



Review of University-Based Nutrition Programs in Nova Scotia

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Submitted by:

Barb Anderson

*Director, School of Nutrition and Dietetics
Acadia University*

Doris Gillis

*Chair, Department of Human Nutrition
St. Francis Xavier University*

Daphne Lordly

*Chair, Department of Applied Human Nutrition
Mount Saint Vincent University*

Ava Czapalay

*Senior Executive Director, Higher Education Branch
Department of Labour and Advanced Education*

Joe Meahan

*Health Education Strategist, Higher Education Branch
Department of Labour and Advanced Education*



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EXECUTIVE SUMMARY

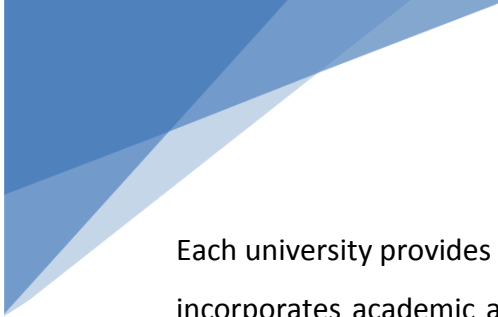
Background and Context

Through the 2014 Bilateral Agreements between the Province and each of Acadia, Mount Saint Vincent (MSVU), and St. Francis Xavier (StFX) universities, the Province called for a partnership to discuss and analyze nutrition programs at these institutions with a goal of making recommendations for any improvements that may be identified as necessary for Nova Scotia (NS) to deliver high quality, relevant nutrition programming at the undergraduate level. This review was initiated by the Nova Scotia Department of Labour and Advanced Education (LAE) in response to two concerns: the first related to a perceived shortage of dietetic internships; the second linked to how increased enrolment in the nutrition programs in the three universities has contributed to the dietetic workforce capacity in the province. A Working Group, comprised of LAE representatives and the Heads of the three university Nutrition Departments, convened in the fall of 2014 to address the bilateral requirements.

Summary and Key Messages

Building on their unique attributes and strengths, the nutrition and dietetic education programs at Acadia, MSVU, and StFX educate and prepare students for diverse nutrition-related careers, thereby contributing collectively to the health of the population, the economy, and the betterment of society in NS. These programs also make distinct contributions in their own communities, which are highlighted in the report.

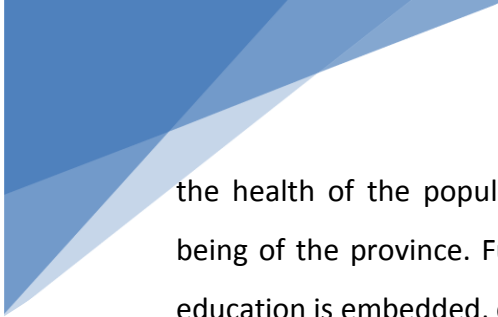
Each university offers an undergraduate applied science degree program in human nutrition with a dietetic education option. These programs are accredited by Dietitians of Canada (DC), enabling students who meet the academic and other requirements to be admitted to DC accredited dietetic internships, including the integrated dietetic internship offered by each university, a graduate dietetic internship offered by various health institutions across the country, or a practicum incorporated in a Master's program offered by several Canadian universities.



Each university provides their nutrition students with the option of education in dietetics, which incorporates academic and experiential learning components, both within the undergraduate program and in the internship. Students choosing this option must complete core courses integrating nationally accepted foundational knowledge and dietetic practice competencies, which enables them to compete for a dietetic internship. Successful completion of the internship ensures the attainment of national entry-to-practice competencies required to pass a national examination, all of which are required to become registered as a professional dietitian.

Each of Acadia, MSVU, and StFX has a strong experiential element in their undergraduate programs that provide students with opportunities to participate in real life volunteer and work situations relevant to their nutrition careers. As well, the internship required to become a dietitian is based on experiential learning. Qualified preceptors, who are usually dietitians, are needed to guide students through the dietetic internship. In NS, there is little support for preceptors outside what is received from the universities, and no remuneration is provided. Some preceptors are given time within their positions to support student learning, while others take on this role because they are committed to contributing in this way to their profession and to the health of Nova Scotians.

In summary, this report describes the assessment of the current state of university-based nutrition and dietetic education in NS, and offers a series of recommendations to ensure the delivery of high quality, relevant nutrition programming at the undergraduate level to meet the current and future needs of students and the NS population. Qualified nutrition and dietetic professionals are well prepared to address many of NS's health priorities in settings across the spectrum of the health care system. The increasing prevalence of nutrition-related disease and other conditions extending across the life of Nova Scotians gives every indication that workforce demand for nutrition and dietetic professionals will continue. Ensuring quality education and training of a skilled dietetic workforce can strengthen the capacity for improving



the health of the population, thereby contributing to the health, economy, and social well-being of the province. Furthermore, the applied science degree in nutrition, in which dietetic education is embedded, can prepare graduates for a wide range of career opportunities.

Recommendations


Building on their unique attributes and strengths, the nutrition and dietetic education programs at Acadia, MSVU, and StFX universities will continue to direct their efforts towards providing a high quality education that prepares their students for diverse nutrition-related careers, thereby contributing to the health of the population, the economy, and the betterment of society in NS and beyond.

Recommendations to ensure this high quality education is maintained are framed through two goals with key objectives consistent with themes emerging from the synthesis of findings and discussions held throughout the review process. These goals and key objectives, with sub-objectives, are listed below and reflected in the framework presented in Figure 1.

Goals

- 1:** Foster collaborative leadership by Acadia, MSVU, and StFX to sustain accredited high quality undergraduate nutrition and dietetic education, including academic and experiential learning components.

- 2:** Collaborate with external agencies/groups to enhance the contribution of nutrition and dietetic education programs in building capacity for food and nutrition services, resources, and interventions to support health and well-being of the NS population.



The following objectives relate to the achievement of the two goals.

Objectives

A) Use evidence to guide decision-making:


- Advocate for greater access to current dietetic workforce and training capacity data required both for planning and provision of effective dietetic education and training programs in NS.
- Find ways to identify and collect data required to determine the extent of employment in varied practice settings including, but not limited to: acute care, primary health care, long-term care, public health, and programs directed specifically to vulnerable and underserved populations.
- Develop ways to tap into the expertise of faculty within the three universities to examine internal and external factors impacting the state of dietetic education with strategies for action.
- Advocate for supports for collaborative research to investigate the financial burden of nutrition-related health conditions on the NS healthcare system and determine implications for interventions.

B) Recognize the value of the undergraduate applied science degree in human nutrition:

- Promote the value of acquired knowledge and skills related to food and human nutrition in the emerging knowledge economy leading to a broad range of careers outside of dietetics.
- Identify existing and new opportunities for incorporating entrepreneurship knowledge and skills in human nutrition programs.

C) Support access to nutrition and dietetic education programs in NS:

- Use effective communication strategies directed to potential and current students, providing clear and consistent messages about the competitive entry requirements to dietetic internships.

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- Develop a process to enable a more seamless transfer of courses when students move from one NS undergraduate nutrition program to another, including development of an up-to-date transfer equivalency database of nutrition courses.
 - Develop strategies with partners and LAE to enhance diversity in nutrition and dietetic education relevant to addressing population health priorities, including rural health issues and access by Indigenous and other underserved population groups in NS.

D) Build capacity for dietetic internships by increasing experiential learning opportunities throughout NS:

- Work with Nova Scotia Health Authority (NSHA) to leverage more dietetic internships in all areas of the province.
- Identify effective ways to develop internship placements in innovative and evolving areas of dietetic practice.
- Enhance workplace capacity to support dietitians in their role as preceptors to dietetic interns from the three university programs.

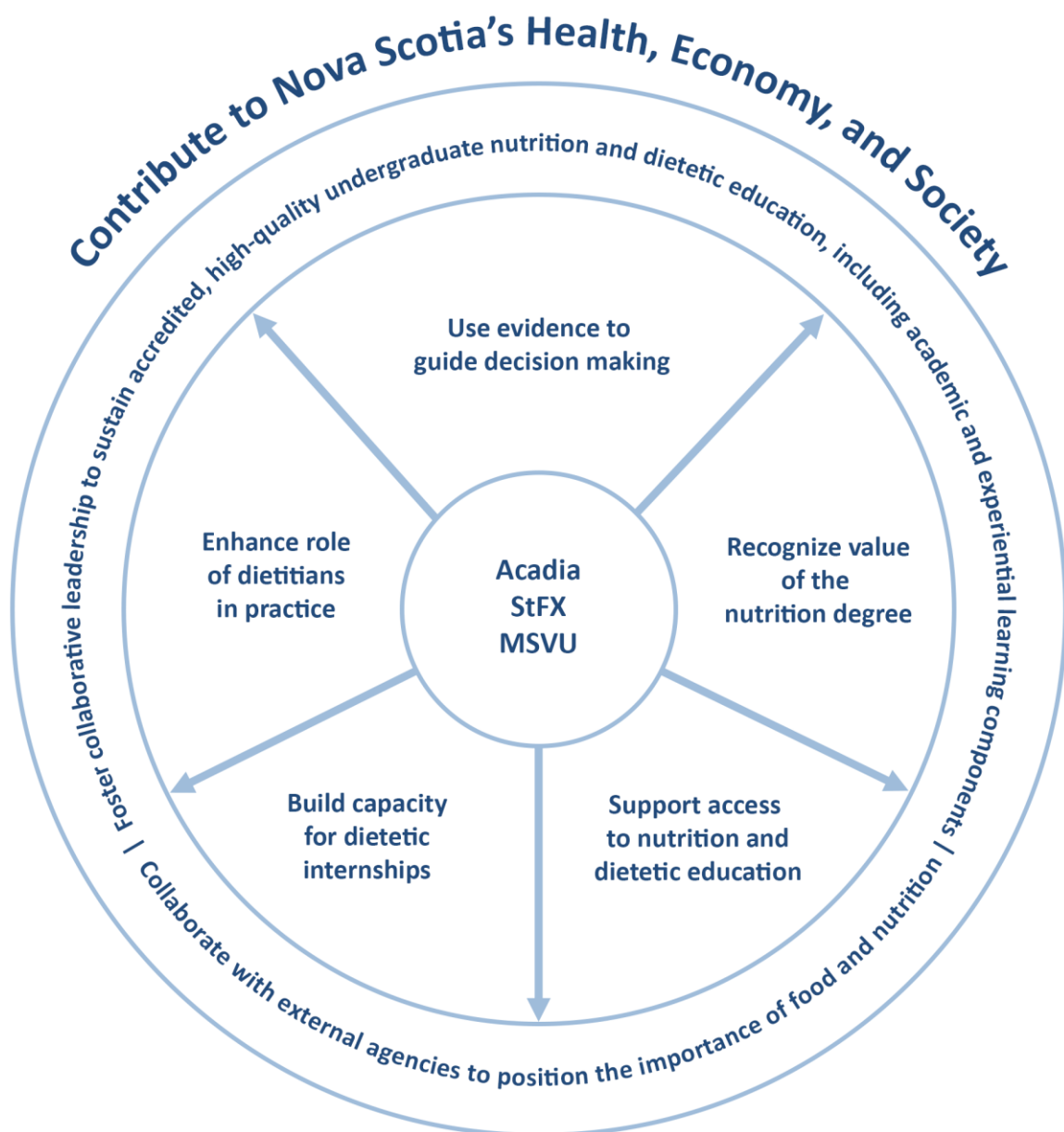
E) Enhance the role of dietitians in practice:

- Provide input to the Food and Nutrition Services Provincial Project, which is part of the NSHA transformation process.
- Identify opportunities for enhancing diversity in the dietetic workforce to effectively reflect the demographics, capacity, and needs of the NS population.
- Explore the feasibility of expanding services of dietitians and nutritionists across the health care spectrum in rural health settings in NS.
- Enhance opportunities for inter-professional health practice and learning, including integrating nutrition in the curriculum of other health professional disciplines in both academic and practice settings.

