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State of Skills Report

Skills and Training Innovation in Healthcare and Bio-Health

LOCATIONS
Across Canada

PUBLISHED
July 2026

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How to Cite This Report

Dubey, A., & McDonough, L. (2026). *Skills and Training Innovation in Healthcare and Bio-Health*. Future Skills Centre – Centre des Compétences futures. https://doi.org/10.58068/GZV7-9E24

KEY INSIGHTS

1. Successful workforce integration for newcomers and equity-deserving groups depends on supportive infrastructure like mentorship, workplace culture training, and financial assistance to navigate complex credentialing processes.
2. The effective deployment of artificial intelligence (AI) and other digital tools in healthcare requires co-creation with frontline workers and patients to build trust, in addition to digital skills.
3. To move from pilots to a resilient health sector requires intermediaries to align provincial, academic, and industry incentives, ensuring that the labour supply is calibrated to meet demand.

The Issue

Across Canada, the shortage of skilled health professionals is widely acknowledged as a crisis. An estimated 5.79 million Canadians lack access to a family doctor, and there are critical nursing shortages, with 13,538 excess vacancies in nursing and allied positions in 2024. The impact is more acutely felt in rural and remote areas, including First Nations Communities.

Healthcare stands out across sectors for having the largest labour shortages, yet the sector offers both immediate and future opportunities for meaningful work. The health workforce has grown by 3% per year over the past 25 years, double the pace across all occupations. While the number of family physicians and nurses is increasing, demand is projected to grow as age-related illnesses increase. Health Canada has projected that the supply of family physicians, registered nurses and other healthcare providers will not meet demand over the next 10 years.

In addition to doctors and nurses, unregulated care workers, such as personal support workers (PSWs), nurse aides, orderlies, and patient service associates, are critical to supporting the sector and the aging population. While recent immigrants and non-permanent residents have offset the impacts of an aging workforce on this group, recent immigrants in these roles are often overqualified with credentials from outside of Canada. Unregulated care workers face challenges in quality of work, with heavy workloads, increasing responsibilities and low pay. While there are efforts to recruit more workers into these roles and to increase pay, quality of work pushes many out, with nearly □ of PSWs having either left or seriously considered leaving their jobs in the past two years.

Labour shortages also exist in the bio-health industry, which encompasses research and production of medicines, vaccines, diagnostics and other therapeutics, as well as health administration, and digital and AI technologies. Bio-health is also one of Canada's fastest-growing industries, with a job growth rate projected to be 6.8% by the end of the decade. After supply chain failures during the COVID-19 pandemic, the federal government invested $1.2 billion to build capacity in the sector, but there remains a need to attract more workers and to better align training from educational institutions with industry needs. Estimates suggest that employers will only be able to fill 25% of biomanufacturing and processing positions by 2029 and will need to recruit and train 65,000 additional workers.

What We Investigated

Speeding up credentialing and work integration for internationally trained health workers

Licensing for healthcare professions is primarily the responsibility of provinces and territories, with uneven coordination between jurisdictions and with the federal government. While there have been initiatives launched to ease the licensing process for physicians and nurses, the process can still be confusing and daunting. For newcomers in other healthcare fields, the lack of recognition of credentials hinders their ability to find work matching their skills and experience. Executives at a recent roundtable on the healthcare workforce hosted by Accenture, cited ongoing challenges with many of their existing PSWs possessing unrecognized international nursing qualifications. Barriers are higher with minimal local professional networks and unfamiliarity with Canada's workplace culture. A diverse range of projects supported by the Future Skills Centre tested potential solutions to these challenges.

The Prior Learning Assessment and Recognition (PLAR) approach enables individuals to be assessed by their past learning and work experience, leading to formal recognition in the context of certification or licensing. PLAR is viewed as an efficient way to address labour shortages by reducing duplication of learning. The Michener Institute of Education at the University Health Network (UHN) explored how PLAR could enable students in healthcare to enter the health workforce more rapidly and used project results to develop and operationalize their own PLAR processes.

To support work integration for newcomers, the Immigrant Employment Council of British Columbia, through *Facilitating Access to Skilled Talent (FAST)*, tested learning modules on Canadian workplace culture and work readiness, connections to credentialing and professional designation resources, and job search support. FAST offered several streams relevant to healthcare, including IT and data services; biotechnology and life sciences; and seniors' care.

