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## Background & Context

Saskatchewan has taken a proactive approach to address its specific health workforce challenges. Historically, the province's health system relied on disparate, regionally focused service areas, leading to inefficiencies and hindering coordinated workforce planning. In 2017, Saskatchewan's health system underwent a significant restructuring, amalgamating 12 health regions into a single, provincial health authority.<sup>1</sup> This was a pivotal step towards a more unified and strategic approach to health human resources (HHR) and workforce planning.

Recognizing the growing need for data-informed decision-making, Saskatchewan has prioritized a more strategic and data-driven approach to health workforce planning. This commitment is reflected in the 2022 Saskatchewan Health Human Resources (HHR) Action Plan,<sup>2</sup> with over \$300 million invested to date, to build a stronger health workforce by focusing on training, recruitment, incentives, and retention strategies.<sup>3</sup> Crucially, these four pillars in the Action Plan are supported internally through the Ministry of Health by a fifth pillar – current state data analysis and predictive workforce modeling, which incorporates robust data collection and forecasting capabilities.

This case study examines Saskatchewan's health workforce planning framework, focusing on implemented tools and modeling techniques, highlighting successes, identifying key data challenges and gaps, and exploring opportunities for future improvements to sustain a more robust health workforce. It outlines how integrated workforce data systems, as well as targeted international and domestic recruitment and retention efforts are being employed in Saskatchewan to meet the dynamic needs of the sector, while discussing areas for improvement in data accessibility and opportunities to close the gap.

## Health Workforce Planning Strategy

Saskatchewan's workforce planning approach is guided by its 4-point HHR Action Plan, which seeks to address both immediate workforce gaps and long-term sustainability through<sup>2, 3</sup>:

Pillar <sup>1</sup>	Health Workforce Data & Forecasting			
	Training	Recruiting	Incentivizing	Retaining
Key Outcomes to Date <sup>2</sup>	<b>Training</b> a highly skilled workforce by expanding and enhancing educational pathways to increase the supply of domestic healthcare professionals: <ul style="list-style-type: none"> <li>Expanding training programs, including a 150-seat increase in nursing programs through the University of Saskatchewan, University of Regina and Saskatchewan Polytechnic.</li> <li>Implementing accelerated licensure pathways and competency assessments for internationally educated nurses (IENs).</li> <li>Developing structured training pathways for high school students to enter health professions.</li> <li>Strengthening partnerships with Indigenous technical institutions.</li> </ul>	<b>Recruiting</b> more qualified health professionals through proactive, targeted domestic and international efforts: <ul style="list-style-type: none"> <li>Conducting international recruitment missions to bring hundreds of IEHPs to Saskatchewan, including a dedicated Philippines recruitment initiative as well as Ukrainian newcomers interested in joining the health workforce.</li> <li>Establishing a Memorandum of Understanding (MOU) with the Government of the Philippines to enhance international recruitment efforts.</li> <li>Issuing a call for unlicensed Saskatchewan / Canadian residents who are internationally trained or experienced in health care.</li> <li>Implementing health system navigators to support IEHPs with settlement in Saskatchewan and workforce integration.</li> <li>Developing recruitment plans for additional markets with individuals who have strong ties to Saskatchewan.</li> <li>Launching a marketing campaign to position Saskatchewan as a desirable healthcare employment destination.</li> </ul>	<b>Incentivizing</b> recruitment and retention of health care workers in a competitive market through financial incentives and career development opportunities: <ul style="list-style-type: none"> <li>Offering return-to-service agreements of up to \$50,000 over three years for hard-to-recruit positions (e.g., in rural and remote locations).</li> <li>Providing financial incentives for students, including the Student Loan Forgiveness Program for nurses and nurse practitioners in rural or remote areas, the Graduate Retention Program tax credit, and bursaries for healthcare students who complete a clinical placement as part of their training.</li> <li>Relocation, training and licensing assistance for IEHPs.</li> <li>Centralizing information regarding existing incentives and supports.</li> <li>Improving connections to jobs for nursing graduates and offering jobs upon graduation.</li> </ul>	<b>Retaining</b> the existing workforce by creating more open full-time positions, emphasizing career progression opportunities, and investing in workforce wellness. <ul style="list-style-type: none"> <li>Creating 100 new full-time positions across priority professions (e.g Nursing, Continuing Care Assistants, Combined Lab and X-ray Technicians, etc).</li> <li>Converting 150 part-time positions to full-time permanent positions in rural and remote areas.</li> <li>Expanding mentorship, peer support, continuous learning and development, and employee well-being and resiliency.</li> <li>Expanding Registered Nurses (RN) Multi-Site Positions, allowing RNs to work across facilities while maintaining a home base.</li> <li>Allocating \$3.5 million for physician recruitment and retention, with a focus on strengthening rural and remote care.</li> <li>Developing a First Nations and Metis workforce strategy, ensuring culturally competent care and stronger workforce diversity and representation.</li> <li>Collaborating with system partners to enhance workforce resiliency initiatives, including well-being programs and flexible staffing models.</li> </ul>
	<ul style="list-style-type: none"> <li>✓ Approximately 870 new training seats created in 33 health care programs.</li> <li>✓ 4 new programs introduced (occupational therapy, speech language pathology, respiratory therapy and physician assistants).</li> </ul>	<ul style="list-style-type: none"> <li>✓ 253 physicians recruited to Saskatchewan (218 from outside the province, 35 from outside the country).</li> <li>✓ Approximately 400 IENs have arrived from the Philippines as of 2024, more than half of which have already joined the workforce.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Over 350 hard-to-recruit positions filled in over 50 communities via the Rural and Remote Recruitment Incentive (RRRI).</li> <li>✓ Over \$1.3 million disbursed in bursaries and scholarships (e.g nearly 150 paramedic bursaries).</li> </ul>	<ul style="list-style-type: none"> <li>✓ 245 new and enhanced full-time permanent positions created in high-priority occupations (e.g RNs)</li> <li>✓ Scope of practice has expanded for professions including pharmacists, nurse practitioners and advanced care paramedics</li> </ul>

