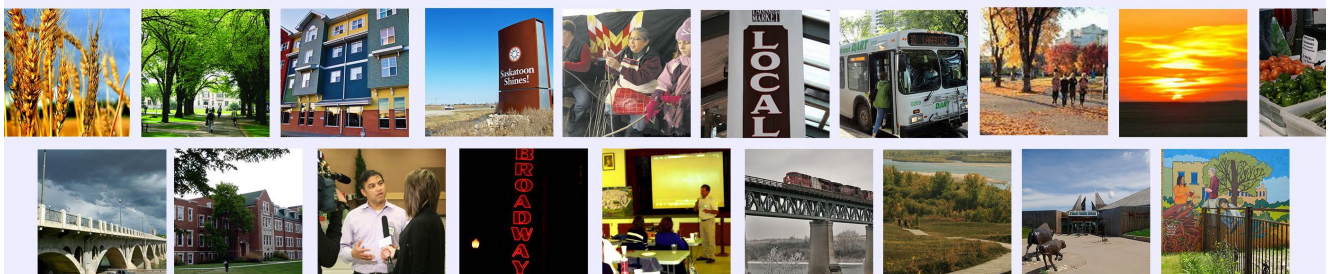




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# College of Nursing Distributed Education: A Social Return on Investment Analysis

Anh Pham, Anousheh Marouzi, Isobel M. Findlay,  
and Suresh S. Kalagnanam



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# COLLEGE OF NURSING DISTRIBUTED EDUCATION: A SOCIAL RETURN ON INVESTMENT ANALYSIS

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ISOBEL M. FINDLAY,  
AND SURESH S. KALAGNANAM



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Printed in Canada

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## **ACKNOWLEDGEMENTS**

We gratefully acknowledge funding for this study from the College of Nursing, University of Saskatchewan. We are indebted to the ongoing feedback and support for participant recruitment from the associate deans and the Executive team, College of Nursing.

We also acknowledge with deep gratitude all those across the province who agreed to share their expertise and insight in interviews. Your contributions have greatly enriched this study.

Our thanks too for her guidance to CUISR Research Coordinator Remi Kusimo.

## EXECUTIVE SUMMARY

Access to health care services has been consistently recognized as an important determinant of population health. People who do not have access to proper health care services are more likely to experience a poor state of health. People who live in rural/remote areas experience relatively more issues in accessing health care services compared to individuals in urban areas—with implications for “health status, health behaviours, health service use, costs and outcomes.” For instance, 18% live in rural areas but are served by only 8% of physicians in Canada with undue impacts on Indigenous populations. The main factors contributing to this gap include geographic barriers and jurisdictional issues, limited availability of health care personnel and services, racism and discrimination, and cultural differences, including language barriers.

This gap in access is further worsened by the limited incentives available to attract and retain health care personnel in remote and northern regions. Approximately 17% of Saskatchewan's population identified as Indigenous peoples in the 2021 census; approximately 52.5% of these people lived in cities or towns. Studies point to a shortage of qualified health care professionals in Saskatchewan, while rural areas in Saskatchewan face even greater shortages. Some argue that the current crisis in rural health care in Saskatchewan is primarily driven by a shortage in the nursing workforce in remote areas.

To address the shortage of nurses in rural Saskatchewan and make the health care system more culturally competent, in 2012, the College of Nursing of the University of Saskatchewan initiated

a distributed education model to deliver the Bachelor of Nursing program to remote communities in Saskatchewan, including La Ronge, Ile a La Crosse, Prince Albert, and Yorkton. The primary goal of this program is to enable students to study and “learn where they live.” The program development was guided by a report on distributed education and the principles of “strong partnerships with other post-secondary institutions” and “innovative, pedagogically sound applications of learning technologies” as well as “accessibility, affordability, and diversity” to facilitate increased participation of Indigenous and rural residents in the University in the context of 100% Indigenous enrollment at the College of Nursing northern sites (La Ronge and Ile-à-la-Crosse in 2012).

Against this background, this research aims to evaluate and report on the impact of the College of Nursing distributed education program with the goal of providing decision-makers with evidence to further improve this program and make optimal use of resources to meet the needs of diverse stakeholders and communities. To do so, this study applies a Social Return on Investment (SROI) methodology, a principles-based approach that assigns monetary value to social, environmental, and other impacts that are typically not valued in traditional metrics or measures of success. to capture the distributed education program’s diverse impacts.

## **Key Findings**

Based on a literature review, distributed education document review, 29 interviews with relevant stakeholders and a quantitative analysis, the study estimated a SROI ratio of 2.43. In other

words, for every dollar invested, the estimated social return is \$2.43. The SROI ratio represents only one part of the evidence and is further supplemented by qualitative findings.

Five main themes that emerged from the qualitative analysis include equity and access to post-secondary education, recruitment and retention, and benefits to different stakeholders, the health care system, the economy, and society at large. The College of Nursing's distributed education program enables equitable access by addressing geographical, cultural, and financial barriers that are often faced by individuals residing in rural and remote areas. This, in turn, helps the recruitment and retention of local nurses which can offer several benefits to the individual nurses, their families, and the community. Individual nurses benefit from safe and shared learning spaces and experience a feeling of self worth without losing connections with their families. The families benefit from having the students 'at home', while the community benefits from having a higher number of local health professionals who understand the culture and can connect in familiar ways with the population they serve. The effect at the macro level is a community that is empowered and has capacity to address local health needs in a more culturally competent manner. The multiplier effects on the local economy and labour market, on infrastructure and innovation, contribute to resilient communities. Those qualitative data—including community pride, self-determination, and changed protocols and practices furthering reconciliation—give some sense of what the quantitative calculations are ill-equipped to represent meaningfully. Those ripple effects are hard to monetize yet are invaluable in doing justice to the program as an investment rather than only a cost. This study also aims to highlight where the program and its supports could be strengthened in the following recommendations.



## **Recommendations**

Key recommendations for the College of Nursing that emerged from the study include, first and foremost, that this program should be sustained and expanded in these ways:

- Increasing the intake of students and addressing the funding model
- Adding to the specialty programs offered
- Expanding the supports for successful outcomes in NCLEX exams.

More specific recommendations include addressing the inadequate accommodation, transportation, and childcare facilities in northern communities.



## INTRODUCTION

Access to health care services has been consistently recognized as an important determinant of population health. People who do not have access to proper health care services are more likely to experience a poor state of health. Although most Canadians do not have difficulties accessing health care services, there are many individuals who still struggle to get the primary care they need (Pham & Kiran, 2023; Statistics Canada, 2016; Wilson et al., 2020). People who live in rural areas experience relatively more issues in accessing health care services compared to individuals who live in urban regions—with implications for “health status, health behaviours, health service use, costs and outcomes” (Canadian Institute for Health Information [CIHI], n.d.). For instance, 18% live in rural areas but are served by only 8% of physicians in Canada with undue impacts on Indigenous populations (Wilson et al., 2020). Studies have also shown that people living in rural areas usually experience higher rates of morbidity and mortality than those living in urban settings (Karunanayake et al., 2015; Pong et al., 2009). Besides the regional variations in access to health care, different populations, such as Indigenous peoples, also face more challenges and are disproportionately impacted in this regard (Nguyen et al., 2020; Statistics Canada, 2016).

Several factors, including geographic barriers and jurisdictional issues (Findlay et al., 2016), limited availability of health care personnel and services, and cultural differences, including language barriers, contribute to issues in accessing health care in remote and northern regions in Canada (Browne, n.d.). Cultural inadequacies, racism, and discrimination have been identified as factors associated with limited access to healthcare services among Indigenous people living in

remote and northern regions (Nelson & Wilson, 2018). This gap in access is further worsened by the limited incentives available to attract and retain health care personnel in remote and northern regions. As reported by the Saskatchewan Bureau of Statistics (SBS) (2022), 187,885 (17%) of Saskatchewan's population identified as Indigenous peoples in the 2021 census. Approximately 52.5% of these people lived in cities or towns (SBS, 2022). Studies point to a shortage of qualified health care professionals across Saskatchewan (Anonson et al., 2008), while rural areas in Saskatchewan face even greater shortages (Nair et al., 2016; Sibley & Weiner, 2011). Some argue that the current crisis in rural health care in Saskatchewan is primarily driven by a nursing workforce shortage in remote areas (SUN, 2022). Nurses provide numerous health services in Northern Saskatchewan. For example, Lac La Ronge Indian Band Health Services (LLRIB)'s Home and Community Care Program had a Home Care Registered Nurse Manager, a Registered Nurse Assessor, and four Licensed Practical Nurses, one of whom was a Diabetes Nurse Educator in 2015 (LLRIB Health Services, 2016). In 2015, this program delivered services such as wound management and foot care to a total of 173 home care clients in La Ronge, Hall Lake, Grandmother's Bay, and Sucker River communities. Registered nurses play a critical role in delivering health care services in rural Saskatchewan (SUN, 2022). In a survey collected from Saskatchewan Union of Nurses (SUN) members, however, 83% of registered nurses reported that there are vacancies for RNs in their workplace in 2022 (SUN, 2022).

One strategy to tackle the ongoing professional shortages, especially nurses, in Northern Saskatchewan is the recruitment and retention of nurses in remote areas, where they live. The Indigenous health care workforce is more likely to work in the North, where Indigenous peoples

ake up the majority of the population, and serve their own communities (Anonson et al., 2008). Furthermore, recruiting Indigenous nurses in their own communities can bridge the culture gap between community members and the health care system. As indicated in a large body of literature (Anonson et al., 2008; Smye & Browne, 2002), this could also improve health outcomes in those communities by making the health care system more culturally competent.

To address the shortage of nurses in rural Saskatchewan and make the health care system more culturally competent, in 2012, the College of Nursing of the University of Saskatchewan initiated a distributed education model to deliver the Bachelor of Nursing program to remote communities in Saskatchewan, including La Ronge, Ile a La Crosse, Prince Albert, and Yorkton. The primary goal of this program is to enable students to study and “learn where they live” (Pennock, 2012, p. 3). The program development was guided by Pennock (2012)’s report on distributed education and the principles of “strong partnerships with other post-secondary institutions” and “innovative, pedagogically sound applications of learning technologies” as well as “accessibility, affordability, and diversity” (pp. 1-2) to facilitate increased participation of Indigenous and rural residents in the University in the context of 100% Indigenous enrollment at the College of Nursing northern sites (La Ronge and Ile-à-la-Crosse in 2012).

## **Report Purpose**

Since ongoing evaluation is an essential element of the improvement of any program, this research report aims to evaluate and report on the impact of the College of Nursing distributed

education program with the goal of providing decision-makers with evidence to further improve this program and make optimal use of resources to meet the needs of diverse stakeholders and communities. To do so, this study applies a Social Return on Investment (SROI) methodology to capture different aspects of the distributed education program's impacts. In situations where the focus is often primarily or even exclusively on the costs of services delivered by institutions or organizations, SROI can highlight diverse values the delivery of those services represents, as well as what the investment in the program means to individuals, organizations, and communities.

This SROI analysis builds on findings from Community-University Institute for Social Research (CUISR) SROI reports (Findlay et al., 2023; Kalagnanam et al., 2019; Pham et al., 2020; Waikar et al., 2013) to document monetary values associated with social, environmental, and other impacts of the services of the College of Nursing's distributed education, especially across La Ronge, Ile a la Crosse, and Yorkton and the accompanying community colleges.

The SROI study draws on both quantitative and qualitative data in these steps.

1. Completing literature review and environmental scan of rigorous and reliable data sources that can be used to inform calculations
2. Interviewing key stakeholders from relevant sectors (education, including students and families, instructors, colleges; employment; health, including Saskatchewan Health Authority; Indigenous, provincial, municipal governments; policy makers and community

members) on potential costs and benefits

3. Inputting and analyzing quantitative and qualitative data

4. Completing SROI calculations

5. Disseminating key findings of study among stakeholders and the public

## **LITERATURE REVIEW**

This literature review, first, describes how access to health care contributes to the health of the population and where Saskatchewan stands in this regard. Further, it outlines different approaches to address the inequitable access to health care, particularly the distributed education programs implemented to train health care professionals, summarizing the findings of other researchers concerning the impacts of distributed education programs on communities at different levels. Finally, the gaps in the literature are identified before explaining how the current research project is designed to address these gaps by identifying and assessing the impacts of distributed education programs on individuals, families, and communities.

### **Access to Health Care**

A considerable body of knowledge indicates a poor health status among residents of remote and rural areas compared to those living in urban settings in Canada (Brundisini et al., 2013; Karunanayake et al. 2015; Pong et al., 2009; Statistics Canada, 2016). One of the most important factors that contribute to this geographic health disparity is access to health care, which is significantly impaired in remote communities in Canada (Young & Chatwood, 2017). This difference is driven by various factors, such as geographic barriers including extreme weather conditions, cultural differences, and limited availability of health care professionals (Browne, n.d.) as well as jurisdictional complexities associated with Indigenous service delivery (Findlay et al., 2016). These determinants are explained in more detail in the following sections.



Northern Canada has a high percentage of Indigenous people who are growing in number and are much younger on average than their non-Indigenous counterparts (Statistics Canada, 2022f). Canada's historical and ongoing colonization has led Indigenous peoples to endure various adverse effects including but not limited to a lack of basic infrastructure, poor health, loss of cultural identity, and poverty (Feminist Northern Network, n.d.; Paradies, 2016). Canadian Indigenous youth, specifically, experience a disproportionate range of adversity as compared to their non-Indigenous counterparts. Study findings exhibit a persistent disparity between Indigenous and non-Indigenous youth in areas, such as lower rates of employment, less institutional education, negative interactions with the justice system, and poorer health (Njeze et al., 2020). Policies and strategies to tackle these adverse effects are required not only to improve the quality of life of the Indigenous population but also to prevent the intergenerational effects of the current situation, embracing the concept of generational sustainability (Nelson, 2019).

### **Geographical and Jurisdictional Barriers**

Rural and remote areas in Canada have widely scattered small communities, and health care facilities are not as accessible in these areas as they are in urban areas. Hence, it is not uncommon for people residing in rural and remote areas to travel large distances to seek primary or specialized health care services that are not available in their local communities (Browne, n.d.). Provision of service, including health care facilities and all other services that are related to health, is difficult to maintain in northern communities. Indigenous people face service gaps and lags that result from systemic and other factors related to the history of colonization and ongoing marginalization (Findlay et al., 2016). Far from confirming the entrenched “deficit model,”

Indigenous people show remarkable resilience, indeed high levels of commitment to and continuity in organizations related to an overwhelming desire to live, work, and give back to their communities, to contribute to self-determination, preserve family traditions, advance culture, and quality of life, and protect Indigenous rights (Findlay et al., 2016). Service providers “face unusual burdens of not only meeting diverse Aboriginal community needs but also navigating cultural expectations of their own communities and mainstream society,” while, in the absence of federal and provincial government leadership, facing the added burden of educating mainstream Canadians about Aboriginal and treaty rights (Findlay et al., 2016, p. 2). When jurisdictional disputes led to tragic outcomes for First Nations children, Jordan's Principle was developed to ensure that “all First Nations children have access to health, social and education services to meet their developmental needs on and off reserve” (PAGC, 2021, p. 31). This situation is exacerbated in northern Canada due to the harsh weather which makes road or air traveling dangerous or even impossible for days (Browne, n.d.). Moreover, traveling to seek health care services imposes a financial burden on patients, in addition to being time-consuming and isolating. This need to travel to another community or city to receive health care services also takes a toll on patients emotionally as they could be separated from their loved ones and community in times when they need their presence. For instance, a pregnant woman might need to be away from her family and community that lacks hospital facilities, which in turn could negatively affect her mental and physical health and childcare (Browne, n.d.).

## **Cultural Safety and Racism in Health Care**

Many Canadians have a heritage, and therefore a culture and language, that is different from those dominant in society. This difference results in experiencing language barriers, lack of familiarity with the health system, discrimination, and power imbalance between patients and health care professionals, which in turn, leads to poor health outcomes (Browne, n.d.). A large body of literature investigated the adverse effects of racism in the health care setting on the health of populations. These effects include inadequate access to care (e.g., as a result of care avoidance because of negative experiences), stereotyping and stigmatization, and inadequate or discriminatory treatment, which in turn, can lead to poorer health outcomes. (CIHI, 2021; Harding, 2018; Health Council of Canada, 2012; Paradies et al., 2015; Smye & Browne, 2002; Turpel-Lafond, 2020; Vukic et al., 2012).