It is recognized that successfully addressing these recommendations depends on working with relevant stakeholders, including LAE and the Nova Scotia Department of Health and Wellness, to support a collaborative process for achieving these goals and the accompanying objectives.

Figure 1: Framework Reflecting Goals and Key Objectives

Nova Scotia Nutrition and Dietetics Education Programs





INTRODUCTION

Strong evidence of the importance of diet to the health of the population, most strikingly in the prevention and management of many chronic diseases, has resulted in an increase in the number of nutritionists and dietitians in Canada over the last decade. This shifting landscape in nutrition and dietetic practice has had a major impact on dietetic education and training programs across the country. Changing models for educating and training qualified dietetic professionals, increased student interest and enrolment in undergraduate nutrition and dietetic education programs, and the increasingly competitive nature of the pathway to careers in dietetics, have resulted in a number of opportunities and challenges for dietetic education in Nova Scotia (NS).

In NS, professionally accredited dietetic education is nested within undergraduate human nutrition degree programs offered at Acadia, Mount Saint Vincent (MSVU), and St. Francis Xavier (StFX) universities. Students within and outside the province are attracted to these NS-based programs because of their consistently strong reputations. Increased enrolment in human nutrition programs, with growing demand for the dietetic education option, has resulted in recognition of the need to increase capacity for dietetic internships (i.e. the experiential learning opportunities in supervised practice settings needed to develop required competencies for dietetic practice). The three university-based nutrition programs have been collaborating over the last five years to identify ways to enhance dietetic education in NS, including building capacity for internships. Working together, and with other stakeholders in their communities, they are preparing graduates to address the significant food and diet-related concerns impacting the health of Nova Scotians, costs to the healthcare system, and to society more broadly. It is within this context that this provincial review of nutrition and dietetic education is set.



PURPOSE OF THE REVIEW

The bilateral agreements between the Province and each of Acadia, MSVU, and StFX called for a partnership “to discuss and analyze nutrition programs at these institutions with a goal of making recommendations for any improvements that may be identified as necessary for NS to deliver high quality, relevant nutrition programming at the undergraduate level.” This review was initiated by the Nova Scotia Department of Labour and Advanced Education (LAE) in response to two concerns: the first related to a perceived shortage of dietetic internships, and the second linked to how increased enrolment in the nutrition programs in the three universities contributed to the dietetic workforce capacity in the province.

The purpose of this report is to describe the current state of university-based nutrition and dietetic education in NS,¹ and to offer a series of recommendations to ensure that post-secondary education efforts and resources to support these efforts meet both the current and future needs of students and the NS population, as well as supporting the LAE mandate.²

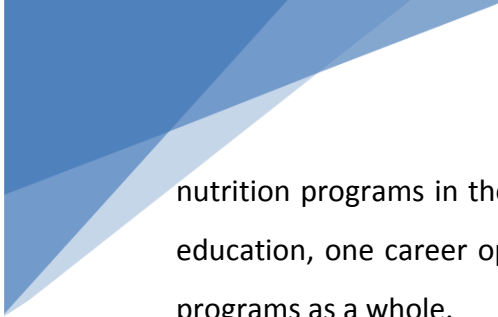
Parameters of the Report

Dietetic education refers to the preparation of students to gain entry to the profession of dietetics, a regulated health profession. An undergraduate professional program in dietetics incorporates academic and practicum-based experiential learning components (commonly referred to as an internship in this report).³ The baccalaureate degree in human nutrition prepares students to apply for a dietetic internship (one of the requirements to practice as a registered dietitian in Canada). Dietetic education is embedded within undergraduate human

¹ According to the Province of Nova Scotia’s Dietitians Act (Royal Assent Nov 5, 2009), “ ‘Dietetics education program’ means a degree educational program in dietetics or applied human nutrition that is approved by the Board” of the Nova Scotia Dietetic Association, the professional regulatory body.

² Nova Scotia Department of Labour and Advanced Education. (n.d.). *Connecting Nova Scotians to higher-value jobs. Labour and Advanced Education three-year strategic framework 2013–2016*. Retrieved from http://novascotia.ca/lae/pubs/docs/Labour_Three_Year_Strategic_Plan_13-16.pdf

³ Internship is also referred to by some as a ‘practicum’. For simplicity and consistency we are using the term internship.



nutrition programs in the three NS universities. Therefore, it is not possible to discuss dietetic education, one career option for students to consider, without addressing academic nutrition programs as a whole.

The contents of this report reflect the common features amongst the three university programs and highlight their unique program foundations and attributes. The report also examines the current positioning of dietetic education in NS including strengths, weaknesses, opportunities and threats. Recommendations are provided, building on the synthesis of findings. Appendices include relevant data and background information to support the report's content.

The Review Process

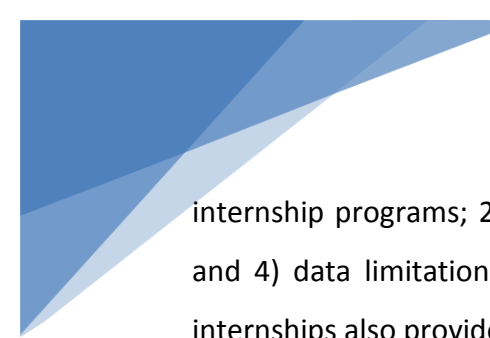
Working with LAE, the Heads of the three university-based nutrition and dietetic programs collected and interpreted relevant data within the current dynamic landscape of nutrition (including dietetic) education in higher education and professional practice in Canada and NS.

Review meetings between LAE and the universities were initiated in November 2014. As well, regular meetings of the Heads of the nutrition and dietetic programs at the three universities were held to identify and discuss priority issues, identify sources of relevant data, complete a situational analysis of the nutrition and dietetic programs in NS, and frame this report. This collective analysis aligned with the purpose of the review. Meetings were also held with the Heads and two representatives of the Higher Education Branch of LAE, who provided feedback and insights into the process.

Information collected during the review process included data from: the three universities; the Nova Scotia Dietetic Association (NSDA); the Canadian Institute for Health Information (CIHI); and Dietitians of Canada.⁴ In addition, Marlene Wyatt, Professional Standards Director of Dietitians of Canada (DC),⁵ was consulted for expert advice about: 1) national aspects of dietetic

⁴ Dietitians of Canada is the voice of the profession of dietetics. <http://www.dietitians.ca/About-Us/MissionVisionValues.aspx>

⁵ M. Wyatt, Dietitians of Canada, personal communication, June 20, 2015.



internship programs; 2) employment opportunities for NS graduates; 3) workforce data gaps; and 4) data limitations in setting policy. Coordinators of the three university-based dietetic internships also provided input.

THE CONTEXT FOR NUTRITION AND DIETETIC EDUCATION IN NOVA SCOTIA

Nutrition and dietetics is an expanding field of practice that is highly relevant to supporting and improving the health of the NS population.

Nova Scotians and other Atlantic Canadians are particularly vulnerable to poor health outcomes, due to a complex array of factors including longstanding socio-economic determinants as well as limited access to health services and supports for healthy lifestyle practices.^{6 7} According to health-adjusted life expectancy indicators, males and females living in NS can expect to live two years less than Canadians in general.⁸ Addressing concerns related to health equity is increasingly seen as a priority in NS,^{9 10} with access to food and nutrition supports essential to the health and wellness of all individuals throughout the course of their lives.¹¹ Services are needed to better support nutritional aspects of health from preconception to end-of-life, with investments early in life having an impact on health outcomes throughout a lifetime. Many challenges exist as NS has an aging demographic, with 16.6 percent of the population over 65 years, compared with the national average of 14.8 percent.¹² Many Nova

⁶ Conference Board of Canada. (2015). *How Canada performs: Health*. Retrieved from <http://www.conferenceboard.ca/hcp/provincial/health.aspx>

⁷ Canadian Institutes of Health Information. (2015). *Trends in income-related health inequalities*. Retrieved from https://www.cihi.ca/en/summary_report_inequalities_2015_en.pdf

⁸ Statistics Canada. (2012). *Health-adjusted life expectancy, at birth and at age 65, by sex and income, Canada and provinces*. Cansim table: 102-0122, 2005-2007. Ottawa, Ontario. Retrieved from <http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=1020122>

⁹ Public Health Association of Nova Scotia. (n.d.) *Public Health Association of Nova Scotia strategic plan 2014-16*. Retrieved from <http://phans.ca/cmsAdmin/uploads/Public-Health-Association-of-Nova-Scotia-Strategic-Plan-2014-2016-updated-Oct-2014.pdf>

¹⁰ Nova Scotia Department of Health and Wellness. (2012). *THRIVE! A plan for healthier Nova Scotia*. Retrieved from <https://thrive.novascotia.ca/sites/default/files/Thrive-Strategy-Documents.pdf>

¹¹ Tarasuk, V., Fitzpatrick, S., and Ward, H. (2010). Nutrition inequities in Canada. *Applied Physiology, Nutrition, and Metabolism*, 35, 172-179.

¹² Statistics Canada. (2012). Focus on geography series, 2011 Census. Statistics Canada catalogue no. 98-310-XWE2011004. Ottawa, Ontario. *Analytical products, 2011 Census*. Last updated October 24, 2012. Retrieved from <http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-pr-eng.cfm?Lang=Eng&GC=12>

Scotians (43 percent) reside in rural areas, where access to health services, healthy food choices, and other resources supportive of health and wellness, such as a registered dietitian, are limited.¹³ Low health literacy has been shown to be an important population health concern in rural NS.¹⁴

Socio-economic factors have an important impact on health in NS.¹⁵ For example, household food insecurity, a measure of income-related problems correlated to access to food, is a strong predictor of poor physical and mental health. At 17.5 percent, NS has the highest rate of household food insecurity of any province in the country.¹⁶ A study of children in grades 3, 7, and 11 in NS schools found that both household income and dietary intake were significantly related to their weight status.¹⁷ Research has clearly demonstrated that many Nova Scotians, including young and older citizens, cannot afford a healthy diet.¹⁸ ¹⁹ Recent findings from population based survey data indicates, independent of other social determinants of health, household food security is a strong predictor of health care utilization and incurred costs among working-aged adults in Canada.²⁰

¹³ Statistics Canada. (2011). Population, urban and rural, by province and territory (Nova Scotia). Ottawa, Ontario. *Analytical products, 2011 Census*. Retrieved from <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62d-eng.htm>

¹⁴ Gillis, D.E., and Sears, S.A. (2012). Health literacy in rural communities: Challenges and champions. In J.C. Kulig, & A. Williams (Eds.) *Health in rural Canada* (pp. 209-224). Vancouver: UBC Press.

¹⁵ Nova Scotia Health Research Foundation. (2009). Major health issues in Nova Scotia: *An Environmental Scan*. Retrieved from http://www.nshrf.ca/sites/default/files/environmental_scan_-current_major_health_issues.pdf

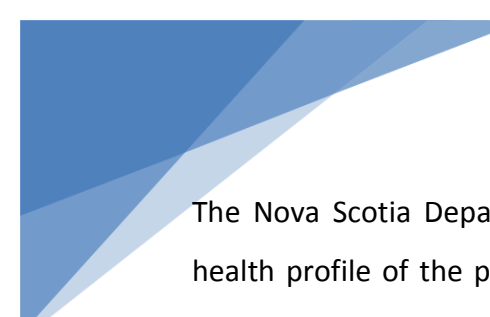
¹⁶ PROOF. (2015). *Research to identify policy options to reduce food security*. Retrieved from <http://nutritionalsciences.lamp.utoronto.ca/food-insecurity/>

¹⁷ St John, M., Durant, M., Rehman, C., Thompson, A.M., Wadsworth, L.A., and Murphy, R.L.L. (2008). Overweight Nova Scotia children and youth: The roles of household income and adherence to Canada's food guide to healthy eating. *Canadian Journal of Public Health*, 99, 4, 301-306.

¹⁸ Green, R.J., Williams, P.L., Johnson, C.S., and Blum, I. (2008). Can Canadian seniors on public pensions afford a nutritious diet? *Canadian Journal on Aging*, 27, 69-79.

