

# The 2016 National Digital Health Leadership Report

A Current State Snapshot

ASSOCIATION CANADIENNE  
D'INFORMATIQUE DE LA SANTÉ

**COACH**®

CANADA'S HEALTH  
INFORMATICS ASSOCIATION

All rights reserved. No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher.

This document represents the collaborative work of a number of subject-matter experts and is current to its publication date. Advances in the subject-matter, applicable legal or regulatory regimes, or general or specialist standards of practice may have occurred which are not captured in this work. This work does not replace the reader's judgment, and is meant to provide guidelines for thinking about and dealing with issues within its subject-matter. Guidelines are of necessity generalized, and will not address all topics or variables. Reading this work does not put the reader in a relationship of client or advisee, insured, or indemnitee of any of the publishers or authors or distributors of the work.

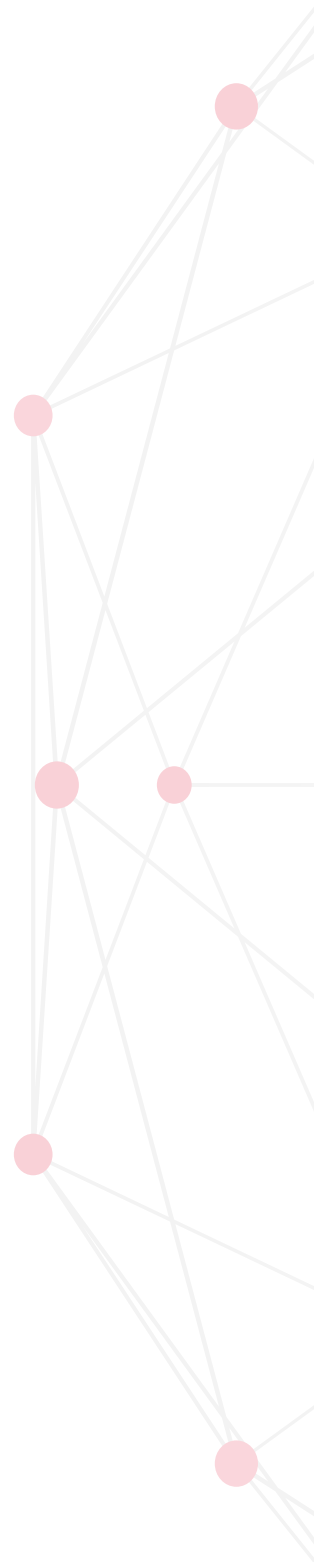
© 2016 COACH: Canada's Health Informatics Association

National Office  
Mailing Address

151 Yonge Street, 11th Floor  
Toronto, Ontario  
Canada  
M5C 2W7

Tel: 647-775-8555  
Email: [info@coachorg.com](mailto:info@coachorg.com)  
Website: [coachorg.com](http://coachorg.com)

Produced in Canada



# Contents

Acknowledgements .....	4
Overview .....	5
What is the current state of Canadian digital health?.....	8
Digital health leadership is required at the highest levels of system design and organizational strategy.....	10
Rapid transformation is underway, inside and outside traditional health care settings. ....	15
Investment in IT is still primarily aligned with traditional needs.....	18
Leveraging investments and building innovation capacity planning is setting the stage for the future. ....	21
Closing Comments .....	27

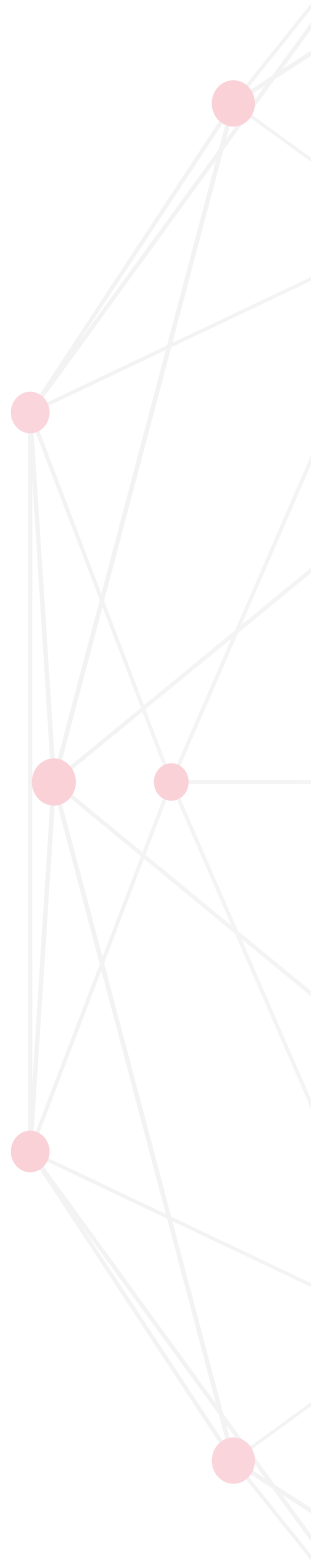
# Acknowledgements

On behalf of COACH: Canada's Health Informatics Association, I am pleased to present the 2016 National Digital Health Leadership Report, the first edition of a new, annual COACH report series reflecting health care leaders' perspectives on digital health progress and goals in Canada. We would like to acknowledge that the report would not have been possible without the responses of these leaders and their willingness to share their thoughts and reflections. Their insights will help fulfill COACH's vision of providing a report for all Canadians to guide organizations' strategic directions, anticipate future needs and assist health care professionals to plan for our digital future accordingly.

On behalf of COACH and all users of this report I would like to acknowledge our Board of Directors and the CHIEF: Canada's Health Informatics Executive Forum Advisory Committee for supporting the development of the National Digital Health Leadership Survey. I would also like to thank those COACH staff who contributed: Carina Andreatta, Program Coordinator, for her management of the development of the survey and report; Grant Gillis, Executive Director, for providing additional knowledge and feedback, and also RoseMary MacVicar-Elliott, Helen Shui and Alex Hennig, who supported the editing, design and production.

In closing, I invite you to read and enjoy this report and reflect on the current state of digital health in Canada. I look forward to your thoughts, ideas and feedback as we begin to develop the 2017 National Digital Health Leadership survey.

