-end." When asked where the CEO had searched for this information the response was "CIO magazine, colleagues, the Internet, our IT staff, and other internal staff."

Other topics that were challenging included the executive role as an emerging role, visiting physicians and their compliance with scheduled visits, Planning Act and condominiums, best practice for structuring an ethics committee, health care integration information on successful applications in the hospital sector, conceptual theoretical frameworks for an integrated information technology solution, research focused on current practice issues, and public opinion surveys about the health care system.

The library's role

How the library is used

Thirty of the responding CEOs reported having a staffed library at their hospitals (95% CI: 75%–96%). Five of these CEOs reported not directly using their onsite library. Two additional CEOs reported having a library outside the hospital that they directly use for work-related information. Of the 27 CEOs who directly use a library (on- or off-site), 7.7% reported directly using a library at least once per week, 62%

reported using a library at least once per month, and all reported using a library at least once per year.

The CEOs who did not use libraries were from community hospitals. These CEOs shared the opinion that they were rather self-sufficient. For example, one responded, "I'm in management and I'm pretty independent. I don't need a library." Another CEO believed that the library's strength is in patient health issues, and this particular CEO mostly used the Internet.

All 27 CEOs who reported directly using a library said that the library's turnaround time usually met their expectations. Eleven CEOs reported using the libraries themselves, while 21 indicated that at times they use the library indirectly through intermediaries such as secretaries and administrative assistants.

Information provided by the library

All 27 of the CEOs who reported directly using a library indicated the library provided them with new knowledge. Seventy-eight percent reported that information received from a library usually substantiated a prior knowledge or belief (95% CI: 63%–92%). Ninety-six percent said that the information provided by a library was usually relevant to the topic (95% CI: 90%–100%), and 93% said that the information provided was usually current (95% CI: 84%–100%). Ninety-six percent of these CEOs reported that information provided by a library saves them time (95% CI: 90%–100%). Fifty-nine percent reported that they have handled a decision differently because of information received from a library (95% CI: 41%–78%). Of the 27 CEOs who reported directly using a library, 10 preferred to receive a synopsis from the librarian of what was found in the literature, 11 preferred to receive the original documents, and six CEOs indicated that their preference for the format of the gathered information was dependant on the question asked.

CEOs were asked if they would support an across-LHIN funding of a province-wide LHIN centric approach to license agreements for health library databases and other electronic resources such as online books and journals. Among the 33 CEOs that reported having access to a library on- or off-site, 76% reported that they would support such a plan. One CEO commented:

I think the timing is just right with these LHINs to look at these type of things. I think if the LHINs can be convinced that decision making will be higher quality and uniform, that we'll be looking at the same data and reaching conclusions from that, so I think that will be very attractive to them. I think timeliness...this is a great project. You know until I sat down and heard your explanation, I hadn't given it a lot of thought. But I'm working closely with the LHIN, and if they're smart, they will be open to ideas like this. Not every hospital would be happy for the LHINs to be controlling information. For the have-nots or those on the edge of the haves, they would be glad. These large library services I've had huge success with, and we could never afford what we're doing on our own.

Two (6%) CEOs would not support this idea, as one CEO responded, "Networked already; it's been there for 15 years."

The remaining six CEOs (18%) thought that they might support such an initiative depending on certain conditions. One of the concerns they expressed included a fear of losing what they currently have, as noted by one participant who said the following:

Sure, as long as it would not mitigate the current access we have. We support integration very strongly, but we still recognize local capability that is tuned to the hospital whether it is health records, the library or management structure — that those things are assets in every institution. I don't like to give away the uniqueness we have. So I would support an across-the-board licensing, but I would hate to lose my librarian.

Another commented, "If it makes sense from a business case and access perspective, then of course." In summary, the survey results indicated that there was stronger representation supporting provincial-wide licensing agreements for improved access to best evidenced library resources than opposition.

Participants were asked to imagine 5–10 years in the future and state where they thought hospital libraries would be in the future and whether the libraries would still exist. Seven of the CEOs envisioned a joint or shared centralized library service that would be accessed virtually. Eighteen described the library of the future as virtual and online. Two CEOs, one from a teaching hospital and one from a small hospital, believed a future exists for teaching hospital libraries: "Libraries in teaching hospitals make sense because they have a broader mandate. Teaching hospitals have a mandate to be at the front end of knowledge and the extent to which libraries can be at the front end of knowledge; they are to remain in teaching hospitals."

Some CEOs saw a different role for the hospital librarian in the future. One CEO described this role: "I'm not going up to see what books are on the shelves in the library, but there has to be some function in our industry in Ontario that critically is analyzing what our needs are and matching it against what is out there." Another CEO stated, "There are so many people producing so much information that the piece that I should probably talk to our librarian about is distilling it and making it understandable and relevant to our strategic needs as opposed to just information that is out there." Other CEOs described the need for a knowledge broker:

There may not be as many shelves, but there will always be a person who knows how to find and distribute knowledge.