The Cultural Responsiveness Framework (CRF) underlines the important role that culture plays in the health and well-being of Indigenous peoples (FSIN, n.d.). Indigenous patients and their families report experiences, such as inappropriate health services, misconceptions, and even racism in the health care system (FSIN, n.d.). Systemic, institutional, and individual racism is one of the important reasons for these unfortunate experiences; however, in many instances, this may simply be the result of a misunderstanding, miscommunication, and a general lack of awareness of Indigenous peoples' values, culture, and belief systems (FSIN, n.d.).

Throughout the past few decades, there has been a growing recognition of the importance of cultural competency and cultural safety at the individual health professional and health organizational levels in achieving health equity (Curtis et al., 2019). The concept of cultural safety was developed, for the first time, by a Maori nurse leader in New Zealand within a nursing education context in response to the colonizing processes (Ramsden, 2002; Smye & Browne, 2002). Ramsden's definition of cultural safety was focused on the power imbalance between the nurse and the patient (Ramsden, 2002). The cultural safety and cultural competency concepts have been reconceptualized and redefined over the years. Curtis et al. (2019) examined the mixed understandings and definitions of these two concepts in a literature review. Based on their findings, Curtis et al. (2019) proposed a definition of cultural safety, while recommending a shift from cultural competency to cultural safety within the health context. Curtis et al. (2019) explain that, while cultural competency is mostly defined and operationalized “towards individualized rather than organisational/systemic processes, and on the acquisition of cultural knowledge rather than reflective self-assessment of power, privilege and biases” (p.13), cultural safety requires health care practitioners and health organizations to examine themselves and the impact of their own culture on health care delivery (Curtis et al., 2019).

Consequently, it is vital when delivering health care services to ensure that the services are culturally responsive. Various efforts have been made to make the health care system more sensitive to Indigenous culture. Among these efforts has been developing a Nursing Navigator role in Prince Albert's Victoria Hospital, among whose responsibilities are the promotion of culturally appropriate and safe care for Indigenous peoples to ensure that they have a positive

experience in Victoria Hospital (PAGC, 2021). Although this is an important initiative to promote a culturally responsive health system, not all health care professionals are yet trained to understand and respect their patients' cultures and needs. Without a doubt, recruiting Indigenous young people in the College of Nursing allows communication and building relationships between Indigenous and mainstream health systems and paves the way to establish a “middle ground” for engagement between mainstream and Indigenous worldview. This is, as a matter of fact, the strategic direction proposed by the Cultural Responsiveness Framework. Additionally, Indigenous graduates of the College of Nursing are more likely to practice nursing in the north and to be culturally responsive (FSIN, n.d.).

### **Shortage of Health Care Professionals**

Between the years 2000 and 2014, employment in health care and social work increased by 48% in Organization for Economic Co-operation and Development (OECD) countries, while the number of jobs declined in industry and agriculture (WHO, 2016). Moreover, the rise of the COVID-19 pandemic has shown the vital role health care workers play in such emergencies, and as such, the importance of the health care system's preparedness, including having a sufficient health care workforce. Furthermore, according to the World Health Organization (WHO) report, *Working for Health and Growth*, the health sector can contribute greatly to the economic growth of a community; a healthy population is more productive and can promote the economic growth of societies (WHO, 2016). It is estimated that the return on investment in health is nine to one (WHO, 2016).

Registered Nurses (RNs) are the backbone of the health care system in Canada. They are health professionals who work both autonomously and in collaboration with others in the health care system to deliver care to individuals (Canadian Nurses Association [CNA], 2015). Registered nurses play a crucial role through their leadership in practice, education, administration, research, and policy (CNA, 2015). Although most RNs in Canada work in hospitals, they can practice in a wide array of settings, such as residential care facilities, community health centres, independent practices, schools, colleges and universities, and government agencies (CNA, 2015). In remote and rural settings, registered nurses are the key primary healthcare providers, especially where physician services are unavailable. In such settings, registered nurses' roles are expanded to include a wide range of health services including community health nursing. These roles are tailored to the social determinants of health in the communities served and may include mental health services (MacLeod et al., 1998; O'Neill, 2010).

Currently, 136 Nursing Schools across the country offer Entry-to-Practice (ETP) pre-license education entitling successful graduates to apply for initial licensure/registration as a registered nurse, for instance (Canadian Association of Schools of Nursing [CASN], 2021). In Saskatchewan, there have been approximately 566 graduates from ETP programs annually, during the years 2015 to 2020 (CASN, 2021). Despite these promising numbers, Canada has been suffering a nursing shortage since before the pandemic (Canadian Federation of Nurses Unions [CFNU], 2022). In 2018, it was predicted that there would be a shortage of 117,600 nurses in Canada by 2030 (CFNU, 2022). A study conducted by a collaboration between the University of Regina and the Canadian Federation of Nurses Unions (CFNU) revealed that 83%

of nurses in Canada feel that their institution's core health care staff was insufficient to meet patient needs. Further, 73% of the nurses indicated that their institutions are regularly at overcapacity (Stelnicki & Carleton, 2021). According to Statistics Canada, there are 32,295 vacant regulated nurse positions, with nearly half (46.5%) of vacancies for RNs and Registered Practical Nurses (RPN) staying open for 90 days or more (cited by CFNU, 2022).

This shortage in the nursing workforce is observed to a higher extent in northern and rural areas in Canada. The lack of a sufficient number of nurses and the inability to attract and retain RNs in remote areas are in part due to the challenges in their working conditions, including long working hours, few colleagues to share the workload, the lack of extra or continuing education, and a perceived absence of opportunities for their spouses and children (Browne, n.d.).

The shortage in the nursing workforce not only affects the health of the population through poor access to health care services but also results in several negative impacts on nurses, on their mental health, high levels of burnout, and mandatory overtime, among others (CFNU, 2022).

The solution to the nursing shortage problem should be multifaceted and congruent with the complicated nature of this issue. While the working conditions should be improved for nurses to retain them in the health care workforce, the vital role of the universities and other post-secondary institutions to train new nurses should also be addressed (CFNU, 2022).

### ***Indigenous nursing***

A study conducted by McGrail et al. (2015) also confirms that there is a shortage in the health care professional workforce, especially nurses, in northern and remote Canada. Based on the available data from 2016, there is a gap between the proportion of Indigenous peoples in the whole population and the proportion of Indigenous nurses in the overall nursing workforce in Canada (College of Nursing, n.d.). Indigenous people make up 3% of the registered nursing workforce in the country but they form 4.9% of the overall Canadian population (College of Nursing, n.d.). In Saskatchewan, the situation is even worse; Indigenous people make up 7% of the registered nursing workforce while the Indigenous population forms close to 17 % of the population (College of Nursing, n.d.). The 2015 Truth and Reconciliation Commission of Canada Call to Action #23 calls for an increase in the number of Indigenous health care professionals (College of Nursing, n.d.). One of the compounding challenges of Nursing schools in northern and rural areas is recruiting faculty. Based on reports, the three most significant factors contributing to the lack of faculty in these areas include “lack of nurse practitioner, master’s, and doctorate-level candidates;” “lower salaries and fewer benefits;” and “remote location and small community size.” (CASN, 2021)

### **The Case of Saskatchewan**

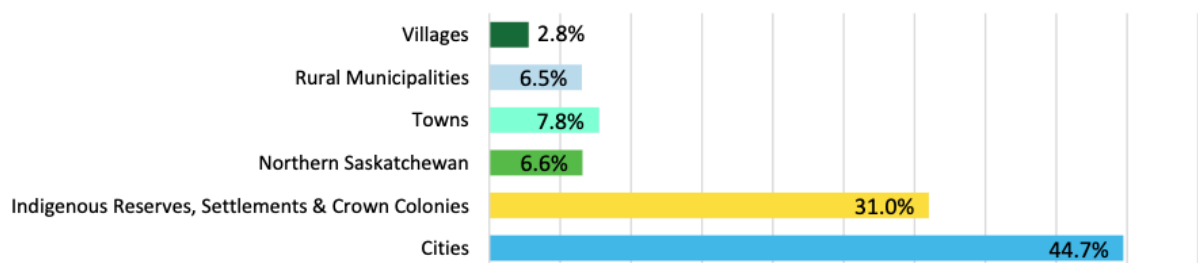
The land area of Saskatchewan is 588,239.21 square kilometres, with a population of 1,132,505 people in 2021 (Statistics Canada, 2022a). The Saskatchewan population density is therefore 2.0 persons per square kilometre, which is much less than Canada’s population density of 4.2 per square kilometre in 2021 (Statistics Canada, 2022a). Saskatchewan residents are relatively more



scattered throughout the province which highlights the importance of the evaluation and improvement of health and other service delivery.

The proportion of the Indigenous population in Saskatchewan is higher than in Canada overall; while the Indigenous population made up only 5% of the total population in Canada, 17% of Saskatchewan residents were identified as Indigenous, in 2021 (Statistics Canada, 2022f). In this year, 92%, 94%, and 52% of the population in Île-à-la-Crosse, La Loche, and La Ronge, were identified as Indigenous peoples respectively (Statistics Canada, 2022c, 2022d, 2022e). In 2021, 31.7% of the population in Saskatchewan lived in rural areas (Statistics Canada, 2022b). According to 2021 Census data, over half (55.3%) of the Indigenous population lived in rural areas of Saskatchewan as shown in Figure 1 (Saskatchewan Bureau of Statistics, 2022; Statistics Canada, 2023b).

Figure 1. Distribution of the Indigenous population by location in Saskatchewan, 2021  
(Saskatchewan Bureau of Statistics, 2022; Statistics Canada, 2023b)



A growing, young Indigenous population continues to experience higher rates of unemployment, lower earnings, and lower labour participation rates when compared with the non-Indigenous population in Canada (Employment and Social Development Canada, 2014; Statistics Canada, 2018). Although Indigenous people contribute importantly to Canadian society and economy, the 2019 National Indigenous Economic Development Board (NIEDB) progress report documents persistent disparities in income, education, and employment, despite the NIEDB's determination to reach parity with non-Indigenous people by 2022 (adding in the process \$27.7 billion annually to the Canadian economy).

The employment rate in Northern Saskatchewan at 38.4% (Indigenous employment is 32.4% and declining) is substantially lower than that in the rest of the province (65.1%). Youth are particularly disadvantaged in a province with First Nations employment rates for those aged 25 to 64 ranging from 31.1% for First Nations and 50.2% for Métis (Keewatin Career Development Corporation, 2016).

### **Addressing Inequitable Access to Health Care**

Various strategies have been implemented to address the shortage of health care professionals, especially nurses, in rural Saskatchewan. The Government of Saskatchewan, for instance, has responded by designing incentive plans to attract nurses and other health care professionals to work in remote areas (Government of Saskatchewan, 2022b). Another short-term solution is recruiting contract nurses. The number of contracted health staff has increased dramatically from

40 to 50 staff in 2019 to 260 staff in 2022 (Vescera, 2022). This increase places a greater financial burden on Saskatchewan's health care system when private contractors are paid significantly more than permanent employees (Vescera, 2022). Furthermore, hiring permanent rather than contract employees is a more reliable and sustainable approach to tackling the human resource crisis.

One relatively contemporary strategy to address the inequitable access to health care services, mostly in remote areas, is to focus on access to education in health care professionals' disciplines by promoting policies such as implementing distributed education sites in remote communities (Ellaway & Bates, 2018; Gudmundsson & Matthiasdottir, 2004; Leidl et al., 2020; UofS, 2018). In the following section, first, we briefly describe the importance of education in communities; second, we explain what distributed education means; and finally, we summarize literature findings on impacts of distributed education programs on host communities and regions.

## **Education**

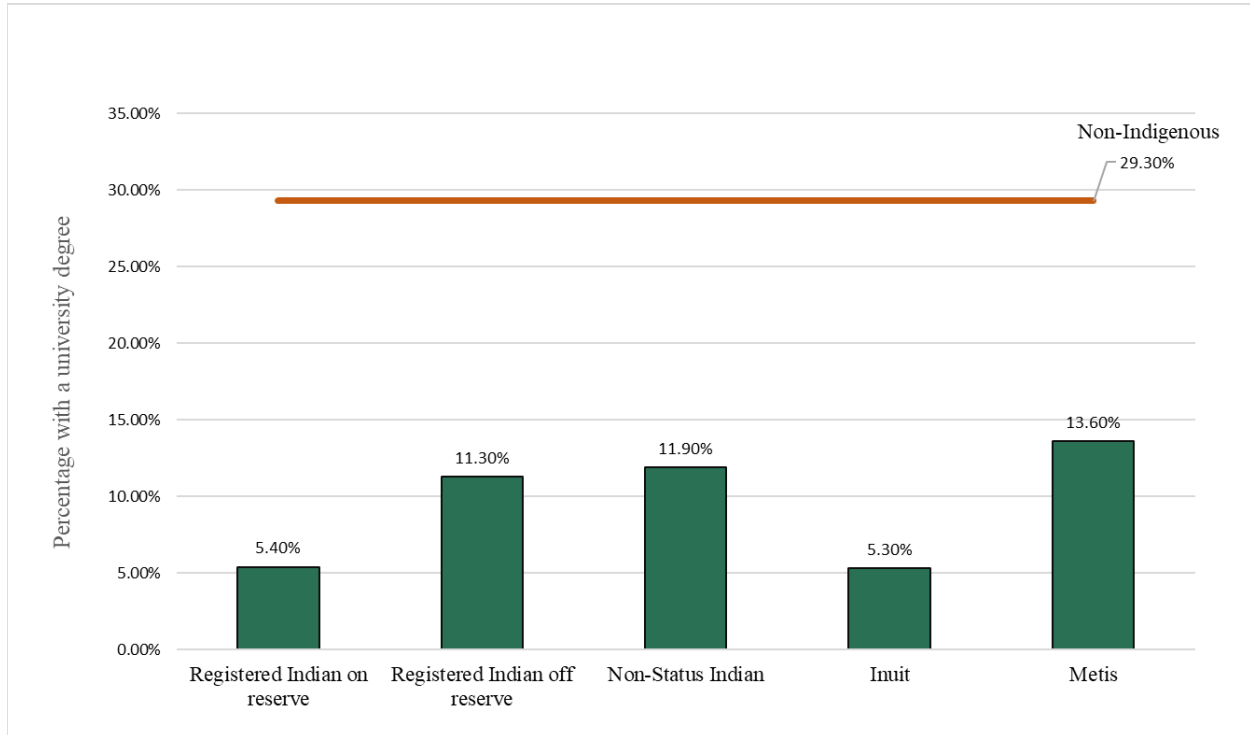
In Canada, post-secondary education is delivered mostly through universities and community and vocational colleges (Kirby, 2007). Although post-secondary education is not necessary for everyone to pursue their career goals, statistical evidence shows that people with a post-secondary education tend to have better employment opportunities and higher income as compared to those without a university-level degree (Howe, 2017; Indigenous Services Canada, 2020). At the societal level, there is evidence of direct and indirect effects of education on

national outputs such as national income (Breton, 2013). Education is known to foster economic prosperity through facilitating innovation and providing sufficient physical capital (educated workforce) to meet the demands of industry (Kirby, 2007). It is well-established that post-secondary education has a critical role in productivity and economic growth (Kirby, 2007). A cross-country study conducted by Breton (2013) found that educated workers raise the marginal productivity of physical capital and other workers. Breton's findings, however, indicate that while in highly educated countries the spillover effect on other workers is minimal, in less-educated countries the spillover effect is much larger. According to the evidence, the marginal return on investment in education is very large in less-educated countries (Breton, 2013). Further, the empirical evidence indicates that investment in post-secondary education has little or no incremental effect on national income beyond the effect of investment in education generally (Breton, 2013).