¹⁹ Williams, P.L., Watt, C., Amero, M., Anderson B., Blum I., Green-LaPierre R., et al. (2012). Affordability of a nutritious diet for income assistance recipients in Nova Scotia 2002-2010. *Canadian Journal of Public Health*, 103, 183-8. Retrieved from <http://journal.cpha.ca/index.php/cjph/article/view/3048/2618>

²⁰ Tarasuk, V., Cheng, J., de Oliveira, C., Dachner, N., Gundersen, C., and Kurdyak, P. (2015). Association between household food insecurity and annual health care costs. *Canadian Medical Association Journal*, 187(14), 429-436.



The Nova Scotia Department of Health and Wellness²¹ recently released the province's first health profile of the population—a report in which the province's Chief Public Health Officer calls for action on prevention of disease and injury, provision of high quality healthcare, and a greater understanding of the root causes of poor health. Numerous concerns in the critical need of improvement relate to supports for nutrition and healthy eating practices. One of the most significant problems is obesity, with 61 percent of Nova Scotians considered overweight or obese compared to 52 percent of Canadians.²² Of note, 60.5 percent of women and 58.8 percent of men over age 18 are overweight or obese in NS.²³ Moreover, 70 percent of adult Nova Scotians between 45 and 65 years, and 50 percent of those between 20 and 34 years are reported to be overweight or obese.

Obesity significantly increases the risk of several chronic diseases, including type 2 diabetes, cardiovascular disease, and some types of cancer. The estimated economic burden of obesity ranges from \$4.6 billion to \$7.1 billion annually in Canada.²⁴ To build on this, NS has been identified as having one of the highest rates of chronic disease and disability in Canada.²⁵ The rates of diabetes are higher than the national average with approximately 77,000 adults in NS over 20 years of age having been diagnosed with diabetes. Moreover, diabetes rates in First Nations communities are substantially higher. In addition, 21 percent of Nova Scotians report having been diagnosed with high blood pressure, compared to 18 percent of Canadians.²⁶ Diabetes and high blood pressure both increase risk of cardiovascular disease, which causes more deaths in NS than any other disease. Heart disease is reported in six percent of the

²¹ Nova Scotia Department of Health and Wellness. (2015). Nova Scotia health profile. Retrieved from <http://novascotia.ca/dhw/publichealth/documents/Population-Health-Profile-Nova-Scotia.pdf>

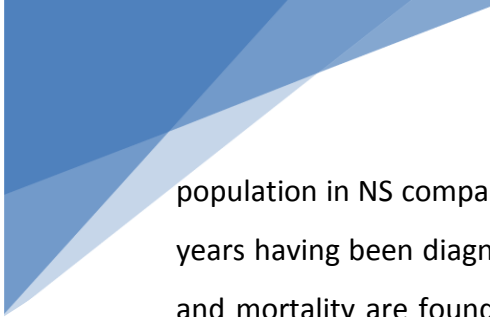
²² Nova Scotia Department of Health and Wellness (2015). *Nova Scotia health profile*. Retrieved from <http://novascotia.ca/dhw/publichealth/documents/Population-Health-Profile-Nova-Scotia.pdf>

²³ Tjepkema, M. (2005). Adult obesity in Canada: Measured height and weight. *Nutrition: Findings from the Canadian Community Health Survey*, 1. Statistics Canada 82-620-MWE2005001.

²⁴ Public Health Agency of Canada and the Canadian Institute for Health Information. (2011). *Obesity in Canada*. Retrieved from <http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/assets/pdf/oic-oac-eng.pdf>

²⁵ Nova Scotia Primary Health Care. (2015). *Chronic disease prevention and management*. Retrieved from <http://novascotia.ca/dhw/primaryhealthcare/chronic-disease-management.asp>

²⁶ Canadian Diabetes Association. (n.d.). *At the tipping point: Diabetes in Nova Scotia*. Retrieved from <https://www.diabetes.ca/CDA/media/documents/publications-and-newsletters/advocacy-reports/canada-at-the-tipping-point-nova-scotia-english.pdf>



population in NS compared to five percent in Canada, with 19 percent of Nova Scotians over 65 years having been diagnosed with this disease.²⁷ Furthermore, higher rates of cancer incidence and mortality are found in NS, compared to Canada as a whole, for both males and females. Strong evidence exists that diets high in vegetables and fruit can protect against cancer; however, only 34 percent of Nova Scotians over the age of 12 years consume vegetables and fruits at least 5 times per day, compared to 40 percent of Canadians in the same age range.²⁸ Breastfeeding rates in NS are amongst the lowest in Canada even though breastfeeding is recognized as having substantial health benefits for infants throughout their lives, as well as for mothers, including reducing the risk of obesity. The rate of exclusive breastfeeding at six months is 22 percent in NS compared to 26 percent in Canada.²⁹

In a 2015 Conference Board of Canada report on the performance of healthcare systems in Canada, the province received a “D” grade for performance in health, with rates of cancer, respiratory and heart disease, and diabetes contributing significantly to the poor health of Nova Scotians.³⁰ A report prepared for the Nova Scotia Health Research Foundation (NSHRF) in 2009 concluded that, “preventing and managing chronic diseases is of considerable importance to the future sustainability of NS’s health system” (p. 6).³¹ Research shows that improving nutrition can help prevent many diet-related chronic conditions.³² While prevention of diet-related chronic disease and upstream interventions to support healthy food practices are

²⁷ Heart and Stroke Foundation. (2015). *Heart health of Nova Scotians*. Retrieved from http://www.heartandstroke.ns.ca/site/c.inKMIPNIEiG/b.3914331/k.673B/Nova_Scotia_Statistics.htm

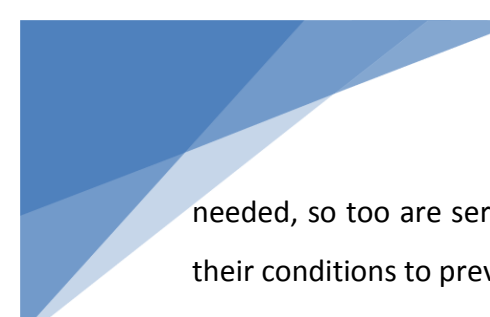
²⁸ Cancer Care Ontario. (2005). *Insight on Cancer: News and information on nutrition and Cancer prevention, volume two, supplement one: Vegetable and fruit intake*. Retrieved from <https://www.cancercare.on.ca/common/pages/UserFile.aspx?fileId=13798>

²⁹ Health Canada, Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada. (2015). *Nutrition for healthy term infants: Recommendations from birth to six months*. Retrieved from <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/index-eng.php#a4>

³⁰ Conference Board of Canada. (2015). *How Canada performs: Health*. Retrieved from <http://www.conferenceboard.ca/hcp/provincial/health.aspx>

³¹ Nova Scotia Health Research Foundation. (2009). *Major health issues in Nova Scotia: An environmental scan*. Retrieved from http://www.nshrf.ca/sites/default/files/environmental_scan_-current_major_health_issues.pdf

³² The Healthy Eating Action Group of the Nova Scotia Alliance for Healthy Eating and Physical Activity and the Office of Health Promotion. (2005). *Healthy eating Nova Scotia*. Retrieved from <http://novascotia.ca/dhw/healthy-communities/documents/Provincial-Healthy-Eating-Strategy.pdf>



needed, so too are services to enable those with chronic and other diseases to better manage their conditions to prevent further debilitation.

Growing evidence supports the fact that nutritional care practices, consistent with enhanced recovery pathways, contribute to reduced morbidity, improved effectiveness of care, and shorter hospital stays, ultimately reducing the care and financial burden on the healthcare system.³³ The importance of food service systems in providing healthy food to support nutritional care of patients in hospitals is receiving attention with innovative approaches to this longstanding challenge being implemented in NS³⁴ and elsewhere in Canada.³⁵ It is significant that malnutrition in Canadian hospital settings has captured recent medical attention and public concern, leading for a call for timely action by healthcare providers including dietitians.³⁶ Nutrition support, hydration, and feeding concerns must also be considered as part of palliative care.³⁷ Not to be overlooked is the importance of nutrition in promoting and managing mental health, with evidence pointing to the need for more involvement of dietitians in client care.³⁸

As part of the current transformation of the provincial healthcare system, the Nova Scotia Health Authority (NSHA) has tasked the newly established Nutrition and Food Services Project Team to review the current state of operations and to develop recommendations to support implementation of a new provincial model for patient food, nutrition care, and retail services for NSHA. Given the significant nutrition-relevant health issues facing this province, there is a

³³ Adamina, M., Kehlet, H., Tomlinson, G.A., Senagore, A.J., Conor, P., and Delaney, C.P. (2011). Enhanced recovery pathways optimize health outcomes and resource utilization: A meta-analysis of randomized controlled trials in colorectal surgery. *Clinical Review Surgery*, 149, 6, 830-840.

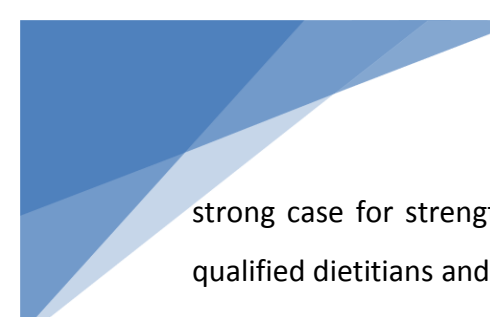
³⁴ Sysco. (2009). *Dial-for-dining: Program at IWK Health Centre is a huge success*. Retrieved from http://www.sysco.ca/healthcare/document_library/ingenium%20summer_09_eng.pdf

³⁵ Howe, E. (2015). Hospital food that's good. *UofTMed*. Retrieved from <http://www.facmed.utoronto.ca/magazine>

³⁶ Canadian Malnutrition Task Force. (2015). *Report on nutrition care in Canadian hospitals study*. Retrieved from <http://nutritioncareincanada.ca/malnutrition/study-results/>

³⁷ Fuhrman, P.M. (2008). Nutrition support at the end of life: A critical decision. *Today's Dietitian*, 10, 9, 68. Retrieved from <http://www.todaysdietitian.com/newarchives/082508p68.shtml>

³⁸ Dietitians of Canada. (2012). Promoting mental health through healthy eating and nutritional care. Retrieved from <http://www.dietitians.ca/Downloads/Public/Nutrition-and-Mental-Health-complete-2012.aspx>



strong case for strengthening nutrition and food services and access to the expert advice of qualified dietitians and nutritionists in order to enhance health outcomes for Nova Scotians.

Dietitians and nutritionists have the unique professional competencies to positively influence health in this province, including but not limited to contributing to: diet-related disease prevention and management, providing appropriate clinical nutrition care across the spectrum of illness and wellness, ensuring institutional food services that meet nutritional care needs, addressing food insecurity issues, and working with diverse stakeholders to improve the health outcomes of Nova Scotians. They are professionally trained to address food and nutrition-related concerns across the life of clients, in settings spanning the healthcare service continuum, including health promotion, disease prevention, primary healthcare, treatment, tertiary, and palliative care. Moreover, they have untapped potential to contribute to the health of the population by applying their expertise and specialized skills in settings outside the health sector, such as in education, government, research and business, and through practice and policy interventions.


With the increased recognition of the impact of nutrition on health and wellness and of the value of qualified professionals, it is not surprising that students are drawn to nutrition and dietetic programs as a career route.

How Does One Qualify to Become a Dietitian?

To become a dietitian in Canada, normally one must successfully complete each of the following: a baccalaureate degree in food and nutrition from a DC accredited university program, a supervised dietetic internship accredited by DC,³⁹ and the Canadian Dietetic Registration Examination (CDRE).⁴⁰

³⁹ Dietitians of Canada. (2015). *Become a dietitian*. Retrieved from <http://www.dietitians.ca/Become-a-Dietitian/Education.aspx>

⁴⁰ The CDRE is required in all provinces in Canada with the exception of Quebec. Alliance of Canadian Dietetic Regulatory Bodies. (2015). *Qualifying as a dietitian in Canada*. Retrieved from <http://www.dieteticregulation.ca/en/qualifying.php>




In Canada, the regulation of dietetic professionals, like other healthcare professionals, is authorized in provincial legislation with some variation from province to province. In NS, the body authorized to protect the public by regulating dietitians is the NSDA. This regulatory body licenses dietitians and nutritionists in NS, ensuring that members of the profession are qualified to practice and that they continue to practice in a safe, competent, and ethical manner. In NS, each of the protected titles ‘dietitian’ and ‘nutritionist’ has the same meaning and can be used interchangeably; one must be registered with NSDA to use either title. Qualified professionals are licensed to practice in the province where they work and once qualified, credentials are recognized by each of the other provincial regulatory bodies, making transferability within Canada seamless.

