

# THE STUDY-MIGRATION PATHWAY

## UNDERSTANDING THE FACTORS THAT INFLUENCE THE EMPLOYMENT AND RETENTION OF INTERNATIONAL STUDENTS AS REGULATED HEALTH PROFESSIONALS IN CANADA

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## Executive Summary

Integrating international students to Canada is increasingly being seen as a promising immigration strategy for addressing growing labour market gaps. Citizenship and Immigration Canada (2012) has implemented policies and programs to encourage international students graduating from Canadian universities to remain and settle in Canada. Through increasing the number of international students, it is anticipated that Canada will have access to a pool of highly employable immigrants, educated to Canadian standards, with advanced English and/or French language skills who bring social and cultural diversity to Canadian society (Hawthorne & To, 2012).

International students in the regulated health professions are a particularly unique group to examine. Many international students enrolled in the health professions (medicine, nursing, dentistry, pharmacy, physiotherapy) encompass these attributes and are likely to be attractive to Canadian employers (Belkhodja, 2011). Little is known, however, about the study-migration pathway of international students in health profession programs. Gaining a more in depth understanding of the study-migration pathway for international students in the regulated health professions may assist Canada with filling the gaps in the healthcare workforce with some of the brightest and most talented newly educated health professionals available globally.

The purpose of this project is to explore the study-migration pathway for international students studying to become regulated health professions in Canada. The research questions were:

1. What attributes predict if an international student studying a health profession is well suited for the Canadian labour market?
2. What factors discourage or motivate international students in the regulated health professions to remain and settle in Canada?
3. What type of educational and social programs and policies are in place to assist international students who want to become landed immigrants and pursue full-time employment in Canada?

Based on data collected from a number of interviews with key stakeholders and the secondary analysis of the National Graduate Survey and data collected from a number of interviews with key stakeholders, we found that international students are not particularly prevalent in the health professions nor do they figure prominently in dialogues regarding health workforce shortages.

International students who responded to the NGS were found to be approximately five years older than the domestic students but fewer were married and had dependent children than the

domestic students. This age difference may be because a higher proportion of international students had completed a bachelor degree or higher prior to their enrolment in the health professions program in Canada. Additionally, their language skills also varied, with a higher proportion of domestic students speaking both official languages (English and French), whereas the international students primarily spoke English. A slightly higher proportion of the international students as compared to domestic students had obtained Canadian licenses, registration or professional designation after graduation. Ontario was the major employer for students from both groups. However, as compared to other provinces more international students were employed in the Prairies, while a higher proportion of domestic students were employed in Quebec. Domestic students earned more in 2012 than international students, yet international students worked more hours per week.

Our analysis revealed the majority international students in four of the five selected regulated health professions who participated in the survey formally immigrated, by obtaining permanent residency or citizenship status during or after their graduation. All of them were also employed full-time, however not necessarily in their profession. Interestingly, nurses represented the largest proportion of international students who became Canadian immigrants. Nurses also dominated the group of international students that remained on student visa after graduating. This signifies that the student migration pathway seems to be a promising strategy for international immigration. This finding supports our hypothesis that international students in the health professions are highly employable upon graduation as they have the human capital required to obtain professional registration and the language skills needed to practice their profession in Canada.

A retention rate of 71% (200/280) indicates that most international students from the four regulated health professional programs become Canadian residents. If we use the total number of international graduates in all health fields who became Canadian immigrants (Canadian naturalized citizens or permanent residents) we detect a lower but promising retention rate of 55% (620/1120=55.4%). These findings support the federal government's objective of retaining highly educated international students in the health professions.

With respect to the findings from the stakeholder interviews, they noted that there are a number of factors that make Canada an attractive choice for international students. Overall, international students were perceived by our respondents as different from the rest of immigrants in two ways. First, they were assumed to be familiar with the cultural and social landscape of the Canadian society. Second, they had Canadian education and therefore could bypass a long (and often time cumbersome) process of credential assessment and verification that is experienced by IEHPs who decide to pursue professional licensure in Canada.

