PX SOLUTIONS

Shifting Landscapes
A Guide to Healthcare Transformation

CISCO
Partner

Chapter One

Understanding Trends in Canadian Healthcare

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> *Avery is a triage nurse interviewing a patient, Hayden, who came to the emergency department late on a Friday evening with post-surgical complications. Hayden's concern is understandable, but Avery knows that it will be several hours before Hayden is seen because other patients in the waiting area have more acute symptoms. To provide the best possible care, Avery needs easy access to Hayden's surgical records and must decide what advice to give. However, that information is stored in a different database that's not accessible from the triage desk. Meanwhile, an ambulance has just arrived from the scene of a motor vehicle accident, and Avery hasn't had a break since she started her shift six hours ago.*
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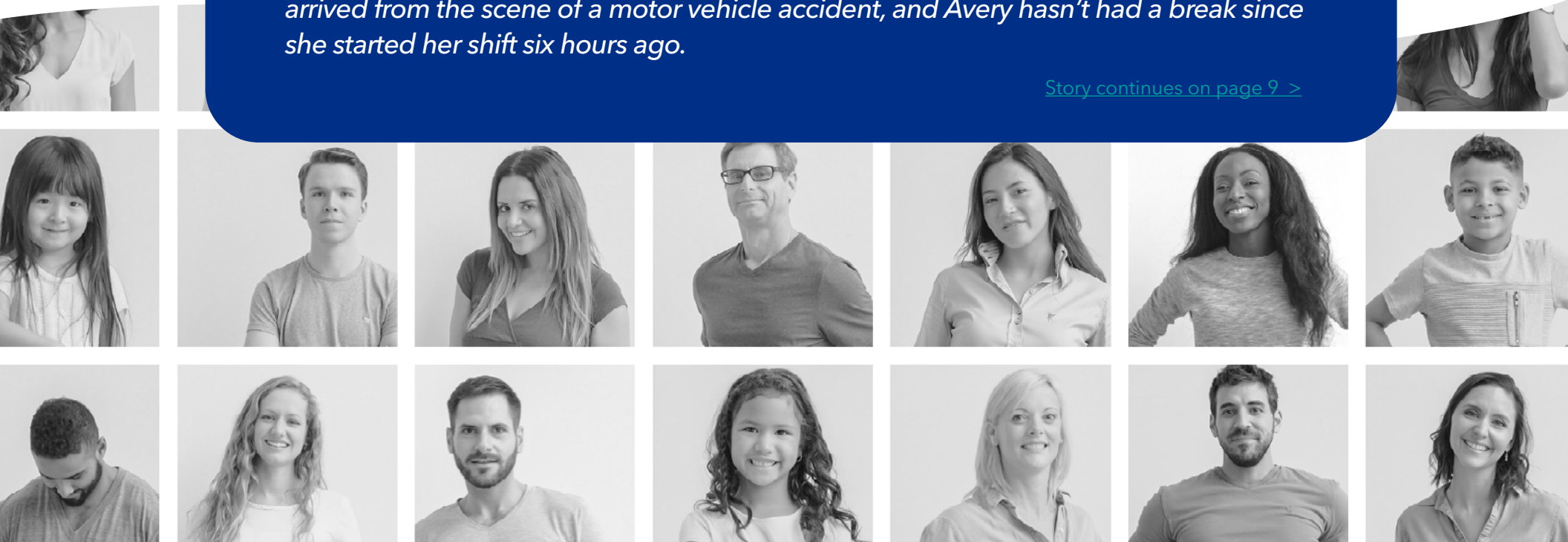
Digital transformation isn't an easy journey, but it's a critical one. In recent years, advisory panels and audit reports from across Canada have documented a system under stress. No one knows that better than the healthcare professionals who work on the front lines every day. Healthcare organizations aggressively brought the issue into the spotlight in the early 2000s and developed benchmarks to track Canada's performance. Despite government efforts to address the problem, the metrics aren't improving and the situation is growing even more complicated.

In Ontario, the First Interim Report from the Premier's Council on Improving Healthcare and Ending Hallway Medicine described how patients are struggling to get the care they need, when they need it. Among its findings, the council noted that patients and their families are having trouble navigating the system and that patients are waiting too long for care. In turn, that means clinicians are not spending their time with the patients they can serve best.[1]

As the average age of Canadians continues to rise, our collective heath needs will only become greater.

Part of the challenge is that Canadians' health needs are changing, but the system has not. The core elements of our healthcare system, which date back to the 1960s, were designed to treat acute disease and injuries. However, the health needs of our population today are more diverse and are increasingly tied to chronic conditions.[2] As the average age of Canadians continues to rise, our collective heath needs will only become greater.