### ***Indigenous Education***

According to Census data, there is a huge gap in educational attainment rates between Indigenous and non-Indigenous populations in Canada (Arriagada, 2021). Although the number of Indigenous peoples attaining post-secondary education increased over the last decades, the disparities in post-secondary educational attainment rates between Indigenous and non-Indigenous peoples persisted and even worsened over the last decade (Arriagada, 2021; ISC, 2020). For instance, in 2016, the proportion of non-Indigenous women with a bachelor's degree or higher was 32%, whereas the same proportion for Indigenous women was 14% (Arriagada, 2021). Figure 2 demonstrates the gap in university degree attainment between the populations.

Figure 2. Percentage of population with a university degree among Indigenous and non-Indigenous populations, aged 25-64, Canada, 2016 (Source: Indigenous Services Canada, 2020)



Various factors play a role in the disparity in educational attainment between Indigenous and non-Indigenous peoples. Some barriers to post-secondary education for Indigenous peoples are racism, having to relocate, lack of guidance and culturally appropriate curricula, inadequate funding, and the impact of intergenerational trauma (Arriagada, 2021; Battiste et al., 2018). Indigenous and non-Indigenous students in northern areas face diverse difficulties in being successful in post-secondary education, including the range of student abilities in class, uninterested students, large class size, shortage of materials or equipment, shortage of computer hardware or software, inadequate curriculum design, lack of in-service programming with respect to new curricula, and external examinations or standardized tests (Anonson et al., 2008). One of the policies implemented to tackle these barriers for northern students is the Northern

Health Sciences Access Program started in 2001, which is a 10-month preparatory program delivering academic and non-academic skills development to students entering health programs at the post-secondary level (Anonson et al., 2008). Howe (2017) adds incentive for action by demonstrating that closing the education gap for Indigenous people **in Saskatchewan alone** would equal **\$137.3 billion in benefits** including reduced rates of criminality and welfare dependence, increased volunteering and civic-mindedness, improved childcare, reduced teen pregnancy, and improved health care or “half again more than the total market value of everything we do in Saskatchewan” (p. 2). According to the NIEDB (2019), Indigenous economic development and participation are key to closing the significant opportunity gaps between Indigenous and non-Indigenous Canadians and increasing Canada’s economy by \$27.7 billion annually. Summarily, a young and growing Indigenous population is, they make clear, a powerful untapped resource to drive Canada’s future economic growth.

### **Distributed Learning**

Distributed learning (or education) has been proposed as a strategy to enable students to study at the post-secondary level, regardless of where they live. The introduction of this type of education to train health care professionals, such as physicians and nurses, can help tackle the problem of an insufficient number of health care professionals in rural, remote, and underserved areas.

Distributed medical education in Canada, specifically, involves training medical students in diverse contexts, so that the learners experience various locations, cultures, and the types of communications that make up the Canadian health care landscape (Ellaway & Bates, 2018). In

other words, distributed medical education reflects the “democratization of medical education” in Canada (Ellaway & Bates, 2018).

There is inconsistency in the literature regarding the language and concepts associated with distributed education learning; in a scoping review, Leidl et. al., (2020) chose “blended learning” to account for any combination of face-to-face instruction with technology-mediated instruction, where the students and instructors can be separated by distance: “This definition encompasses blended learning, distributed learning, decentralized learning, hybrid learning, and flexible learning” (Leidl et al., 2020, p. 1).

Previously, there were significant concerns about the outcome of distance learning, with many believing that “real” learning happens in the classroom. Recently, in the face of the COVID-19 pandemic, a large body of literature provided information on both the benefits and challenges of distance learning (Tayyib et al., 2021). These studies found that overall, nursing students were satisfied with their learning experience through distance learning approaches (Tayyib et al., 2021). A meta-analysis conducted on available literature comparing conventional and e-learning in nursing education found that the size and direction of e-learning impacts on learning outcomes are highly context-specific, and probably affected by confounders, which vary from case to case (Voutilainen et al., 2017).

In Canada, several universities have employed distributed education to deliver education in the health care field to students who live in relatively remote areas. For example, the University of Victoria has been offering the Master of Nursing (MN) program through distributed education since 2003 (Molzahn et al., 2009). Interestingly, 37.8% of all ETP Nursing programs in Canada reported using some distance education delivery approaches, which may have improved students' access to nursing education (CASN, 2021).

There have been a few studies that investigated the different impacts of medical distributed education programs in Canada. In one study, Toomey et al. (2013) described the impact of a fully distributed undergraduate medical education program, the Northern Medical Program (NMP), on a small, medically underserved community by interviewing community leaders (findings discussed below). Another distributed education program that was evaluated by researchers was the Northern Ontario School of Medicine (NOSM) distributed education program (CRaNHR, 2009; Hogenbirk et al., 2015). Overall, participants interviewed in these studies described the impacts of NMP and NOSM on communities as overwhelmingly positive, while mentioning few negative effects (CRaNHR, 2009; Hogenbirk et al., 2015; Toomey et al., 2013). These studies highlight the importance of using mixed method approaches to examine the different impacts of distributed education programs. Below, we outline the impacts of distributed education as described in the literature on students, community, the health care sector, and the host university.



### ***Impacts on Students***

Toomey et al. (2013) found that the students enrolled in the undergraduate distributed medical program in rural British Columbia benefitted from this program by being exposed to the challenges and rewards of rural practice, as well as learning more about the impacts of social conditions on health, such as geographic isolation, and on Indigenous health. Similarly, NOSM undergraduate students spend about 40% of their time studying in Indigenous communities, small towns, and larger urban centres in Northern Ontario. This is a unique experience providing the students with a special training for clinical practice in northern, rural, and remote communities (CRaNHR, 2009).

### ***Impacts on Community***

The establishment of the NOSM resulted in great pride among the civic leaders as a symbol of their own accomplishment and as evidence of the existing opportunities in the north (CRaNHR, 2009); civic leaders believed that this medical distributed education program exists in Northern Ontario as a result of their efforts and because the communities fought for it with the government (CRaNHR, 2009).

Hogenbirk et al. (2015) studied the economic contribution of the NOSM distributed education program to communities in Northern Ontario for the fiscal year 2007/08 and found that this program resulted in substantial economic contributions, estimated at \$7,300-\$103,900 per pair of medical learners per placement, to communities. The economic contribution was greatest in

communities in which the university campuses were located (\$57.1 million), and an annual contribution of \$10.0 million was spread throughout the rest of the communities in Northern Ontario (Hogenbirk et al., 2015). Overall, it is estimated that the NOSM activities contribute \$67 to \$82 million dollar per year to the Northern Ontario economy through direct, indirect, and induced economic effects (CRaNHR, 2009). To study the economic impacts of the NOSM, the authors compared the economic activity due to the program's presence with the economic activity that would have occurred if the school did not exist (CRaNHR, 2009).

According to the interviewees in the NOSM study, this program created both short- and long-term jobs, primarily in the host cities (i.e., Thunder Bay and Sudbury). The short-term job creation was mainly related to the construction of new buildings, and full-time effects included the full-time faculty and administrative appointments, whose salaries associated with these new positions were thought to have substantial positive effects on the economy (CRaNHR, 2009). Furthermore, the skills of newly arrived spouses, who work in education, health care, or other sectors, also benefit the economy; however, this might lead to competition for jobs with current citizens (CRaNHR, 2009). According to the CRaNHR estimates, through direct, indirect, and induced economic effects, NOSM supports approximately 418-511 full-time equivalent jobs across Northern Ontario.

Similar to these findings, participants interviewed about the NMP in Prince George, B.C., mentioned that this program has positive economic impacts on the community by attracting new businesses and workers to the region and by bringing professionals to the town whose disposable

income can be spent in different areas in Prince George, and all these, in turn, lead to community development (Toomey et al., 2013). However, Toomey et al. (2013) advised a need for further research to examine the extent to which NMP has participated in economic growth and community development.

The NOSM study found that the implementation of this distributed education program in Northern Ontario has led to considerable administrative, infrastructure, and technological developments, all of which require future investments (CRaNHR, 2009). The interviewees underscore the importance of language in delivering care; for example, they mentioned that some medication errors might not have happened had somebody understood the patient's language, cultural context, or community context better (CRaNHR, 2009). Given the increase in the francophone and Indigenous students in the NOSM program, the interviewees expected that this trend would continue and eventually would alleviate the shortage of physicians serving these populations, which in turn would lead to more culturally competent health care services (CRaNHR, 2009).

According to the participants, the presence of the NMP program in northern British Columbia has led to the development of novel cultural amenities. Similar to the examination of economic growth, Toomey et al. (2013) argue that further research should be conducted to investigate the extent to which NMP contributes to cultural expansion in the region. Furthermore, the interviews point to the impacts of the NMP on education, such as increased awareness of, access to, and opportunity for local Indigenous and non-Indigenous secondary students to pursue health

education. The authors argued that their findings may be applicable to other medical distributed education programs in similar remote, rural, and underserved areas in Canada (Toomey et al., 2013).

### ***Impacts on the Health Care Sector***

According to interviewees in the study exploring the socioeconomic impacts of NOSM, this distributed education program has enhanced the reputation of the host universities and affiliated health care institutions, which in turn results in recruiting more physicians, health care professionals, and scientists to the north (CRaNHR, 2009). Overall, interviewees believe that the NOSM distributed education program will lead to alleviating the physician shortage experienced across Northern Ontario. For example, a hospital administrator in a smaller centre said, “at least three of the students from last year’s class have indicated [that] they want to come back here and practice” (CRaNHR, 2009, p. 24). Study participants anticipated that the graduates of the NOSM program would remain in the host communities, which ultimately could relieve the shortage in the physician workforce in those areas (CRaNHR, 2009).

Consistent with the NOSM study findings, participants interviewed by Toomey et al. (2013) also believed that the NMP will eventually attract more family physicians and specialists to Prince George (the host community) since physicians are more easily recruited there because of the existence of the NMP, and they further anticipated that these newly recruited physicians will stay in the communities due to the increased interprofessional stimulation and a positive work

environment that has emerged as a result of the NMP presence in the region. The Prince George community leaders also anticipated the retention of the NMP students in the region after graduation, particularly family physicians. According to this study's interviewees, the increased number of family physicians and specialists in the region would in turn lead to less reliance on emergency services for primary health care (Toomey et al., 2013). Furthermore, one health services leader in this study mentioned that the existence of the NMP would encourage a more evidence-based practice among health care professionals in the region (Toomey et al., 2013).

According to the Centre for Rural and Northern Health Research (CRaNHR) report, Northern Ontario's health care system has undergone transformation only over the five years since the NOSM was initiated; some hospitals have converted to teaching hospitals and interviewees believed that this transition has enhanced the hospital's image with the public. Additionally, focus group participants noted that NOSM was bringing cultural changes in the health care system, by introducing "new life" and "new ways of thinking" about education, research, and health care (CRaNHR, 2009).

It is argued that one long-term impact of distributed education programs for training health professionals is the health improvement of community members. According to the participants, one of the long-term impacts of the NMP would be the improvement of northern British Columbians' health status (Toomey et al., 2013). The improvement of patient-physician relationships, and therefore greater continuity of care, would in turn lead to improved health status (Toomey et al., 2013). In addition, distributed education may improve health by

influencing the development of education, media, politics, and the economy, all of which affect health status in the long run (Toomey et al., 2013).

One negative point that was raised by a NMP study participant was that as the physicians take the time to teach medical students, they cannot visit as many patients as they used to, which may result in a decrease in the physicians' income (Toomey et al., 2013). The NOSM study participants also shared a similar concern; they mentioned that the teaching activities might impede the delivery of care, and the teaching-related time burden has associated costs (CRaNHR, 2009). Nevertheless, the interviewees mentioned that the positive effects of the presence of NOSM students outweighed its negative effects on the delivery of care. They believed that the presence of the medical students has created a "culture of questioning," challenging physicians to keep up-to-date and leading to more evidence-based practice (CRaNHR, 2009).

### ***Impacts on the Host University***

In their study on the impacts of a medical distributed education program on the host communities in rural British Columbia, Toomey et al. (2013) found that this program can potentially increase student and faculty capacity and productivity in research over time. In addition, the University of Northern British Columbia (UNBC) administrators anticipated that the NMP would enhance the host university's credibility and amplify the number of students interested in pursuing the Bachelor of Health Science program as a gateway into the medicine program (Toomey et al.,

2013). According to the participants, not only did the number of students interested in undergraduate-level health sciences program increase among rural and northern Canadian students, but also the number of accepted students into this program increased as a result of the NMP implementation in the north.

Similarly, the NOSM program has also enriched the reputation of the host universities, according to the interviewees, which in turn led to attracting physicians and researchers to Northern Ontario (CRaNHR, 2009). Further, the establishment of the medical school in Lakehead and Laurentian universities has contributed to university faculty recruitment and possibilities for establishing other programs in the health field (CRaNHR, 2009). This boost in Lakehead and Laurentian reputation has led to increased interest among potential undergraduate and graduate students in studying in these universities, which was translated into a growth in the number of enrolments (CRaNHR, 2009). However, Laurentian's financial crisis has seriously impacted its reputation (Friesen, 2021; 2022). Particularly, interviewees reported an increase in students applying to specific health-related graduate and other health programs. Study participants underline the value of communication among the university, hospitals, and community partners, suggesting that the consultative processes involving all partners become routine to prevent negative attitudes towards NOSM operations within the community (CRaNHR, 2009).

## **The University of Saskatchewan College of Nursing Distributed Education Program**

The College of Nursing at the University of Saskatchewan launched the distributed education program for delivering a Bachelor of Science in Nursing (BSN) in La Ronge and Ile-a-la-Crosse in 2012 and in Yorkton in 2014 (UofS, 2018). Later in the Fall of 2022, the College of Nursing extended the Nursing distributed education program to Lloydminster, while the Regina campus stopped accepting new students in the Fall of 2022 (Melnychuk, 2022; Williams, 2022). Figure 3 shows the distributed locations in which students could take the pre-professional (first year) and second to fourth years of their Bachelor of Nursing degree across the province. The distributed education model has also been applied to other programs by the University of Saskatchewan, such as the Bachelor of Science in Education (UofS, 2019). One of the goals of implementing this model is to address the shortage of teachers in the north, which is similar to the College of Nursing's objectives to address challenges in health care services by focusing on the shortage in the nursing workforce in remote areas in the province. The Nursing distributed education program is also a response to the "strengthen the First Nations health workforce" objective in the Cultural Responsiveness Framework or CRF, which emphasizes the importance of the availability of resources that assist First Nations to enroll in health professional training programs and in the recruitment, retention, and advancement of First Nations health professionals in the health care system (FSIN, n.d.).



Figure 3. Learning sites providing year 1 and years 2-4 of the USask BSN program (Source: University of Saskatchewan, College of Nursing)



In 2020, 22.1% of BSc graduates at the University of Saskatchewan College of Nursing were Indigenous, one of whom testifying as follows: “It’s so much more than a job to me; it’s who I am” (Rediger, 2021). This Indigenous cohort could, in turn, help alleviate the non-representative nursing workforce in Saskatchewan, in terms of the percentage of Indigenous registered nurses in comparison with the Indigenous population rate in the province. According to the College of Nursing website, “The College of Nursing has set aside 16.6% of seats for Indigenous applicants who meet the minimum entrance requirements.” (UofS, n.d.)