Some key-informants stressed that it is important *not* to assume that all incoming students plan on staying to live in Canada. They felt it is important to discuss strategies that contribute to brain circulation (as opposed to brain drain). They argued that it is important to provide those students who have the intention to stay with resources, but there is fine line between providing information/support and active/passive recruitment of health care personnel. Nevertheless, there was an overwhelming agreement among the key-informants that international students bring certain advantages to the Canadian society if they decide to stay in Canada as immigrants.

Beyond this dilemma of whether international students stay or return, our qualitative findings suggest that there is a disconnect between the policies that are affecting international students' opportunities to stay. Educational institutions play only the limited role. There is no direct incentive for educational institutions to engage in immigration issues, since this is a matter for immigration policies. However, it seems that there were some policy initiatives taken lately to provide orientation/workshop/information sessions to international students.

Immigration policy plays another role. Stakeholders emphasized that immigration policies implemented by the government are actually promoting migration of international students. There are some disagreements about the current system (express entry) of assessment of applications for Permanent Residency – while some believe that it is helpful and/or useful for students, others find it particularly cumbersome.

The health professional policy community and professional associations and regulatory bodies could potentially play a role, but there are some caveats. From the perspective of regulatory bodies/professional associations, they are assisting those who are in their profession. Logistically and based on their mandate, they cannot single out international students. Many professional associations do not have a regular immigration consultant on staff to provide such services to international students. Also, because of the ethical considerations, professional associations should be very careful in drawing the line between assisting those who are in Canada and are planning on staying in the country and passively/actively recruiting skilled health professionals.

While brain circulation is a goal of providing students with an opportunity to study in Canada, it may be more economically beneficial to recruit health professionals who were educated in Canada than to recruit IEHPs from other countries. Thus one of the key recommendations from the analysis is to improve the alignment of immigration, education and health workforce policies regarding the opportunities for international students. However, this policy alignment would have repercussions for IEHPs that have migrated to or been recruited to work in Canada, signaling the need for collaboration and transparency among government, education and health stakeholders

## Introduction

What attributes predict if an immigrant will be likely to enter the labour market upon their arrival in Canada? For some time this question has been addressed by prioritizing the selection of immigrants who possess the human capital demanded by the labour market. Unfortunately, this approach has not been entirely successful as it has led to the selection of many immigrants who struggle to find employment in their field once in Canada or are forced to work in jobs that do not match their skill sets.

This scenario has been an unforeseen consequence for some internationally educated health professionals (IEHPs) as many discover they may not be able to work upon arrival because they do not meet the criteria for professional registration, have adequate professional experience or sufficient language capabilities (Bourgeault, Neiterman, Covell, 2013). Although Canada has developed policies and invested in programs to help IEHPs obtain the necessary skills to re-enter their profession, it can take several years for them to acquire the professional-specific vocabulary and level of language fluency required to practice their profession in Canada (Bourgeault et al., 2013).

Integrating international students into the Canadian workforce is increasingly being seen as a potentially promising immigration strategy for addressing growing labour market gaps. Citizenship and Immigration Canada has implemented policies and programs to encourage international students graduating from Canadian universities to remain and settle in Canada (2012). Through implementing various strategies it is anticipated Canada will have access to an additional pool of highly employable immigrants who are educated according to Canadian standards, have advanced English and/or French language skills and are socially and professionally acculturated (Hawthorne & To, 2012).

International students in the regulated health professions are a particularly unique group to examine. Many international students enrolled in the health profession (medicine, nursing, dentistry, pharmacy, physiotherapy) encompass the above attributes and as such are likely to be attractive to Canadian employers (Belkhodja, 2011). Little is known, however, about the study-migration pathway of international students in regulated health professions programs. Gaining a more in depth understanding of the study-migration pathway for international students in the regulated health professions may assist Canada with filling the gaps in the healthcare workforce with some of the brightest and most talented newly educated health professionals available globally.

## **Research questions/objectives**

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The research questions were:

1. What attributes predict if an international student studying a health profession is well suited for the Canadian labour market?
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3. What type of educational and social programs and policies are in place to assist international students who want to become landed immigrants and pursue full-time employment in Canada?