In turn, this means that healthcare budgets are under stress. According to the Canadian Institute of Health Information (CIHI), total health spending was forecast to reach $6,839 per Canadian in 2018, over $200 more per person than in 2017 ($6,630).[3] This trend will continue upward as we care for an aging population with complex needs.

The current trajectory is unsustainable, financially and for the health of all Canadians. However, there are technology solutions that can help transform the system, and Canadians are eager to embrace them. An Ipsos survey conducted in 2018 for the Canadian Medical Association explored Canadians' attitudes about the use of technology and artificial intelligence. The results showed tremendous interest and willingness to embrace everything from virtual care to wearable devices to improve their healthcare experience.[4]

The survey also found that Canadians support integrating more technology into their personal health care. Seven in ten agreed that incorporating more technology into their personal care will help them prevent some illnesses by identifying and treating them early (70 per cent). Finally, when asked if they would choose virtual health visits if that option was available, seven in ten said they would take advantage of this option (69 per cent).

Digital transformation is a team sport, and you need all players to support you along the way. The digital transformation journey for your organization starts by looking how your team interacts with the patients they serve and how technology can help. The evidence shows that help is needed now more than ever.
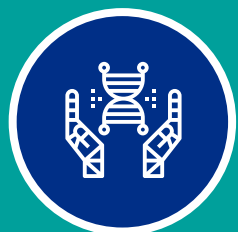
Canadians believe technology (75 percent) and artificial intelligence (69 percent) could help solve issues affecting our health care system such as access to care, dealing with chronic diseases and helping seniors stay at home longer.

Ipsos Survey for the Canadian Medical Association[5]

> *Avery needed to have the right information at her fingertips to do her job more effectively. She also needs more support on the front line. Digital tools that connect her to colleagues, improve scheduling, and provide real-time information about the ED environment would give her more time to spend directly with patients. Avery is also an incredible source of information to inform your data transformation journey. How else would data silos affect one's ability to work efficiently?*

Chapter Two
Improving Personalized Healthcare

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Hayden knows that the emergency room might not be the right place to get help for her problem, but without access to other timely options, she has nowhere else to go. Her biggest wish is to speak with someone on her surgical team, but her immediate post-op care has finished and the problem is too serious to wait until her physician's office opens after the weekend. She wants to tell Avery this, but Avery had to go to another workstation to access the information she needs about Hayden's recent surgical procedure.
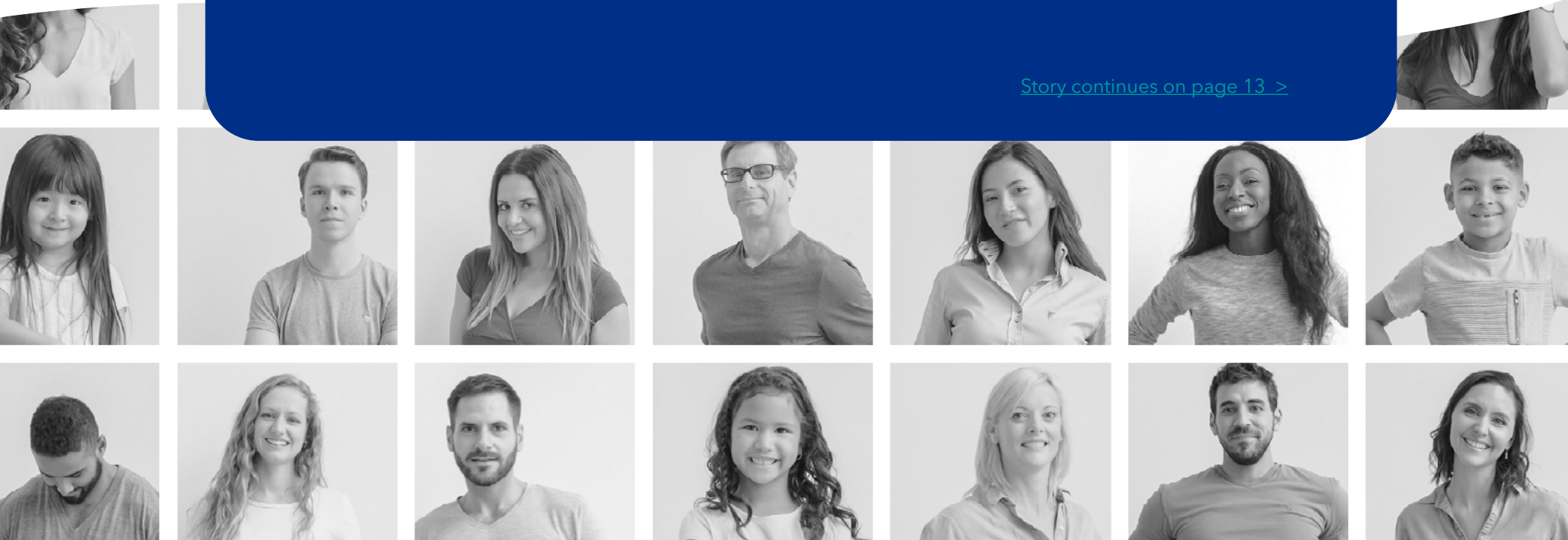
The amount of data involved in a healthcare setting can be overwhelming. From the moment a patient walks in the door, there are forms to complete, files to retrieve, and notes to record. As governments aim to control spending, healthcare providers have additional reporting responsibilities, leaving frontline medical staff feeling like they spend more time doing paperwork than caring for patients.