Mark Casselman  
Chief Executive Officer  
COACH: Canada's Health Informatics Association



# Overview

In April 2016 COACH: Canada's Health Informatics Association launched the inaugural National Digital Health Leadership Survey. As outlined in this report, the survey results provide a 'snapshot' of experiences and opinions of senior health informatics (HI) professionals regarding the use of information management/information technology (IM/IT) in their organizations. These digital health leaders describe the factors impacting their IM/IT world, how they are responding to challenges strategically and operationally and what they are working to achieve, now and in the future. The report paints a clear picture of the current state of Canadian digital health and will inform a national dialogue on healthcare transformation.

COACH will also publish a second Digital Health Leadership Report to complement and build upon this first release of survey results and, focusing on 2017 – 2020, to examine what Canadian digital health leaders forecast as potential challenges and opportunities for the future. Together, these two reports will present a comprehensive view of national digital health leaders' perspectives.



COACH



## Survey Methodology

Administered over a four-week period in the spring of 2016, the National Digital Health Leadership Survey was distributed to nearly 600 senior-level HI professionals across Canada working in public health care organizations. The survey:

- consisted of 27 multiple choice and free text questions;
- was distributed via an iSurvey link through emails and one-on-one email follow-ups; and
- completed in full by 78 respondents.

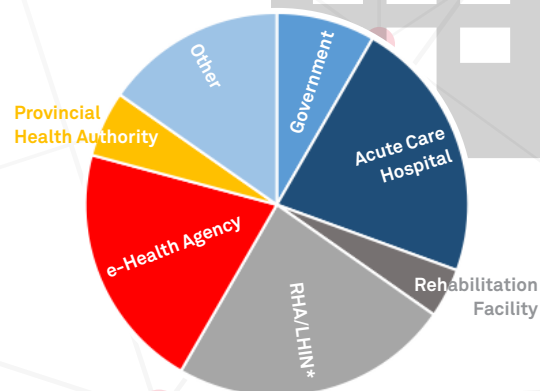
## About the Survey Respondents

Survey respondents have a number of different **leadership roles** including:



5	CEO
13	Senior Vice President or Vice President
3	Chief Medical Informatics Officer (CMIO) / Chief Medical Officer (CMO)
18	Chief Information Officer (CIO)
2	Chief Technology Officer (CTO)
25	Executive Director/Director
12	Manager

Respondents from **44 organizations** across Canada participated:



\*Regional Health Authority (RHA) / Local Health Integration Network (LHIN)

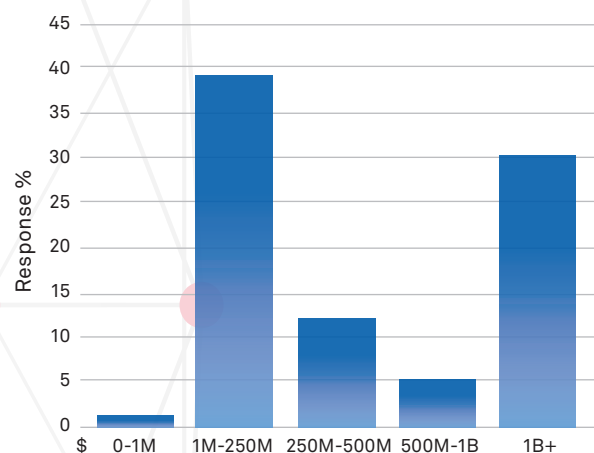
### Patients/clients served annually

- Majority of respondents (59%) were from large scale health care organizations serving over 500,000 patients/clients annually.

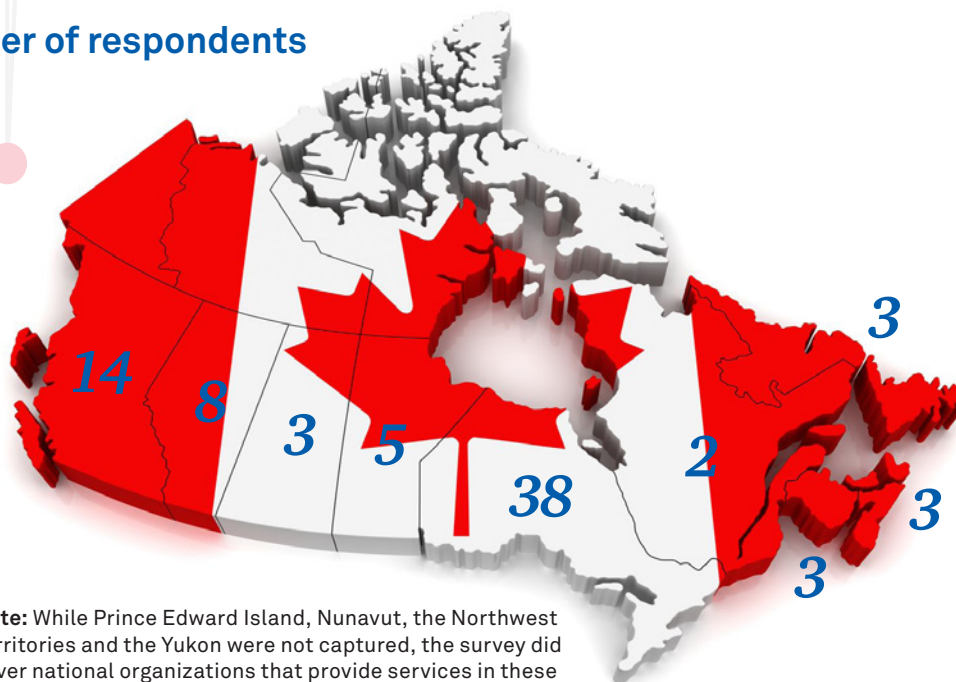
### Annual gross operating budget

- 39% indicated \$1M-\$250M

### Annual gross operating budget of respondent organizations



### Number of respondents



**Note:** While Prince Edward Island, Nunavut, the Northwest Territories and the Yukon were not captured, the survey did cover national organizations that provide services in these jurisdictions.

# What is the current state of Canadian digital health?

On the survey, Canadian leaders provided feedback on the current state of IM/IT in their public health care organizations, focusing on critical topics like strategic planning, budget and investments in digital health, business value and emerging technologies. A number of key insights emerged and these are outlined below.