**Figure C2.** Saskatchewan's HHR Action Plan.

The foundation for these 4 pillars is a commitment to data-driven decision making, ensuring that workforce planning initiatives are informed by accurate and timely information. To support this commitment, Saskatchewan has made significant investments in data infrastructure and predictive modeling, fostering a more integrated and collaborative approach to workforce planning. By integrating cross-sector data sharing and workforce planning, the province is strategically strengthening its ability to align training pipelines with current market needs, predict workforce trends to prepare for future needs, and enhance evidence-informed decision making. This focus on collaborative, data-driven planning provides a strong foundation for not only optimizing workforce supply and distribution today but also ensuring a sustainable and responsive healthcare workforce for the future.

## Health Workforce Information & Data Analytics

A strong health workforce strategy relies on accurate, timely and integrated workforce data to inform decision-making, anticipate supply and demand, and optimize resource allocation. Saskatchewan, like many provinces, recognizes that effectively tackling health workforce challenges requires the power of data-driven insight. Over several years, the province has strategically developed an integrated and informed planning approach, transforming its approach to health human resources planning. This approach represents a significant step forward from earlier efforts and serves as a cornerstone of Saskatchewan's commitment to informed decision-making. Key players within the health human resources planning ecosystem have also intentionally cultivated and maintained strong relationships with data providers, such as other government agencies, regulators, educational institutions and employers.

### Tools & Modeling Approaches

Recognizing the limitations of its legacy systems (e.g., an outdated payroll system), Saskatchewan has embarked on a journey to create a more integrated and insightful approach. This led to the development and phased implementation (first phase was launched in Summer 2024) of the Administrative Information Management System (AIMS), a real-time system used by managers for scheduling and workforce management. The tool integrates data from multiple sources, including human resources (e.g., payroll, scheduling, employees going on a leave, etc.), finance and supply management. The goal of AIMS is to replace more than 80 outdated systems, consolidating workforce data into a single, accessible source.<sup>4</sup> From a data perspective, AIMS provides the entire health system in Saskatchewan with valuable workforce insights, such as insights into overtime hours, number of vacant hospital beds, full-time equivalents (FTEs), new hires, and job vacancies across the healthcare system.

Additionally, the health system in Saskatchewan uses a planning process that integrates data from multiple sources, including AIMS, regulatory bodies, training and post-secondary education data, and recruitment efforts. This model generates an annual forecast that projects five-year gaps in the system for over 40 healthcare occupations. This process generates annual medium-term workforce trends for over 40 hard-to-recruit healthcare occupations. This is critical for identifying areas of need, supporting workforce planning efforts and informing the development of targeted interventions.

### *Sources of Data Collection*

Saskatchewan's health workforce planning relies on a diverse array of data sources, each providing crucial insights into different aspects of the healthcare workforce, including training and education of health professionals. The province has developed a multi-faceted approach to collaboration with an emphasis on cultivating and maintaining strong relationships with key data providers.