At its core, the healthcare system is about people. Those seeking care want to be heard and to be treated with dignity. Those delivering care want to provide the highest quality of service to meet patient needs, and they want to be supported while they do it. Using technology to personalize healthcare can help patients and clinicians. That's a tall order, but the groundwork is already being laid.

Data analytics is the top-funded digital health category worldwide, at USD$2.1 billion; mobile health apps and telemedicine are second and third at $1.3 and $1.1 billion. Clinical decision support comes fifth at $714 million. That means we have more access than ever to information that can be used to help improve healthcare performance and patient experiences. On the front line, a survey by the Canadian Medical Association found that 82 per cent of physicians enter or retrieve clinical patient notes electronically. [8]

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While the journey has started, there's still a lot more work to do. A report by Alberta's Office of the Auditor General identified challenges with information-sharing and integration among healthcare providers. The report noted that sharing information with relevant staff and patients is necessary for everyone to play an effective role in care and that having full and rapid access to information helps healthcare providers make better treatment decisions.[9]

Using technology to improve the patient experience from the first interaction they have, clinicians can start improving health outcomes now. Imagine having an integrated system to onboard new patients, with modern tools that fully leverage technology and allow healthcare professionals to focus on delivering quality care.

The odds are high that your patients are ready to take the digital leap with you, having long embraced wearable technology like fitness and sleep trackers that provide insights into their own well-being. Innovators within Canada and around the world are already showing us how.

As described in the Report of the Advisory Panel on Healthcare Innovation, digital health technology can support many functions in the healthcare system. Administrative tools can simplify patient interactions with the system, such as scheduling appointments and managing prescriptions. Information management and communication tools can empower patients to be more active partners in their care by improving access through patient portals or personal health records.[10]

Virtual care can also support healthcare delivery outside of the clinic or physician's office, including remote patient monitoring and follow-up care. The advisory panel report cited a number of healthcare systems that have successfully adopted such tools. For example, since 2003, patients in Denmark have had access to their own health information through an online portal where they have a personal page with their own health information, as well as tools to communicate with health professionals and renew prescriptions.[11]

Research by Ernst & Young reported that tools like these can increase patient satisfaction and autonomy, as well as reduce emergency room visits, hospital admissions, and bed stays.[12] Research has also found that e-scheduling can reduce appointment no-show rates and time spent booking appointments.[13]

In Ontario, the Premier's Council also found that when Ontarians are able to get the services they need, their satisfaction levels are high.[14] That tells us that we have plenty of strengths to build on, but the system needs better support.