## Key insights and discussion points

These insights are explored in detail with supporting survey data in the next sections. We anticipate these will serve as a catalyst for discussion amongst Canadian leaders working to deliver on the future vision for health service delivery in Canada.



**KEY INSIGHT 1**

**Digital health leadership is required at the highest levels of system design and organizational strategy.**

- Digital health leadership is a shared responsibility.
- Leaders face growing pressure to demonstrate return on investment (ROI), along with the challenge of measuring non-financial ROI such as improved quality, safety, patient experience and outcomes, in a meaningful manner.
- IM/IT leadership and governance conversation must take place at the Board level.



## KEY INSIGHT 2

**Rapid transformation is underway, inside and outside traditional health care settings.**

- The rapidly changing technology landscape has created a need for new roles, new skills and advanced training.
- Increasingly, health care organizations are focused on care delivery beyond their walls, which increases accessibility and improves care delivery.

## KEY INSIGHT 3



**Investment in information technology is still primarily aligned with traditional models.**

- Acute care hospitals spend the most overall capital on IM/IT.
- Upgrading legacy health information systems (HIS) and leveraging data across boundaries requires investment.

## KEY INSIGHT 4



**Leveraging investments and innovative planning is setting the stage for the future.**

- Fiscal Environment, Chronic Diseases and Patient Engagement drive organizational strategy.
- Canadian health care organizations are slowly

moving up the Electronic Medical Record Adoption Model (EMRAM) Scale.

- Organizations are budgeting for new strategic initiatives.

## KEY INSIGHT 1

# Digital health leadership is required at the highest levels of system design and organizational strategy.

## Digital health leadership is a shared responsibility.

The majority of survey respondents indicate that their organizations have both a Chief Medical Information Officer (CMIO) and a Chief Information Officer (CIO). One respondent noted that, “Clinical leadership is essential. More opportunities for sharing and collaboration are needed.” It is important to explore how the responsibilities of these job titles have evolved over the years and how the successful collaboration of the two roles leads to the most successful HIS implementations.

The role of both the CMIO and CIO has evolved over the years from hands-on management to strategic driver (Maestro, 2015) (Monegain, 2014). CMIOs and CIOs exist at a majority of Canadian health care organizations, however, the work they do is most effective through collaboration. CIOs have a good understanding of technology and information at health care organizations and are able to connect this information to their board of directors to achieve organizational goals (Peregrine, 2015). When CIOs and CMIOs work together they are able to offer both clinical and patient-facing experience, in combination with technology, to design plans and improve collaboration (Rosin, 2015).

CIOs within the Canadian health care sector face unique challenges. Health care lags behind other industries in IM/IT implementation, mainly due to its slow, bureaucratic nature and higher risk aversion. Many CIOs find themselves spending the majority of their time running the IT department as opposed to developing strategy or innovation (Wong, 2015). At the same time, however, according to research from Gartner Inc. CIOs have gained more C-suite influence and the majority of them report directly to their CEOs. So, how can CIOs lead digital change while maintaining and improving current IT systems? They can't do it alone (Wong, 2015).



### Q: “What IM/IT leadership roles exist at your organization?”

# of respondents	IM/IT Role
36	CEO
36	SVP/VP
35	CMIO
8	CNIO/CINO
45	CIO
12	CTO
1	CKO
27	CPO
57	Director
51	Manager

CKO = Chief Knowledge Officer  
CPO = Chief Privacy Officer



The role of CMIOs has evolved over the past decade. They have been asked to take on more of a role in health IM/IT, focusing on the clinical aspects of the acute care electronic health record (EHR), usually report to the CIO and don't have a seat at the senior leadership table. However, CMIOs must relinquish their "fix-it-now" problem-solving approach used in clinical practice and adopt strategic leadership to harvest the value from HIS systems (Maestro, 2014). The CMIO must analyze and present data to clinicians, focusing on people, process and management of change (Maestro, 2014). CMIOs may also struggle with a lack of experience at the strategic level and expanding care to other areas (analytics, quality, population health management, etc.) (Maestro, 2014).

Digital health leadership is a shared responsibility. The CIO and CMIO must work together in order to coordinate as partners to build data governance and stewardship structures, the health intelligence and analytics platform and the skills and capacities needed for high value health care (Maestro, 2014). For some leaders in these roles, this relationship can be challenging because the responsibilities are not always clearly defined; consequently, struggles around accountabilities and controls may arise.

In order to work together successfully, a clear strategy and operating model must be developed among senior leaders that outlines the roles, relationships and resource plans for CIOs and CMIOs (Maestro, 2014).

***"So, how can CIOs lead digital change while maintaining and improving current IT systems?"***

## Leaders face growing pressure to demonstrate ROI, along with the challenge of meaningfully measuring non-financial ROI such as improved quality, safety, patient experience and outcomes.

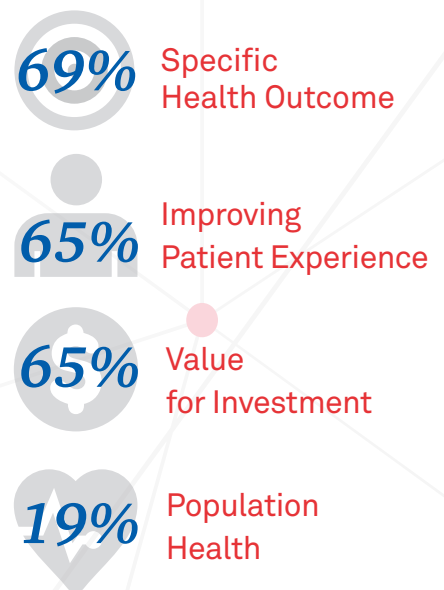
How do healthcare delivery organizations measure patient experience and patient safety? The notable gaps around these measurements in Canadian health care are outlined in the Canadian Institute for Health Information (CIHI) National Expenditure (Trends report, 1975 to 2015). Outcome measures help to understand evolving needs, accountabilities and how policy can contribute to achieving outcomes and empower patients and families. Performance measurement is a necessary step to improve health care delivery.

Digital health leaders highlight that there is an increasing pressure to demonstrate clinical value for money invested, however the return on investment (ROI) in health care is not always a financial return. It may be difficult to measure ROI that is realized as improved quality, safety, patient experiences and outcomes. This is challenging because, according to one survey respondent, ensuring IM/IT investments provide the required value is the only way to ensure it becomes an enduring strategic asset.