With respect to collecting post-secondary education and training data, the province utilizes:

1. **Direct Relationships with Major Institutions:** The Ministry of Health, in collaboration with the Ministry of Advanced Education, works directly with the University of Saskatchewan, University of Regina, and Saskatchewan Polytechnic to collect detailed data on training seats, enrollments by cohort, and graduation rates, among other data elements. Data is collected for approximately 40 hard-to-recruit health care occupations that have dedicated training programs in Saskatchewan. The province now has several years of historical data, providing a robust foundation for its workforce planning.

2. **Collaboration with the Ministry of Immigration & Career Training:** For smaller institutions who may not have their own data reporting systems, such as Indigenous colleges, it can be challenging to collect and report the required data elements. Therefore, the Ministry of Health partners with the Ministry of Immigration & Career Training. As the funding body for these institutions, the Ministry of Immigration & Career Training compiles and shares relevant data with the Ministry of Health.
3. **Collaboration with the Ministry of Advanced Education:** For health care professional training programs outside Saskatchewan that reserve seats for Saskatchewan students, the Ministry of Health works with the Ministry of Advanced Education, who funds these spots. This partnership provides data on reserved seats, fill rates, and graduation rates for Saskatchewan students in out-of-province programs.

Beyond education and training data, the province also gathers workforce information from other key sources:

1. **Regulatory Bodies:** The province works with various health profession regulatory bodies to understand the number of registrants being added to or leaving the system. This provides crucial data on the licensed workforce across different health professions. The same strong relationships that were built with post-secondary institutions have been key in establishing data and communication methods with regulatory bodies as well. This collaboration is particularly vital for tracking Internationally Educated Healthcare Professionals (IEHPs) within the system. Whether IEHPs have arrived through government-supported programs or have chosen to immigrate independently, the regulatory bodies play a key role in the licensure and registration processes, enabling the province to monitor and support their integration into the Saskatchewan healthcare workforce. To improve efficiency and timeliness, the province now proactively communicates with regulatory bodies earlier in the year to obtain data directly, rather than waiting for the publication of annual reports. This data is also subsequently compiled and published in annual reports.
2. **Employer Data:** Through AIMS, the province gains access to real-time payroll and workforce data from healthcare employers. By combining AIMS data with other workforce information obtained directly from employers like the Saskatchewan Health Authority, the province improves the accuracy and reliability of its workforce planning.

## Areas of Success

Saskatchewan's efforts to enhance data-driven health workforce planning have yielded several notable successes. A key achievement has been the intentional establishment of mutually beneficial relationships with key data providers, creating a collaborative ecosystem for workforce planning. These relationships are built upon a foundation of shared goals and reciprocal value, ensuring that all stakeholders benefit from their participation. These relationships are underpinned by the following key principles – bringing together the right people, enabling systems and data elements:

### *Getting the Right People Around the Table*

Recognizing that effective data collection and analysis requires collaboration across various sectors, Saskatchewan has prioritized building strong relationships with individuals and organizations who possess relevant expertise and data. This includes representatives from post-secondary institutions, government ministries, regulatory bodies, and healthcare employers as described. For IEHPs, this includes cultivating strong partnerships with recruitment officials operating in the Philippines, as well as

with Saskatchewan's own regulatory bodies. This enables the province to tap into key sources of information on potential recruits and track their progress through the immigration and pathway to licensure processes.

### *Building Systems that Enable and Empower Workforce Planning Efforts*

Saskatchewan has focused on developing data collection and management systems that are efficient and aligned with the needs of workforce planners. This has involved building new data collection processes and investing in data analytics tools. To ensure that collected data can be effectively analyzed and used to inform decision-making, Saskatchewan has also prioritized aligning data elements across different data sources, though continued challenges persist due to the different designs of the current system.

### *Developing Mutually Beneficial Partnerships*

A critical driver of success for these relationships with data providers is the mutual benefit they provide. The province gains access to timely and accurate data, enabling informed decisions about workforce planning and resource allocation. In return, the data obtained by the province for workforce planning can also be used to better support its partners and strengthen Saskatchewan's health care workforce. For instance:

The province uses this informed planning to support the ongoing initiatives to recruit, train, incentivize and retain health care workers in the province, including for the Saskatchewan Health Authority (Saskatchewan's largest employer). The province collaborates with partners in the Philippines to identify eligible IEHP candidates, supports them through the Transition to Registered Nursing in Canada certificate program at Saskatchewan Polytechnic, and facilitates their progress through licensure. This partnership is strengthened by the Ministry's relationships with regulatory bodies, who provide valuable support in creating a seamless pathway from recruitment to settlement in a health care facility. This collaborative approach fosters a sense of shared ownership and responsibility, encouraging all stakeholders to actively participate in the workforce planning process.