To help newcomer physicians integrate into health professions more rapidly, ACCES Employment tested a mentorship approach. Newcomer physicians were paired with experienced physicians who met weekly over 12-16 weeks to support newcomer physicians to improve their English medical terminology, learn about the Canadian healthcare system and workplace expectations, and increase their confidence. As an incentive, mentoring physicians were offered continuing medical education credits through the Royal College of Physicians and Surgeons or the College of Family Physicians of Canada.

The Future Skills Centre also invested in testing solutions to better support internationally educated nurses (IEN). In Ontario, more than half of IENs do not take the nursing qualification exam because they lack support to prepare, leaving many working in alternative roles such as personal support workers. SEIU Healthcare Training Centre tested the impact of providing case management, a 12-week education program, financial support and connections to unionized workplaces, in supporting 60 IENs to qualify with the College of Nurses of Ontario.

In Alberta, Bow Valley College also tested an approach to recruit and train internationally educated nurses, focused on workforce gaps in rural and remote settings in the province. Using a rapid, employer-driven, competency-based program, six micro-credential courses in rural acute care and continuing care were developed and delivered to 46 IENs. The Future Skills Centre supported BioTalent Canada to explore what practices most contributed to biomanufacturing SMEs' capacity to withstand the major disruptions caused by the pandemic. The research found that HR functions that emphasized inclusion, diversity, equity and accessibility helped shield businesses against disruptions. BioTalent used these findings to inform the development of their employer recognition program, the I.D.E.A.L Bioscience Employer™, which aims to nudge organizations to adopt and practice inclusive, equitable and accessible corporate principles, thereby boosting resilience and sustainability, and removing barriers for equity-deserving groups, including newcomers, in the sector.

Accelerating the use of innovative technologies

Canada's aging population and rapid technological changes are shifting the skills needed by existing healthcare workers. A second area of investment was to test effective approaches to upskill existing healthcare workforces to use new technologies to improve practice.

Artificial intelligence (AI) holds potential to transform healthcare, but it hinges (in part) upon the motivation and preparedness of healthcare providers. The Michener Institute for Education at UHN investigated how to enhance the adoption of AI in healthcare. After researching barriers to AI use, several interventions were developed and tested. In a related project, the Michener Institute created a job-oriented training program on the use of data analytics and digital methods in healthcare settings. It included online teaching and an optional practicum.

While interprofessional collaboration is the norm in physical settings, the use of virtual tools expanded dramatically during the pandemic and has continued, often without systematically assessing how virtual settings affect collaboration and care. Research from the Université de Sherbrooke explored effective virtual collaboration among healthcare professionals, and made recommendations to guide usage.

Expanding access to training and education

Technology has also changed the way skills and training are delivered to healthcare workers. The Future Skills Centre invested in several projects using technology to improve access to specialized healthcare skills training, including in rural and remote areas.

Working with community organizations, including shelters and personal support services organizations, the Michener Institute tested an approach to improve health for people with diabetes. By identifying and treating diabetes-related foot problems at an earlier stage, a larger portion of limb amputations can be prevented. Partner organizations in three provinces and territories, working with the Institute, adapted an established foot health curriculum and tested it with their frontline staff, who were trained to proactively screen and assess foot problems and provide referrals for medical care when needed.

Personal support workers (PSWs) who care for people with dementia were the focus of two training projects. Western University tested virtual reality (VR) to train PSWs in dementia-specific, person-centred care, which has been shown to result in less patient distress and refusal of care. Building on an in-person training program called BeEPIC, a virtual reality version was tested to overcome geographic barriers and provide an immersive training experience.

Similarly, Conestoga College tested a dementia care program for PSWs to reach those working in rural and remote areas. The original program included five interactive modules in four languages. With positive pilot results, the intervention was expanded into CRADLE+, which added modules on demanding situations that PSWs frequently encounter, such as clients' wandering, distress and care-provider burnout.