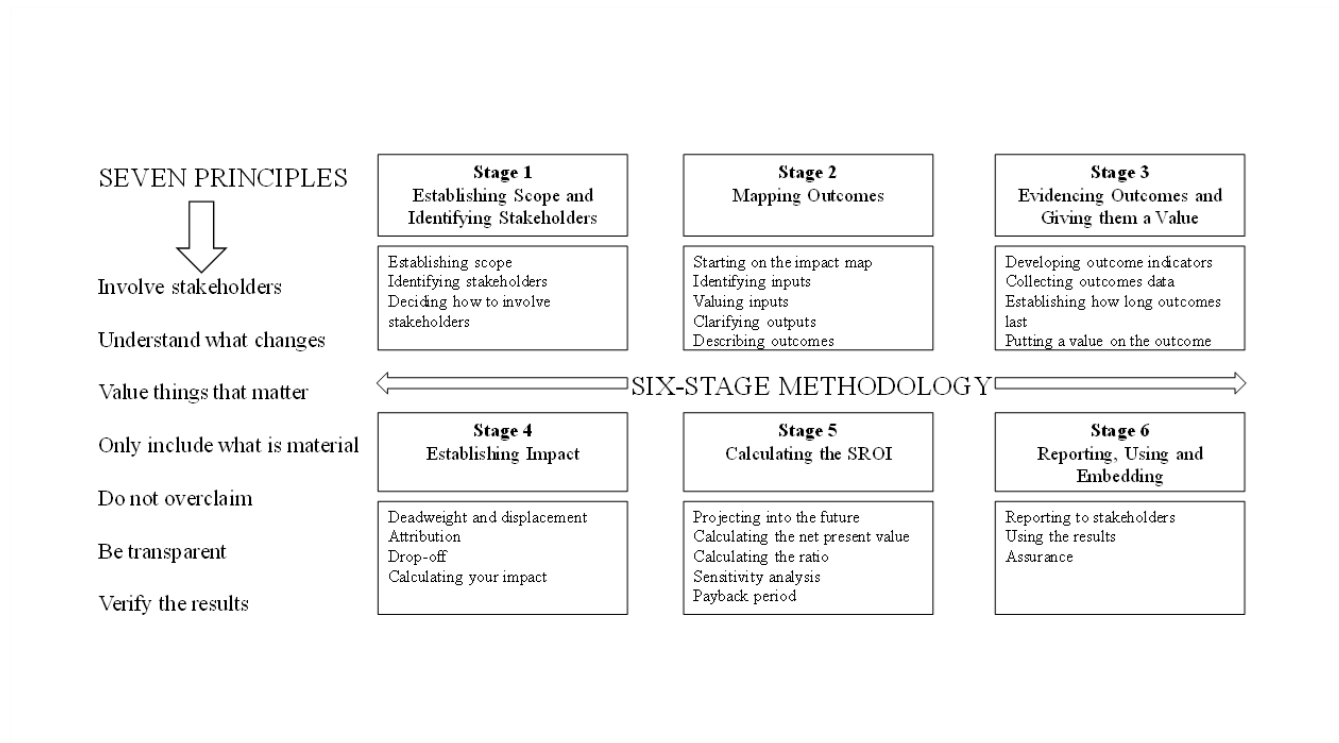
### ***Distributed Education Program Evaluation***

It is well documented that program evaluation can considerably contribute to the improvement of that program. Although the College of Nursing distributed education program (launched in 2012) drew inspiration from the report on distributed education by Pennock (2012) and benefitted from a scoping review of blended learning in undergraduate nursing programs led by Assistant Professor D. Leidl (Leidl et al., 2020) as well as the other literature discussed here, this is the first formal evaluation of the program. Given the huge investments in this program, it is critical to evaluate its outputs, outcomes, and impacts to promote evidence-based decision-making concerning this program. To evaluate the impacts of medical distributed education programs on education, health services, and the economy, Toomey et al. (2013) developed a list of over 15 quantitative indicators that could be tracked over time. In doing so, Toomey et al. acknowledge that not all the impacts of these programs could be captured by means of quantitative indicators, and therefore qualitative approaches should also be used to provide a fuller picture of the positive and negative impacts of the programs on communities. Both qualitative and quantitative data are needed for a comprehensive understanding of the impacts of academic clinical partnerships across such domains as “economic, human capital, social capital, knowledge, and place” on the communities they serve (Davies & Bennett, 2008, p. 535). The current study uses a Social Return on Investment (SROI) methodology, involving both qualitative and quantitative data to evaluate the short- and long-term impacts of this program on individuals, the community, the health care sector, the economy, and the university itself.

## **METHODS**

This research study calculates the Social Return on Investment (SROI) of the University of Saskatchewan, College of Nursing Distributed Education Program. An SROI methodology is a principles-based approach that assigns monetary value to social, environmental, and other impacts that are typically not valued in traditional metrics or measures of success. It gives organizations, institutions, and communities an important tool to assess the outcomes of their efforts, to communicate their success and impacts, to manage their risks, and to support evidence-based decision-making and optimal use of resources. In situations where the focus is often on the costs of services delivered by institutions or organizations, SROI highlights diverse values that the delivery of those services represents for communities. This SROI analysis uses financial proxies to calculate the College of Nursing's distributed education's social and other impacts. The accuracy of the financial proxies derived from reliable sources is as important as the power of the qualitative data to articulating the value of the intervention as well as the credibility of the analysis. In other words, the SROI represents the value of the distributed education program in the combined measures of the qualitative and financial data, stories shared about impacts that are hard to quantify and monetize and SROI ratios calculated in a currency (money) that is widely understood (Findlay et al., 2023). Figure 4 represents visually the seven SROI principles in the six-stage information gathering and calculation, reporting process.

Figure 4. SROI Methodology (Adapted by Findlay et al. (2023) from SROI Network [now Social Value UK], 2012)



The SROI methodology aims to do justice to social value and provide a fuller evidence base for decision making in both public and private sectors (Arvidson et al., 2010; 2013; Krlev et al., 2013). The six-step SROI process includes: 1) identify key stakeholders and intended/unintended changes; 2) list stakeholder inputs, outputs, and outcomes; 3) describe outcomes measurement; 4) list other factors such as deadweight (or a measure of the amount of the outcome that would have happened without the particular activity) and attribution (or assessment of the extent to which the outcome was the result of other contributions; 5) calculate social return based on relevant and reliable financial proxies; and 6) report, use, and embed (The SROI Network [now Social Value UK], 2012). Conservatism and stakeholder engagement lie at the centre of the seven SROI principles of the efforts to understand what changes when an intervention or

program is introduced, focusing on what matters to the stakeholders. Meanwhile, it is crucial to avoid overclaiming by relying on reliable and rigorous resources for verifying the results. When the focus is often on the costs of services delivered by institutions or organizations, SROI is an important tool that can highlight the diverse values of **the investment** the delivery of programs and services are to the community. This SROI analysis uses financial proxies to calculate the social and other impacts of the College of Nursing distributed education program, while being clear that, as SROI Network (2012) puts it, “SROI is about value, rather than money. Money is simply a common unit and as such is a useful and widely accepted way of conveying value” (p. 8). SROI is about translation, drawing on both the quantitative data or SROI ratio and the qualitative data to tell and give context for the stories of change in stakeholder testimony (Krlev et al., 2013). The SROI credibility depends on being open and transparent about judgements being made, spelling out conservative assumptions, and using relevant and reliable financial proxies from credible published sources.

The current SROI analysis builds on studies by the two lead researchers Findlay and Kalagnanam (Findlay et al., 2023; Ieren et al., 2023; Kalagnanam et al., 2019; Pham et al., 2020; Waikar et al., 2013) and our engagement in the ongoing work in measuring what matters using the SROI methodology.

Important literature findings are probed deeply through in-depth virtual interviews with key informants: municipal and other leaders, policy makers, teachers, students, family, and community members across rural, remote, and Northern Saskatchewan locations providing distributed learning nursing education. Interviews lasted up to 60 minutes and the findings

identify inputs, outputs, and outcomes for each stakeholder group to develop indicators relevant to outcomes measurement and hence the financial proxies needed to calculate the social return. Existing data in reliable data sources were reviewed in order to develop the financial proxies.

Prior to computing the social return, the research team considered the important factors of attribution, deadweight, and drop off (stage 4 of the six-step process of SROI). Finally, the calculations are based on very conservative estimates of benefits to avoid overestimating the social value resulting from implementing the College of Nursing Distributed Education Program.

### **Data Collection and Data Sources**

In-depth virtual interviews (via password-enabled Zoom meetings) were conducted with key informants representing diverse stakeholder groups (education, including students and families, instructors, colleges; employment, including Northern Labour Market Committee; health, including Saskatchewan Health Authority; Indigenous, provincial, municipal governments; policy makers and community members on potential costs and benefits). The interviews were conducted from March to October 2022. If participants agreed, interviews were recorded and transcribed by the CUISR research assistant. Interviews lasted up to an hour and the findings identified inputs, outputs, and outcomes for each stakeholder group to develop indicators relevant to outcomes measurement and hence the financial proxies needed to calculate the social return. The Otter website (otter.ai) was used for transcription purposes.

## **Data Analysis**

After all the interviews were transcribed and revised by those participants who asked for a transcript review, the research assistant imported the transcripts into NVivo 12 to perform the qualitative thematic analysis.

## **Limitations**

A limitation of this study method is related to the assumptions about the change that has been made by College of Nursing Distributed Education Program interventions and the extent to which outcomes are attributable to the program. This limitation is addressed by attempting to adhere closely to the key principle of conservatism. Another potential limitation is the number of participants in the study; finding additional participants was challenging for reasons such as the ongoing COVID pandemic, availability, and access.

## **Ethics Approval**

This study was approved on December 21, 2021, and re-approved on January 20, 2023, by the University of Saskatchewan Behavioural Research Ethics Board (Beh-REB #2969), which operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2 2018 and now 2022). Research was conducted in adherence with all standards required under institutional Tri-Council behavioural ethics practices. Consent forms and interview guides for each stakeholder group are included in Appendix A and B, respectively. Respondents were informed prior to their participation in the

study of the purpose and design of the research, their right to answer only those questions with which they were comfortable, their right to withdraw at any time up to aggregation of data in the report, and ability to provide input to the final document. Participants could opt in or out of having their contributions recorded and had the option to review transcripts in order to verify the ideas presented, introduce additional commentary, or correct any errors or omissions within two weeks of receipt of the transcript. Participants were also reassured that all personal data would be removed before the responses and interventions are analyzed and reported, that any direct quotes, opinions, or expressions would be presented without revealing names. Confidentiality would be further protected by allowing only the research team access to the recordings of the interviews and by storing the signed consent forms separately from transcriptions. The only case where confidentiality would be waived is when a participant agreed to have their contributions acknowledged. Data would be securely stored in the Principal Investigator's password-protected computer, backed up on One Drive-University of Saskatchewan, and stored securely for five years after publication.



## **FINDINGS AND DISCUSSION**

After reviewing the data sources consulted for the study, we discuss stakeholder groups and numbers before reporting our findings.

### **Data Sources**

#### ***Documentary Record / Data Review***

Existing data and information related to the College of Nursing distributed program were reviewed. Such sources included annual reports of the Northern Nursing Program (Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Annual 2016) and Southern Nursing Program (Yorkton – 2014, 2015, 2016, 2017), stakeholder analysis reports (Yorkton and Regina – 2018; Northern - 2018), Distributed Education Strategy Development, and RN education performance indicators for the UofS College of Nursing.

Statistical information from the RN education performance indicators was used to create the impact map and for the calculations throughout the report. The RN performance indicators included data such as total undergraduate applications and admissions, admissions by site, Indigenous and International enrolment, total graduation by program and site, Indigenous and International Graduation and percentage of UofS graduates passing the NCLEX on first attempt.

These quantitative measures are importantly complemented by qualitative data from the key informant interviews.

### ***Interviews***

The research assistant conducted key stakeholder interviews with students, families, health care professionals, community members, policy professionals, municipal leaders, labour market experts, school principals, college administrators, and instructors. A total of twenty-nine in-depth interviews provided knowledge of and insight into the impacts of the distributed education program on individuals, communities, the health care system, and the economy. See Table 1 (note that some interviewees represented more than one stakeholder group).

Table 1: Number of Stakeholder Interviews

<b>Stakeholder Group</b>	<b>Number of Interviewees</b>
Students	5
Health Professionals	4
Policy Professionals	2
College administrators	6
Instructors	2
Health and policy professionals	2
Health professionals and family members	1
Health professionals and community members	2
Policy professionals and community members	3
Employment sector and community members	1
Policy professionals, family members & employment sector	1
<b>Total</b>	<b>29</b>

## Qualitative Data Analysis

A logic model was developed by the research team to present the program's components and how they relate to one another. It illustrates the inputs, activities, outputs, outcomes, and the intended short- and long-term impacts of the distributed education program.

Figure 5. CoN Distributed Education logic model

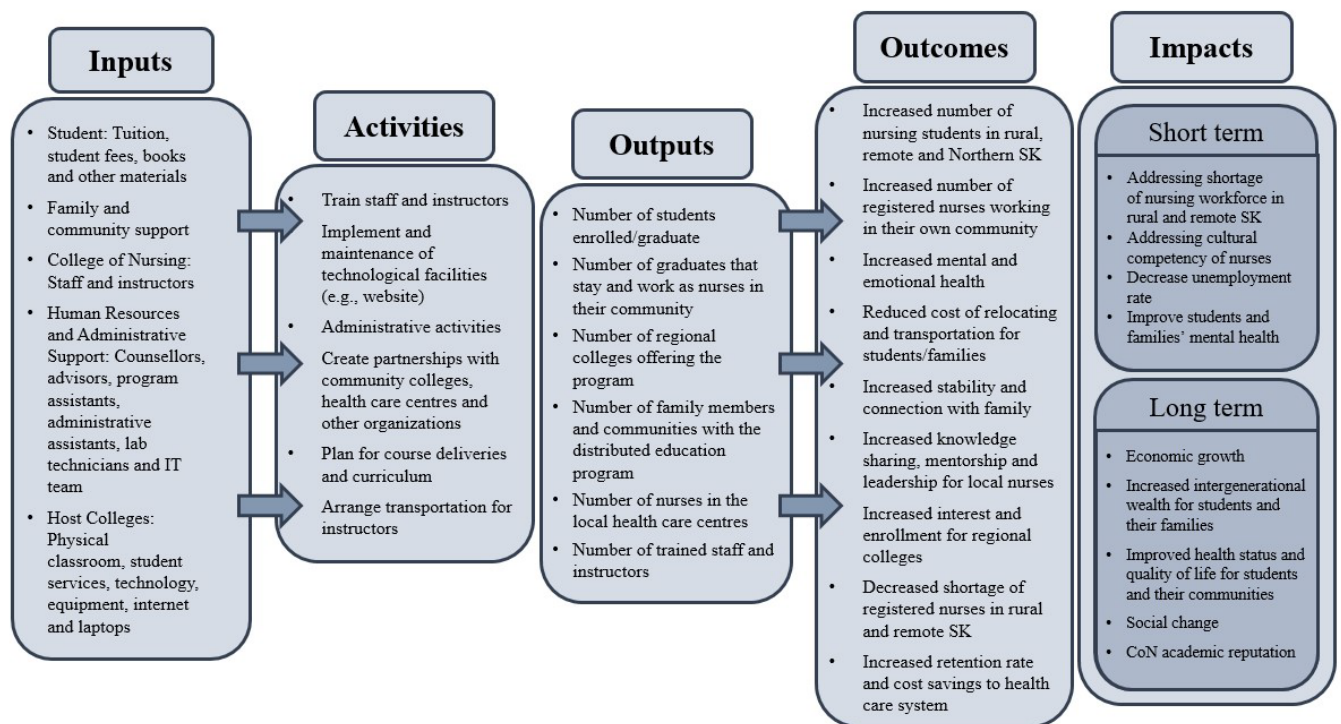
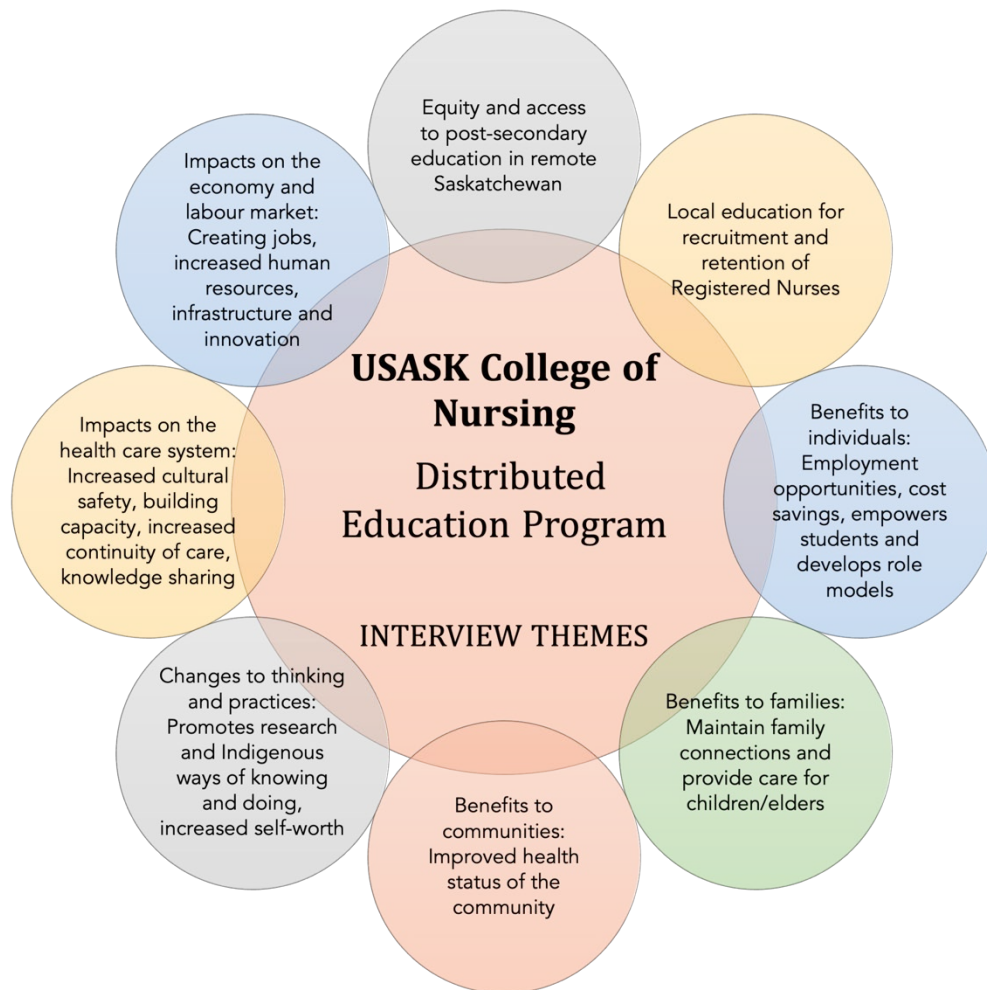