There are many health care outcome measures; the challenge is ensuring they are timely and useful as metrics in the context of assessing IM/IT value add – patient, program and/or demographic focused (not necessarily IM/IT systems-focused).

Fiscal, organizational and political pressures are putting more emphasis than ever on leaders with regards to digital health value measurement, specifically ensuring that the HCO (Health Care Organization) has the right measures applied in the right way to get the right insights to improve value. Particularly in health care, it has always been a challenge, in advance especially, for HCOs to have developed business value indicators that link IM/IT performance metrics and care delivery goals (McKinsey, 2013).

### Q: “How are you measuring outcomes based on your IM/IT investments?”



Moving forward, digital health leaders indicated they measure outcomes through clinician engagement and satisfaction, vendor engagement, benefits evaluation studies, adoption of digital health technologies, number of visits and social media metrics.

Some survey respondents indicated leaders should be held accountable through scorecards that measure value delivered to the business in the form of efficiency, agility and risk levels. Scorecards should be intuitive for even the least IT-savvy board member and they should be aligned with executives' incentives (McKinsey, 2013). Digital health leaders should be engaging their C-suite colleagues, organizational leaders and board of directors in the strategic design and implementation of key metrics and reporting tools.

## The IM/IT leadership and governance conversation must be in place at the Board level.

Does Canadian healthcare have enough IT-literate executives? According to Morgan Stanley, only a small minority of corporate boards, not exclusive to health care, have technology committees, despite the fact that many companies rely on business models built on data analytics, algorithms and software tools – only 5.2% of public-company boards have created a technology committee (Nash, 2015). Despite the low number of board-level IT committees, 60% of directors would like their board to devote more time to IT, and many directors understand the importance of managing IT risk and strategy (Gallagher, 2013).

In contrast, 38% of the 79 Digital Health Leadership Survey respondents indicate they have a board-level IT advisory committee. Canadian healthcare is on the right path; some HCOs are engaging in dialogue in health IT at the highest level. Despite the actual number of board-level IT committees, the shift to greater technology focus is there and the gap between discussions that boards *should be having* versus what they *are having* is closing (Peregrine, 2015).

There is a crucial relationship between technology and strategic planning (Peregrine, 2015). Digital health leaders and their staff cannot

**Q: “Is there a board-level IT Advisory Committee at your organization?”**

**62% NO**

**38% YES**

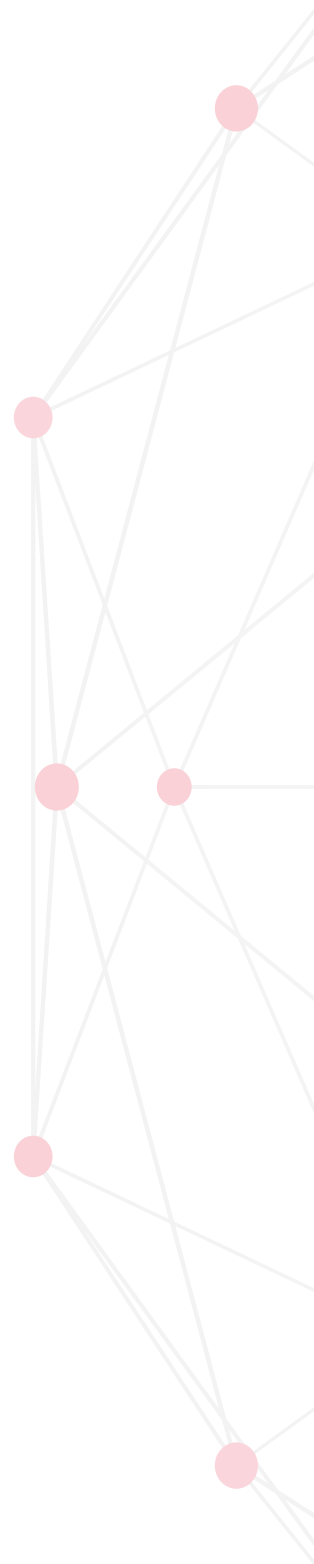
*“Health Informatics [and digital health] must be clearly positioned and articulated from the top-down as part of the solution to rising costs, expectations and demands”*



set priorities by themselves – senior executives and clinical staff need to be involved (HIMSS, 2012). Without board-level IT governance, leadership can miss prime opportunities for growth, while also being at risk of not recognizing potential problems inherent in technology-based businesses (Nash, 2015).

Full and informed conversations about IM/IT must be clearly positioned and articulated from the top-down as part of the solution of rising costs, expectations and demands. A board-level IT committee eliminates problems caused by insufficient oversight, incorrect policies and poor processes (McKinsey, 2013). Board-level IT committees assist with streamlining business processes and provide governance on data security, privacy and IT risk-management (McKinsey, 2013).

Poor IM/IT governance is a key factor in failing projects. Board members' lack of education and understanding about technology can cause a lack of engagement on IT-specific matters. Competing issues often take precedence over productive discussions about technology on the board agenda and there can be an inadequate flow of information to the board on technology matters (Peregrine, 2015).



## Rapid transformation is underway, inside and outside traditional health care settings.

The rapidly changing technology landscape has created a need for new roles, new skills and advanced training.

There are a large number of Canadian HCO employees with IM/IT responsibilities. Of those with IM/IT responsibilities:

- 80% are internally employed;
- 19% are employed both by an organization and on contract elsewhere; and
- only 1% are externally employed.

Do these employees have the appropriate skills and certifications to support their work and professional growth?

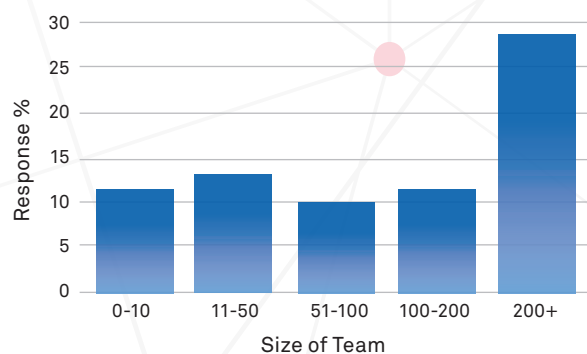
Many indicated that certifications were assets, not requirements, and depended heavily on the job role.