This pilot study aimed to determine the feasibility of conducting a larger scale Pan Canadian Study using the proposed methodology.

## **Background on Immigration Policy in Canada**

Canada is one of the few countries in the world that established an active program for permanent immigration (CIC, 2005). During the last few years, Canada has accepted approximately 250,000 new permanent residents each year (CIC, 2013). Canada's Immigration Program is inclusive— in that it “assesses applicants from around the world according to universal criteria that determine their ability to adapt to a Canadian life and to settle successfully” (CIC, 2005, p.8), notwithstanding their race, national or ethnic origin, colour, religion or gender.

Since June 2002, Canadian immigration policy has been guided by the *Immigration and Refugee Protection Act* (IRPA) (CIC, 2005). The Act “pave[d] the way for the challenges of the 21st century by striking a balance between the need to protect the safety and security of Canadians and Canada's borders, and Canadian tradition of welcoming newcomers and protecting refugees” (CIC,2005, p.8). The major goals of the Immigration Program, as outlined by IRPA, are: reuniting families, contributing to economic development and protecting refugees (CIC, 2002). Hence, applicants can be admitted into Canada as permanent residents under the under three corresponding classes: Family Class, Economic Class and Refugee Class (CIC, 2002).

While traditionally Canada has established immigration policies based on admitting migrants as permanent residents who will eventually receive citizenship, the federal government has been shifting the immigration system to “a model of temporary migration as a path to permanent residency” (Gate-Gasse, 2010; Valiani, 2009, p.2;). Statistics demonstrate that “we are shifting towards an immigration system that favours temporary migrants, who must earn the

opportunity to become permanent residents by proving their labour market success in a “two-step” immigration process, without the same access to settlement services and labour rights as immigrants in the past” (Gate-Gasse, 2010). The government recognizes the three categories of temporary migrants: students, temporary workers and refugee claimants (whose appeals for permanent status are waiting approval) (Boyd, 2006). Given the purpose of our study, we review the literature on international students with a focus on the Canadian context in the following section.

### **International Students**

The number of international students admitted to Canada grew significantly between 2004 and 2013. According to *Facts and Figures 2013*, Citizenship and Immigration Canada’s annual statistical publication, the number of students with valid permits grew from 168,639 in 2004 to 304,876 (CIC, 2014a). To be eligible to study in Canada and obtain a study permit, applicants need to: 1) be accepted by a designated learning institution in Canada; 2) prove that they can afford to pay for tuition fees, living expenses and return transportation for themselves and any family members who come to Canada with them; 3) prove that they have no criminal record and that they do not pose a risk to the security of Canada (which may involve providing a police certificate); 4) be in a good health and agree to provide a medical examination, if necessary; and 5) satisfy an immigration officer that they will leave Canada at the end of their authorized stay (CIC, 2014b).

International students can apply for permanent residency (PR) status after graduation through economic immigration programs that put an emphasis on demonstrated (or potential) success in the Canadian labour market as a “skilled” worker (The University of British Columbia, 2015). More specifically, international students may apply for PR through: Canadian Experience Class (CEC), the Federal Skilled Worker Program and Provincial Nominee Programs (PNP) (CIC, 2015a). It often takes between six months to 2 years (or sometimes longer) to process economic immigration applications (The University of British Columbia, 2015). The total application cost (including costs of supplemental documents and medical/language exams) is approximately \$1,500 to \$2,000 (The University of British Columbia, 2015). The most common program categories used by students are CEC and PNP.

To qualify under the Canadian Experience Class, a federal immigration program, applicants must: garner at least 12 months of full-time (or an equal amount in part-time) skilled work experience in Canada in the three years before applying; have obtained experience in Canada with proper authorization; meet the required language levels needed for job; and plan to reside in Canada but outside of Quebec (CIC, 2015b). Provincial Nominee Programs are regional programs that give an opportunity to provinces and territories to “nominate” people to the

federal government for PR (CIC, 2015a). These people must have skills, education and work experience needed to contribute to the labour market and economy of that province or territory (CIC, 2015a).<sup>i</sup> Provinces often have multiple PNP categories; some are intended particularly for international students (but often require a degree from an educational institution in their province) (The University of British Columbia, 2015).