Figure 6. CoN Distributed Education Interview Themes



### Equity and Access to Post-Secondary Education in Remote Saskatchewan

To gain high quality training and education, people from rural, remote, and northern areas of Saskatchewan previously had no choice but to uproot their lives and move great distances, compounding the jurisdictional, geographical, and economic barriers to obtaining a post-secondary education. Against that background, several students spoke about how access to the

distributed learning program provided a viable, equitable, and enabling option. A former student expressed her concerns about moving to the city to complete her nursing degree:

The one main barrier that was really holding me back, besides my boyfriend, at the time was feeling intimidated from being in a small, northern town. The thought of going into a big city ... I was scared. I was intimidated. I was only 17 years old. I didn't know what I would have [done] moving away from my family and experiencing this whole other atmosphere. And I think that was a big barrier for myself because I was scared. I was young, in high school, and didn't know what to expect if I moved four or five hours away from my family.

Another respondent reinforced the barriers that students face when they have to leave communities for urban settings for their post-secondary education:

There are a variety of barriers that exist whether that's mental health/anxiety, intergenerational trauma from residential schools, systemic racism, economic availability or lack of family support in the larger urban areas. In an Indigenous community, where 90-98% of the people are Métis, their family, community and well-rounded support is available. So, creating that context in the city becomes a little bit more complex and we also know that racism is alive and well.

As Battiste et al. (2016) point out, studies analyzing Indigenous post-secondary student success often focus on quantitative measures of graduation and employment rates, compounding “perceived deficiencies and dependencies based on the inequities found as Indigenous youth journey through the conventional educational systems rather than on the systemic challenges facing Indigenous students, staff, and faculty navigating a system that has privileged Western

knowledge as guarantor of systematic, rational thought and source of progress while actively excluding Indigenous knowledge and sensibilities” (p. 1). However, they also note that post-secondary institutions are also increasingly “advancing a reconciliation model where students are raising their voices and postsecondary institutions are listening and learning to become more welcoming and proactive in delivering Aboriginal programming” (p. 2). The distributed education program brings opportunities for many people who wouldn’t otherwise have an opportunity to go to school in Saskatoon or a larger urban city as suggested by one student: “Accessibility is a strength of the program, and they provide high quality education. There is a benefit to encouraging local residents to enter the nursing profession within their local communities, because they are most familiar with their communities and their strengths, weaknesses, and opportunities.”

Among persistent barriers in mainstream education are language barriers for those for whom English is often the second language in rural, remote, and northern communities; little flexibility or support is offered to address these barriers, including additional resources, mentoring and tutoring to successfully complete post-secondary education. The transition between high school and university can be difficult enough without access to properly resourced education and skill development. In remote schools, for example, levels of investment have often left science and math programs under-resourced, adding to the difficulties students often face when transitioning to university. One educational administrator explains that there is a “health science gap, especially if we don’t have health professions.” The concern for students’ interest in health care was articulated by another interviewee, “How do we get our kids, our students excited about the potential of working in healthcare?” Furthermore, when there are few health professionals

working in the communities, it can be difficult to get students excited about the health care industry. This is where distributed education can stimulate interest and excitement, building capacity within and beyond nursing in the process. An educational administrator mentioned that it is important that students are engaged in their health science courses offered in high school: “I think that it’s really valuable that students get excited about health careers, then the potential of other gaps beyond nursing can be filled too.”

Financial support is usually needed whether or not students pursue post-secondary training away from home. As more First Nations students are recruited to attend universities, especially at graduate levels, the dollars available for band support can prove inadequate (Council of Ministers of Education, Canada, 2010), adding to pressures for more bursaries and scholarships (Battiste et al., 2016). Reserves may or may not be able to fund a student. Sometimes financial support is provided, but it might not be enough. Another barrier is transportation since there is no access to public transportation in rural and remote areas of Saskatchewan after the provincial government shut down and sold the assets of Saskatchewan Transportation Company in 2017-2018 (CBC, 2019). Students would have to be able to afford cars and fuel or pay a private taxi or other provider to go to school in the south. Although the distributed education has reduced some barriers of schooling, transportation issues still exist. The cost to provide students with local transportation to get students to and from campus in the remote and northern communities is very high.

Another major issue for students with children is the accessibility and affordability of childcare, which can make it very difficult for students to provide for their children, while also upgrading their education. One student who had a child during her education mentioned the significant benefits to her local education enabled by distributed education:

I was able to do the whole program, the four-year degree, in La Ronge, where I was raised. So that was a big positive. Another positive is that I had a son in my second year of nursing. So that made it very difficult to do schooling, but it made it more so accessible, because I had my son in the same town that I was taking my nursing program. There's a lot of positives.

### **Local Education for Recruitment and Retention of Registered Nurses**

The program is targeting students that are choosing to do the program in their communities and, therefore, as the literature makes clear (Findlay et al., 2016, for example), they are more likely to stay in the community. Access to education can address the potential gap between Indigenous and non-Indigenous populations (Arriagada, 2021). The ability to complete the entire program and not having to relocate to a larger urban centre is a huge benefit as observed by a student. “The program is adaptable, and they are willing to meet students where they are at and allowing them to stay closer to home.” A mother and health care professional highlighted the importance of education accessible in her local community to the students, family, and the health care system:



I'm also the mother of a daughter who's currently in the nursing program at the U of S....

I also feel that not only does it keep people locally, because they are studying locally, and they're more likely to look at having their preceptorships with their placements locally. I think it gives more opportunities for the health system to actually recruit those students afterwards. I think it gives more opportunities for students, simply because there are some students and families that would be able to afford tuition and schooling if they were able to still live at home. I will say as a parent, it is extremely cost prohibitive to send your daughter to a city; they now have to find housing, you know, all of that other stuff, and go to school. We have saved thousands and thousands of dollars on room and board.

Students are also more likely to stay in the communities if they have experience working in rural, remote, and Northern Saskatchewan. When asked about finding a nursing job after graduating from the program, a student said, "Yeah, luckily, I got a job through the placements I did in La Ronge. I was able to make connections and network. So, I had people who I could ask directly to see where and how I could apply to make it possible for me to work for that organization." A student's family member mentioned the local retention benefit of educating in the community where students could be effectively supported: "I do honestly believe that the more you can keep the education local, we are going to keep those students local. Again, because that's what they're familiar with and where they're receiving some of their supports."

It has been beneficial to have nursing students trained in the North and there has been an increased number of local Indigenous nurses, but insufficient to cover all the vacant positions. A

college administrator was hopeful that the program would address the nursing shortage: “I certainly believe it would help the shortage. It’s really hard to recruit nurses to rural areas; it’s incredibly challenging.” Another health care professional mentioned that it was helpful to have students graduate from the program before directly working in the health care system in rural and remote areas, especially during the pandemic where the need was even greater: “And certainly throughout COVID, we were able to hire a lot of third-year nursing students, and then when they graduated... I think that it did make a difference for the number of nurses that were here.”

Another strategy mentioned by a health care professional involved working differently and more collaboratively:

There is a greater focus on mental health and addictions... looking into what we can do differently with the [health] teams that we already have... there are certain changes happening such as the Saskatchewan Health Authority’s joint actions with First Nations partners... trying to create more collaborative teamwork in the North.

The strategy to address the shortage in the nursing workforce builds on the Aboriginal Friendship Centres of Saskatchewan’s (AFCS) partnership with the Saskatchewan Health Authority on a one-year pilot project, First Nations and Métis Health Services. Since the COVID-19 pandemic, the past two years highlighted the increasing need for accessible mental health supports for staff and clients. The challenges and uncertainty have taken a toll on the resiliency, mental health and wellbeing of people (AFCS, 2022). The Saskatchewan Health Authority with First Nation

partners have made this a top priority. This focus on mental health supports could potentially make an impact on recruitment and retention of nurses.

## **Benefits to Individuals**

### ***Increased Employment Opportunities***

When people are able to invest in themselves for the future and have the opportunity to further their education, as studies show (Howe, 2017, for example), the individual will likely earn higher wages. This gives a person the advantage of options to apply for jobs in different locations. Better jobs and wages can be very beneficial for the quality of life; hence, breaking down the barrier of access to education through the distributed education program is very impactful (Arriagada, 2021; Breton, 2013; ISC, 2020). The Assembly of First Nations (2010) highlights that First Nations have the right to maintain their cultural and linguistic identities, and education is essential to actualizing this right: “The First Nations control over education will provide the means to acquire the necessary skills to be self-empowered and self-sufficient and to maintain First Nations cultural values and languages. This is essential to actualizing an individual’s success in society. It will also provide a strong foundation for empowering proud First Nations peoples who are fully able to contribute to the development of their families, clans, communities and nations” (AFN, 2010, p.4),

### ***Empowered Students and Role Models***

The distributed nursing program empowers both students and community members. The impact of one student can ripple through their communities where graduates are perceived as role models and mentors to others. A former Nursing student articulated this benefit as follows:

You can do anything you set your mind to. Before I had a lot of self-doubt because I had been out of school for 15 years, I had kids, and I was 32 years old when I decided to go back to school. I think this program made me realize that I can do anything that I put my mind to. The emotional support was a big factor for me. And just knowing that you're committed and a small community of like 2000 people, know that you're going to school, and they kind of look up to you after that. It gives you motivation to do better and to come back and show them that things like this are possible. Nursing is a hard program, and we hear that all the time. Just for others to know that a community member did that so I can for sure do that . . . so being seen as a role model puts a bit of pressure on you, but I think it benefits everybody in the community.

Another student expressed “how valuable it’s been for [them] to be able to pursue the education while continuing to be a part of their community and support their families, whether that’s extended family, immediate family, or others. A student who graduated from La Ronge describes that the positive experience of “being with other students that are from the community or even further up north or another community nearby.” She also states that having classmates with similar experiences was valuable because “we all have an idea of what it’s like, because we all came from around the same place. So, we all had similarities.” A college administrator added that “having Indigenous students work in Indigenous communities is so empowering.”

### ***Positive Adult Learner Environment***

The distributed model and virtual learning structures constitute a very powerful tool and can support a positive adult learner environment. The smaller class sizes are a strength of the program because it creates a more intimate setting with classmates and instructors. The instructors make themselves available to students and students have mentioned that they felt supported throughout the program. A student indicated that “it was nice having the one to one with instructors.... It was nice to have that as an option where we could ask questions and get answers right away from the instructors.” Since the program was online, it prepared students for the online NCLEX exam where similar questions were asked. Furthermore, having students in the rural and remote hospitals is very impactful when students can spend more time with patients and the level of care increases. According to a health professional, this is especially beneficial:

The students have time to spend with patients in the hospital and I’ve heard this from people that they kind of feel more supported by the students, ... because the students have more time. So, I think that it is definitely a plus, because the regular staff are so busy and [health care centres] are short staffed.

### ***Cost Savings Associated with Avoiding Relocation***

Students who can live with families can achieve significant savings by avoiding costs associated with relocation such as incremental rent and living expenses. There are also cost savings of time and money for travelling to and from the urban centres to visit family throughout the school year. Additionally, individuals are more likely to obtain employment since practicums are hosted in the communities. For employment purposes, familiarity of a workplace provides a higher chance

of securing employment after graduating. A profession like nursing is a lifelong career that certainly impacts and sustains an individual's livelihood.

## **Benefits to Families**

### ***Maintained Family Connections and Care for Children/Elders***

The distributed education program also provides benefits to families. Students not having to relocate to Saskatoon or another urban centre for post-secondary education offers a significant benefit to their families whether it is a spouse, mother, father, or grandparent who face little or no disruption. Students can care for children and other family members while pursuing their education. A student, also a mother, explained that she was unsure if she would have been able to complete the program had it been in Prince Albert or La Ronge:

I was able to stay close to home and that was a big plus for me. I wasn't home all the time, and I still had the evening sessions that I had to attend, but being able to stay home, being able to be close to my kids was a big benefit. If I needed to be there for my kids, I was only an hour away or I was close by. This was important to me. I don't know if I would have completed the program if it hadn't been in Prince Albert or La Ronge.

A health care manager reinforced the point: "I think there's huge benefits to having parents at home rather than having to live elsewhere. And to maintain those family connections and have a bit of normalcy while [students] are trying to go to school. There are big benefits of the program to families."

## **Benefits to Communities**

### ***Improved Community Resilience and Health Status***

Ripple effects of the distributed education nursing program extend to the communities to which students belong. This was articulated by a health care professional as follows: “I think for nurses in places that are short-staffed, having the ability to take positive action by educating someone who wants to stay, helps them have some control, and input into the solution. So, I think it’s empowering for the nurses that work in that community.” Health care services impact the economy and labour market of the community. Having the program is beneficial to communities because if there are more nursing positions filled, “there will be ripple effects seen throughout the community eventually impacting the health status of the community.” Having more opportunities and attracting young, vibrant people to remain in the community keeps the community alive and healthier. Health professional interviewees put the multiplier effects on community renewal and resilience very well:

I’m Indigenous myself and when I think about dropping a pebble in water; it just starts to ripple. And there are ripple effects you might not necessarily see way off in the distance, but you know, that they have been impacted by that initial pebble in the water. So, for our nurses, it’s the same thing. They are individuals in the community, but their interactions every day as they live in this community as they are learning can contribute back. And it’s not just about being better parents, but it’s maybe contributing back through getting healthier food choices, giving professional consultation on certain things...And I’m finding that in the community, some people leave, but then they always come back. And

I'm really in awe of the contribution that they bring back into the community. So, it's a win-win.

Because if they can hire a local nurse, why wouldn't they? And especially with a lot of our population being Indigenous and having an RN who can speak the language means so much for our elders. It would make a difference to be able to communicate with an elder in their language.

If there is somebody who is a nurse that can answer questions, it can lead to conversations about health and people taking care of health issues with their children or parents, potentially leading to better health outcomes. Skills learned through the nursing program can support better and healthier parenting, and understanding roles of nutrition, for example. It could also improve current programming, and the general health of the community and population. Having the College of Nursing as a base allows for the potential of other training and opportunities. Also, through these programs, research-related activities can have an impact on the community and health care approaches to benefit the population.