### Q: “Do you require your employees to have any IM/IT certifications?”

Percentage of employees with credentials

IM/IT Certification
20% CPHIMS-CA
28% MySQL
24% JavaScript
20% XML
46% HL7
42% ITIL
56% PMP
4% PRINCE2

### Q: “What is the size of your organization’s team with IM/IT responsibilities?”

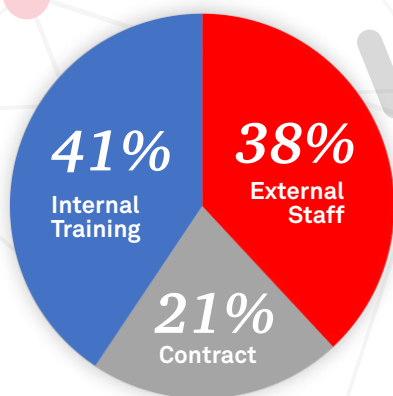


## Advanced training and ongoing skill upgrades are taking on greater importance for employed professionals.

**The rapidly evolving health informatics human resources landscape is creating a shift in the roles and skills needed for the future.**

There is a heavy focus on internal training for the necessary skills and competencies needed for digital health. According to *the 2014 - 2019 HI Health Information Management Human Resources Outlook* report, in Canada, there has been an increase in the number of specialized programs and IT spending as a share of hospital operating costs and a changing technology landscape requiring new roles and qualifications (HI HIM HR, 2014). The majority of professionals who will be using or supporting e-Health technologies over the next five years are already in the work force. Upgraded and advanced training of currently employed professionals is taking on greater importance. Areas facing high risk, meaning a shortage of applicants with the required skills, are senior IT management, application implementation and support, quality assurance and testing, change management and project management (HI HIM HR, 2014).

**Q: “How do you plan to attract the skills you need for the next generation?”**



## Increasingly, health care organizations are focused on care delivery beyond their walls to meet the growing demand for accessible, consumer-focused and connected care.

**Over half of respondents are focusing on regional partnerships within their HCOs.**

Digital health leaders shared that partnerships will help track the patient across the care continuum, contain costs through standardization and avoid duplication through connected care. This means:

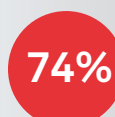
- roles are changing quickly;
- settings are more varied and challenging;
- collaborative platforms necessitate new skills; and
- change management is more challenging.

Patient populations are becoming more complex and transitions in care are often discontinuous, leading to increased potential for critical gaps in care and reduced patient safety.

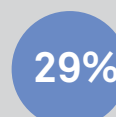
Effective care transitions are a major challenge for Canadian HCOs. Appropriate communication and documentation are critical to providing safe, quality care for patients. Health organizations are tackling the issues with education, standardized practices and tools to capture necessary information (Capital Health, 2016). Informed discharge, patient-centered communication, team communication, effective handovers and documentation are all factors in successful patient care transitions.

*Leaders tell us that partnerships will help manage and track the patient across the care continuum, contain costs through standardization and avoid duplication through connected care.*

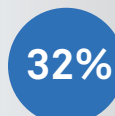
**Q: “What are the most important partnerships you are pursuing in the coming year?”**



**Regional**



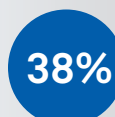
**Public-Private**



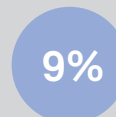
**Inter-Provincial**



**First Nations**



**Cross-sector**



**International**

(Respondents had the opportunity to select up to three responses.)

## KEY INSIGHT 3

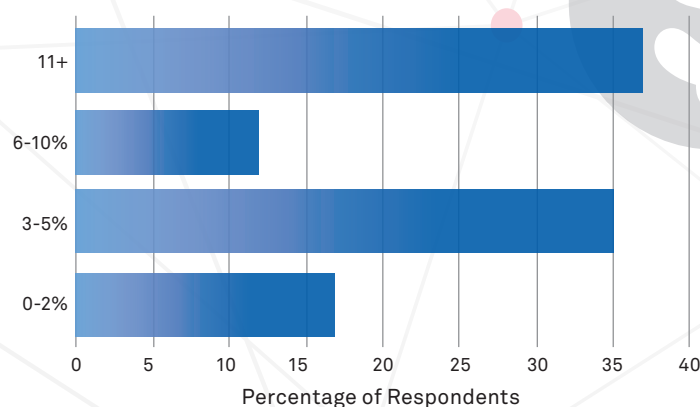
### Investment in IT is still primarily aligned with traditional needs.

#### Acute care hospitals spend the most overall capital on IM/IT.

Capital spending on IM/IT will track closely with overall capital spend by health care organizations in Canada. The majority of respondents indicate an annual overall capital spending of 11%+ and between 3 to 5% on IM/IT. This number aligns with general spending in health care IT, as indicated in Klein et al. report as 4.8% (2013). The majority of respondents in the 3-5% category represent a combination of e-Health agencies and government, while the majority of respondents in the 11%+ category represent acute care hospitals.

The importance of health care capital is underscored by a need to expand capacity to meet current and future population requirements, replace old physical plants and equip clinicians with the tools and technologies they need to provide high quality and efficient health care across the continuum, from prevention to palliative care (Klein et al., 2013).

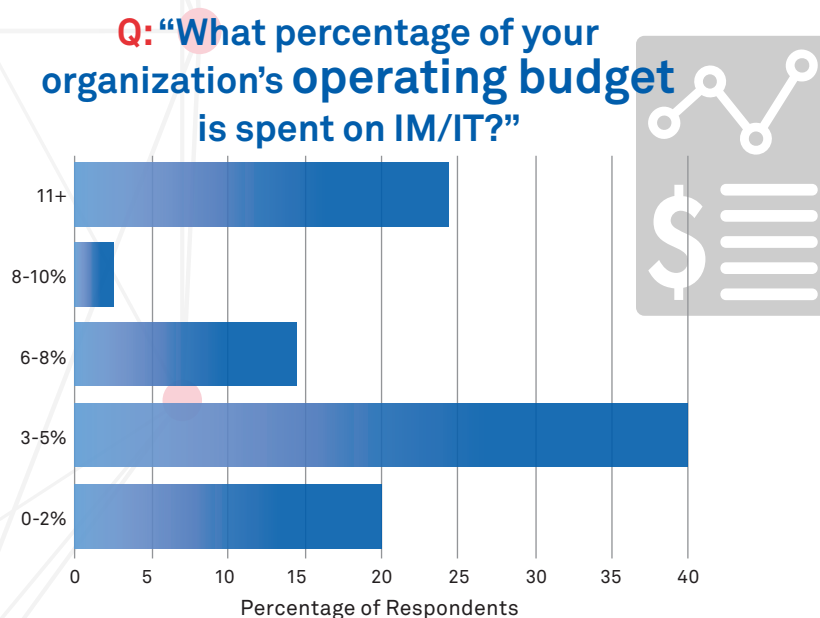
**Q: “What percentage of your organization’s overall capital is spent specifically on IM/IT?”**