Models of Dietetic Education

Canada is highly regarded as an international leader in dietetic practice and education with well-defined professional competencies and accreditation standards for dietetic education and training.⁴¹ These standards must be met in both the academic and dietetic internship components of the university-based dietetic education program to prepare graduates to be practice-ready dietitians. Dietitians of Canada, through its role in the Partnership for Dietetic Education and Practice (PDEP), is responsible for conducting the national accreditation process for baccalaureate programs in dietetic education and for dietetic internship programs. Students from across the country are drawn to this model, which enables them to pursue paths leading to a range of careers related to their interests and backgrounds in foods and nutrition.

Over the last two decades, responsibility for dietetic training has shifted to a large extent from the healthcare sector to the education sector. In the past, dietetic internship programs were primarily provided through healthcare institutions, with students from various universities applying directly to these internship programs, after having completed their nutrition degrees from an accredited baccalaureate program. While some of these stand-alone, post-degree

⁴¹ Partnership for Dietetic Education and Practice. (2014). *Accreditation standards for dietetic education programs in Canada*. Retrieved from http://www.dietitians.ca/Downloads/Public/PDEP_Accreditation_Std_Education_Programs_2014.aspx



internships remain in Canada,⁴² many have become integrated with academic programs in universities. In most situations, no accompanying human or financial resources have been redirected to universities to support the delivery of supervised experiential learning in practice settings, as required within the dietetic internships.

While models of dietetic education vary considerably throughout Canada, two main categories have emerged: the integrated undergraduate internship⁴³ and the post-degree internship.⁴⁴ In NS, there are three examples of integrated undergraduate dietetic internships (at Acadia, MSVU, and StFX). One post-degree internship program is offered through NSHA (formerly known as the Capital Health Graduate Internship Program).⁴⁵ Mount Saint Vincent University also offers an integrated internship as part of its Masters of Science in Human Nutrition program.⁴⁶

There are differences in the design of integrated models across the country. In NS, the integrated dietetic internship is incorporated as part of the undergraduate nutrition degree with students in the degree program having to apply for entry into it. Outside of NS, several universities provide internships to all students admitted to their dietetic program. These programs provide direct entry to dietetic education after one to two years of general sciences study and are referred to as fully integrated because they incorporate both academic and internship components. Student enrolment capacity is largely based on available internships. While these direct entry programs have an advantage for some students in that they lead directly to securing an internship, they provide very little flexibility to those students who want

⁴² There currently are fourteen such programs in Canada.

Dietitians of Canada. (2015). *Internships routes*. Retrieved from <http://www.dietitians.ca/Become-a-Dietitian/Internship-and-Practicums/Internship-Routes.aspx>

⁴³ The Stage program refers to the dietetic internship component in Quebec.

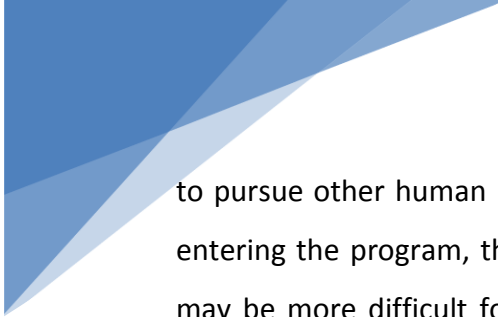
⁴⁴ Types of internships offered in Canada are described on the Dietitians of Canada website.

Dietitians of Canada. (2015). *Internship practicum programs*. Retrieved from <http://www.dietitians.ca/Become-a-Dietitian/Internships-Practicum-Programs.aspx>

⁴⁵ The number of Dietetic Interns accepted in this program was eight in 2015 and will be four in 2016.

Nova Scotia Health Authority. (2015). *Central zone dietetic internship program*. Nova Scotia Health Authority: Halifax.

⁴⁶ See Appendix 2: Graduates from NS Human Nutrition Programs over the Past Ten Years (MSVU/Master of Science Applied Human Nutrition [with Dietetic Internship])



to pursue other human nutrition-related career paths or to students who may find that, after entering the program, the dietetic career route is not for them. Moreover, ease of admission may be more difficult for those students with undergraduate credits in another discipline or who have a degree from another university, as course transferability within and across universities can often be a challenge. Notably, transferring credit for courses offered across the three NS university-based nutrition programs is not uncommon; students may be advised to take courses by distance at a sister university to meet special course sequence needs. The potential for enhancing transferability of courses and providing complementary course offerings by distance is recognized.

Unlike most other provinces, the universities in NS do not offer undergraduate dietetic programs with direct entry to fully integrated internships. In large part, this choice is because they recognize that the value of an applied science degree in human nutrition is gaining currency within society's knowledge economy, and holds relevance to a broad range of healthcare and other occupations. Students from across the country are interested in this model, which enables them to pursue paths leading to a range of careers relevant to their food and nutrition background. Examples include employment within the school system as teachers, the agri-food sector in marketing or promotion, the food or pharmaceutical industries as sales consultants, food service establishments as managers, health and wellness programs as health promoters, and as members of research teams. A nutrition degree is also seen as a valued prelude to other roles: post-graduate research; medical or other professional studies; emerging entrepreneurial opportunities; academic and biomedical institutions; food, agriculture, pharmaceutical, and biotechnology industries; government agencies; private health-related organizations; regulatory bodies such as food safety and quality control; and positions ranging from research and development to sales and consulting.



Dietetic Education in Nova Scotia

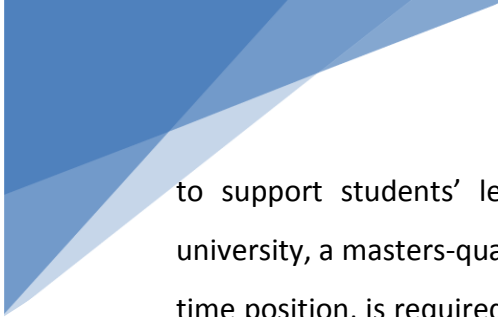
The three longstanding human nutrition and dietetic education programs in NS have evolved from home economics programs established in the 1920s.⁴⁷ Like many similar programs in Canada, they transitioned to a focus on human nutrition and dietetics through the 1970s and 1980s. Their roots in the multifaceted discipline of home economics are reflected today in the positioning of dietetic education within a broader nutrition program. As has been identified, this model provides students with an applied science degree leading to career choices in many different areas of practice relevant to food and nutrition besides dietetics. The current system for dietetic education in NS is therefore able to provide options for students to pursue careers where they can apply their nutrition knowledge and skills beyond dietetic practice, and thereby contribute to the emerging knowledge economy, population health, and contemporary society in a range of innovative ways. Brief descriptions of each of the three university programs are presented in Appendix 1: Description of Nova Scotia University-Based Nutrition and Dietetic Programs.

Employment options for graduates who have completed the Bachelor of Science degree in nutrition, and also for those who have completed the requirements to qualify as a professional dietitian, have increased over the last decade. This trend is not surprising, and the number of students enrolling in nutrition and dietetic programs at universities across Canada has dramatically increased in recent years. A table (Appendix 2) showing the number of graduates from human nutrition degree programs over the past ten years, including those completing dietetic internships, provides data supporting this trend in NS. Importantly, it is the increasing demand for entry to the regulated profession of dietetics that is central to this review.

As previously mentioned, each of the three universities has a limited number of supervised dietetic internships available to students. Internship capacity is influenced by several factors, including, most importantly, the number of dietitians in practice available to act as preceptors⁴⁸

⁴⁷ The Bachelor of Science in Home Economics degree was approved by Acadia University in 1925, by St. Francis Xavier University in 1928 and by Mount Saint Vincent University in 1926.

⁴⁸ At Acadia and StFX, this role is called a preceptor, at MSVU it is called a sponsor.



to support students' learning and their achievement of required competencies. At each university, a masters-qualified dietitian in the role of Internship Coordinator, currently in a part-time position, is required to support the student recruitment and selection process, coordinate internship placements, support both interns and preceptors throughout the internship, and manage assessment processes.


Entry into Dietetic Education in Nova Scotia

Dietetic internship admission is highly competitive, regardless of the program or region of the country. Current national statistics indicate that less than 50 percent of students applying for dietetic internships are offered a position,⁴⁹ reflecting the competitive nature of dietetic education. Not all students meet the standards for academic performance. Similar to other health professional programs, there are other requirements for eligibility, which include employment and character references, volunteer experience, contributions to the community, and performance in a formal interview conducted by a selection committee composed of dietitians serving as preceptors to interns and faculty members qualified as dietetic professionals.

Internship applicants who are not accepted through the university-based dietetic education programs in NS have two other options to meet the requirements to be a dietitian.⁵⁰ First, as has previously been noted, is a post-degree graduate internship, such as that offered through NSHA Central Zone (formerly known as the Capital Health Graduate Internship Program). The second option is a master's degree program that incorporates an internship component and is obtainable through MSVU, or several other universities across the country.

⁴⁹ M. Wyatt, Dietitians of Canada, personal communication, June 20, 2015.

⁵⁰ These include post-degree internship programs (4 programs and 19 positions in Atlantic Canada) and outside Atlantic (10 programs and 69 positions). Additionally, students can apply for Masters/Internship programs (4 programs in ON with approximately 50 grads annually) and in Atlantic Canada, to MSVU as part of their Masters of Science in Applied Human Nutrition (See Appendix 2 as previously indicated) and for 2 positions at Memorial University.



The post-degree internship based in Halifax at NSHA Central Zone accepts graduates from DC accredited human nutrition baccalaureate degree programs from universities across Canada, including NS. While a few placements in the NSHA Capital Zone practicum sites are available to integrated dietetic interns from Acadia, MSVU, and StFX, the lack of ongoing affiliation agreements between NSHA and the three NS universities limits seamless access to internship opportunities in the province, including the Capital Zone, by NS dietetic students. Collaborative efforts with key stakeholders are needed to identify how more high quality internship experiences could be made available through all zones in NSHA. This expansion would enhance the training capacity necessary to support more students from the three university programs in NS to meet their requirements for entry into dietetic practice. Furthermore, it would foster opportunities for students from the three university internship programs to learn together as emerging professionals, not to mention opportunities for enhancing inter-professional learning.

THE CURRENT STATE OF DIETETIC WORKFORCE AND EDUCATION IN NOVA SCOTIA

Analyzing dietetic workforce and education capacity is complex, with an unfortunate lack of accurate data relevant to NS.

Workforce Capacity

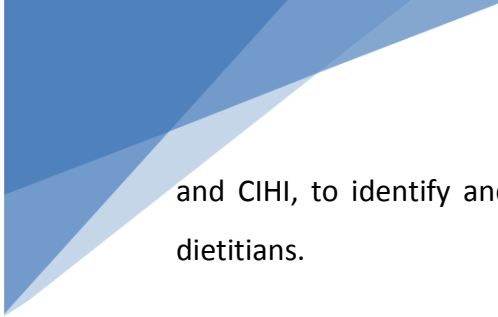
Data available from the provincial regulatory bodies, including NSDA, reflect net changes in annual registrations of dietitians, but do not provide a detailed picture of the type and location of practice settings where dietitians are employed, level of employment (whether working full-time, part-time, or unemployed), specific areas of practice, or mobility patterns.^{51 52 53} In a recently released report compiling provincial dietitian workforce data based on numbers of dietitians registered, DC noted the lack of complete data from all provincial regulatory bodies.⁵⁴ In a series of recommendations that strongly support access to accurate data for workforce planning, the report advocated for a more focused effort by both provincial dietetic regulators

⁵¹ Nova Scotia Dietetic Association. (2013). *Annual report, 2012-13*. Nova Scotia Dietetic Association: Halifax.