Now is the time to leverage technology to improve the way healthcare is delivered to Canadians, for the benefit of patients and for the professionals who treat them.
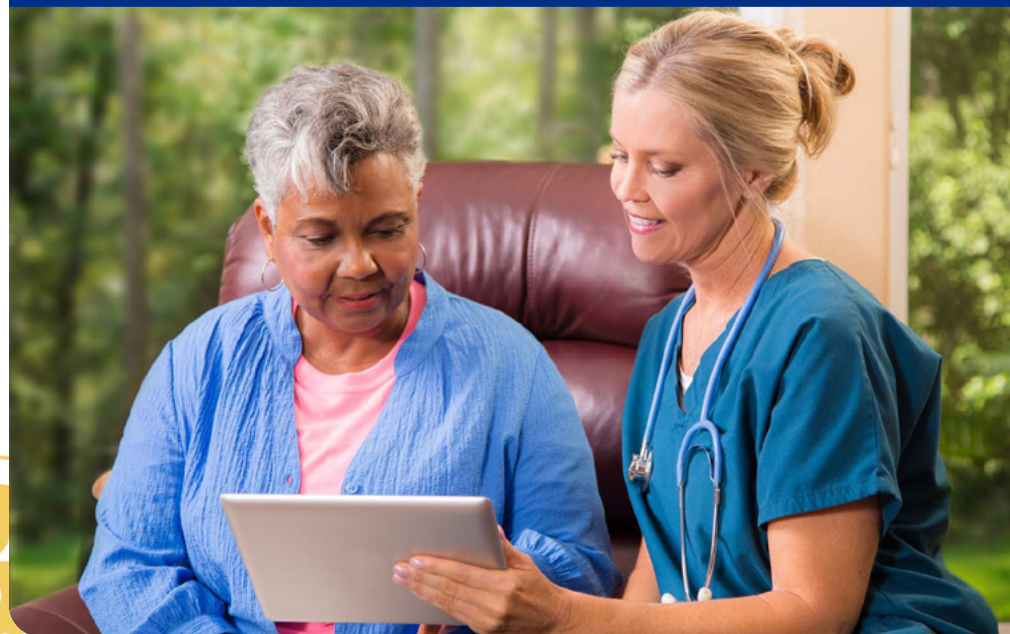
> *Imagine if Hayden had access to more detailed after-care information before she was released from the hospital. Armed with more information about what to expect, she would have been better equipped to make informed decisions about her care. Further still, imagine if Hayden could have communicated by email with a member of her follow-up team and share a photo. A quick consultation could have saved Hayden a trip to the emergency room, allowing Avery to focus on other patients.*

"It has been said by many that the patient is the most underutilized resource in medicine."

Canadian Medical Association: The Future of Technology in Health and Healthcare.[15]

Chapter Three
Protecting Patient Data