In January 2015, a new electronic system named “Express Entry” was created by Citizenship and Immigration Canada (CIC) to manage and assess some (but not all) economic immigration applications (The University of British Columbia, 2015). The Express Entry application contains information about education, work experience, language ability and other detailed information (e.g. contact information, information about family (dependents) who would come with them to Canada, etc.) (CIC, 2015c). Those who do not already have a valid job offer supported by a Labour Market Impact Assessment (LMIA)<sup>ii</sup>, or a nomination from a province or territory, must register with the Government of Canada’s Job Bank, which connects candidates with eligible employers in Canada (CIC, 2015c). Those who are eligible are placed in a pool and ranked against other candidates based on the point system in which candidates are “awarded points for a job offer and/or a nomination from a province or territory and skills and/or experience factors” (CIC, 2015c). The successful candidates are then invited to apply for PR online and they have 60 days to do so (CIC, 2015c).

Some note that the Express Entry System has made it more difficult for international students who have recently graduated from Canadian universities to qualify for permanent residence (Chiose, 2015; Watt, 2015). One representative of the Canadian Immigration law firm argues that the “advent of Express Entry means that international students now directly compete with a large pool of prospective economic-class immigrants hoping to achieve permanent resident status” (Watt, 2015). In her article published in Globe and Mail on February 10<sup>th</sup>, 2015, specifically explaining how Express Entry System complicates the situation for international students, Chiose notes:

*So far, only two cohorts of applicants have been “invited” by the ministry. Invitations are based on a scoring system: A positive Labour Market Impact Assessment, showing there is no Canadian worker available to do the job, is worth 600 points. Another 600 points are available for things like education*

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<sup>i</sup> Each province and territory has its own nomination rules for PNP. To check the details for each of the provinces, see this link: <http://www.cic.gc.ca/english/immigrate/provincial/apply-who.asp>

<sup>ii</sup> LMIA is “a document an employer in Canada may need to get before hiring a foreign worker. A positive LMIA will show that there is a need for a foreign worker to fill the job and that no Canadian worker is available to do the job”(CIC, 2015d).

*and age. The cut-off for the first two invited cohorts was above 800. Without an LMIA, students would not be able to reach that number.*

## **State of the Knowledge on International Students**

International students are increasingly becoming a marker of contemporary higher education. According to UNESCO, the number of international students worldwide reached 3.4 million students in 2009 (World Education Services, 2012) and is projected to grow to 7 million by 2020 (CBIE, 2015). Foreign students are often seen as the “embodiment” of a current mobile world of knowledge and skilled workers (Altbach, 1991). The movement of international students reflects the general pattern of migration; similar to migrants international students move predominantly from the global south to the global north. Their decision to pursue international education and/or to stay in the country of their education is tied to a combination of social and personal factors (Altbach, 1991). Receiving high-quality education, enhancing one’s chances of obtaining a better career and seeing the world are often among the reasons for students to choose international opportunities (Chen, 2007). Social factors, safety, and political stability can also play a role in students’ decision to migrate for the duration of their studies or permanently.

In general, international students are welcomed by host countries in that they bring with them substantial human capital (Arthur & Flynn, 2013). Their age, local training and education, and years spent in the country while studying all contribute to relatively rapid and successful integration into the local labour force and larger society (Ziguras & Law, 2006).

While host countries are welcoming to international students, there are those who believe the recruitment of international students contributes to the “brain drain” – the movement of highly skilled individuals from the global south to the global north (Baruch, Budhwar, & Khatri, 2007). An individualistic push-pull factors model is often used in the literature to frame the decision-making of individuals to migrate to another country and some have applied this model to the analysis of decision-making of international students. In the study by Baruch, Budhwar and Khatri (2007), for instance, four major factors were identified as influencing the decisions of international students to stay in the host country: (1) the perceptions of labour market needs in host and home country, (2) how well the students adjusted during their education in the host country, (3) family ties and (4) the availability of social support.