A student expressed their gratitude for the program and future opportunities it offers, explaining that it has benefitted herself, her family, and the community:

I was able to do it. And I was able to go to school and be able to become a nurse so that it benefited my family, because now I have a degree in something. And there's plenty of jobs to go around for that. And I can always advance into different positions, or advance



my knowledge to be a nurse practitioner, and various positions like teaching. So, just economically, it benefited my family in that sense. But it also benefits communities in a broad scale of being so proud of our people, in different communities, going into the program and coming out. [The community] sees in our newspapers that communities are full of the graduates.... And everybody's so proud of these programs in the north, and that we're able to provide these services in different areas not only nursing, but there's also different programs that they're offering. But the biggest in Île-à-la-Crosse is nursing.

## **Changes to Thinking and Practice in Communities**

### ***Increased Feelings of Self-worth***

Having people in the community, family members, especially youth see that someone has successfully graduated from this program can add importantly to empowerment, inclusion, and strong feelings of self-worth that can drive social and economic participation to the benefit of all.

Data obtained from the Office of the Chief Coroner reveals that between 2005 and 2016 the rate of death by suicide among First Nations people in Saskatchewan was 4.3 times higher than the rate among non-First Nations people in the province. Further, the number of suicides by First Nations men rose by 50% between 2014 and 2015 – and remained elevated through 2016 and 2017 (Federation of Sovereign Indigenous Nations, 2018). If they understand that the RN is making a good income, this could potentially have an economic driving benefit. Seeing a role model in the community could attract more people into health care careers. A respondent mentioned, “Someone who drives a path for themselves and sets up a plan for their life and sees it through is likely to be verbal about it. It would be important for anyone to have a mentor like

that.” In an area that has experienced so much underinvestment and marginalization, mental health issues, such as depression and high suicide rates, people may not see a path forward. If there is a beacon in the community, family and friends it can definitely benefit the whole community. It also gives a sense of satisfaction to parents who have children in the nursing program, an educational administrator and mother explained:

There’s sense of satisfaction because you don't really have to worry about [children in the nursing program] as readily as you would a child that might be struggling.... Then the children can help each other out. I mean, if you have a nurse in the family, I'm just using that as an example, that nurse can help to enlighten other siblings or children on certain things. Or maybe... as my daughter said, years ago... ‘My mother [went] to university... and everybody goes to university, don’t they mom?’ And she just thought that so, I think it provides young people opportunities and the understanding that post-secondary education provides a viable way of life and livelihood.

### ***Research, Innovation, and Indigenous Ways of Knowing and Doing***

A strength of the program is that local people are getting trained and hired for the distributed education nursing program, providing an opportunity for local public health nurses to be mentors and leaders for the students. Having the program shows great potential to understand and have a research perspective on care patterns, specific care challenges that are facing different communities, and why certain populations may have different health outcomes, health trends, and patient outcomes. An expert in the education sector pointed to spillover effects:

When people are doing well, in communities, you see the spillover to other facets; you see the increased standard of living. You see the educational components of the way

people think in their communities and how communities problem solve. So now that you're a professional and you have background in research ... there's a huge impact, not only from the education perspective, which I think personally is the solution for many of the problems we face, but also how well people are doing in their community.

Another health professional mentioned the potential to make impacts to the community through research:

Often through these programs, a lot of research-related activities can be anticipated and can have a continuing impact, in the north... [for example], learning or developing new service delivery methods that may be slightly different in terms of how it should be approached so that it benefits this specific population.

A health care sector participant mentioned that thinking and practices can be changed through challenging the students to bring new ideas, the latest research information and technology to the health organization. Students bring new energy—and questions—into the health centres and can be very motivating to others around them.

[Student] learning is based on some of the latest research information and technology. I challenge [them] to bring those ideas out. It definitely benefits us as a health organization. When we have students doing their practice with us, it also challenges our staff in a way because students ask a million questions, and because they have to.... And I challenge those students to ask those questions. Ask their preceptor.

Also, students that are actively engaged in physical activity bring new ideas and initiatives to the community by making ski trails or assisting with the dog sled races. “It’s not just the students, but us as leaders, who are positively impacted,” as one health care professional put it:

I think the fact that post-secondary opportunities exist in the community elevates a community’s thinking process in terms of what can be done, what has been done, what opportunities exist in the community. So, I think it's a positive in the realm of understanding the opportunities of academia. But I also think it further entails people in the community that now are professionals with a higher level or standard of living. The thought processes around that increase as well.

## **Impacts on the Health Care System**

### ***Cultural Competency for More Responsive and Effective Care***

Nurses with cultural competency improve patient care. Elders, for example, would be more comfortable in accessing health care services in health care centres where they feel understood and respected after a long history of colonization within health services. It would make such a difference to have Indigenous nurses that spoke the language and could relate to them and provide them with appropriate care.

The program attracts students who have grown up in the northern communities and those that already know the culture of the North. Nurses that have this lived experience in rural and remote areas of the province are more likely to better meet the needs of these areas. These future health care professionals want to see the best possible health outcomes for their community. Having a

knowledge base about the culture and knowing the people and surroundings is a huge benefit. Having local residents take education and serve their community members is a positive step towards practicing culturally sensitive and patient-centered care. A former student appreciated being able to educate from home and described how it is currently impacting the community,

Because I was able to take my nursing in La Ronge, I was already a community member of La Ronge. When they hired me at the hospital and at my current job at the clinic, my patients or clients benefit from having somebody that's a local person compared to somebody that might be from a different province or a different country or from down south. Because of that, I feel that I'm able to give better and to better health care, because I'm from the community. I understand being a member of the community.

A former nursing student highlights their love for the community and wishes to give back through their nursing career. Additionally, the student emphasizes the importance of bridging the gap of Western and Indigenous health care practices:

I always wanted to work in my community. But overall, I wanted to stay in the north. I have so much love for my people and so much love for my area. That's why I went to nursing, to help these areas and to contribute something. I want to help bridge that gap between Western practices and the beliefs in our culture. So, it's wonderful that I had this chance, especially working in public health having an upstream approach, rather than downstream.

A community health care professional calls attention to the importance of culture and language in providing health care services saying,

Many of these most of these students are from the area, so they're familiar with the culture and with the language, which is very important. When we see students graduate and then come to our facilities and gain employment, they're bringing that knowledge. They're bringing that cultural background. They're bringing that language, which is so important in Northern Saskatchewan to be able to speak the language of the people that you're serving. And I think it makes families feel so much more comfortable. They feel more at ease when they're accessing care.

The respondent continues to describe "the importance of having one [a local nurse] serving them". Furthermore, the respondent highlights the success of the distributed education nursing program: "from an organizational perspective, there are seven nurses that I know have graduated and that are employed with us right now.... That's seven employees that we didn't have before."

A health care manager also identifies the importance of language:

I feel it definitely improves the health outcome, because prime example is the Cree language. I have nurses that speak fluently in that language and being able to communicate and get to the core of the problem versus when they're in the hospital. They don't always have a liaison worker that speaks the language. So, really things get missed. So, advocating in the languages is a big plus, and you get that when you get people from the community. And then also just the understanding of the culture.

A nurse reinforced the point about language competency:

But the nice part about it is that there's some people that have come out of the nursing program that speak the language, and their contribution is huge, to the nursing program overall, because then we have someone there that speaks the language, and we actually understand them.

When local people are becoming nurses, there is a potential for understanding the deeper issues in the health care system and adapting services as needed. The health care system in rural, remote, and northern areas of Saskatchewan will have responsive and culturally safe services provided by people that understand the history and background of the community. One student stressed the importance of understanding the diversity of Indigenous peoples and their teachings:

There are very different cultures and communities of Indigenous peoples. So, there are very different teachings for each area (e.g., Dene, Cree, Métis). There are Treaty people and non-status people. They are mixed, but we all very much work together. Just with colonization and our residential schools, it took away our culture. Young people are relearning the culture and trying to bring it back to teach it to the younger ones of our heritage. So, practicing and knowing the medicines that are within the land can be very different under the subset of cultures, but we work together as much as we can. There are still things that are complicated, and we are working towards making it better in our communities. It's working together to bridge the gap within health as well, right? For so long there's been so many difficulties.

### ***Increased Continuity of Care for Patients***

Continuity of care and the respect for the patient's story is important, as a community member mentioned:

There's nothing worse than sitting down with somebody, whether it's a nurse or a doctor, and they say, 'Can you give me your health history?' and you think, oh Lord and then you have to go through your whole history because they don't know you. People have to start over every time because it's always new people in the health care system and in Northern Saskatchewan it is a revolving door. Every time you see somebody at the clinic, it's all new people, so you have to start over every time.

### ***Building Capacity and Addressing the Shortage of Health Care Providers***

Having local nurses trained in the community through the College of Nursing distributed education program can help address the shortage of nurses and health care professionals in the community. These graduates will fill leadership roles (informal or formal) in the future. There has already been impacts seen, for example, as mentioned by a community health manager, during the pandemic, "grad nurses were hired for the COVID-19 team" in public health and this was very favourable during these hard times for the health care system.

It builds local workforce excitement for the future because local nurses are also participating in the training of students who will likely become co-workers. Furthermore, since local health centres ensure the presence of trainees and nurses in all the communities, it has great potential to improve and stabilize access to health care services with a local workforce.



### ***Knowledge Sharing between Nurses and Students***

It is beneficial to have an extra pair of hands and the knowledge shared between the nurses and students is invaluable. The clinical placements are so positive because they allow for opportunities of mentorship and development for both nursing staff and nursing students, which in turn, benefits the local health centres. A health care professional explained,

For myself, when I used to have a lot of students in my clinical practice, it made me make sure I was up on my game, and that I had all the latest information to make sure that I was providing good mentorship to students. I think it really does make people make sure that they're maintaining their skill sets in their competencies when you're working with students although it does take time to mentor and to support students. They do provide return in the facilities as well.

The nursing program helps to advance the quality of care for patients. Another health care sector expert confirms the benefits of having students in their local health care system saying,

For the providers in the community, nurses and others, there's evidence that when students ask good questions, it forces you to keep up to date on your standards of care and other things. So mentoring students is actually a very positive growth and development opportunity for our nurses and teams. I think sometimes it's a struggle for them to find the time, but it actually increases the quality of care and services that we provide. So, there's an additional value in terms of improving the quality of care.

## **Impacts on the Labour Market and Economy**

### ***Creating Jobs in Rural, Remote, and Northern Saskatchewan***

The distributed education nursing program is creating jobs in the rural, remote, and northern areas of Saskatchewan. The program has opened positions such as clinical instructors and lab instructor positions that local nurses and nurse practitioners can fill. According to record reviews from the College of Nursing, in 2022/2023, 19 term contract instructors were hired in Yorkton, La Ronge, Île-à-la-Crosse and Lloydminster and 2 instructors in Northlands College.

Additionally, three salaried University of Saskatchewan Faculty Association (USFA) lab and clinical instructors were hired in Yorkton for 2022/2023. People will work, stay in the North, and start spending money in these communities. An interview participant stated, “So, the nurses that work here, contribute back to the community... they’re living here, buying groceries, maybe going to city occasionally, but I just think it goes beyond economic value but socially... really adds value to the community in a much larger way.” Community members also mentioned that the nursing program has impacts on the economy and labour market because there is a cost saving to “going to school in their communities” and then this “increases the employability” of the students that graduate from the program. There is an impact on the economy through the instructors as well “and then obviously, having more graduates working in that field, especially since it's in such high demand”. Another health care professional reinforced the impacts of having the nursing program in rural, remote, and northern areas of Saskatchewan:

This program would keep local people in our community affecting the economy that way. They’re staying in town; they’re buying their groceries; their fuel and they may still be living at home. If their parents were here, if they grew up here, if it brings in additional

people from surrounding communities, it definitely affects our economy that way. If we can have extra staff or full-time staff positions filled with the ability to have casual staff on it would totally affect the [health care] services. We'd be able to deliver services to our community members.

### ***Increased Human Resources, Infrastructure, and Innovation***

Other interviewees mentioned an increase in human resources, infrastructure, and innovation in a “direct economic stimulus” and “there’s the long-term longevity of having individuals employed in the sectors that have significant and long-term impact, especially if they’re staying in the north.” The importance of the College of Nursing distributed education program was highlighted through an interview with an education policy professional:

I would think it would be an injustice if the distributive model of the College of Nursing program didn’t continue in some capacity to the northern communities. I do understand that there’s some significant cost factors with that... universities have to look at, but I do think that there’s some huge economic pieces as well as socioeconomic contributors from the program in the North.

Another respondent affirmed the economic impact: “The program, like I said, is amazing. And it gives life to new projects and people with new knowledge, and it pushes the economy forward.”

## Impact Map

An impact map is created using the qualitative data collected through the stakeholder interviews telling the story of changes experienced as a result of the distributed education (DE) program.

This Social Return on Investment analysis evaluates interventions and outcomes, making calculations using the number of graduates of the DE program for a period of five years (2018-2022). Inputs are calculated using the costs required for the 5 cohorts of nursing DE graduates. Specific sections of the impact map are explained below and the full impact map will be made available online on the CUISR website at <https://cuivr.usask.ca>.

### *Intended/Unintended Changes, Inputs and Outputs*

Changes specific to each stakeholder group are identified based on the interviews and the literature review. The inputs are contributions made in order to achieve program outcomes. The outputs are the quantitative summary of the activities of the DE program. Output numbers for students and NCLEX exam pass rate are determined based the UoS College of Nursing RN Education Performance Indicators – November 2022 Report. The intended changes, inputs and outputs of the DE program are listed in the table below.

Table 2: Changes, Inputs, and Outputs of the DE Program

Stakeholder	Intended/Unintended Changes	Inputs	Outputs
Students	Ability to get education in own community and pursue post-secondary nursing education.	Time and tuition, student fees, books and course materials for nursing school is approximately \$11,751 for 3 years = \$35,253 and \$7,615 for the pre-professional year (University of Saskatchewan, 2023). Altogether, the four-year nursing degree would cost approximately \$42,868. \$42,868 x 108 students= \$4,629,744	108 students over 5 years (College of Nursing, 2022)
Students	Ability to be close to their family members, children and maintain	Time with family and community.	108 students over the duration of their degree program

	connection without uprooting family by moving to an urban city.		
Students	Cost savings to the students being able to study where they live (housing/rental, food costs).	Housing and food costs in rural and remote Saskatchewan.	108 students over the duration of their degree program
Students	Cost savings to the students being able to study where they live (transportation).	Cost of transportation to visit family in rural, remote and in the north and time that it takes to travel. Time and productivity lost due to travel.	108 students over 5 years
Families	Student/caregiver is able to be close to family. Family connections are maintained while student is in nursing school. Ability to have student nearby to provide caregiving to family members, children and elders.	Time and support.	Estimated number of children and family members that students are able to care for outside of schooling hours.
Community Members	Increased continuity of care with local nurses staying in communities. Increased number of nurses that understand the culture of the community. Skilled labourers in the community increases economy, health status and quality of life for community members. Cost savings to the health care system.	Time and support of students in their communities.	Communities offering the DE program. According the 2021 Census, the population of Île-à-la-Crosse, La Ronge and Yorkton is 1,425; 1,349; 19,859; respectively (Statistics Canada, 2023a). Altogether 22,633 people reside in these three communities.
Health Care Professionals	Improving quality of care and health care standards through knowledge sharing from the students/instructors. Updated and evidence-based clinical practices are considered and implemented in local communities.	Ability to learn up-to-date nursing skills from having the students and nursing instructors at the local health centre.	Estimated number of nurses that will not need to take a nursing skills refresher since knowledge has been shared by students and nursing instructors from the DE program.
Health Care Professionals	Opportunity for local nurses to mentor students. Local nurses are practicing and developing leadership skills through preceptorships with nursing students.	Mentoring, preceptorship time and support.	Estimated number of nurses in the health care centres where DE program is offered.
Regional Colleges	Strengthens community colleges through offering a nursing degree.	HR and resources to support students over 8 years. Cost of 19 term contract instructors hired by USask for Yorkton, La Ronge, Île-à-la-Crosse and Lloydminster for 2022/2023 will be approximately \$165,000. 2 Northlands instructor salaries and benefits teaching for USask is approximately \$90,000. Total input of \$2,040,000.	Number of students in the pre-nursing, health sciences programs.
University of Saskatchewan	Increased number of local instructors and creates more employment in rural and Northern Saskatchewan. Increased community capacity and economic benefits to rural and north Saskatchewan.	Time and resources supporting students. Hiring staff for the DE program. Cost to run the CoN DE program - Estimated \$150K - \$250K annually/per site in incremental costs to run the DE program site vs default urban equivalent. The average cost is \$200,000 for 3 sites over 8 years is \$4,800,000. 3 Salaried University of Saskatchewan Faculty Association (USFA) instructors in Yorkton (lab and clinical) with estimated total salaries of \$230K for 8 years = \$1,840,000. Total input of \$4,800,000 + \$1,840,000 = \$6,640,000	Number of instructors for the College of Nursing DE Program - Lab and clinical teachers in 22/23, including term contracts, in-scope faculty instructors, and regional secondment.