> *After spending several hours in the ED on Friday night, Hayden is able to make an appointment later the following week with her primary care physician to have her sutures checked again. Hayden had several tests during her ED visit, which were meant to be transmitted securely to Dana's office. A top concern for all industries, including healthcare, is the security of personal information or medical records. Like other patients, Hayden is mindful about the security and management her medical information. She recently read about the spike in cyberattacks across Canada, including a malware attack that affected healthcare facilities around the world. She wants to know what measures the clinic is taking to keep her health information safe.*
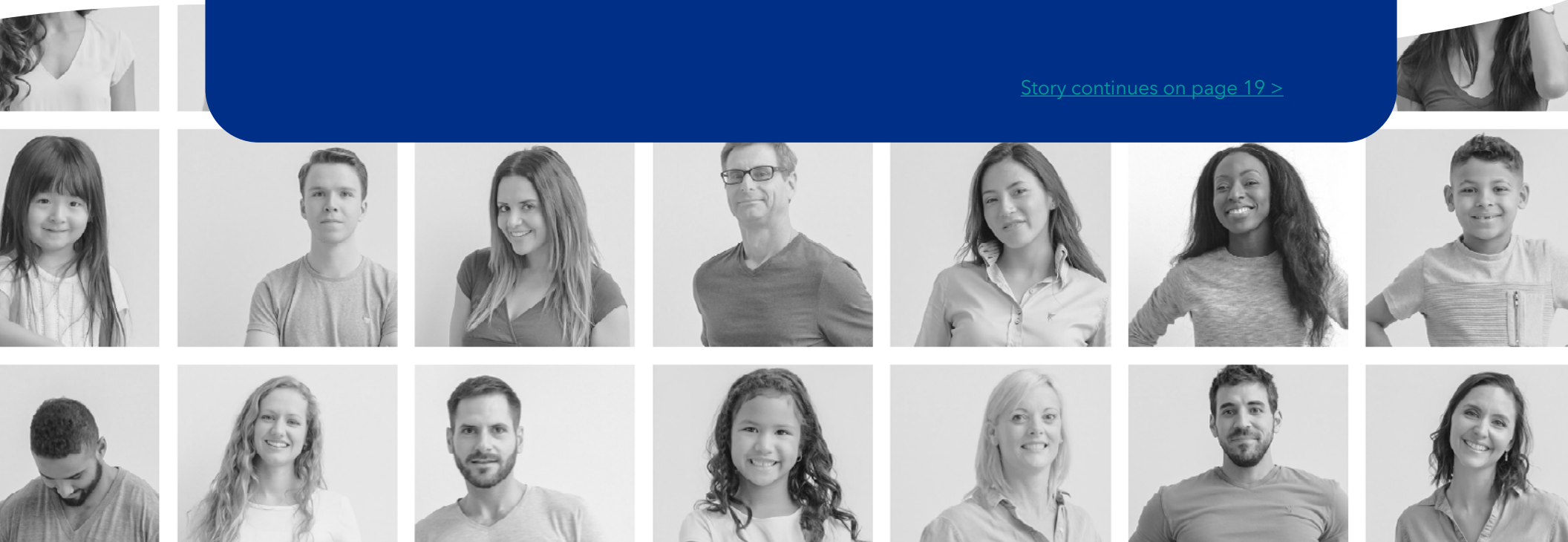
Hayden also has other questions about her underlying condition, but she's having trouble putting them into words. She tried to do some research while she sat in the waiting room, but she didn't find anything that matched her circumstances.