⁵² Nova Scotia Dietetic Association. (2014). *Annual report, 2013-14*. Nova Scotia Dietetic Association: Halifax.

⁵³ J. Garus, Nova Scotia Dietetic Association, personal communication, October 14, 2015.

⁵⁴ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>



and CIHI, to identify and collect data that is useful in workforce decision-making related to dietitians.

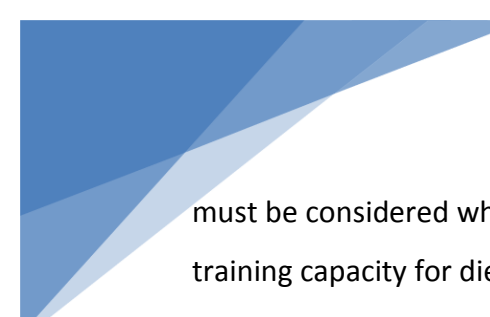
Data collected by CIHI^{55 56} is limited to the number of dietitians registered in each province per year. The CIHI Health Care Providers' Report pertaining to dietitians contains two data sections: Education and Training, and Number of New Graduates. The numbers provided by CIHI on Education and Training do not account for differences in program models in Canada. Although it includes the number of students graduating from accredited undergraduate dietetic programs in Canada, not all university programs contribute to this data set. Another weakness of the CIHI data is that it combines information on students admitted to dietetic programs with those admitted to programs that offer both human nutrition and dietetic streams, some of whom never intend to become dietitians.

The CIHI report on the number of registered dietitians per 100,000 persons does not consider geographically isolated areas, nor does it differentiate between service provision and demand issues in rural versus urban centers. The type of population served, such as the elderly, Indigenous, low income, and food insecure, is also not considered. This limitation is critical to consider given the previously presented information on NS's aging and largely rural population, and specific population groups more likely to be vulnerable to poor health because of their social and environmental conditions. Moreover, CIHI data for NS that are pooled with Atlantic Canada do not capture the diversity of dietetic education or population needs in each of the four provinces. The 2015 DC report⁵⁷ also highlighted the limitation of current data for projecting provincial and national workforce requirements based on the population nutrition and health needs, especially given the aging population, the increased need for chronic disease services and expansion of primary health care teams. These limitations in the CIHI and DC data

⁵⁵ Canadian Institute Health Information. (2013). *Canada's health care providers, 1997 to 2011: A reference guide*. Retrieved from <https://www.cihi.ca/en>

⁵⁶ Canadian Institute Health Information. (2013). *Canada's health care providers, 2011 provincial profiles: A look at 27 health professions*. Retrieved from <https://www.cihi.ca/en>

⁵⁷ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>



must be considered when interpreting the referenced reports describing dietetic workforce and training capacity for dietetic education in NS in comparison to the rest of the country.

On a positive note, the number of registered dietitians has seen a relatively steady increase in NS since 2002, with a 35 percent increase over the 10-year period from 2002 to 2012. This increase is not surprising given the changing demographics, the impact of socio-economic conditions on health, and the serious nature of chronic health conditions related to diet and nutrition in this province. According to 2013 CIHI data analysis,^{58 59} NS had a total of 528 dietitians (including those employed both full-time, part-time, and not employed), the highest number of dietitians per capita in Canada (56 per 100,000 for NS compared to 30 per 100,000 for Canada). While the number reflecting dietetic workforce may appear high, it must be interpreted within the context of the significant health concerns affecting the NS population as previously noted, for example rates of obesity and chronic disease that are among the highest in the country⁶⁰ and the highest rate of food insecurity as compared to other provinces.⁶¹

Given the contribution that dietitians and nutritionists can make to the health of the population, in particular with respect to well-documented priority areas such as the prevention and management of chronic disease and food insecurity, the current number of dietitians in this province is unlikely to be adequate to make a significant impact. In planning for the future, consideration needs to be given to increasing the number of dietitians in primary healthcare collaborative teams in order to more effectively address nutrition-related health concerns of Nova Scotians. In other provinces,⁶² dietitians are employed as members of collaborative health

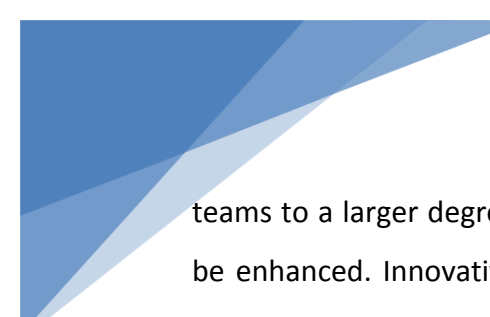
⁵⁸ Canadian Institute Health Information. (2013). *Canada's health care providers, 1997 to 2011: A reference guide*. Retrieved from <https://www.cihi.ca/en>

⁵⁹ Canadian Institute Health Information. (2013). *Canada's health care providers, 2011 provincial profiles: A look at 27 health professions*. Retrieved from <https://www.cihi.ca/en>

⁶⁰ Statistics Canada. (2015). *Canadian community health survey 2014*, Retrieved from <http://www.statcan.gc.ca/daily-quotidien/150617/dq150617b-eng.htm>

⁶¹ Tarasuk, V., Mitchell, A, and Dacher, N. (2012). Household food insecurity in Canada. *PROOF: Research to Identify Policy Options to Reduce Food Insecurity*. Retrieved from http://nutritionalsciences.lamp.utoronto.ca/wp-content/uploads/2014/05/Household_Food_Insecurity_in_Canada-2012_ENG.pdf

⁶² Ontario Ministry of Health and Longterm Care. (2005). *Guide to interdisciplinary team roles and responsibilities*. Retrieved from



teams to a larger degree than occurs in NS. This is just one area of dietetic practice that could be enhanced. Innovative nutrition interventions within collaborative strategies for addressing complex health concerns are also emerging across the country.⁶³

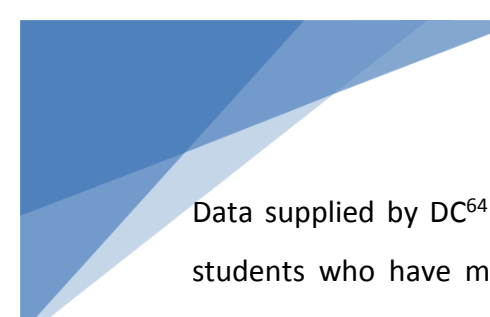
Training Capacity

The Training Capacity Indicator (TCI) is defined as the number of new graduates from health education programs, divided by the total workforce, expressed as a percentage. The TCI is a useful tool for comparing training capacity across the provinces. Its application to the CIHI data set provided to Newfoundland and Labrador for their review of dietitians, revealed that the total student enrolment in the three NS university-based nutrition programs has increased from 268 full-time equivalents (FTE) in 2002 to 585 FTEs in 2012. This increase in student enrolment reflects the growing interest in food and nutrition within the Canadian population, including among young adults. It also reflects the trend across Canada of students seeking undergraduate programs that will lead to a career after graduation, especially those that provide the opportunity for professional designation, as is the case with a dietetics option embedded in the nutrition degree programs in NS.

To be of use in decision-making, the TCI must compare data from the same dietetic education program models. Importantly, distinction must be made between programs providing students with direct entry to the dietetic internship and those programs in which students must compete for an internship. It has been identified that the TCI does not provide a clear picture of training capacity within the three undergraduate programs in NS. Currently, the TCI considers all nutrition graduates in the calculation, leading to a 14.9 TCI in Atlantic Canada. Recalculating the TCI using only those graduates who have internship placements results in a value of 10 [number of internships (~50) / size of workforce (~500) * 100 = ~10].

<http://find.gov.on.ca/?searchType=simple&owner=moh&url=health.gov.on.ca&collection=&offset=0&lang=en&type=ANY&q=Guide+to+Interdisciplinary+Team+Roles+and+Responsibilities&search.x=0&search.y=0>

⁶³ Vancouver Coastal Health. (2015). *Downtown eastside second generation health system strategy: Coordinated partners, integrated care and performance excellence will lead to healthier clients*. Retrieved from <http://www.vch.ca/about-us/accountability/healthy-communities/downtown-eastside-health-strategy/downtown-eastside-health-strategy>



Data supplied by DC⁶⁴ is considered to be more useful than the TCI, in that it reflects those students who have met both academic and internship requirements to be a dietitian. It is important to note that identification of the number of dietitians eligible to register with a dietetic regulatory body on a year-to-year basis is more helpful for policy making than the TCI alone. While the TCI is useful for calculating the workforce replacement time, there are limitations in its usefulness as a tool for workforce planning. To be of value in projecting the future need for dietitians in the province and in guiding educational and healthcare system policy change, TCI data needs to be supplemented by an in-depth workforce analysis. Drawing on both an examination of the existing, but limited data, as well as the expert advice and the recently released compilation of provincial workforce data from DC, considerations for workforce assessment, training capacity, and future planning are discussed in the following section.


Insights on Dietetic Workforce Trends

DC⁶⁵ concluded in their recent report on the compilation of national workforce data that “accurate, consistently collected data that captures trends and predictions of dietitian requirements is needed to service the present and future health care needs of the Canadian population. Currently there is no comprehensive national workforce plan for the dietetic profession” (p.i). In examining numbers of new entrants and the jurisdiction from which registrants came for the 2009 to 2012 period, the document emphasizes the limitations of the available data for making policy decisions about workforce requirements for dietitians in any province in Canada, including NS. With these reservations recognized, it is worth noting that the three jurisdictions of Ontario, British Columbia, and Alberta are reportedly not producing enough graduates to meet their registration requirements, even though they register over 80 percent of those graduates from universities in their province. From 2009 to 2012, these provinces annually registered on average 167 registrants, not trained in their own jurisdiction.⁶⁶

⁶⁴ M. Wyatt, Dietitians of Canada, personal communication, June 20, 2015.

⁶⁵ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>

⁶⁶ M. Wyatt, Dietitians of Canada, personal communication, June 20, 2015



While dietetic positions may not currently be plentiful within NS, they are available for NS graduates if they are prepared to move out-of-province. Based on the authors' experiences as educators and knowledge of the workforce, as well as personal communication with M. Wyatt,⁶⁷ in the past, graduates from NS who initially found entry-level employment outside the province have returned, having gained valuable professional experience. In its future analysis of the NS workforce data, DC will test this assumption by examining experienced new applicant registration data from all other provinces to determine if in fact NS graduates do return after a period of working as a dietitian in another jurisdiction. Current data profiling members of NSDA (2015), indicates that 24 new registrants came from out-of-province and 21 members had all or part of their education completed in NS.⁶⁸

It needs to be emphasized that available data does not provide a full picture of the fragmented nature of employment in this female dominated profession, where there is a greater tendency for dietitians to secure part-time work and take leaves for family care purposes, as compared to male dominated health professions. For example, of a total of 536 NSDA registrants in 2015, 26 percent (142 dietitians) reported being employed on a part-time basis.⁶⁹ Moreover, registration is often retained during periods of unemployment.

Current workforce data does not recognize emerging areas of practice for dietitians and nutritionists, presenting another data gap for this healthcare professional group. As pointed out in the 2015 DC report,⁷⁰ current data “does not include labour market projections that will impact the dietitian workforce” (p.i). A recent Service Canada document⁷¹ used national and


⁶⁷ M. Wyatt, Dietitians of Canada, personal communication, June 20, 2015

⁶⁸ J. Garus, Nova Scotia Dietetic Association, personal communication, October 14, 2015

⁶⁹ J. Garus, Nova Scotia Dietetic Association, personal communication, October 14, 2015

⁷⁰ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>

⁷¹ Government of Canada. (2015). *Job futures, dietitians and nutritionists*. Retrieved from http://www.servicecanada.gc.ca/eng/qc/job_futures/statistics/3132.shtml



provincial information to profile dietetic practice. Although the focus in this instance was the dietetic workforce in Quebec, the content has relevance to other jurisdictions in Canada:

“In recent years, the number of dietitians and nutritionists has increased sharply. This increase may be explained by the aging of the population, growing public concern about healthy eating, increased government spending in the health sector, the exacerbation of health problems due to obesity, and the growing use of the services of dietitians to prevent and treat health problems. Given that these trends should continue, the number of dietitians and nutritionists should increase sharply over the next few years.”⁷²

This projection is important context for considering future needs for dietitians as part of the NS workforce.