### *Leveraging Inter-governmental Relationships*

Another key area of success has been the ability to leverage existing relationships within the provincial government to obtain post-secondary HCP education and training data, specifically with the Ministry of Immigration & Career Training to obtain data for smaller educational institutions as well as the Ministry of Advanced Education to obtain data on out-of-province programs.

## Key Challenges, Gaps & Opportunities

While Saskatchewan has made significant strides in data-driven health workforce planning, several challenges and gaps remain in the availability, use and comparability of data. These issues highlight areas of opportunity for continued improvement and innovation in the province's approach to health human resources.

### *System Design Limitations: Tracking Workforce Movement*

The province's data systems and existing infrastructure pose some inherent limitations on data integration and analysis - for example, tracking the internal movement of health workers within the

system versus movement out of the province. The current data systems struggle to capture career progression pathways effectively due to the lack of a unique identifier. For instance, if a CCA pursues further training and becomes a Licensed Practical Nurse (LPN), the system may not easily identify this transition. This limitation hampers the province's ability to understand and plan for internal supply dynamics and career advancement patterns within the healthcare workforce. Additionally, there is a gap in the current modeling approach rooted in the difficulty of accurately predicting the outflow of workers from the province. While recruitment efforts are strong and workforce planning focuses on training, recruitment, incentives and retention, understanding and accurately predicting natural attrition rates and emigration patterns remains a priority. For IEHPs supported through the licensure process by the province, a manual attempt is used to track individuals who may initially work in one role (e.g., healthcare aids) while pursuing licensure in their primary profession (e.g., nursing). However, for those IEHPs who move to the province on their own volition, there exists a challenge to track. This gap may hinder workforce planning efforts.

**Opportunity:** To ensure comprehensive data collection, Saskatchewan has an opportunity to modernize its system design. Central to this is the implementation of unique workforce identifiers. Currently, there is no system in place that allows the province to track career progression and workforce mobility accurately. By implementing specific identifiers for a professional in a given role, Saskatchewan can gain a clearer understanding of how individuals move through the system, identify potential skill gaps, and develop targeted programs to support career advancement.

### *Data Gaps*

One of the most significant challenges in workforce planning in Saskatchewan is the gap in data availability between public and private settings. While the province has access to workforce data on publicly funded institutions, due to centralized payroll systems and strong oversight, private-sector employers operate independently, leading to difficulty in obtaining consistent or robust workforce data. Additionally, the private sector is highly fragmented, with numerous independent small-scale employers, making comprehensive data aggregation and analysis even more difficult. Moreover, availability and granularity of data varies by profession. For example, from close inspection of regulatory annual reports, Saskatchewan has robust data for the pharmacy profession but has less detailed data available for professions such as paramedics and social workers.

The challenge of accessing data is even more pronounced for unregulated professions, such as Continuing Care Assistants (CCAs). While the province has access to workforce data for CCAs working in the publicly funded system, a substantial portion of the CCA workforce operates outside this system. This creates a significant blind spot in workforce planning efforts, compounded by the fragmented nature of the private care sector. Saskatchewan has explored various methods to address this issue, including sourcing data from professional associations for unregulated professions. However, most professional association memberships are on a voluntary basis, therefore data from these organizations may not be as comprehensive or complete as from a regulatory body for regulated professions.

Moreover, beyond the challenges of data accessibility and comprehensiveness, aligning datasets for analyses also comes with difficulty. While Saskatchewan has recognized and made efforts to align disparate data sources meaningfully, there are still areas for improvement. For example, even when data is publicly available on both the number of newly licensed nurses and the number of nurse graduates from the training program, disconnect can still surface that may point to potential delays or barriers in the transition from education to licensure. This disparity may indicate challenges in graduates finding suitable positions, delays in taking national licensure exams, or other systemic issues hindering



their entry into the workforce. This highlights a critical need for strategies that not only collect more data, but also ensure that the data can be effectively integrated and analyzed.

**Opportunity:** A primary strategy to address the data gaps between public and private sectors and to better capture data on unregulated professions involves strengthening collaboration and data-sharing agreements with private sector employers. For example, offering incentives for participation, such as access to workforce planning resources or benchmarking data, could encourage greater data contribution from these sources where their capacity allows.

Furthermore, to ensure that the data collected from diverse sources can be meaningfully analyzed, Saskatchewan should prioritize the development of a robust data governance framework for all data providers to follow when reporting. This framework should encompass standardized data dictionaries defining data elements to be captured and clear templates/protocols for data sharing. By establishing these foundational elements, the province can better address the existing challenges in aligning disparate datasets for comprehensive workforce planning.