Capital spending can have the potential to help control overall spending and improve the value of operating spending. In Canada, new capital investment in health care still comes predominantly from government grants that are linked to specific capital projects. Some institutions may allocate a portion of their operating margin to capital upgrades or new investments. Philanthropy also has an increasingly important role to play (Klein et al., 2013). During the restraint era of the early 1990s, capital spending experienced much deeper declines than overall health spending (operating spend) (Klein et al., 2013).

## 40% of respondents told us that their organizations invest 3-5% of the operating budget on IM/IT.



---

## Upgrading legacy HIS systems and leveraging data across boundaries requires investment.

Digital health solutions are paramount in HI and healthcare delivery.

Through the survey, digital health leaders shared their unfettered thoughts and feedback on IM/IT priorities, including::

- Achieving full utilization of existing systems in all clinical settings, upgrading of old systems and lax security systems to higher standards, interoperability and patient access to their own records;
- Leveraging existing assets rather than devoting investment to building new ones. Sticking to one provincial solution instead of many. Pulling the plug on initiatives run by consultants that compete with provincially-approved solutions; and
- Optimally leveraging provincial assets and integrating data.

### Q: “What percentage of your organization’s operating IM/IT budget is allocated to the following (areas)?”

average % allocated

**25%** Hardware



**38%** Software  
(Licenses & Maintenance)



**27%** New Systems



**12%** Internal Training



(numbers have been rounded)



## Leveraging investments and building innovation capacity planning is setting the stage for the future.

### The fiscal environment, chronic diseases and patient engagement drive organizational strategy

#### Fiscal Environment

Digital health leaders tell us they are constantly challenged by finding ways to contain costs and improve time to value of investments.

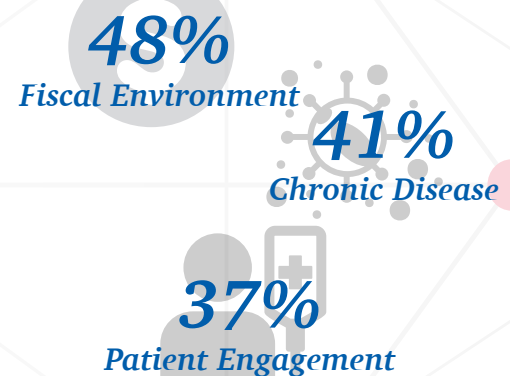
Health care spending varies across Canadian jurisdictions, with differences in the population of each province and territory and its health care needs, as well as the organization of health services, health personnel compensation and the sharing of costs between the public and private sector (CIHI, 2015).

Hospital administrators are tasked with the challenge of having to create a budget that provides support for hospital staff while also providing the level of care that patients need (Meditek, 2015). The budget also has to adhere to restrictions from the government and other sources of funding, changing technology and increasing health care costs, coupled with government budget restrictions (Meditek, 2015).

#### Chronic Diseases

In Canada, chronic diseases account for 67% of the total direct costs in health care (NurseOne, 2016). Respondents tell us the solution to managing chronic disease, which is magnified by Canada's aging population, includes remote patient monitoring, person-centered care and collaborative digital health platforms that promote communication, biofeedback, behavior change and ultimately optimal health. Chronic conditions require managing a patient through many different care settings for extended periods of time, rather than just through acute

**Q: "What are the larger HI themes within the health care industry that are of critical importance impacting and/or driving your organizational strategy?"**



*"Digital health leaders tell us they are constantly challenged by finding ways to contain costs and improve time to value of investments."*

---

care interventions. Canada's aging population and health status drive an increased incidence of chronic diseases. Canada's health spending is the highest on seniors, accounting for 45.4% of public sector health dollars. Overall, population aging is a modest driver of increasing health care costs, estimated at 0.9% per year (CIHI, 2015).

### **Patient Engagement**

Respondents understand that including patients as a member of the continuum of care team is essential and providing tools to support patients and their families can improve the quality of experience. Promoting health and health care literacy and scaling up of best practices in the use of patient-facing tools can ensure that patients can more effectively participate in their own health management. This can further facilitate mobile and digital health solutions that enable virtual care and empower patients – transition in structure and roles is warranted (Government of Canada, 2014). There is a large gap between models of payment and accountability organized around patients' needs, rather than existing revenue streams of providers and institutions.

Additional themes identified by survey respondents include Canada's aging population (18%), privacy and security (27%) and data analytics (31%).

It is surprising that privacy and security is not a higher priority given the rising case of ransomware attacks in North America and the potential negative effect they can have on health care delivery. Also, all privacy and security implications will have an impact on hospital spending and be a potential factor in fiscal constraints (Gallagher, 2016).

*“Respondents tell us that including patients as a member of the continuum of care team is essential. Providing tools to support patients and their families will improve the quality of experience.”*

## Canadian health care organizations are slowly moving up the Electronic Medical Record Adoption Model (EMRAM) Scale.

**Organizations are leveraging digital health investments to reduce costs, improve outcomes and achieve connected care across Canada.**

As a whole, Canada is moving up the EMRAM Scale. 31.2% of Canadian health care organizations have reached Stage 3, equipped with nursing/clinical documentation (flow sheets), clinical decision support system (CDSS) and picture archiving and communication system (PACS) available outside radiology (HIMSS, 2014). Moving up the EMRAM scale leads to achieving connected, coordinated care.