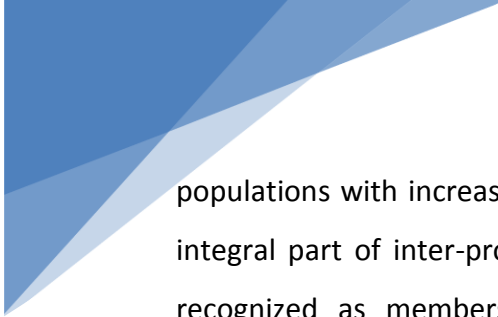
Employment Opportunities for Graduates of Nova Scotia Dietetic Programs

Over the last few years, employment opportunities have been strong for dietitians in Canada with vacant positions in various parts of the country. Most positions are in the public sector with prospects for expansion in the private sector. Given the heightened interest in nutrition, new jobs for dietitians are opening in areas such as primary healthcare, and there are increasingly newly created, innovative positions that focus on improving client health and behaviours both inside and outside the traditional health care system (e.g. nutrition education in grocery stores and fitness centres, and through nutrition menu labeling initiatives in restaurants).

There is a documented need for increased dietitian services in chronic disease prevention and treatment (such as diabetes) to address needs of the aging population,⁷³ incorporating ‘Aging In Place’ programs including both those in homes and in long term care facilities, and in

⁷² Service Canada. (2015). Job futures Quebec: Dietitians and nutritionists. *Statistics Canada catalogue no. 3132*. Statistics Canada: Ottawa.

⁷³ Picard, A. (2015). Canadian Medical Association urges health-care strategy for seniors. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/canadian-medical-association-urges-health-care-strategy-for-seniors/article26087150/>



populations with increased health issues, such as the Indigenous population. Dietitians are an integral part of inter-professional care teams in many regions of Canada. Dietitians are also recognized as members of collaborative health teams; however, as was acknowledged previously, more development in this area of practice is needed within the NS healthcare system.

SITUATIONAL ANALYSIS OF DIETETIC EDUCATION IN NOVA SCOTIA

NS has a well-tested model for dietetic education with three established university-based nutrition and dietetic programs that integrate academic and internships, all meeting national accreditation standards. These three programs provide students with a strong academic foundation combined with opportunities for application of knowledge through relevant experiential learning opportunities. While each university's nutrition program meets common curriculum standards for foundational knowledge and integrated competences required for dietetic practice, unique strengths can be found in each program. In their own way, each program has developed strong connections with their respective communities and contributed to these various communities and the dietetic profession as a whole.

A situational analysis of strengths and weaknesses of these programs, as well as the opportunities and threats (SWOT) within the current environment was completed to provide a high level understanding of the current state of human nutrition and dietetic education in the province. Key points are summarized in Table 1.

Table 1: Summary of SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• Emerging nutrition-related health concerns increase demand for qualified professionals• Quality nutrition programs meeting national accreditation standards• Embedding dietetic in applied science degree allows pathways to various careers• Applied science degree is valued in the knowledge-based economy	<ul style="list-style-type: none">• Lack of detailed workforce and training capacity data to guide future planning• Complex education and training system for dietetic education, as students and counselors do not always understand the degree/program options• Professional practice and training does not always reflect cultural and ethnic diversity

<ul style="list-style-type: none"> • The three high-quality nutrition programs are attracting students from within and out of province • Curriculum meeting common standards with unique strengths • Strong science foundation combined with experiential learning • Expertise in rural health and nutrition • Programs have strong connections and make contributions to their respective communities • Recognized leadership in dietetic education and history of collaboration within and across the three programs • NS residents in dietetic practicum programs at each of the three NS universities are eligible for NS student assistance⁷⁴ • NS healthcare system is well developed and includes nutrition and dietetic services 	<p>in Canadian society</p> <ul style="list-style-type: none"> • Limited access to practice settings and preceptors, especially in tertiary care, for dietetic students in integrated internship programs • Lack of qualified and available preceptors limit the number of internships available to qualified students • Programs are expanding at a time when there are limited resources for growth in higher education
Opportunities	Threats
<ul style="list-style-type: none"> • National professional education standards support collaboration related to dietetic education including curriculum • Strong academic professional working relationships with capacity to extend collaboration across academic and practice sectors to address identified issues in dietetic practice and education • Expertise in the province to conduct research on dietetic workforce and education capacity to meet future needs in NS • Mechanisms exist to enhance clear communication about the nutrition & dietetic programs in NS • Potential for innovative careers applying food and nutrition knowledge in non-traditional sectors • Develop affiliation agreements with organizations able to provide internship placements 	<ul style="list-style-type: none"> • Competition for resources may jeopardize collaboration, impacting all three university programs and dietetic education as a whole in NS • Lack of useful data/limited interpretation • Dwindling resources in NS for undergraduate university education • Dietetic education is not well resourced within NS's system for health profession education and training • Academic leadership and faculty staffing challenges • Female-dominated profession means a larger part-time and interrupted workforce • Competition for dietetic positions from unregulated practitioners, e.g. holistic nutritionists • Private sector, e.g. grocery chains, hiring dietitians as generalists (wellness coordinators) at lower salaries • Appearance of non-accredited independent internships in other provinces • Lack of understanding among employers of risk to the public of unregulated practitioners providing nutrition advice

⁷⁴ Residents of other provinces may also be eligible for student assistance.




Strengths and Weaknesses

NS's human nutrition and dietetic post-secondary education is recognized to be of high quality, led by recognized leaders in dietetic education, and as demonstrated by full program accreditation. There is a history of collaboration and established professional relationships within and across the three programs. The strong reputations of these human nutrition and dietetic programs attract students from within and outside the province.

A major strength of the human nutrition and dietetic programs in NS is that they serve a need beyond that of professional dietetic education, in that each of the three universities embeds their dietetic education in nutrition baccalaureate programs. They offer high-quality applied science degree options that not only attract students to nutritional science, but also provide them with a degree that is foundational in the knowledge-based economy. Enhanced knowledge and skills in food and nutrition are seen as relevant to other health professions and other occupational sectors such as education, social services, business, food science and product development, sustainable food systems, and regulatory and policy arenas. As such, graduates of undergraduate nutrition degree programs are well prepared to take on diverse roles in a variety of occupations and settings as noted previously, thereby contributing to enhancing the health of the population and the economy of NS.

With the increasing number of students entering NS university-based nutrition programs, applications for the available dietetic internships have increased, creating an internship capacity issue. Internship positions are limited by the number and ability of practicing dietitians to serve as preceptors—a role and service that, as has been identified, is generally added to an existing job, receiving no additional financial compensation, or time to complete the role. While this is a cost-effective model when compared to other health profession training programs (e.g. nursing and medicine), it poses a risk to long-term sustainability.



Although the quality of Canada's education and training system for dietetic education is internationally recognized, the system is increasing in complexity with new approaches emerging and enhanced accreditation standards stretching resources in academic institutions. Ironically, programs across the country are becoming more resource intense in the current resource-limited higher education fiscal environment. The variety of models of dietetic education in Canada can also create confusion among students wishing to enter the profession, resulting in a need and a commitment by the three university programs in NS for greater attention to clarity in communicating messages about their model and eligibility criteria.

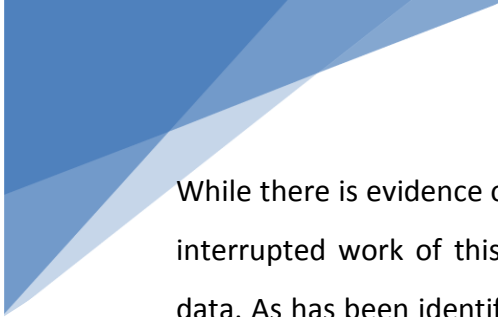
A dynamic of collaboration and competition exists between the three university programs. There is recognition of the natural tendency towards competition among universities as well as of the importance of fostering collaboration by building on relationships as colleagues and a common commitment to the profession.^{75 76}

Current involvement in professional dietetic practice and education does not reflect cultural and ethnic diversity in Canadian society. There is an under representation of marginalized population groups, particularly Indigenous Peoples and Nova Scotians of African descent. Limited staffing, increasing administrative demands, and declining operational resources compromise efforts to reach out to certain population groups, yet there is a critical need to address the nutrition issues of these diverse groups, including educating dietitians of both Indigenous Peoples and Nova Scotians of African descent.

Faculty renewal of those in the field of dietetic education is also an identified weakness especially with the increasing student enrolments. Nutrition and dietetic programs are generally growing across the country making it more difficult, specifically for smaller institutions in the Maritimes, to secure faculty with both PhDs and professional dietetic qualifications.

⁷⁵ Anderson, B., Fox, A., Gillis, D. and Lordly, D. (2015). *Vision 2020 for dietetics education: Moving forward*. Dietitians of Canada Annual Conference: Quebec City, PQ

⁷⁶ Gillis, D., Anderson, B. and Lordly, D. (2014). *Nutrition and dietetic training in Atlantic Canada*. Queensland Dietetic Educators Meeting, School of Exercise and Nutrition Sciences, Queensland University of Technology



While there is evidence of growth in the dietetic workforce, the characteristically part-time and interrupted work of this female dominated profession creates challenges in gathering useful data. As has been identified, the lack of detailed workforce and nuanced training capacity data makes planning for the future difficult,⁷⁷ yet the dietetic profession is a dynamic field with expanding workforce opportunities in novel areas of practice and promising directions for enhancing dietetic education.

In summary, although numerous strengths of nutrition and dietetic education programs in NS have been identified, a number of areas for development are also apparent. These strengths and challenges relate to opportunities and threats impacting the future of nutrition and dietetic education programs in NS.

Opportunities and Threats

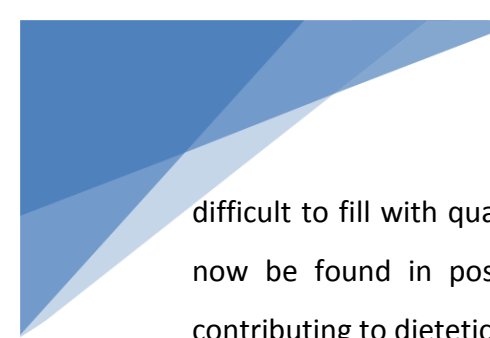
NS has shown significant leadership in dietetic education in the country, including the publishing of peer-reviewed journal articles related to advocating for change in education and training, in national conference meetings and presentations challenging traditional practice approaches,^{78 79} and in providing direction in the development of an Atlantic group of dietetic educators to work collaboratively to enhance student learning. In spite of this leadership, conditions exist that could potentially threaten progress and further development. These opportunities and threats are closely interconnected.

As has been noted, the model for dietetic education in NS is well developed, long established, and highly collaborative. Over the years, this model for dietetic education has contributed significantly to strengthening the dietetic workforce across NS. Less than a decade ago, positions in rural areas and specific areas of practice, such as long-term care, were especially

⁷⁷ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>

⁷⁸ Canadian Association of Professional Programs in Human Nutrition, meeting minutes, September 2013, Edmonton, Alberta.

⁷⁹ Barber, M., Donnelly, K., and Saad, R. (2013). The avalanche is coming: Higher education and the revolution ahead. *Institute for Public Policy Research*.