I would say the hospital librarian's role is turning more into an information resource specialist — the one who is able to connect the individual to the right databases and help make the connection. I don't think you can expect thousands of individuals to have the knowledge on accessing; as you know there's an art and skill for sourcing information and the right information quickly. I think the libraries physically may shrink, from a sizing perspective, but the information-sourcing role needs to be maintained, refined, and developed.

Discussion

Preferences for information sources

Our findings concur with the literature on corporate CEOs regarding the reliance of CEOs on the Internet as the primary source for needed information. It was also found that hospital CEOs perceive that there is too much data and not enough analysis. The hospital CEO needs benchmarking data, relevant and timely analysis, synopsis, and decision support, and the matching of information to their needs. Just as health care professionals need to read an impossible amount of information to remain current in their own field, the same is true of hospital CEOs.

Awareness level of available information sources and the sources actually consulted by CEOs for information may be contributing factors that hinder a CEO's success in obtaining needed information. Using the Internet is only as successful as the searching skills of the CEO. Using experts, colleagues, and other CEOs is best complemented with evidence. Easy access to evidence-based resources via consultation with the librarian does not guarantee usage by the CEO. One CEO with access to a staff library noted, "We always think if the province doesn't have it and the OHA doesn't have it, then it doesn't exist. But in talking with you, perhaps this is the wrong way to think about these things."

Evidence-based resources

As previously stated, other sources of information and knowledge, such as personal experience, experiences of others in similar situations, expert opinion, and simple inspection of data trends and patterns, can and should be used if such information is the best available evidence for a given decision [3]. However, it should be assumed that the CEO does not have time to conduct a literature review and conduct the accompanying critical appraisal and analysis that is needed. It is incorrect to assume that an answer needed by a CEO will always be available in research literature and that proper evaluation of that literature will lead to the best answer. However, CEOs need to ensure that a thorough search of the literature for evidence is made as a critical first step in any search for information. The literature needed for administrative decision making is more likely to be found in studies as opposed to being openly accessible on the Internet. As the CEOs in this study illustrated, there are times when the literature does not exist in a usable form or cannot be retrieved in a cost-efficient, timely manner. Instead, CEOs turned to familiar, easy-to-access sources such as the Internet and their network of colleagues, staff, and experts. Only two of the CEOs ranked the use of journals and books as their favourite source for finding needed information for decision making, and only one CEO named databases as their favourite source. Needed knowledge must be created, organized, and disseminated to decision makers before and during the decision-making process. The CEOs, as recipients of information, can then utilize their skills and resources to find, appraise, and use the information to translate it into knowledge [19].

Barriers and access issues

The CEOs indicated a number of barriers and access issues. Data not being in an accessible or extractable format

was a key identifiable gap. The CEOs have additionally commented on primary data such as benchmarking indicators as not being available. This is a challenge for the hospital sector.

It is hard to work on performance measurement objectives and best practices without a baseline comparator. Ontario hospital clinical departments such as intensive care units and critical care units have undertaken to openly compare their departmental costs and performance indicators and have recognized that “it is only when you put your numbers down and compare to other institute numbers when you can accurately and honestly see how well you are doing and strive to improve shortcomings” (Dr. Tom Stewart, Director, Critical Care Unit, Mount Sinai Hospital and University Health Network; personal communication, 2006).

Primary data searches or the pursuit of benchmarking data are skill sets to be pursued by librarians. Why not track down insurance costs for Ontario hospitals and compare claims experiences hospital to hospital? This is one of the examples provided by a CEO. Further, librarians would find best practices for establishing a research ethics board, which was indicated by another CEO as a search for information wherein the CEO was unsuccessful in finding the needed information. The CEOs provided numerous examples of questions they had or problems they needed solved where we (librarians) could have been of assistance.

The IT barrier that CEOs referred to indicates primarily that some internal data was not available electronically, did not cross reference or interface with costing data, or was not recorded in an analytical, useful format. Librarians can assist in improving this access issue.

The library's role

CEOs who used the hospital library were quite satisfied with the services provided in terms of quality, content, and timeliness. The CEOs were rather evenly divided in their preference for receiving information either in its original format or in a synopsis or analyzed format. We suspect that the majority of one-person staffed hospital libraries would be unable (because of time constraints, rather than a lack of expertise) to offer their CEO the value-added service of analyzing or synthesizing the findings of studies found in the literature. This assumption on the authors' part of a time restriction is a barrier for librarians to overcome by a shift in work deliverables that may currently be meeting user wants as opposed to aligning the library as a strategic partner and an integral tool for decision making.