Beyond collecting more data, another key opportunity lies in strategically linking and aligning existing datasets. For example, by linking payroll and HR data with education and training data, the province can better track career progression pathways, identify skill gaps, and develop targeted training programs to support professional development. This linkage would enable the province to identify Continuing Care Assistants (CCAs) who are pursuing LPN training and to provide them with the support they need to succeed. Another example of the strength of strategically aligning datasets is through linkage between regulatory body data on bridging programs and licensure with other data collected on IEHPs such as demographics and geography, to create a comprehensive view of the IEHP pathway from initial recruitment to full integration into the Saskatchewan healthcare workforce. This may also help to identify areas where IEHPs may require additional social support (e.g., settlement, obtaining employment, etc.). Finally, linking workforce data with population health data presents a powerful opportunity to understand the relationship between workforce characteristics and health outcomes. For instance, this linkage could help the province determine whether certain workforce models are associated with improved patient outcomes or reduced healthcare costs.

### *Balancing Relationships with Data Needs*

While the provincial government has legislative authority to request information on any data element of interest, the reality of the capacity of key data providers remains a limiting factor. While some data providers can readily accommodate requests for data elements beyond what they are already collecting and reporting, others are constrained by competing factors, which impact their ability to collect and provide additional information.

**Opportunity:** In addition to easing the data sharing burden by implementing a clear governance framework for providers, the ongoing phased rollout of the AIMS represents a transformative opportunity to enhance workforce planning efforts without directly requesting additional data from data providers who lack the capacity to do so. By strategically leveraging AIMS' real-time data capabilities, the province can gain unprecedented insights into workforce dynamics. To fully utilize this opportunity, priority areas of focus should include (1) capturing granular data on workforce demographics, skills, and mobility (2) integrating AIMS data with other key datasets, such as education and training and (3) developing user-friendly dashboards and reporting tools to empower workforce planners with actionable insights. In addition, as the phases of implementation progress and the tool is being further refined, improvements in data capabilities such as being able to report more comprehensively on professionals who may upskill or change roles within the health care system would



help to address existing challenges. A key priority should be to ensure that AIMS is configured to accurately capture IEHPs throughout their integration into the healthcare system and combined with data from regulatory bodies regarding their participation in bridging programs and progression through the licensure process to better track the unique journey of IEHPs.

### *Risk of Over-Reliance on Informal Data Sharing Relationships*

The province recognizes a potential risk in over-relying on professional, informal relationships to obtain data. This can create vulnerabilities if key points of contact leave their positions, for example. While strong relationships are valuable, the province is working to establish more formal structures and automated data collection processes to ensure data accessibility and sustainability in the future.

**Opportunity:** To enhance the reliability and consistency of data collection, the province can prioritize formalizing data collection processes and establishing automated data feeds with key partners. This would involve developing or updating clear data sharing agreements with key data providers, continuing to invest in data integration technologies, and implementing standardized data collection protocols. This would also reduce and/or eliminate the reliance on relationships alone to obtain required data.

## Conclusion

Saskatchewan has made significant strides in strengthening its health workforce planning through strategic investments in data infrastructure, collaborative partnerships, and targeted training, recruitment, incentive and retention initiatives. The implementation of the Administrative Information Management System (AIMS) and the development of sophisticated workforce planning process represent key achievements in enhancing data-driven decision-making. These efforts, guided by the province's 4-point HHR Action Plan, are contributing to a more robust and sustainable health workforce capable of meeting the evolving needs of the population. Saskatchewan's innovative approach to data collection serves as a useful model for other jurisdictions seeking to address their own health workforce data and planning challenges, highlighting opportunities for collaboration and offering a framework for leadership in HHR.

However, challenges remain in ensuring comprehensive data integration, maintaining data quality, and addressing specific data gaps related to internationally educated healthcare professionals (IEHPs) and career progression within the health system. Continued efforts are needed to break down data silos, standardize data collection, and improve the capability of capturing necessary workforce insights. Furthermore, enhancing the collection and analysis of data related to IEHP integration, retention, and career progression is crucial for maximizing their contribution to the healthcare system.

Looking ahead, Saskatchewan has opportunities to further strengthen its health workforce planning framework. By continuing to foster collaboration among data providers, stakeholders, and decision-makers, the province can continue to ensure a coordinated and integrated approach to workforce planning. Ultimately, Saskatchewan's commitment to data-driven planning, combined with a focus on continuous improvement, will be essential for building a resilient and responsive healthcare workforce that can meet the challenges of the future.

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