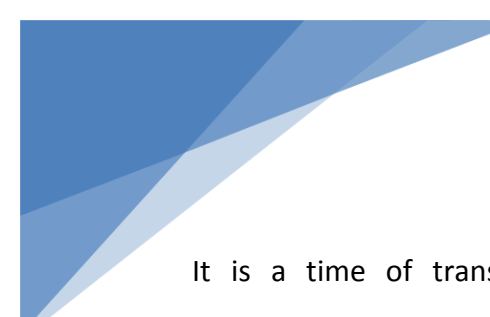
difficult to fill with qualified professional dietitians. Graduates from NS dietetic programs can now be found in positions in a variety of practice settings across the province and are contributing to dietetic education through their role as preceptors.

Unfortunately, as was previously identified, the lack of comprehensive workforce data for the dietetic profession in NS makes it difficult to project workforce numbers and employment trends in a professional field which is dramatically evolving in response to emerging population health and societal needs.⁸⁰ Because dietetics is a comparatively small health profession, national labour data are limited and may be pooled with data pertaining to other health professions. In addition, data do not reflect emerging areas of practice. Food and nutrition expertise is increasingly recognized as important in addressing priority health and social issues, for example those related to food access and quality, dietary patterns and health within a complex global food system, disease management and prevention, and the burden of healthcare costs on governments.

It is important to emphasize that the flow of students from across the country, and internationally, to human nutrition and dietetic programs in NS is part of a larger transition in dietetic education and practice across the country. These students are contributing to the diversity of our classrooms and to the NS economy. Recent increases in student enrolment, while generally seen as an opportunity for universities, stretch existing material and human resources available to nutrition and dietetic programs. Moreover, the need to expand capacity for dietetic internship placements, with more preceptors in practice settings within the province, has been identified as a priority related to the provision of essential resources for dietetic education.⁸¹ An important step in moving to increase the number of learning opportunities in a variety of practice settings is ensuring there is a culture in health facilities to support student learning.

⁸⁰ Dietitians of Canada. (2015). *Registered dietitians in Canada: A compilation of provincial workforce data*. Retrieved from <http://www.dietitians.ca/Downloads/Public/Compilation-of-Provincial-Workforce-Data-Jan2016.aspx>

⁸¹ Proudfoot, A. Lordly, D., Anderson, B., and Gillis, D. (2014). Identifying opportunities for enhancing dietetic education through collaboration. *Canadian Journal of Dietetic Practice and Research*, 75, 101-104.



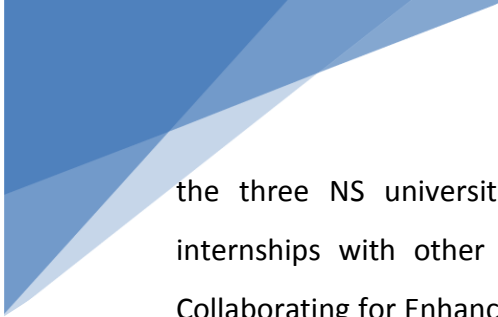
It is a time of transition in dietetic education in NS, requiring clear identification of opportunities and threats with accompanying strategies for action aimed at sustaining the quality and reputation of existing programs while recognizing the demand for nutrition and dietetic services is expected to grow into the future. As a result of understanding a number of the opportunities and threats, the Heads of the three university-based human nutrition and dietetic programs have been proactively collaborating with each other and additional important partners since 2011. A primary concern was the challenge of securing enough experiential learning placements for dietetic internships to meet the demand from an increasing number of qualified students. The identification of limited student access to highly competitive dietetic internships has provided the opportunity for collaboration among the three universities leading to a combined effort to enhance dietetic education in NS, with interest in collaboration expanding across other Atlantic provinces.

Supporting Collaboration to Enhance Dietetic Education

Over the last five years, the three university-based nutrition programs have been working together to identify ways to address current challenges to dietetic education and identify opportunities for collective action to enhance dietetic education across the province. Dietetic educators from outside of the province have also joined in this effort.

Two recent meetings of stakeholders hosted by the three university-based nutrition and dietetic programs identified ways to address current challenges to dietetic education in NS. A summary report⁸² from an initial gathering held in August 2012 describes collective priorities identified for enhancing the training of dietitians in the province. Several key issues have been acted upon collaboratively, including development of common evaluation tools for internship, identifying ways to support preceptors in their roles, and exploring enhancements to inter-professional learning. The process of working together has promoted a collegial spirit amongst

⁸² Acadia University, Mount Saint Vincent University, and St. Francis Xavier University Roundtable. (2012). *Charting our course for an enhanced future: University based dietetic education in Nova Scotia*. Retrieved from http://nutrition.acadiau.ca/tl_files/sites/nutrition/resources/Charting%20Our%20Course%20NS%20Roundtable%20Report%20Final.pdf



the three NS universities, and provided opportunities for building capacity for dietetic internships with other community, hospital, and Atlantic university partners. Now called Collaborating for Enhanced Dietetic Education Atlantic (CEDEA), over 40 members of this group met in May 2015 in Truro, NS. They generated a new set of priorities that will be worked on over the next few years, some of which align with the recommendations of this report.⁸³


Building on this collaboration, along with the faculty expertise within NS universities and access to more nuanced data on dietetic workforce and education capacity, additional insights into trends and factors impacting dietetic education are likely to emerge. Findings can inform advocacy efforts and planning to anticipate and meet future needs related to dietetic workforce and training capacity in NS.

In summary, while the three university-based nutrition programs in NS face numerous challenges in a changing national and provincial environment, there are many opportunities to enhance their capacity to deliver high quality, relevant nutrition programming at the undergraduate level. It is within this context that the following recommendations are drawn.

RECOMMENDATIONS

Building on their unique attributes and strengths, the nutrition and dietetic education programs at Acadia, MSVU, and StFX will continue to direct their efforts towards providing a high quality education that prepares their students for diverse nutrition-related careers, thereby contributing to the health of the population, the economy and the betterment of society in NS and beyond. Recommendations to ensure this high quality education is maintained are framed through two goals with key objectives consistent with themes emerging from the synthesis of findings and discussions held throughout the review process. These goals and key objectives, with sub-objectives, are listed below and reflected in the framework presented in Figure 1.

⁸³ Acadia University. (2015). *Collaborating for enhanced dietetic education: Atlantic meeting report*. Retrieved from <http://nutrition.acadiau.ca>



Goal 1: Foster collaborative leadership by Acadia, MSVU, and StFX to sustain accredited high quality undergraduate nutrition and dietetic education, including academic and experiential learning components.

Goal 2: Collaborate with external agencies/groups to enhance the contribution of nutrition and dietetic education programs in building capacity for food and nutrition services, resources and interventions to support health and well-being of the NS population.

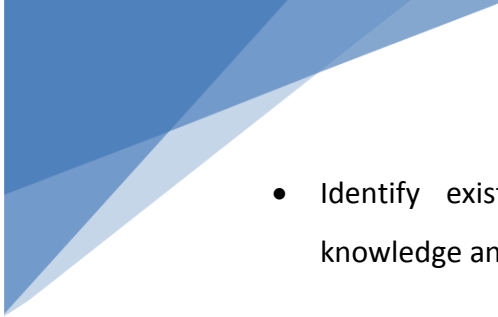
The following objectives relate to the achievement of the two goals.

A) Use evidence to guide decision-making:

- Advocate for greater access to current dietetic workforce and training capacity data required both for planning and provision of effective dietetic education and training programs in NS.
- Find ways to identify and collect data required to determine the extent of employment in varied practice settings including, but not limited to: acute care, primary health care, long term care, public health, and programs directed specifically to vulnerable and underserved populations.
- Develop ways to tap into the expertise of faculty within the three universities to examine internal and external factors impacting the state of dietetic education with strategies for action.
- Advocate for supports for collaborative research to investigate the financial burden of nutrition-related health conditions on the NS healthcare system and determine implications for interventions.

B) Recognize the value of the undergraduate applied science degree in human nutrition:

- Promote the value of acquired knowledge and skills related to food and human nutrition in the emerging knowledge economy leading to a broad range of careers outside of dietetics.

- 
- Identify existing and new opportunities for incorporating entrepreneurship knowledge and skills in human nutrition programs.

C) Support access to nutrition and dietetic education programs in NS:

- Use effective communication strategies directed to potential and current students, providing clear and consistent messages about the competitive entry requirements to dietetic internships.
- Develop a process to enable a more seamless transfer of courses when students move from one NS undergraduate nutrition program to another, including development of an up-to-date transfer equivalency database of nutrition courses.
- Develop strategies with partners and LAE to enhance diversity in nutrition and dietetic education relevant to addressing population health priorities, including rural health issues and access by Indigenous and other underserved population groups in NS.

D) Build capacity for dietetic internships by increasing experiential learning opportunities throughout NS:

- Work with NSHA to leverage more dietetic internships in all areas of the province.
- Identify effective ways to develop internship placements in innovative and evolving areas of dietetic practice.
- Enhance workplace capacity to support dietitians in their role as preceptors to dietetic interns from the three university programs.

E) Enhance the role of dietitians in practice:

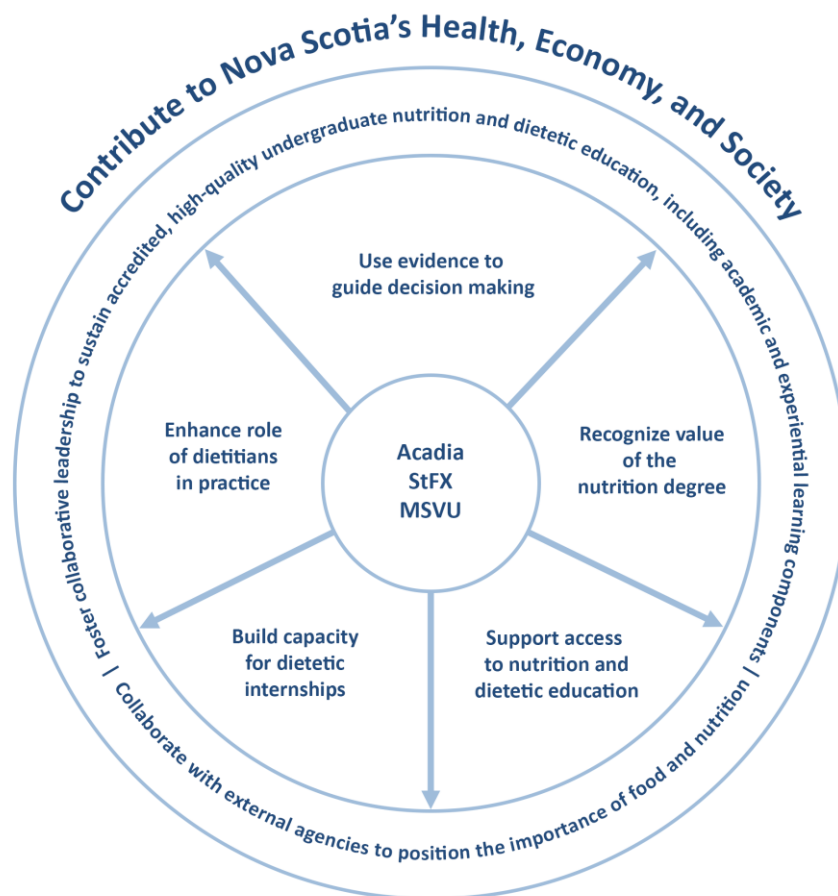
- Provide input to the Food and Nutrition Services Provincial Project, which is part of the NSHA transformation process.
- Identify opportunities for enhancing diversity in the dietetic workforce to effectively reflect the demographics, capacity, and needs of the NS population.

- Explore the feasibility of expanding services of dietitians and nutritionists across the health care spectrum in rural health settings in NS.
- Enhance opportunities for inter-professional health practice and learning, including integrating nutrition in the curriculum of other health professional disciplines in both academic and practice settings.

It is recognized that achieving these recommendations depends on working with LAE and Nova Scotia Health and Wellness, as well as other relevant stakeholders, to support a collaborative process for achieving these goals, including the accompanying objectives.