CEOs envision library services as shared or joint services, or virtual, or both. This is a clear indication that hospital librarians need to step out of the library and ensure that the decision makers in their hospitals are aware of how they can facilitate the practice of administrative EBDM. Through no fault of their own, the CEOs were unaware of the content available through a hospital library. They did not believe the library held information that could help them in preparing reports, finding information on legislative issues, technological issues, or human resource issues in their organizations. In reality, a typical hospital librarian is well equipped to provide a CEO with information in all these subject areas.

I think, with the appropriate strategic vision for 5 years down the road and with the appropriate investment in IT,

I see them [libraries] as being extremely essential resources and probably becoming a virtual library. It's not going to happen without leadership. The leadership can't be the CEO, and that's been the problem of hospital libraries over the past 10 years. They're kind of stuck onto someone's portfolio as a nice idea, and we need to have strong leadership. Our librarian came here 2 or 3 years ago, and she has actually changed the culture about libraries in this organization. She's really a great leader and I recognized when she came that nothing happens without great leadership.

Implications

This research revealed two key misperceptions: one held by the CEOs and the other by the hospital librarian. The traditional hospital librarian (or however one chooses to label that role, as either a knowledge broker, or information resource specialist) is already trained and skilled at finding data, assuring its integrity and quality, and making it available in an affordable, concise format. CEOs interviewed for this study were unaware of the abilities of hospital librarians and, for the most part, were not in the practice of turning to the librarian, who already possesses the infomediary expertise needed by CEOs. Librarians need to position themselves to identify, locate, retrieve, and synthesize needed information, and deliver it to the CEO in the needed format in a timely manner. CEOs who wish to improve their success rate in finding needed information should consider using the hospital librarian since 59% of the CEOs reported that they have handled a decision differently because of information received from the library.

As one CEO commented, “The culture about libraries in hospitals needs change. I think the librarians as a group and probably supported by the CEOs create a vision for health libraries in Ontario and get the backing of the CEO's to help them get to where that future is.”

The hospital librarian who has not already communicated their expertise and demonstrated their ability to link the strategic goals of the hospital with available evidence-based resources will not be around in 10–15 years. There's a challenge on [Ontario Hospital Librarians] to demonstrate new ways of linking how they can assist the organization with the values and strategic plan of the organizations.

We believe Ontario hospital librarians need to take notice that 37% of the CEOs who had access to a library did not know the librarian's name. The information needs of the CEO can be addressed by the hospital librarian, but that is not going to happen until the librarian ensures that the competencies they hold are promoted, clearly articulated, and demonstrated to the CEO and other senior team members.

Limitations

Gaining access to elite individuals such as hospital CEOs is regarded as particularly difficult because they, by their nature, “establish barriers that set their members apart from the rest of society” [20]. The response rates of executives to surveys tends to be lower than other population groups and have ranged from 2%–54% [11,21]. The generalizability of the findings in this study is limited by the low response rate of 24.8%. However, we felt the response rate was more than

acceptable. It is likely that the scheduling of interviews during July and August, a popular vacation period for hospital workers, may have deterred participation. Despite the low response rate, there are a couple of indicators that support the representativeness of our sample. For example, participants were from all LHINs in Ontario and represented all types of hospitals in the population, including teaching, specialty, large community, and small community hospitals. One reason that may further explain the poor response rate of small community hospitals is that CEO interest in the topic was low because most smaller hospitals in Ontario do not have a staffed library or, as in some cases found in this study, access to a library through a joint or shared service.

Conclusions

Our anticipation that corporate CEO and hospital CEO information needs would be similar was realized. The hospital CEO needs compressed information without sacrificing the ability to delve into data. They want pre-analyzed, easy-to-read, to the point, and highly relevant pieces of information that can be accessed easily and digested quickly. This research helped to inform CEOs regarding the knowledge, expertise, and search skills held by the hospital librarian who can be of assistance in the retrieval of needed information. The CEO participants in this study may now realize that they may add the hospital librarian to their frequently consulted sources for finding needed information.

The findings in this research are important to hospital librarians. The perceptions of the CEOs toward the hospital libraries' role as an information provider for the purpose of EBDM have been articulated in this study, and it is now up to the librarian to take needed action. As one CEO stated so clearly,

I think the hospital librarians do have a valuable role and contribution, and I think the challenge is their role, and a lot of roles in organizations are changing. I think hospital librarians need to be able to show, come up with innovative ways to be able to match information to the needs. What I'd like to see, in our hospital, for example, is here's how I can assist in finding the information you need. Being that consultant, information resources consultant. You want to make sure the hospital librarians don't get cloistered in their own older systems of managing information.

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