Healthcare organizations have complex data management needs. Personal health data needs to be readily accessible by the right providers at the right time, and it also needs to be protected by strong privacy and security measures. Healthcare data is incredibly valuable, not just to clinicians and patients. It is also vulnerable to cyber-attacks because of the inherently personal nature of the information. A security breach in the healthcare field can have grave implications, including identity theft and fraud, and it can jeopardize the safe operation of critical medical infrastructure. Recent research shows that the volume of malware attacks is increasing around the world, with Canada seeing the second biggest increase in attacks, next to the United States.[16]

In 2017, organizations and people around the world—including several healthcare facilities—were targeted by WannaCry, a piece of malware that infects a computer and encrypts files until the target pays a ransom using cryptocurrency. In England, thousands of patients had appointments cancelled because of problems caused by the malware.

...After the WannaCry ransomware attacks, more than eight in ten health leaders and Canadians said that Canada's health sector is vulnerable to cyberattacks.[17]

HealthCareCan Report on Cybersafe Healthcare

These numbers are a stark reminder that IT infrastructure is vulnerable, and it highlighted the importance of making data protection and cyber security a top priority—a multi-industry priority.

Healthcare providers in Canada must follow strict rules for protecting patient data and responding to data breaches, including the Personal Information Protection and Electronic Documents Act (PIPEDA), the federal privacy law that govern the collection, use, and disclosure of personal information. Additional provincial regulations vary across the country. Two provinces, British Columbia and Nova Scotia, specifically prohibit storing patient data outside of Canada. Others, such as Ontario, have less prescriptive outcome-based requirements that can also be challenging to interpret.

Concerns about how to protect patient data have made some organizations reluctant to embrace new tools. However, the data itself isn't the problem. **The challenge for most healthcare organizations is that their IT systems are outdated and haven't kept pace with modern security protocols.** Legacy systems continue to store data in silos, creating barriers to access by those who need it. In many cases, those legacy systems are less secure that new solutions that could replace them, but the complexity of change can overwhelm an organization under pressure.
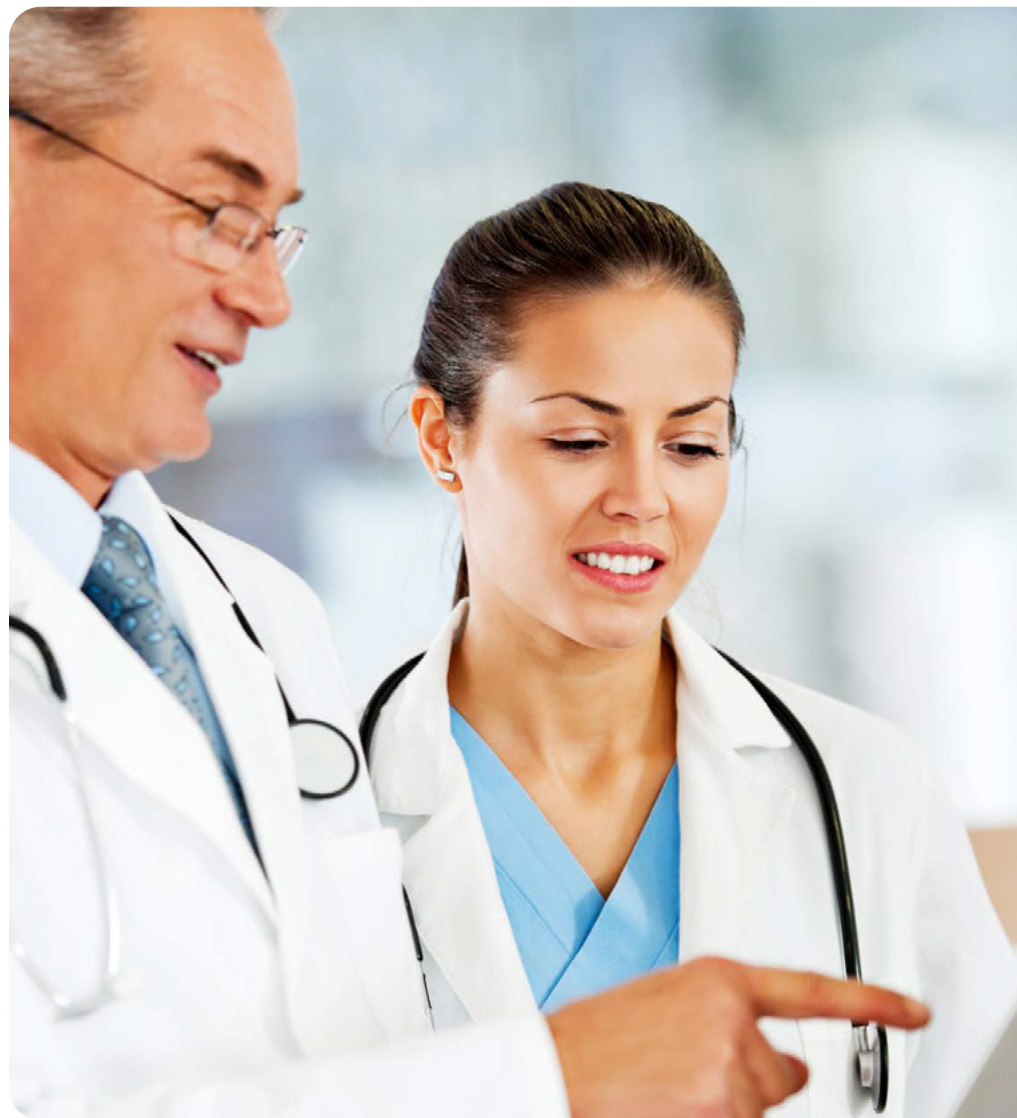
When healthcare organizations embrace digital transformation, they need reliable systems that ensure constant access to critical information no matter what happens. That's why security must be at the centre of every healthcare IT decision. There is good news. Today, hybrid and multi-cloud technologies allow organizations to store their data securely with the flexibility to move data and workflows seamlessly between them. A well-implemented digital transformation strategy supported by staff engagement and training can improve your security posture and streamline operations.