While brain drain certainly poses a serious problem for the countries from which students depart (Dreher & Poutvaara, 2011) some scholars suggest that the movement of individuals globally is not always straightforward and may take many complex patterns (Altbach, 1991). Some students may come back to their home countries eventually bringing with them skills and resources; others may contribute financially by sending remittances to their home countries; and some can use a host country as a stop until they decide to migrate to another country. Canada, for instance, is on the receiving end of highly skilled migrants, yet it also “loses” migrants primarily to the United States (Kesselman, 2001).

Canada is among the top destination countries for international students (see Table 1). According to the Canadian Bureau of International Education (CBIE, 2015), in 2014 Canada was the 7<sup>th</sup> top destination country for international students. International students comprise approximately 8% of the total student population in Canada and their number reached 290,000 in 2013, which represents an increase of 84% in 10 years (CBIE, 2015). CBIE estimates that the revenue from international students to Canada reaches 8 billion dollars annually and that the industry pertaining to international students created 83,000 jobs at the national level (CBIE, 2015).

**Table 1: Number of International Students in Four Top Countries of Destination 2002-2009**

<i>Country</i>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<i>Canada</i>	52,650 (6%)	60,027 (6%)	70,191 (7%)	76,482 (7%)	80,874 (8%)	81,825 (8%)	84,039 (8%)	87,798 (8%)
<i>Australia</i>	179,619 (18%)	188,160 (19%)	166,954 (17%)	177,034 (17%)	184,710 (18%)	211,526 (20%)	230,635 (21%)	257,637 (21%)
<i>United Kingdom</i>	227,273 (10%)	255,233 (11%)	300,056 (13%)	318,399 (14%)	330,078 (14%)	351,470 (15%)	341,791 (15%)	368,968 (15%)
<i>United States</i>	582,996 (4%)	586,316 (4%)	572,509 (3%)	590,158 (3%)	584,719 (3%)	595,874 (3%)	624,474 (3%)	660,581 (3%)

Source: WES (2012). Trends in International Student Mobility

The population of international students is not distributed equally across Canadian provinces. Ontario is the largest host of international students. In 2013, 126,805 (43.3%) of international students were studying in Ontario. British Columbia and Quebec are the second and third choice of destination for the students from abroad, hosting 72,940 (24.9%) and 41,840 (14.3%) international students respectively (CBIE, 2015). In 2013, China was the largest source country of international students (N=95,160, 32.42%), followed by India (N=31,665, 10.79%) and South Korea (N=18,295, 6.23%) (CBIE, 2015). A little bit over half (55%) of students who come to

Canada to study attend universities (CBIE, 2015). Most foreign students choose to study engineering, business and social sciences (CBIE, 2015) and over half intend to apply for permanent residency (CBIE, 2015).

### ***Adaptation of students once they are in their international program***

While all students face challenges adjusting to their life in the university, research shows that international students may be particularly vulnerable during the adjustment process and might also experience unique challenges (Hechanova-Alampay, Beehr, Christansen, & Van Horn, 2002). English language and a lack of cultural knowledge are particularly influential barriers for international students' successful adjustment to university life (Andrade, 2006). Scholars suggest that international students may be more prone to experiencing stress, anxiety, and loneliness which in turn may affect their performance and academic achievement (Andrade, 2006). Because of these unique challenges, international students need extra support from the academic institutions not only during the first year, which is often seen as the most pivotal during the adjustment process, but also in subsequent years, since the adjustment of international students had been found to happen gradually (Andrade, 2006). Moreover, some researchers argue that support services and counseling services should not only be granted to ease off the transition to host country, but also to provide students with the coping strategies that will assist them with adjusting to coming back home to their country of origin once they finish their education in a foreign university (Arthur, 2003).