Health Care System	Addresses the shortage of nursing workforce in regional areas. Increases cultural safety and reduces racism in health care. Reducing geographic barriers for nurses to work in rural, remote and Northern Saskatchewan.	Placements and training for students. RN salary.	Number of RNs from the DE program working in rural and Northern Saskatchewan.
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### ***Inputs of the DE program***

Both monetized and non-monetized inputs and investments of the program are listed in Table 2.

The monetized inputs used for the SROI analysis include cost of tuition, student fees, and books and materials for students. The incremental costs of running the program versus the default urban equivalent is accounted for. Additionally, the cost of contract instructors, instructor salaries and benefits, and salaries of University of Saskatchewan Faculty Association instructors are included. The monetized input costs of the program are a total value of \$13,309,744.

### ***Human Resources and Administrative Support***

Counsellors and advisors are accessible to students in the form of a coordinator and manager, program assistants, and administrative assistants that run the nursing programs. Lab techs and an IT team work to ensure the technology is working and assist with software upgrades. College of Nursing staff are hired to be instructors and preceptors, while staff at host colleges are involved even before the students enter their first year of nursing school. Host colleges provide resources such as physical classroom space, student services, technology, equipment, internet, and laptops are made available to students during their studies.

The cost of the 2022/2023 hirings listed in the College of Nursing records has been accounted for in the impact map. The additional benefit of the term contract instructors was accounted for since these roles were highly likely to be supplemented with work elsewhere.

### *Nursing staff support*

Non-monetized inputs are important to making the program a possibility. Some of the costs incurred are the salaries of nurses working with students. As mentioned by health professionals, “There isn’t much loss or direct cost incurred in these situations, but there is time invested into teaching and assisting students.” Most health care staff viewed this input as an investment into the future rather than a cost incurred.

### *Family and Community Support*

Students shared stories about the support they received from their families during their education in an important recognition of vital investments by families in student success. Emotional support from families and counsellors was crucial to feeling encouraged and supported. One student respondent expressed her gratitude to her family for their support during the nursing program, reinforcing how invaluable that unpaid and often unrecognized resource is.

It is really difficult to have a job, family, and schooling. There was no time in between travelling and raising my daughter. The only times I could work would be in the summer, but I had an amazing family that supported me. My mom and dad were my greatest support,... They helped take care of my daughter and supported me through the whole

program. They encouraged, supported, believed in me and they gave everything to help get me through this program. I will forever be grateful to them.

### ***Outcomes, Indicators, Financial Proxies, and Values***

Outcomes are the intended or unintended changes resulting from the inputs and activities of the DE program. The duration of the outcomes varies depending on the changes considered for 5 cohorts of graduates and are listed in Table 3. Indicators are defined as the specific, observable, and measurable characteristics that can be used to estimate how the program is achieving a specific outcome. Quantities are estimates determined from previous RN indicator reports and College of Nursing DE program data reviews. According to the RN indicator report in 2022, the NCLEX first attempt pass rate is 80% for all nursing students from the UofS College of Nursing. It was identified through stakeholder interviews of the increased barriers to passing the NCLEX exam for students in the DE program. Therefore, a 60% NCLEX exam pass rate has been used as a conservative measure for student outcomes. The indicators help to identify financial proxies, which are then used to estimate a monetary value for outcomes that stakeholders are experiencing.



Table 3: Outcomes, Indicators, Financial Proxies, and Values

Stakeholder	Outcomes	Indicator	Quantity	Duration	Financial Proxy	Value
Students	Students in rural, remote and Northern Saskatchewan are able to complete a nursing degree in their own or nearby community.	Number of students that graduate and work as a nurse in rural, remote or Northern communities.	108 students x 60% NCLEX pass rate for the first test (College of Nursing, 2022) = 65 students	1 year	Incremental income from minimum wage earnings to average entry level RN salary in rural and remote SK.	\$13/hr minimum wage in SK - yearly full-time income of \$27,040 (Government of Saskatchewan, 2022a). According to the Government of Saskatchewan in 2022, RNs earned a low wage of \$34/hr median of \$42/hr and high wage of \$49.52/hr in Northern regions. \$42/hr entry level RN in rural and remote SK- yearly full-time salary of \$87,360. Incremental income of \$60,320 (\$87,360-\$27,040).
Students	Mental and emotional support from their family members.	Increased mental and emotional health during schooling.	If an estimated 25% of students benefitted from mental and emotion support from their family and community during nursing school. 25% of 108 students = 27 students.	During 4 years of schooling	Counselling services.	Cost of counselling services at \$50 to \$240 per one-hour session (Collie, 2019). Estimated average cost of counselling once a month for one hour is \$125 x 1 time/month = \$1,000 per school year.
Students	Financial support from family members. Reducing costs of relocating and groceries.	Cost savings for a student not having to relocate to an urban city.	108 students x 50% = 54 students	During 4 years of schooling	An estimate of 50% of students able to save incremental costs on housing and food.	Average rent for a one-bed room apartment in Saskatoon is \$1,050 compared to the average rent of a one bedroom in La Ronge of \$800 (Zumper, 2023). The incremental cost would be \$250/month. A report on the cost of healthy eating in Saskatchewan states that the average cost of food in the southern regions for a family of 4 in a large city is \$922.65/month, and in the rural areas is \$1071.23 (Government of Saskatchewan, 2018). This translates into higher food costs when living in the rural areas, thereby resulting in additional costs rather than savings. The incremental cost of food in rural areas is \$148.58/month, which translates into \$174.83 based on the inflation rate from 2018 to 2023. <u>Therefore, the net incremental cost of housing and food is \$75.17 per month = \$601.36 per school year times 4 school years = \$2,405.</u>

Students	Financial support from family members. Reducing costs of travelling back home.	Cost savings for a student not having to relocate to an urban city and travelling to and from their community.	108 students x 75% = 81 students	During 4 years of schooling	Students are able to save costs of travelling back home from an urban university 4 times per semester. Also, students are able to reduce time and productivity lost due to travelling to and from their communities.	Cost of travelling to and from La Ronge 2 times per semester. (400km x 2 ways = 800km x 4 trips per school year = 3,200km/year). At a cost of \$0.68/km using CRA travel reimbursement rates (Canada Revenue Agency, 2023), the cost savings = \$2,176/year and \$8,704 over 4 years. Average of 8 hours travelling for 4 trips per year at an average student wage of \$15/hour (average of student assistant wage of \$17/hr and minimum wage of \$13/hr) (Glassdoor, 2023; Government of Saskatchewan, 2022a) = \$480 x 4 years = \$1,920. These amount to a value of \$8,704 + \$1,920 = \$10,624 per student.
Families	Maintaining connections with family during education.	Reducing daycare and elder care costs. Increased stability and connection with family during school.	Estimated number of 27 children and 27 elderly (25% of 108 students)	During 4 years of schooling	Reducing daycare and elder care costs and increased family stability.	Childcare costs \$217.50 per month (Saskatoon Childcare, 2023); Homecare costs vary between \$25 and \$75 an hour depending on the type and level of care (Comfort Life, 2021).
Community Members	Increased number of Indigenous/local nurses staying and caring for the community.	Community members are satisfied with culturally safe and competent care with local nurses.	10% of the population of 3 communities (Île-à-la-Crosse, La Ronge and Yorkton). 10% of 22,633 = 2,263	1 year	Cost savings of one family doctor visit and one hospital stay per year. This results from improved health status due to the presence of local nurses in the community who can, through health education, address basic health risk factors like overweight, smoking, high blood pressure and other health issues in non-metropolitan regions.	Average family doctor visit in Canada = \$51.01 (CIHI, 2020); in 2021-2022 the average cost of a standard hospital stay in Île-à-la-Crosse, La Ronge, and Yorkton in 2021-2022 was \$14,512; \$9,214; and \$9,327 respectively (average cost = \$11,018) (CIHI, 2023). Significant savings can be achieved if even 10% of the population of the 3 communities 22,633 x 10% = 2,263 people are able to avoid 1 doctor visit and 1 standard hospital visit per year.
Health Care Professionals	Providing update knowledge of evidence-based nursing	Providing update knowledge of evidence-based	10% of 108 students = 11 RNs in the health care system	1 year	Improved quality of care and health care standards. Cost savings to the	Nurses are able to upgrade skills valued at \$695 (Saskatchewan Polytechnic, 2023).

	practices from new students/instructors.	nursing practices from new students/instructors.			health care system. Cost valued at \$695.24 for a nursing skills refresher course at Saskatchewan Polytechnic.	
Health Care Professionals	Health care professionals/local nurses are able to practice and use their leadership skills with students.	Increased mentorship and leadership skills for local nurses.	10% of 108 students = 11 RNs in the health care system	1 year	Leadership courses. Cost valued at \$597.13 for a nursing leadership course at Saskatchewan Polytechnic.	Nurses are able to learn leadership skills valued at \$597 (Saskatchewan Polytechnic, 2023).
Regional Colleges	Increased interest and enrollment for colleges.	Financial benefits to the colleges.	If 1 student per site (Cumberland, Great Plains, North West, Northlands, Parkland, Lakeland and St. Peter's College) is able to enroll in a community college due to interest in the DE program.	1 year	Increased interest and enrollment in regional colleges. 10 new students enroll in the pre-professional nursing program (year 1) at the 7 regional colleges. Estimated cost of tuition for first year of a local college.	Estimated tuition for pre-professional (year 1) is \$9,500 for Northlands College and \$9,211 for Lakeland College (Northlands College, 2023; Lakeland College, 2023).
University of Saskatchewan	Creating jobs for local nurses and health care providers in rural and Northern Saskatchewan. DE program creates jobs in academic teaching/administration. The DE program funds a portion of administration time in regional colleges through our annual contribution agreements.	Increased employment of local nurses and instructors in rural and remote communities.	19 contract instructors and 2 sessional instructors are able to earn an additional income through jobs with the DE program.	8 years	RNs earning additional income for teaching with the DE program: Cost of 19 term contract instructors hired by USask for Yorkton, La Ronge, Île-à-la-Crosse and Lloydminster for 2022/2023 will be approximately \$165,000. 2 Northlands instructor salaries and benefits teaching for	19 term contract instructors for Yorkton, La Ronge, Île-à-la-Crosse and Lloydminster are earning an additional income of \$165,000 over 8 years = \$1,320,000. 2 Northlands instructor salaries and benefits of 90,000 over 8 years = \$720,000. (College of Nursing, 2023)

					USask will be approximately \$90,000.	
Health Care System	Increased potential hiring opportunities in the health care system in rural and Northern Saskatchewan. Addresses the nursing shortage. Graduate and new RNs are able to fill vacant nursing positions in their communities. Cost savings to the health care system.	Decreased shortage of RNs in rural and remote areas of SK. Increased retention rate of students studying in the rural and remote communities.	60% of 108 students = 65 students able to obtain RN license and replace agency nurses in rural, remote and northern Saskatchewan.	1 year	Cost savings to the health care system. Cost of hiring contract/agency nurses instead of local nurses.	The average salary for a RN is \$42/hr - yearly full-time salary of \$87,360 (Government of Saskatchewan, 2023) and an agency RN is paid \$54.50/hr or \$113,360/year (Indeed, 2023). The difference in hiring full-time nursing staff compared to an agency nurse would be \$26,000.

### ***Impact: Deadweight, Attribution, and Drop-Off***

When calculating the impact, it is important to consider what would or could have happened, the contributions of other organizations/programs, and the length the outcomes last as a result of the program. The impact discounting considerations are called deadweight, attribution, and drop-off (see Table 4).

Deadweight considers the amount of each outcome that would have happened if the program did not exist or take place. Attribution is the assessment of how much of the outcome was a result of other organizations or programs. These discounting rates bring awareness to the other activities that could have contributed to these outcomes listed in the social value analysis. Drop-off estimations consider how long the outcomes lasts for each stakeholder.

Table 4: Deadweight, Attribution, and Drop-off

Outcomes	Deadweight	Attribution	Drop-Off
Students in rural, remote and Northern Saskatchewan are able to complete a nursing degree in their own or nearby community.	10%	0%	0%
Mental and emotional support from their family members.	0%	10%	5%
Financial support from family members. Reducing costs of relocating and groceries.	1%	2%	1%
Financial support from family members. Reducing costs of travelling back home.	1%	2%	1%
Maintaining connections with family during education.	2%	1%	1%
Increased number of Indigenous/ local nurses staying and caring for the community.	1%	1%	5%
Providing update knowledge of evidence-based nursing practices from new students/instructors.	2%	5%	2%
Health care professionals/local nurses are able to practice and use their leadership skills with students.	2%	5%	2%
Increased interest and enrollment for colleges.	2%	5%	1%
Creating jobs for local nurses and health care providers in rural and Northern Saskatchewan. DE program creates jobs in academic teaching/administration. The DE program funds a portion of administration time in regional colleges through our annual contribution agreements.	1%	1%	1%
Increased potential hiring opportunities in the health care system in rural and Northern Saskatchewan. Addresses the nursing shortage. Graduate and new RNs are able to fill vacant nursing positions in their communities. Cost savings to the health care system.	1%	1%	2%

### *Net Impact of the DE Program*

Table 5 lists the impact values based on tables 2 to 4 using conservative assumptions and credible data sources. The gross impact calculation considers the number of times the impact happened multiplied by the financial proxy values. The gross impact value is then discounted for deadweight, attribution, and drop-off rates for the net impact value. The net impact value for the DE program is listed in Table 5.

Table 5: Net Impact of the DE Program

Stakeholder	Gross Impact	Gross Value	Deadweight	Attribution	Drop-off	Net Impact
Students	\$60,320/year x 65 students = \$3,920,800	\$3,920,800	10%	0%	0%	\$3,528,720
Students	\$1,000/school year (8 months) X 27 students = \$27,000 x 4 school years = \$108,000	\$108,000	0%	10%	5%	\$91,800
Students	(\$250 x 8 months) = 2,000 - (\$174.83 x 8 months) = 1,398.64 = \$601.36 per school year x 4 years x 54 students = \$129,894	\$129,894	1%	2%	1%	\$124,698
Students	\$705,024 + \$155,520 = \$860,544	\$860,544	1%	2%	1%	\$826,122
Families	\$217.50/month x 27 children + \$50/hour for two hours per month x 27 elderly = \$5,872.50 + \$2,700 = \$8,572.50 per month for 8 months/year X 4 years = \$274,320.	\$274,320	2%	1%	1%	\$263,347
Community Members	\$51.01 + \$11,018 = \$11,069 x 2,263 people for 1 year = \$25,049,170	\$25,049,170	1%	1%	5%	\$23,295,728
Health Care Professionals	\$695 x 11 nurses for 1 year = \$7,645	\$7,645	2%	5%	2%	\$6,957
Health Care Professionals	\$597 for 11 nurses for 1 year = \$6,567	\$6,567	2%	5%	2%	\$5,976
Regional Colleges	\$9,211 x 10 new college students x 7 regional colleges = \$644,770	\$644,770	2%	5%	1%	\$593,188
University of Saskatchewan	\$1,320,000 + \$720,000 = \$2,040,000	\$2,040,000	1%	1%	1%	\$1,978,800
Health Care System	\$26,000/year x 65 RNs = \$1,690,000	\$1,690,000	1%	1%	2%	\$1,622,400
<b>Total Net Impact of DE Program</b>						<b>\$32,337,737</b>

### Calculation of the SROI Ratio

The calculation below divides the discounted value of outcomes by the total investment. This

SROI value assumes an extremely conservative measure of impact, an important principle of the

SROI analysis. With these considerations and discounts, the estimates result in a social value

ratio of 2.43.