While Dana is not an expert in IT security, she knows that her office complies with strict government rules about data encryption and that her team is implementing a comprehensive digital transformation strategy that is focusedon security. She reassures Hayden that the office has strong procedures in place to guard against data breaches, as well as clear protocols to inform the appropriate people if anything does occur.

Security must be at the centre of every healthcare IT decision.

Dana also gives Hayden a leaflet with some additional information and writes down a few websites for Hayden to consult. She wishes there was a better method to provide patients with high quality reference material about their conditions. Finally, Hayden asks if she should schedule a follow-up appointment. Dana tells her it depends on how things progress. Dana wishes she could do a remote follow-up, since an in-person examination is likely unnecessary.

Optimizing Operations

> *Kathleen is a hospital administrator and physician with a big-picture view of what's happening throughout the facility she oversees. Kathleen and her team are committed to continuous improvement and they crave information on where you can operate more efficiently. Among other things, they measure patient outcomes and track employee satisfaction. In a recent staff meeting, Avery described her last shift in the emergency room, where she had to decide what advice to give Hayden. Ultimately, Avery provided her best estimate of the wait time and placed Hayden in the queue. The risks associated with a post-surgery infection were too high, given that there was nowhere else that Hayden would be seen before the following Monday at best. Avery's story made Kathleen want to explore how technology could better support her team.*
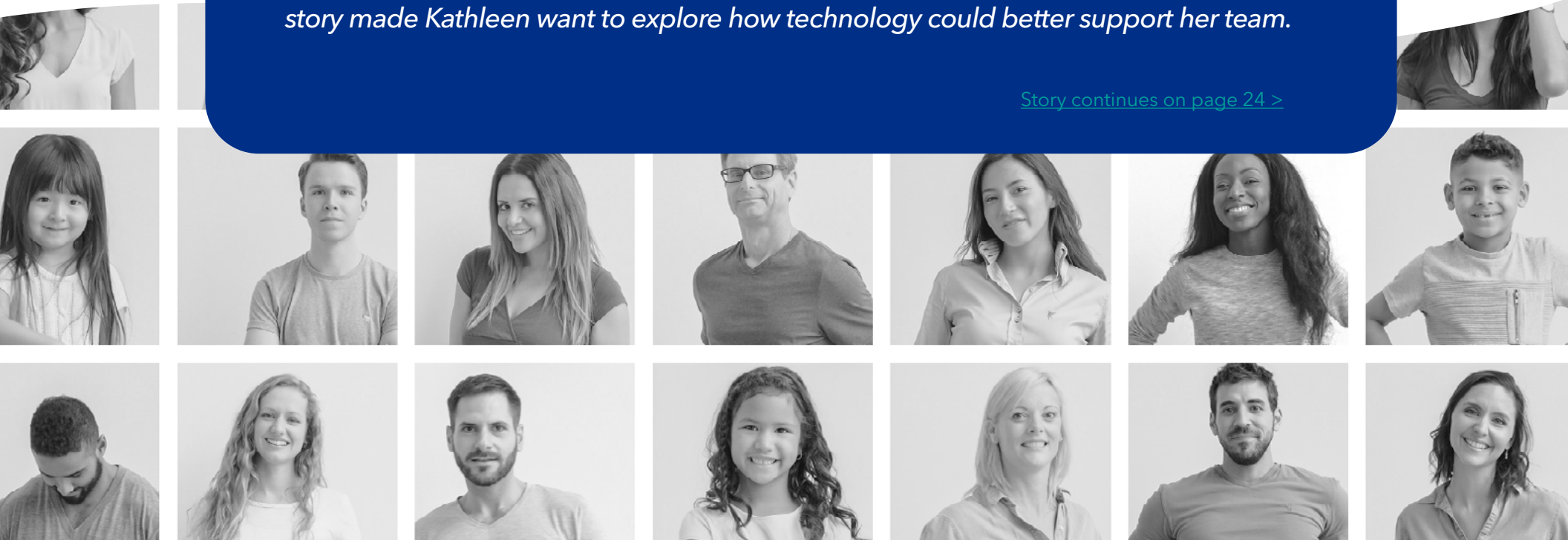
Healthcare IT is about more than just the technology itself. It's about how technology connects people with the information they need to help the entire system function at its best, and providing feedback that supports continuous improvement.

Beyond fitness trackers, the Internet of Things (IoT) has connected humans with technology on an unprecedented level. From smart meters and thermostats to automotive sensors and parcel trackers, our lives have never been more digital. Across sectors, organizations are using IoT innovations to support everything from energy consumption and climate control to security surveillance and equipment performance. Healthcare organizations can leverage these same tools.

IoT already offers solutions to optimize physical infrastructure perations. The Internet of Medical Things (IoMT) can bring the same innovations to the way information is collected, stored, and retrieved from the interconnected network of communication systems, medical devices, and patient databases in the healthcare setting. In-room sensors can monitor movements and feed that information into patient information systems, along with data from monitoring and dispensing equipment.

Beyond fitness trackers, the Internet of Things (IoT) has connected humans with technology on an nprecedented level.

With the right digital tools, you can measure and improve performance by collecting data against the indicators that matter to your organization. Dashboards can generate reports that help you demonstrate compliance with regulatory requirements or service standards. By tracking the right data, you can better understand where your system is performing well and where improvements are needed.

In a hospital or clinic setting, an incredible amount of technology is already being used to monitor patients and provide a safe, comfortable environment. High-performing organizations minimize the amount of time they spend collecting the data and more time leveraging the lessons we can learn by examining the data. Sophisticated, integrated tools make that easier than ever before, which allows your leadership team—from IT managers to clinicians to your boards of directors—to focus on the strategic thinking that contributes to a well-functioning healthcare system.