Figure 1: Framework Reflecting Goals and Key Objectives

Nova Scotia Nutrition and Dietetics Education Programs





CONCLUSION

This report describes the current state of university-based nutrition and dietetic education in NS and offers a series of recommendations to ensure the delivery of high quality, relevant nutrition programming at the undergraduate level to meet the current and future needs of students and the NS population. The Heads of the three university Nutrition Departments, in consultation with LAE, examined existing data and completed an analysis of the current state of the province's three undergraduate nutrition programs, which include dietetic education. As strengths, weakness, opportunities, and threats impacting the three university-based nutrition programs were identified, there was recognition of the dynamic national and provincial context in which the three programs operate and evolve.

The personal impact and financial burden of diet-related health conditions and the poor population health outcomes in this province are of particular significance to this assessment of the current state of undergraduate nutrition and dietetic education programs. Qualified nutrition and dietetic professionals are well prepared to address many of NS's health priorities in settings across the spectrum of the healthcare system. The increasing prevalence of nutrition-related disease conditions extending across the life course of Nova Scotians gives every indication that workforce demand for nutrition and dietetic professionals will continue. Ensuring quality education and training of a skilled dietetic workforce can strengthen the capacity for improving the health of the population, thereby contributing to the health, economy, and social well-being of the province. Furthermore, the applied science degree in nutrition, in which dietetic education is embedded in the three NS programs, is also of value in equipping graduates for other career opportunities within and beyond the health sector.

In conclusion, the timing is right for recognizing the current value and potential contribution of the three university nutrition programs within NS to its health, economy, and social well-being, and to bring relevant stakeholders together to address collectively the recommendations offered in this report.



APPENDICES

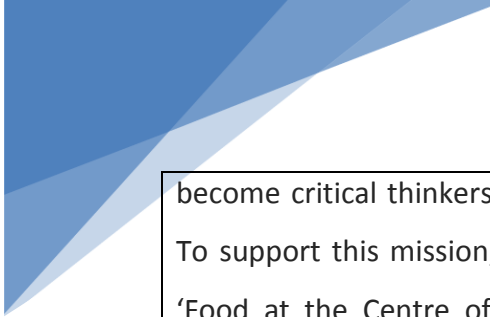
Appendix 1: Description of Nova Scotia University-Based Nutrition and Dietetic Programs

Acadia University: School of Nutrition and Dietetic

Two degree programs are offered at the undergraduate level, a Bachelor of Science in Nutrition (BSN) and a Bachelor of Science in Nutrition with Honours (BSNH). As well, Acadia offers two options, one in Kinesiology and the other in Dietetics. The former allows students to take a collection of courses in another related field usually only available to majors in that program, and the latter provides the academic requirements for students interested in applying for a dietetic internship. As well, students are able to complete a BSN or a BSNH with a second major in Biology or Psychology, and another choice is to complete their degree with Co-op.

Students declare their intention to take the courses required to apply for the Acadia internship program during the mid-winter semester of their second year. A full application is submitted in January of their third year (with some students delaying application until their fourth year). Applications are reviewed by a selection committee and eligible students are interviewed in February with decisions made available to them by March. The internship is divided into five learning components including Food Service Management, Community Nutrition, Clinical Nutrition, Research, and Long Term Care (with the first component normally beginning in the summer after third year and the last four are completed after graduation). Students pay tuition equivalent to two 3-credit courses for the overall program. Students may also apply for the post-degree dietetic internships. Students also choose other career routes, such as education, other health professions, masters in nutritional science and food science and disciplines, business, etc.

The mission of Acadia University is “to provide a personalized and rigorous liberal education; promote a robust and respectful scholarly community; and inspire a diversity of students to




become critical thinkers, lifelong learners, engaged citizens, and responsible global leaders.”⁸⁴ To support this mission, the School of Nutrition and Dietetic (SND) has committed to putting ‘Food at the Centre of a Nutrition and Dietetic Curriculum’ and is engaged in community initiatives and research supportive of food and nutrition in the Annapolis Valley, a primarily agricultural area of the province.

Acadia, located in a rural area of western NS, has a strong history of working with industry and in community engagement. Particular emphasis and achievement has been realized in the area of the agri-food sector, and more recently in a relationship with the local wine industry. The School of Nutrition and Dietetic has made a significant contribution to this university priority through the Centre for the Sensory Research of Food, as demonstrated by success in securing a number of *Productivity and Innovation Voucher Program* funding awards to support new product development by local producers.

Mount Saint Vincent University, Department of Applied Human Nutrition

At the undergraduate level, three programs are offered: A Bachelor of Science (BSc) in Applied Human Nutrition (AHN), a BSc AHN Dietetic, and a BSc AHN Dietetic with Internship. Students learn about food, nutrition, and health issues in social, political, and economic health contexts, both in the classroom, and through innovative community learning and unique research opportunities on-campus and in the community. Students apply for the Internship Education Program in the fall of their third year. Applicants must submit a full application package by December 15. Selection, based on established criteria and following a standard process, is conducted by a selection committee the following January. Students are notified regarding the outcome of their application in mid-February. Interns complete three 15-week internship placements: Administrative Internship, Community Internship, and Clinical Internship. The Internship Education Program enables students to build on theoretical knowledge and internship experiences to develop the entry-level professional dietetic competencies. The first

⁸⁴ Acadia University Board of Governors. (2015). *Mission statement*. Retrieved from <http://board.acadiau.ca/mission-statement.html>



internship placement is normally completed in the summer between third and fourth year with the remaining two placements normally occurring back to back upon completion of the fourth year courses.

At the graduate level the Master of Science in Applied Human Nutrition (MScAHN) (with an internship option) and Master of Applied Human Nutrition (MAHN) are offered. Both programs provide the opportunity for students to explore current topics in human nutrition, community nutrition, nutritional education, nutritional physiology, functional foods, and healthy, just and sustainable food systems, and to perform innovative and policy relevant research related to these areas. The nutritional research at the department is closely linked with the agri-food sector including local industries as well as national and out-of-province organizations. Both undergraduate and graduate students have the opportunity to be involved in functional food development and clinical trials conducted by AHN faculty.

In keeping with the University's mission, the department is dedicated to the pursuit of foundational knowledge at the highest level that facilitates entry into careers in nutrition and the professional practice of dietetic; committed to facilitating understanding and responsibility for food, nutrition, and health issues in social, political, cultural and economic contexts, through the integration of transformative classroom and community learning; and rises from a foundation of student-centered education built on respect and accountability, offering rich and varied experiential learning opportunities.

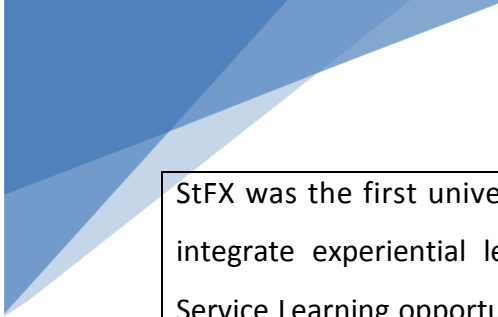
MSVU is located in a central, urban setting and is the home of the FoodARC, a nationally recognized and award winning research center that is a model for change around food nourished by rich relationships and participatory action research. The AHN department pioneered the integrated dietetic internship model at both the graduate and undergraduate level. Proponents of social justice, the advancement of women, and preparing students for global citizenship, the department has enhanced education and career accessibility through the development of a nationally recognized dietetic prior learning recognition and assessment process and a qualifications recognition process for internationally trained dietitians.



St Francis Xavier University, Department of Human Nutrition

StFX offers a Bachelor of Science in Human Nutrition with major, advanced major and honours, each with the Integrated Dietetic Internship option. Human Kinetics students majoring in Kinesiology can complete a minor in Human Nutrition, and pursue a degree in Human Nutrition with a fifth year. Human Nutrition students also have the Cooperative Education Program option and those interested in pursuing a career in dietetic may apply to the StFX Integrated Dietetic Internship (IDI) Program after its completion. Students declare their intent to apply to the IDI program in second term of their second year, with full applications submitted in January of their third year (with some students waiting to apply in fourth year). Applications are reviewed and eligible students are interviewed in February with decisions made in early March. The internship is divided into three 14-week periods, with the first part normally beginning in the summer after third year and the last two completed after graduation. IDI interns have the unique opportunity to gain two different experiences in each area of dietetics, including food service management, community nutrition, and client care. Many community nutrition placements are located in non-traditional settings, including our StFX Sport Nutrition placement in partnership with the StFX Athletics Department. Students pay tuition equivalent to a 6-credit course for each 14-week period. Recognizing the importance of training dietitians to meet the needs of an aging demographic, Sir James Dunn Foundation awards are provided each year to two interns who demonstrate the potential for leadership in dietetics as it relates to healthy aging and the nutritional care of the elderly.

StFX is known for its tradition of producing leaders in health, education, politics, academics, business, labour, and other areas. The Department of Human Nutrition is embedded in StFX's rich tradition of social justice and leadership, and service. Its mission is to prepare students to contribute to a healthy and just society by advancing human nutrition in a range of roles and settings. Located in rural Eastern NS, the StFX Department of Human Nutrition has strong ties with its community stakeholders and has developed expertise in addressing rural health issues, particularly through a social determinants of health lens. The National Collaborating Centre for Determinants of Health, one of six Public Health Agency of Canada centres is located at StFX.

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StFX was the first university in Canada to establish Service Learning as an innovative way to integrate experiential learning, academic study and community service. The threading of Service Learning opportunities across the Human Nutrition curriculum helps students integrate their academic learning with critical reflection on real world experiences, and prepares them for opportunities such as the Integrated Dietetic Internship and Cooperative Education options.

The Department of Human Nutrition values inter-disciplinary and inter-professional education and engages in collaborative teaching and research initiatives, for example with the School of Nursing, the Department of Human Kinetics, and the Faculty of Education. Graduates pursue varied career routes in diverse sectors of society.

Appendix 2: Graduates from Nova Scotia Human Nutrition Programs Over the Past Ten Years

Acadia University	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Bachelor of Science in Nutrition	16	7	16	20	22	28	25	30	35	52	42
Bachelor of Science in Nutrition with Honors	2	3	5	1	1	3	3	4	2	3	2
Integrated Dietetic Internship	3	3	3	4	4	3	5	5	4	5	5
Graduate Dietetic Internship	0	0	0	3	2	4	7	7	8	6	6
Total	21	13	24	28	29	38	40	46	49	66	55

St. Francis Xavier University	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Bachelor of Science in Human Nutrition (Major)	17	19	20	21	30	24	26	30	39	31	29
Bachelor of Science in Human Nutrition (Advanced Major)	2	3	5	1	1	3	0	1	1	2	0
Bachelor of Science in Human Nutrition (Honors)	6	6	6	5	3	7	3	5	3	3	6
Bachelor of Science in Human Nutrition with Integrated Dietetic Internship	0	0	0	0	0	0	0	0	0	0	2
Diploma of Integrated Dietetic Internship	4	6	3	5	5	8	5	7	8	12	10
Total	29	34	34	32	39	42	34	43	51	48	47

Mount Saint Vincent University	2004- 2005	2005- 2006	2006- 2007	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015
Bachelor of Science Applied Human Nutrition - Nutrition	3	1	0	1	3	1	7	6	4	4	5
Bachelor of Science Applied Human Nutrition - Nutrition (with Honors designation)	0	0	0	0	1	0	0	1	1	0	0
Bachelor of Science Applied Human Nutrition - Dietetics	10	8	12	11	11	5	21	16	20	13	25
Bachelor of Science Applied Human Nutrition - Dietetics (with Honors designation)	0	1		0	0	0	0	1	0	3	0
Bachelor of Science Applied Human Nutrition - Dietetics and Internship	9	10	14	18	22	21	24	27	17	27	20
Bachelor of Science Applied Human Nutrition Dietetics and Internship (with Honors designation)	0	0	0	0	0	2	1	1	3	1	1
Master of Applied Human Nutrition	1	3	2	7	4	9	7	27	16	28	28
Master of Science Applied Human Nutrition	5	0	5	4	0	2	0	1	2	2	1
Master of Science Applied Human Nutrition (with Dietetic Internship)	Not avail	4	1	3	1	3	4	3	5	4	1
Total	28	27	34	44	42	43	64	83	68	82	81