SROI ratio = 
$$\frac{\text{present value of outcomes}}{\text{value of inputs}}$$

SROI ratio = 
$$\frac{\$32,337,737}{\$13,309,744}$$

SROI ratio = 2.43

In other words, for every dollar of cost (investment) associated with the DE program in providing nursing education to students in rural, remote, and Northern Saskatchewan, there is a \$2.43 social return on the investment.

### **Alternative Options to the College of Nursing Distributed Education Program**

Students taking their first year of college sometimes choose different programs if they don't get into the nursing program or end up choosing another path. Some students would have had to go to Prince Albert or Saskatoon for further education. A community member stated, "They would have to go to Saskatoon or PA or other locations. And to be honest, they wouldn't. They wouldn't." Another respondent mentioned that determined students would have to go down south or they wouldn't pursue nursing and try something else closer to home. It was mentioned in the interviews that, "Even if they were determined to be a nurse it wouldn't be the most practical option without having the college in the community." Another community member mentioned that their partner would have had to move the family and it would have been a possibility that she would have ended up staying in the south after her schooling, which causes brain drain in the north. When asked about alternative options for nursing they stated, "Perhaps they'd have some different opportunities and get involved in a different career. It's a bit of a tough transition without more accessibility. And I think distributive learning is an accessible type of program and think that's making a huge difference." A former nursing student noticed that more people in the community were applying for the distributed education program at the College of Nursing:

I think it's great to have [the nursing program] here because I know some friends who didn't want to apply in the past, because it's too difficult, and too costly to leave the community. They weren't ready to take that step, but with the program being here, offered in La Ronge, I'm hearing more and more people applying for the program, which is great because they would have never done it if it was still only offered in Prince Albert. I think that's going to have a positive impact having the program right here in our community.

Another student advocated for the program and noted that they wouldn't have enrolled in the program if it wasn't offered in La Ronge: "I would have had to go to either Prince Albert or Saskatoon and I wasn't willing to do that at that point in time. But when they did bring the program to La Ronge, I jumped at the opportunity, of course." Going to school in Prince Albert or Saskatoon was not a feasible option: "I don't know if I would have even applied to go to school in Prince Albert or Saskatoon. So, I was very fortunate that the program came to La Ronge." Through the comments in interviews with stakeholders, it was very evident that the distributed education nursing program has provided an opportunity for many where people would not have had the opportunity otherwise.

### **College of Nursing DE Program Scenario**

The social value for a student living, studying, and eventually working in rural, remote, or Northern Saskatchewan is evidenced in the example of a 26-year-old female Indigenous student who can pursue her Nursing education in her community in La Ronge (see Table 6). She is a



mother of two young children of 7 and 11 years of age. The student also has an elderly parent that has some health concerns and daily needs. The elderly parent resides with the student as well. Her husband works full-time and is supporting the family financially while the student is in post-secondary education. Tuition, student fees, books and course materials for the four-year nursing degree is approximately \$42,868. After completing a Bachelor of Nursing and obtaining her registered nursing license, she gets a full-time position at the local hospital, La Ronge Health Centre, as an emergency nurse, where she completed her senior nursing practicum.

**Table 6: Impacts for College of Nursing DE Program Scenario**

<b>Changes experienced</b>	<b>Inputs</b>	<b>Outcomes</b>	<b>Financial proxy</b>	<b>Value</b>	<b>Impact</b>
<u>Ability to get education in own community and pursue post-secondary nursing education.</u>	<u>Altogether, the four-year nursing degree would cost approximately \$42,868.</u>	<u>Student in rural and remote SK are able to complete a nursing degree in their own or nearby community.</u>	<u>Incremental income from minimum wage earnings to average entry level RN salary in rural and remote SK.</u>	<u>\$13/hr minimum wage in SK - yearly full-time income of \$27,040. According to the Government of Saskatchewan, RNs earned a low wage of \$34/hr median of \$42/hr and high wage of \$49.52/hr in Northern regions. \$42/hr entry level RN in rural and remote SK- yearly full-time salary of \$87,360. Incremental income of \$60,320 (\$87,360-\$27,040).</u>	\$60,320
<u>Ability to be close to their family members, two children and maintain connection without uprooting family to an urban city.</u>	<u>Time with family and community.</u>	<u>Mental and emotional support from their family members.</u>	<u>Counselling services.</u>	<u>Cost of counselling services at \$50 to \$240 per one-hour session. Estimated average cost of counselling once a month for one hour is \$125 x 1 time/month = \$1,000 per school year. \$1,000 x 4 school years = \$4,000.</u>	\$4,000
<u>Cost savings to the students being able to study where they live</u>	<u>Housing and food costs in rural and remote SK.</u>	<u>Financial support from family members. Reducing costs of</u>	<u>Incremental costs on housing and food during school.</u>	<u>Average rent for a one-bedroom apartment in Saskatoon is \$1,050 compared to the average rent of a one bedroom in La Ronge of \$800. The incremental cost would be \$250/month. A report on the</u>	\$2,405

<u>(housing/rental, food costs).</u>		<u>relocating and groceries.</u>		<u>2018 cost of healthy eating in Saskatchewan states that the average cost of food in the southern regions for a family of 4 in a large city is \$922.65/month, and in the rural areas is \$1071.23. This translates into higher food costs when living in the rural areas, thereby resulting in additional costs rather than savings. The incremental cost of food in rural areas is \$148.58/month, which translates into \$174.83 based on the inflation rate from 2018 to 2023. Therefore, the net incremental cost of housing and food is \$75.17 per month = \$601.36 per school year times 4 school years = \$2,405.</u>	
<u>Cost savings to the students being able to study where they live (transportation).</u>	Cost of transportation to visit family in rural, remote and in the north and time that it takes to travel. Time and productivity lost due to travel.	Financial support from family members. Reducing costs of travelling back home.	Student is able to save costs of travelling back home from an urban university 4 times per semester. Also, students can reduce time and productivity lost due to travelling to and from their communities.	Cost of travelling to and from La Ronge 2 times per semester. (400km x 2 ways = 800km x 4 trips per school year = 3,200km/year). At a cost of \$0.68/km (using CRA travel reimbursement rates), the cost savings = \$2,176/year and \$8,704 over 4 years. Average of 8 hours travelling for 4 trips per year at an average student wage of \$15/hour (average of student assistant wage of \$17/hr and minimum wage of \$13/hr) = \$480 x 4 years = \$1,920. These amount to \$8,704 + \$1,920 = \$10,624.	\$10,624
<u>Student/caregiver is able to be close to family. Family connections are maintained while student is in nursing school. Ability</u>	Time and support.	Maintaining connections with family during education.	Reducing daycare and elder care costs and increased family stability.	Childcare costs \$217.50 per month; Homecare costs vary between \$25 and \$75 an hour depending on the type and level of care. \$217.50/month for one child for 8 months/year x 4 years = \$6,960. \$50/hour for two hours per month for 1 elderly family	\$10,160

<u>to have student nearby to provide caregiving to family members, children and elders.</u>				member for 8 months/year x 4 years = \$3,200 Altogether for childcare and elder care cost the impact over 4 years of schooling is \$6,960 + \$3,200 = \$10,160.	
<b>Input</b> <b>\$42,868</b>		<b>Impact</b> <b>\$87,509</b>			

The estimated impact of completing the College of Nursing DE program in four years for an Indigenous student, mother, daughter, and wife is an impact of \$87,509 minus the input of \$42,868. The net benefit for one rural and remote nursing student studying in their own community is estimated to be \$44,641 at the end of her first year as a fully employed registered nurse, which translates into a social value ratio of 2.04.

## CONCLUSION

While access to health care services has been consistently recognized as an important determinant of population health, it is also widely recognized that access is uneven with undue impacts on those living in rural and remote areas, especially Indigenous people—and their health outcomes. Access is impaired by geographic barriers and jurisdictional issues, limited availability of health care personnel and services, racism and discrimination, and cultural differences, including language barriers. These factors motivated the development of the USask College of Nursing's distributed education program in 2012 to deliver the Bachelor of Nursing program to remote communities in Saskatchewan, including La Ronge, Ile a La Crosse, Prince Albert, and Yorkton, so that students could study and “learn where they live.” The program development was guided by principles of “strong partnerships with other post-secondary institutions,” and “innovative and pedagogically sound applications of learning technologies” as well as “accessibility, affordability, and diversity” to facilitate increased participation of Indigenous and rural residents in the University in the context of 100% Indigenous enrollment at the College of Nursing northern sites (La Ronge and Ile-à-la-Crosse in 2012).

Against this background, this study reports on the impact of the College of Nursing distributed education program using a SROI analysis so that decision-makers have evidence (both quantitative and qualitative) of program benefits as well as any ongoing challenges. Based on a literature review and 29 key informant interviews, the SROI provides a shorthand calculus in the SROI ratio which divides the net value (\$32,337,737) by the net costs (\$13,309,744) for a ratio of 2.43. In other words, for every dollar invested the social return is \$2.43.

The SROI ratio represents only one part of the evidence. The qualitative data derived from the literature and interviews speak to the multiplier effects of the College of Nursing distributed education program on not only individuals and their families and the host university (with capacity building among faculty and students, research productivity, student and faculty recruitment, and reputational gain) but also the broader community, the economy, and labour market, on infrastructure and innovation, on culturally competent health care, enhanced access, and capacity building for resilient communities. The College of Nursing DE Program Scenario similarly brings home the impact on an Indigenous student completing the program via a social value ratio of 2.04. Those qualitative data give some sense of what the quantitative calculations are ill-equipped to represent meaningfully. Those ripple effects that interviewees spoke of are hard to monetize. What price do you put on the self-worth felt by individuals and their communities? What is the value of community pride and feeling of self-determination? Of changes in protocols and practices that advance reconciliation?

This first evaluation of the College of Nursing distributed education program documents and monetizes important impacts felt at different levels in the community and aims to do some justice to the program as an investment rather than only a cost. This study also aims to highlight where the program and its supports could be strengthened in the following recommendations.

## **Recommendations**

### ***Program Intake and Funding Model***

One of the challenges mentioned by the participants is the low intake into year two of the program. There are high dropout rates, and “it would be important to identify what the reasons are for dropping out,” stated a college administrator. Since some clinical practices need a minimum number of eight students to be financially viable, it is sometimes hard to organize classes with a small number of students. A major barrier is also around the funding for the distributed programs. With a smaller cohort, some of the costs are equivalent to what they would be in an urban centre. The funding model is itself a major barrier, as one interviewee made clear.

### ***Enhanced Programming***

Others suggested offering specialty practices and advanced programs e.g., Nurse Practitioner program since it would be beneficial for the health care system in the rural, remote, and northern areas of Saskatchewan. The College of Nursing currently offers the Master of Nursing (MN), Primary Health Care Nurse Practitioner (NP), Post-Graduate Nurse Practitioner Certificate and Doctor of Philosophy in Nursing (PhD) through distributed education in Northern Saskatchewan. It was suggested that it would be a great opportunity to work with other colleges at the University of Saskatchewan to extend the conversation to offer distributed education in a coordinated fashion with other health science colleges. Another health sector respondent hopes to see the distributed education program transition or move to support multiple communities and would like to see a stronger alignment with community needs with strong communication and

connection to the employers in the region. There might be an opportunity to strengthen this connection, according to a health professional:

I do think that there's probably some work that needs to happen between the [Saskatchewan Health Authority] and the College of Nursing to... plan out what are the future needs within the North and... tailor aspects of the [program] to that. I think there's also probably some work we could do to better align, you know, the experiences of students, I think up to now it sort of felt like there was a lot of classroom experience in La Ronge, but the connection to the practical in La Ronge Health Centre with the community services may not always be quite as clearly defined.... I think between the SHA and the College of Nursing, there's probably a lot more work that can be done to try and recruit that next generation of nurses to better meet the needs in the northern populations.

### ***Increased Success Rate of the NCLEX Exam***

A concern mentioned by a couple interviewees was the low success rate of the NCLEX exam after graduating from the nursing program. Graduate nurses had taken the exams up to three times and still were not able to succeed in becoming a registered nurse. Respondents from the community and health care sector thought this was an important issue that needs to be addressed.

I don't know what the reasoning was, but I do know the last group of graduates that we got, I believe... there were seven students that graduated, and only one was ever able to pass the NCLEX exam. So, that is an issue to take four years of training to come out and

not be able to pass that exam, how horrible that must be. Somehow the College of Nursing needs to find some way to address that.

Another student mentioned some potential barriers to graduating from the College of Nursing and the ability to successfully pass the NCLEX exam.

I remember starting with so many [students], I think there was 15-20 of us. In the end, I think only five of us graduated from that class. Because it wasn't only stressful from the fact that we had to have all this knowledge, but stressful from the fact that there could be such negative centres to work in. For example, if you don't know a medication or certain procedure, there was a high potential that the person overseeing you, such as a preceptor or another nurse would belittle you in front of other staff, saying things like, 'I knew this stuff when I went to school', 'student nurses nowadays don't know anything' etc. Instead of having constructive criticism it was negative criticism. How can a person learn under those circumstances? Granted, there was also great times where I had some great preceptors. And they taught me a lot, in that yes, I do have to have the knowledge and I have to be confident. But I can also ask questions, I can also fail and get up and try again.

The student highlighted the financial barriers other colleagues had to continue the nursing program or to re-write the NCLEX exam mentioning her own experiences as well.

So, for myself, I failed a clinical because of an exam and I had to backtrack. Thankfully, I could take some other clinicals in the meantime, but a lot of my classes were on hold. So, [eventually] I was able to do it and redo that clinical the following year... the biggest



factor was that I am treaty, so I was able to receive funding. My funding almost ran out. But thankfully, I guess I begged enough that they gave it [to me]. But a lot of my friends and co-workers, they didn't have that [support] and they didn't have the financial stability to do that. A lot of [the other students] either went halfway through the program and realized that they couldn't afford it... and went into the LPN program or CCA program just to be able to live again. Some [students] I knew graduated and did everything, but they just couldn't keep up with it because they hadn't passed their exam so many times and they had to keep paying each time. So, a lot of them just left it because they just couldn't keep affording that payment.

### ***Accommodations and Transportation***

Housing facilities are not easily accessible in northern communities. A study on housing inadequacy in two rural Saskatchewan First Nations communities highlights that “Housing inadequacy, including crowding, homes in need of major repairs, mold and smell of mold and the associated respiratory health effects in the residents in the houses are a reflection of a colonial housing model that does not fit with the realities” (Kiryuchuk et al., 2022). According to the Saskatchewan Housing Action Plan 2022-2023 report, there are diverse challenges regarding housing for people living in rural and Northern Saskatchewan since there are very small or declining populations with an increased cost for goods and services and consequentially there are limited housing options (Saskatchewan Housing Corporation, 2023). In some rural and remote areas there is little or no private rental market (Saskatchewan Housing Corporation, 2023). People are waiting on long wait lists. Despite the increased accessibility of the program, the housing problems are aggravated by commuting issues with no public transportation.

### *Childcare*

Childcare needs also remain challenging for students in the nursing program. While the situation is not exclusive to northern areas, it is aggravated by the housing and transportation difficulties that students with children face:

The major difficulty was because I had my daughter, and there's no real places to live in Île-à-la-Crosse. It's very difficult to get a house there. And the childcare is also very difficult to get into there. They do have a childcare centre, but it's very expensive. And it takes time to be on that waiting list because there are so many people there. There are some apartments that are only available during the week, but students would have to travel back home on Fridays. You can't keep your child there, so it wasn't a realistic option.

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