Overall, the research focusing on the adaptation of international students in Canada attributes successful adjustment to a number of personal and structural factors. Personal factors include psychological and personality traits that can influence students' integration (Chirkov, Safdar, de Guzman, & Playford, 2008; Hechanova-Alampay et al., 2002). Structural factors examine the availability of social and institutional support and their impact on students' adjustment (Arthur & Flynn, 2013; CBIE, 2015). (CBIE, 2015)

### ***Factors influencing students' decision to stay in the country of their program***

We know that approximately 50% of international students decide to stay in Canada after finishing their education (CBIE, 2015). Qualitative interviews with international students revealed that their decision to stay in Canada relates to their hope that obtaining employment (and subsequent permanent residency) will enhance their quality of life, provide career-related opportunity and an enhanced work environment and will allow them to live in country with political stability (Arthur & Flynn, 2011; Kelly, 2012). Psycho-social factors, social networks, demographic characteristics and parental expectations are also cited as some of the factors that may influence the decision of students to stay in Canada after finishing their education (Lu, Zong , & Schissel, 2009). Overall, the literature tends to suggest that social and emotional

adaptations are key factors in shaping students' decision to stay in Canada (Kelly, 2012; Lu et al., 2009).

### *International Students in the Health Professions*

The literature on international students in the health professions is sparse, mainly focusing on ethical issues and the link to the sustainability of health care systems in the countries of students' origins (Hawthorne, Minas, & Sing, 2004; Ogilvie & Burgess-Pinto, 2007; Shakya & Horsfall, 2002). In the case of the profession of medicine, where most of this literature is focused, the phenomenon of studying abroad is noted particularly in the case of residency training. This makes it difficult to discern from the health worker migration literature more broadly because nearly all internationally educated medical graduates are required to undertake residency training in a number of destination countries. In some cases, source countries like India do not have sufficient capacity for residency training in medical and surgical specialties, necessitating training abroad. Studying abroad, many students hope to receive a high quality education and to train in the health care systems that can provide the cutting-edge access to science and technology (Arthur & Flynn, 2011). At the same time, not all students plan to come back to their country of origin, which results in the loss of health care professionals for the donor countries.

A recent study examining the intentions of Lebanese students attending medical schools, for instance, found that 95.5% of the total of 576 students in pre-final and final years of medical school were planning to receive residency training abroad. Canada was the fourth top choice (4.2%), after the United States (74.1%), France 12.1%, and the United Kingdom (7.6%). Of particular concern is that while 25.1% of the respondents were planning to return back home immediately after their training, 63.8% were planning to return to Lebanon only after spending some time working in the country of residency training and spend some time working in the country of destination and 10.6% had no intention to return altogether (Akl et al., 2008).

### *Summary of what is known/not known on international students*

In sum, we know that the phenomenon of students going abroad for training is increasing and that there are particular destination countries that mirrors the migration of health workers in general. This reflects a broader competition for these skilled workers as particularly promising immigrants. Much less is known about the extent of these growing international trends in the case of health professions, and what we know is difficult to tease apart from the broader literature on the migration of health workers. It is to this important gap in our knowledge that our pilot study is focused.

## Methods

We planned to use a mixed methods design with existing data sources, focus groups with international students, and stakeholder interviews to explore the study-migration pathway for students in the regulated health professional education programs in Canada. Data were to be collected in three phases: Phase I - quantitative analysis of data from the National Graduate Student Survey (2013); Phase II – qualitative analysis of focus groups with international students in the health professions of dentistry, medicine, nursing, pharmacy and physiotherapy; and Phase III – qualitative analysis of individual interviews with stakeholders. We were successful with both Phase I & III, but the Universities that we targeted for Phase II of the pilot study yielded no international student participants. We discuss the limitations of our approach more fully below. Overall, the data were analyzed separately yet concurrently and integrated at the close. Ethical approval for the three phases was secured through the University of Ottawa and McMaster Research Ethics Boards (see Appendix I).

### *Phase I: Quantitative Analysis of the Canadian National Graduate Survey*

For phase I we used a descriptive quantitative methodology to address the first two research questions: What attributes predict if an international student studying a health profession is well suited for the Canadian labour market? Do the attributes differ between international and domestic students or among students in the regulated health professions? We extracted data from the *National Graduate Survey* (2013) to identify the personal (such as country of origin, language abilities, sex/gender, residency status) and human capital factors (program of study: medicine, nursing, pharmacy, dentistry, physiotherapy; level of education: non-university degree; bachelor, masters, PhD) associated with international students' employment outcomes (employment status: full-time, part-time, unemployed, settlement area: large, mid, small urban, or rural) one to three years post-graduation in Canada. We planned to further explore if the identified factors significantly varied among the five health professions, and between international students and domestic students.