PSWs also often lack opportunities for professional development. The University Health Network (UHN) and five partners launched an initiative to increase PSW competence, confidence and resilience. The project included three online education modules for PSWs on infection prevention and control, COVID-19 and wellness and resilience. They also launched a PSW advocacy campaign targeting organizational leaders to address working conditions and low pay.

Coordinating supply and demand with work-integrated learning

The Future Skills Centre also supported the Canadian Alliance for Skills and Training in Life Sciences (CASTL) to develop new models of work-integrated learning in the biomanufacturing sector. The project sought to better align academic and industry training programs to ensure graduates and workers had the skills the industry needed to grow. Initiatives included integrating bioscience education in K–12 and postsecondary institutions, retraining unemployed individuals and offering advanced training for current employees. Subsequent project phases included research to further assess employer needs and identify barriers to meeting demand for skilled workers. Most recently, the Future Skills Centre partnered with CASTL to further develop a workplace-integrated learning program to train postsecondary students through hands-on learning in a lab setting to prepare them to work in heavily regulated work environments.

✔ What We're Learning

Successful integration requires more than just skills

Across projects, participants valued training on workplace culture, experiences that improved their confidence and increased their connections, and supportive services like case management and financial support. This echoes findings from other sectors seeking to attract and integrate newcomers and other equity-deserving groups into their workforce. Findings highlight the importance of supportive infrastructure to create conditions so that skills can be more effectively learned and applied.

In the FAST program by the Immigrant Employment Council of British Columbia, workplace culture training was the highest-rated component, with almost 8 in 10 surveyed saying that it was very or somewhat useful. Participants also reported high confidence in their work readiness after completing the program. The training covered non-verbal communication, culture shock and sector-specific professional language. The FAST project has expanded across Canada and enrolled over 1,500 participants. One challenge is that program completion rates were low at 21%. On the other hand, employment outcomes are promising, with job rates rising from 45% at program exit to 72% nine months later. The FAST program is now available to newcomers across Canada as well as refugees and international students.

ACCES Employment (ACCES)'s Health English Language Pro project surveyed 39 pairs of volunteer and internationally trained physicians. The program was successful in its goal of addressing language and soft skill barriers for newcomer physicians. All reported that they were better connected to the medical community after participating. The majority indicated that their workplace readiness and confidence in English medical communication had improved.

Among Indigenous communities, mentorship was identified as an essential support for Indigenous medical students and early-career physicians. A key recommendation is to expand Indigenous-led mentorship and peer networks, in addition to culturally aware non-Indigenous mentors. Other study recommendations were to address financial and geographic barriers (with support for application fees, test preparation costs, travel, and relocation) and to foster a culturally safe learning environment through curricula, placements and wellness support.

SIEU's comprehensive approach to supporting internationally educated nurses (IENs) showed positive results, with all 60 IENs advancing in the licensing process. The case management component reduced attrition while training built participants' confidence and work readiness. Participants also cited that the financial support received enabled their participation.

Digital tools expand training access, but the delivery method matters

Digital tools show great potential for making training more accessible, including in healthcare. This is especially helpful for people who are in rural and remote areas. But not every promising method will yield the desired results.

In projects for unregulated health professions such as PSWs, participants reported that the training improved their knowledge, competency, communication skills or confidence. These results were consistent regardless of training content or delivery. These included dementia training delivered either via VR by Western University – which 98% found useful – or online to remote and rural PSW communities, by Conestoga College. UHN's PSW program, which focused on PSW confidence, competence and resilience, also had positive results.

Bow Valley's targeted microcredential program for internationally educated nurses (IEN) had mixed results. Although IENs reported feeling more confident and knowledgeable and they valued the self-paced, online format, the impact on employability was less evident. Because the courses lacked a practicum component, it was unclear how to assess participants' competency. Employers who were interviewed did not consider micro-credentials in hiring decisions. Refinements to the program are underway.

The project on upskilling in data analytics and digital training also had mixed results. The coursework had useful elements, and the practicum placement led to employment for some students. However, the program had considerable attrition, particularly among working professionals. The practicum placement was resource-intensive to manage and was not continued.