Canada has six hospital organizations that have reached Stage 6 and one that has achieved Stage 7 (HIMSS, 2014). Stage 6 is characterized by physician documentation (structured templates), full CDSS (variance & compliance) and full R-PACS and Stage 7 is the final stage, where paper charts are no longer used (HIMSS, 2014).

PROVINCE	STAGE 6	STAGE 7
British Columbia	South Okanagan General Hospital - Interior Health	
Ontario	Centre for Addiction & Mental Health	
Ontario	Markham Stouffville Hospital	
Ontario	North York General Hospital	
Ontario	St. Michael's Hospital	
Ontario	Ontario Shores Centre for Mental Health Sciences	
Ontario	Toronto East General Hospital	

When asked, what is the single most important aspect digital health leaders should be focused on in the next three years, survey participants indicate that the government should support small rural hospitals to move up the EMRAM scale. These HCOs are often unable to fund analytics or business intelligence services that assist with data analytics and ultimately achieving an electronic, paperless system.

**Q: "What key investment have you made over the past three years that you are now most focused on leveraging?"**

**21%**  
ELECTRONIC  
HEALTH RECORD



**15%**  
ELECTRONIC  
MEDICAL RECORD



**17%**  
TELEHEALTH  
SOLUTIONS



**21%**  
ANALYTICS



**21%**  
HEALTH  
INFORMATION  
SYSTEMS



\*\*It is important to note that some organizations consider electronic health records (EHR) and HIS to be an EMR. Although the percentage is not high, participants indicate that 21% are focused on leveraging their EHR and 15% are focused on leveraging their EMR.



17% of leaders invested in telehealth options such as virtual visits with patients in rural or remote locations, automated medication reminders and at-home patient monitoring.

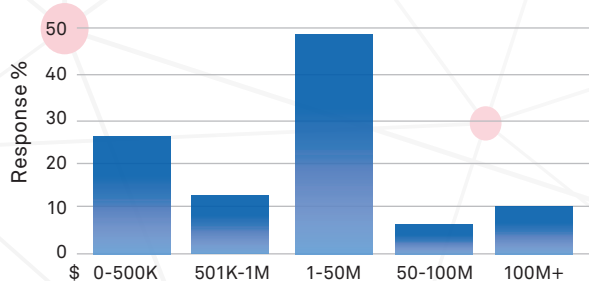
Another 17% of digital health leaders are looking to put their analytics investments to good use, including gaining additional benefits from increased use of decision support and enhanced disease surveillance.

## Organizations are budgeting for new strategic initiatives.

**The majority of respondents indicated that their budget for strategic initiatives over the next 12 months is in the range of \$1M - \$50M.**

HCOs across Canada have a range of budget capacity for strategic investments in new IM/IT initiatives, with the majority (48%) having between \$1-\$50 million budgeted for the coming year. New IM/IT initiatives wish list includes: senior health strategy (84%); improved mental health services (83%); more affordable prescription drugs (80%); palliative care (80%); and home care (79%).

### Q: “What is your organization's budget for new strategic initiatives over the next 12 months?”



## Digital Health in Canada is evolving!

Health care organizations are increasingly utilizing emerging technology within day-to-day operations. Respondents listed the most-used emerging technologies as follows:

- **Data analytics** is uncovering additional value in the faster, more accurate detection of disease and the improved management of population health.
- **Cloud computing** is improving the cost and quality of hosting IT systems on a local, regional and jurisdictional basis.
- **The Internet of Things** is facilitating the use of electronic devices that capture or monitor data and, through connections to private or public clouds, is enabling the automation of important clinical trigger events.
- **Home health monitoring** is enabling patients with tools to manage their chronic diseases virtually, from their home. It is increasing accessibility, reducing hospitalizations, increasing patient satisfaction, enhancing collaboration and reducing costs.
- Through smart phones and other mobile devices, **Consumer digital health** technologies are enabling individuals to improve their health through health education, wellness and disease management.

**Q: “Are you using emerging technology for your day-to-day operations?”**



**74%**

DATA  
ANALYTICS



**46%**

CLOUD  
COMPUTING



**26%**

INTERNET  
OF THINGS



**24%**

HOME HEALTH  
MONITORING



**18%**

CONSUMER  
DIGITAL HEALTH

### Examples of emerging technology across Canadian jurisdictions:

- **Island Health** is using home health monitoring services for people living with heart failure, helping them to manage their condition in the home. Results and responses are automatically sent to the home health monitoring nurse.
- **Mackenzie Health** is utilizing emerging technologies such as real-time hand hygiene monitoring, smart nurse call, mobile clinical devices and unified communications between health care providers and patients.
- **Nova Scotia Department of Health and Wellness** has implemented RelayHealth personal health record solution with functions, eBooking, eMessaging, eResults, and health information repository.
- **The Hospital for Sick Children (SickKids) and University Health Network's (UHN) Princess Margaret Cancer Centre** have partnered to build a pilot IT infrastructure that will provide researchers and clinicians with secure cloud-computing services, that will also satisfy personal health information privacy requirements. The pilot project is called High Performance Computing for Health Sciences, also known as HPC4Health.



# Closing Comments

When asked, what is the single most important aspect within the HI and digital health community in Canada that leaders should be focused on in the next three years, survey participants offered the following comments.

- “Clinical leadership is essential. I would like to see more opportunities for sharing and collaboration.”
- “Governance - Linking, and clearly aligning, HI strategy and investments with the strategy, clinical, and business requirements of the health care system or regional jurisdiction.”
- “Managing the technology evolution between IT and operations.”
- “Talent development, adoption and change management.”
- “Utilizing mobile and telehealth technologies to shift from face-to-face care to virtual care.”
- “Virtualization of health care and integration of documentation across sectors.”
- “High quality data capture.”
- “Ensuring HI investments are appropriate and provide the required value is the only way to ensure it becomes an enduring strategic asset.”
- “Continue to advance digital health to further activate and engage patients in their care and improve population health management.”
- “Enablement of health care system transformation”

The future state of digital health in Canada requires a series of fundamental shifts at the strategic and operational level. According to the responses from digital health leaders, the shift is underway. The next report on Future Trends will explore what Canadians are doing to plan and put resources in place to capture digital health opportunities over the next three years.