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> *Kathleen wants to provide her senior leadership team and Board of Directors with a comprehensive look at how their organization is performing. She has access to some of the information using the hospital's existing information systems, but the data is not integrated and it's difficult to analyze. However, results from staff engagement activities and patient survey provide a qualitative look at what is working well and where employees and patients see opportunities for improvement. From that launch pad, Kathleen recommends to the Board that the hospital explore specific digital health solutions that will better connect clinicians and patients, letting technology do the heavy lifting on the data.*
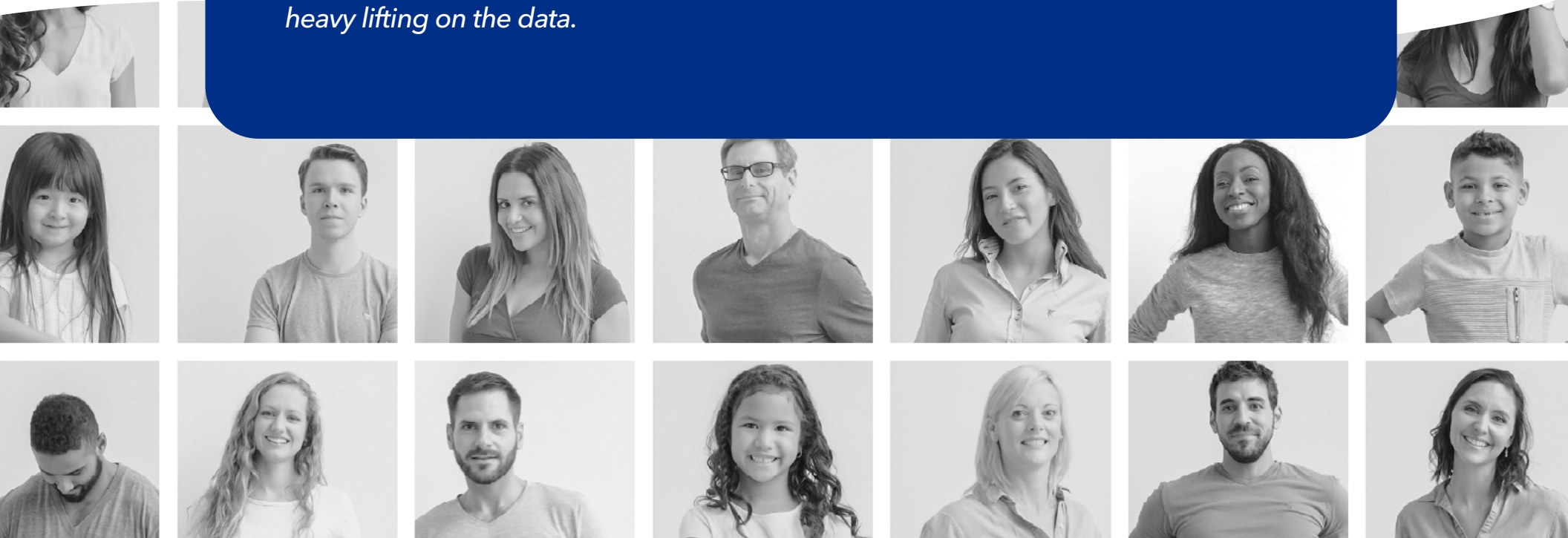
Conclusion

There is a lot to admire about Canada's healthcare system, but improvements are urgently needed for the system to provide the high quality of care that clinicians want to provide and that Canadians deserve to receive. Investments in technology today can save millions of dollars and transform the way healthcare is delivered. With modern applications and solutions, it can be done securely and effectively.

There are pockets of innovation in healthcare IT throughout Canada and around the world. PX Solutions wants to make those innovations the norm, not the exception. Visit www.PXSolutions.ca to learn more about how our suite of healthcare products can improve performance and patient experience in your organization and to connect with PXS Healthcare experts to discuss your needs.

Let's Connect
info@pxsolutions.ca

Connect Now

PX Solutions is Dedicated to Canadian Healthcare

Our Team
We specialize in cultural and clinical process transformations in healthcare with innovative health technology and healthcare IT solutions that improve workflows, access to care and quality of service.

Our Vision
To bring about a future in which healthcare stakeholders across the continuum of care can respond to patients more effectively and efficiently, with innovative healthcare solutions, and continue to improve care and the care experience.

Better Together
Our in-house team of experienced healthcare professionals and partnerships with leading healthcare IT and application developers lets us create and offer a full suite of applications, services and infrastructure to help you achieve your organization's goals.

PX Solutions
PX Solutions offers technologies and solutions to achieve better outcomes for Healthcare in Canada. PX Solutions brings leading-edge products, software, infrastructure and services functioning together to connect the patients, families and clinicians along the patient's healthcare journey.

Resources

[1] http://www.health.gov.on.ca/en/public/publications/premiers_council/report.aspx

[2] https://theconversation.com/how-healthy-is-the-canadian-health-care-system-82674

[3] https://www.cihi.ca/en/health-spending/2018/national-health-expenditure-trends

[4] https://www.ipsos.com/en-ca/news-polls/future-of-health

[5] https://www.cma.ca/sites/default/files/pdf/Activities/Shaping%20the%20Future%20of%20Health%20and%20Medicine.pdf

[6] https://www.ipsos.com/en-ca/news-polls/future-of-health

[7] https://www.cma.ca/sites/default/files/pdf/Activities/Shaping%20the%20Future%20of%20Health%20and%20Medicine.pdf

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[9] https://www.oag.ab.ca/reports/bhc-report-may-2017

[10] https://www.canada.ca/en/health-canada/services/publications/health-system-services/report-advisory-panelhealthcare-innovation.html

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