AI adoption moves at the speed of trust

The Michener Institute found that the most significant barrier to adopting AI in a healthcare setting was not access to technology, but rather the level of trust that healthcare workers had in AI. To build trust in their AI adoption strategy, the team spent time diagnosing the psychological and technical barriers preventing healthcare professionals from embracing AI. Through comprehensive needs assessments, scoping reviews, and environmental scans, the project identified that reluctance stemmed primarily from a lack of experience and a fundamental distrust of complex, "black box" technology. To counter this, they shifted from a top-down implementation to a collaborative co-creation model, which actively engaged healthcare providers and equity-seeking populations in the design of educational interventions. This eventually led to tailoring specific certificate programs in AI adoption for different roles—such as clinicians, leaders, and radiation therapists.

The project received additional funding to advance previous learning by moving beyond general AI adoption toward a deep commitment to compassionate, equity-driven care. A central milestone of this expansion is the development of a Charter for Accountable Use of AI in Canadian Health Care, co-created with input from over 600 patients and practitioners. By establishing accountability measures for biased decisions and ensuring humans remain “in the loop,” this framework addresses trust gaps within equity-deserving communities and ensures that patient voices directly shape how healthcare technology is deployed.

The Michener Institute AI project led to changed attitudes on adopting AI among professionals, streamlined workflows and improved treatment plans. The co-creation of the program with diverse stakeholders helped create trust and confidence. Program outputs included educational certificate programs, symposiums, a hub for mentoring and coaching, and an AI certificate program that is ongoing.

System collaboration drives results

The project with the Canadian Alliance for Skills and Training in Life Sciences (CASTL) serves as a model for system coordination between industry, academia, and the workforce. By integrating industry-driven reskilling with physical training hubs in Prince Edward Island, the program ensured that the labour supply was directly tailored to regional market needs. The success of this coordinated approach was evident from early on: 76% of one early cohort from the pilot program secured full-time employment post-program, while more than half of participating employers reported a significant reduction in onboarding and training time. Subsequent phases of the project included further sector surveys to refine understanding of industry needs, identifying a critical shortage of workers trained in “Good Manufacturing Practices” and cleanroom environments. In response, CASTL developed the BioBridge Work Integrated Learning program, which provides post-secondary students with specialized, hands-on lab training designed to bridge these specific technical skill gaps and streamline entry into the biomanufacturing workforce.

Why It Matters

The purpose of the healthcare sector is, ultimately, to improve the health of the population, which also includes its workforce. The impact of projected shortages of skilled health workers means Canadians will be challenged to get the timely healthcare that they need, as the burden of age-related, complex illnesses continues to grow. If high-skilled specialized labour needs aren’t met in bio-health, Canada’s self-sufficiency and competitiveness in medicines, vaccines, diagnostics and other therapeutics will be in jeopardy.

The system is highly complex. The federal government is the main funder of health workforce initiatives, but provincial governments and many system actors have been taking action to address issues in the healthcare workforce for decades. In 2023, Health Canada created Health Workforce Canada, an independent organization that addresses pressing health workforce challenges and fosters innovative long-term solutions. With priorities to foster collaboration, advance data, strengthen predictions on future staffing needs and share and scale best practices across the country, there is hope for increased coordination across jurisdictions to resolve some of these longstanding challenges.

But other important challenges remain outside the scope. Despite efforts on multiple fronts, there is an ongoing need to continue progress on improving credential recognition. There is a federally funded foreign credential recognition program for provincial and territorial jurisdictions to support the integration of skilled newcomers into the workforce, and many are streamlining the recognition process for healthcare professionals trained in other jurisdictions. Ontario, for instance, recently expanded the As of Right Act to include 16 additional professions in addition to doctors and nurses, granting automatic recognition of credentials from the rest of Canada while the province formally processes them. At the same time, recent changes to how internationally educated nurses in Ontario can demonstrate their experience have raised concerns about putting additional barriers in the way. Beyond these broader systems challenges, across jurisdictions, Canada needs programs that facilitate the credential recognition process by providing additional supports, like financial assistance, 1:1 system navigation, and connections, as part of the enabling infrastructure to make credential recognition possible.