**Thoughts? COACH wants to hear them. Tweet @COACH\_HI or email [info@coachorg.com](mailto:info@coachorg.com).**

## References

- Willmott, Paul. "The Do-or-Die Questions Boards Should Ask about Technology." McKinsey & Company. June 2013. Accessed October 05, 2016. <http://www.mckinsey.com/business-functions/business-technology/our-insights/the-do-or-die-questions-boards-should-ask-about-technology>.
- Kim S. Nash, March 2015, Morgan Stanley Board Pushes Emerging Area of Tec Governance <http://blogs.wsj.com/cio/2015/03/26/morgan-stanley-board-pushes-emerging-area-of-tech-governance/>
- Canada Health Infoway, COACH: Canada's Health Informatics Association, Information and Communications Technology Council, Canadian Health Information Management Association, and ITAC Health. "Health Informatics & Health Information Management Human Resources - Outlook 2014 - 2019 -." Health Informatics & Health Information Management Human Resources - Outlook 2014 -. June 2014. Accessed July 2016. <http://coachorgnew.com/practices/2014-hr-report>.
- Klein, David J., Adalsteinn D. Brown, Tai M. Huynh, Gwyn Beva, Frank Market, Steven D. Ottaway, George Pink, and Myles Zyblock. "Capital Spending in Healthcare: A Missed Opportunity for Improvement?" June 2013. Accessed October 5, 2016. <http://www.cfhi-fcass.ca/Libraries/Reports/Capital-Spending-Brown-E.sflb.ashx>
- Monegain, Bernie. "CIO: No Longer Just 'the IT Guy'" Healthcare IT News. April 14, 2014. Accessed October 05, 2016. <http://www.healthcareitnews.com/news/cio-no-longer-just-'it-guy'>
- Peregrine, Michael W. "The Board "Technology Committee": Is it The Right Time?" NYSE Governance Services: Hot Topics in Technology. May 2015. Accessed August 05, 2016. <https://www.nyse.com/corporate-services/nysegs/hot-topics/technology/right-time-for-board-technology-committee>
- Wong, Christine. "The Unhealthy State of CIO Influence in Canadian Health Care." IT World Canada. June 30, 2015. Accessed July 05, 2016. <http://www.itworldcanada.com/article/the-unhealthy-state-of-cio-influence-in-canadian-health-care/375654>.
- CHIO, White Paper. "From the Playing Field to the Pressbox: The Strategic Role of the Chief Health Information Officer (CHIO)" Maestro Strategies. September 29, 2016. Accessed August 05, 2016. <http://maestrostrategies.com/from-the-playing-field-to-the-pressbox-the-strategic-role-of-the-chief-health-information-officer/>.
- Cloyd, Mary Ann. "Directors and Information Technology Oversight." The Harvard Law School Forum on Corporate Governance and Financial Regulation Comments. February 2013. Accessed October 05, 2016. <https://corpgov.law.harvard.edu/2013/02/14/directors-and-information-technology-oversight>
- Capital Health. "Improving Quality of Care in Transitions." 2016. Accessed October 05, 2016. <http://www.cdha.nshealth.ca/education-learning/medical-education/improving-quality-care-transitions>.
- Meditek. "Budget Considerations for Canadian Healthcare Facilities" Meditek. July 14, 2016. Accessed August 05, 2016. <http://www.meditek.ca/budgeting-for-healthcare-facilities/>.
- "Stage 7 EMRAM Provider List." HIMSS Analytics. 2016. Accessed July 05, 2016. <http://www.himssanalytics.org/stage7>.
- Gallagher, Sean. "Two More Healthcare Networks Caught up in Outbreak of Hospital Ransomware." Ars Technica. March 29, 2016. Accessed October 05, 2016. <http://arstechnica.com/security/2016/03/two-more-healthcare-networks-caught-up-in-outbreak-of-hospital-ransomware/>.
- Chouffani, Reda. "Can We Expect the Internet of Things in Healthcare?" IoT Agenda. 2016. Accessed September 05, 2016. <http://internetofthingsagenda.techtarget.com/feature/Can-we-expect-the-Internet-of-Things-in-healthcare>.
- Telus Health. "Home Health Monitoring (HHM) - TELUS Health." TELUS Health. 2016. Accessed September 05, 2016. <https://www.telushealth.co/health-solutions/patient-and-consumer-health-platforms/products/home-health-monitoring/>.
- MaRs. "Consumer Digital Health" March 2014. Accessed October 05, 2016. <https://www.marsdd.com/mars-library/consumer-digital-health/>.
- Canada Health Infoway. "EHR: Advancing Canada's next Generation of Healthcare." Accessed August 05, 2016. <https://www.infoway-inforoute.ca/en/component/edocman/16-2015-canada-s-next-generation-of-health-care-full/view-document>.
- Government of Canada. "Unleashing Innovation: Excellent Healthcare for Canada - Executive Summary." Government of Canada, Health Canada and the Public Health Agency of Canada. July 21, 2015. Accessed July 05, 2016. <http://www.healthycanadians.gc.ca/publications/health-system-systeme-sante/summary-innovation-sommaire/index-eng.php>.
- "National Health Expenditures: Where Are Canada's Health Care Dollars Going?" 2015. Accessed August 05, 2016. <https://www.cihi.ca/en/spending-and-health-workforce/spending/national-health-expenditure-trends/nhex2015-topic4 - CIHI 2015>.



## About COACH

COACH: CANADA'S HEALTH INFORMATICS ASSOCIATION is the voice of health informatics (HI) in Canada, promoting the adoption, practice and professionalism of HI. COACH represents a diverse community of accomplished, influential professionals who work passionately to make a difference in advancing healthcare through information technology. HI is the intersection of clinical, IM/IT and management practices. Members are dedicated to realizing their full potential as professionals and advancing HI through access to information, talent, credentials, recognition, programs and a broad range of services and specialized resources.

For more information, visit [coachorg.com](http://coachorg.com)

ASSOCIATION CANADIENNE  
D'INFORMATIQUE DE LA SANTÉ



Mailing Address:  
11th Floor, 151 Yonge Street  
Toronto, ON  
M5C 2W7

Phone 647.775.8555  
Email [info@coachorg.com](mailto:info@coachorg.com)  
Website [coachorg.com](http://coachorg.com)

© COACH: Canada's Health Informatics Association