Technology has the potential to revolutionize healthcare, both in terms of broadening access to skills training in rural and remote areas and in relieving administrative burden on healthcare workers and improving patient outcomes. Policymakers are paying attention, with recent investments in improving the connectivity of digital services across Canada and laying a foundation for more widespread deployment of artificial intelligence. System actors responsible for the training of healthcare workers seeking to make use of these technologies, should leverage the person-centric approach used in successful adoption projects like the Michener Institute of Education at University Health Network. For training to be effective, trust and ethical considerations must be intentionally integrated alongside digital skill building.

Projects like CASTL demonstrate how intermediaries have successfully bridged the gap between supply and demand to help clarify pathways to jobs and attract workers to in-demand fields. Trusted by different actors, intermediaries serve to align labour market incentives and coordinate across silos to achieve systemic goals. Despite their importance, these entities are too few in Canada because funding typically prioritizes direct training delivery over the essential work of system coordination.

In a recent discussion about the healthcare workforce in Canada, representatives from Health Workforce Canada, SEIU Healthcare Union and Bow Valley College shared successful models from across Canada on what's working to accelerate licensure, integrate internationally educated professionals into the Canadian healthcare system and improve retention in this critical part of the economy. Tools like Health Workforce Canada's Digital Front Door can help inform stakeholders to scale these promising practices across the complex healthcare system in Canada and to resolve these longstanding issues.

Ultimately, achieving a resilient and self-sufficient health sector requires a shift toward funding the connective tissue of the system—prioritizing the ethical integration of technology, streamlined credentialing, and the systemic coordination provided by intermediaries to ensure that the labour supply truly meets the evolving demands of Canadian healthcare.

What's Next

The Future Skills Centre continues to work with trusted partners, including SEIU and the Michener Institute for Education at UHN, on innovative projects to strengthen the health workforce.

Projects in this Report

BeEPIC: Dementia Training for Mid-Career Workers, Western University

Building Resiliency and Sustainability for the Bio-economy to Withstand Disruption, BioTalent Canada

Canadian Remote Access for Dementia Learning Experiences (CRADLE+), Conestoga College Institute of Technology and Advanced Learning

A New Model for Workplace Learning, Canadian Alliance for Skills and Training in Life Sciences (CASTL)

Futureproofing the PSW Workforce, University Health Network (UHN) and five healthcare partners

Health and Social Services Professionals' Skills in Interprofessional Collaborative Practices in the Telehealth Context, Université de Sherbrooke

Examining the Multidimensional Aspects of Quality of Work for Public Health Professionals in Canada, Toronto Metropolitan University: School of Occupational and Public Health

Accelerating the Appropriate Adoption of Artificial Intelligence in Healthcare, Michener Institute of Education at UHN

Evaluation of an Upskilling Program for Jobs in Digital Health and Data Analytics, The Michener Institute of Education at UHN

Facilitating Access to Skilled Talent (FAST), Immigrant Employment Council of British Columbia

Pathways and Prior Learning Assessment and Recognition (PLAR) for internationally trained and non-traditional applied health professionals, Michener Institute for Education

Upskilling/Reskilling Canada's Healthcare Workers (Best Foot Forward), The Michener Institute of Education at University Health Network (UHN)

IEN Career Pathway Program, SEIU Healthcare Training Centre

Leveraging A Physician-Driven Response to Medical Communication Skills Development for Newcomer Physicians, ACCES Employment

An Educational Pathway to Employment for Internationally Trained Nurses in Alberta, Bow Valley College

Indigenous professionals needed: Increasing Indigenous representation in healthcare in Canada; Answering the Call: Strategies to Increase the Number of Indigenous Physicians in Canada, Future Skills for Indigenous Healthcare, Conference Board of Canada

Skills and Productivity: Which Skills Shortages Are Impacting Canadian Productivity?, Conference Board of Canada

From shortages to solutions: Tackling Canada's critical gaps in healthcare, trades, and tech; and Tackling Canada's Critical Skill Gaps—March 2025, Conference Board of Canada

Pathways for International Educated Health Care Professionals: A Global Review, Diversity Institute

Have questions about this report? Contact us communications@fsc-ccf.ca.

Funded by the Government of Canada's Future Skills Program

This report was produced based on projects funded by the Future Skills Centre (FSC), with financial support from the Government of Canada. The opinions and interpretations in this publication are those of the author(s) and do not necessarily reflect those of the Government of Canada.

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