### **National Graduate Survey**

The National Graduates Survey (NGS) 2013 is a cross sectional survey of students who were part of the Graduating Class of 2009/2010 (Statistics Canada, 2014). The target population was students who graduated or completed the requirements for degrees, diplomas or certificates during the 2009/2010 school year from Canadian public postsecondary education institutions (universities, colleges, trade schools) and were living in Canada or in the United States at the time of the survey. The exclusion criteria included students who completed continuing education, graduates of programs lasting three months, provincial apprenticeship programs, and graduates from other programs who were living outside of Canada or the United States at the time of the survey.

Data were collected from April 2, 2013 to September 1, 2013. The response rate for the NGS 2013 was 49.1%. The data were collected using a simple stratified random sample design. Participation was voluntary and data were collected directly from the respondents via computer-assisted telephone interviews.

No imputations were carried out for missing data. All analyses are weighted. The “weight corresponds to the number of persons represented by the respondent for the target population (Statistics Canada, 2014, Estimation)”.

### *Variables*

The variables extracted for the study are presented below. See Appendix II for NGS survey questions associated with these variables.

**Personal factors:** Age at time of interview, age at time of graduation, gender, marital status, dependent children, country of immigration, race, year of immigration, race, language spoken at time of graduation.

**Human capital factors:** Academic program, academic rank in class, obtained license, registration or professional designation, highest level of education completed prior to enrolment.

**Employment outcomes:** Employee status, permanent job, type of temporary work, type of position, province of current work, country of current job, occupations, average earning per year, average hours worked per week, first employer after graduation.

### *Data Extraction Procedures*

Data were collected through the Statistics Canada Real Time Remote Access (RTRA) system. We proposed to use stratified random sampling to select data for a total 1000 students (500 international & 500 domestic) from Canada, evenly divided among the professions (5 professions x 100 students = 500; 500 x 2 = 1000). However the database did not provide sufficient cases of international students in the 5 health professions to accrue the proposed sample size. Rather, we used all available cases for both the international and domestic students in the five health professions. Since there were a small number of cases of international students, the counts for some variables were too small to be extracted using the RTRA system. Additionally, statistical comparisons could not be conducted between international and domestic students or among the students in the health professions due to limitations of the RTRA system.

### **Identifying the Study Sample.**

We used several steps to systematically identify our study sample. First, we began by using the data for all of 431,920 NGS respondents to identify the students in all health fields. Out of all respondents, 55,460 were graduates of programs in a health field. Our second step was to identify the respondents who were graduates of the regulated health professional programs of interest for this study, which included dentistry, medicine, nursing, pharmacy and physical therapy (n=18,949). Our third step was to identify the respondents in the five health professions who did not identify their immigration status. This resulted in the elimination of 580 international students from our sample. Our fourth step was to stratify the sample into foreign-born students (n=2,680) and domestic students defined as students who were born in Canada (n=15,320). For the comparison group of domestic students we used the status Canadian-born to ensure that we were not including international students who became naturalized Canadian citizens while studying in Canada. Our subsequent step was to eliminate those students from the sample who were foreign-born but were not international students. To do this we selected from the foreign-born group only those students who entered their program while on a student visa. This resulted in the retention of 280 international students, who were graduates from one of the five regulated health professional programs. Figure 1 depicts the sampling frame used to identify our sample.

Table 2 provides an overview of the distribution of international students by immigration status compared to ‘domestic’ students in the five professions. As the table shows, no international students were graduates from Canadian physical therapy programs, while domestic students totalled 1,080. Our fifth step was to create a more equitable comparison group of domestic students by eliminating the domestic physiotherapy students from our sample. This resulted in the retention of 14,260 domestic students in the four professions of dentistry, medicine, nursing and pharmacy.

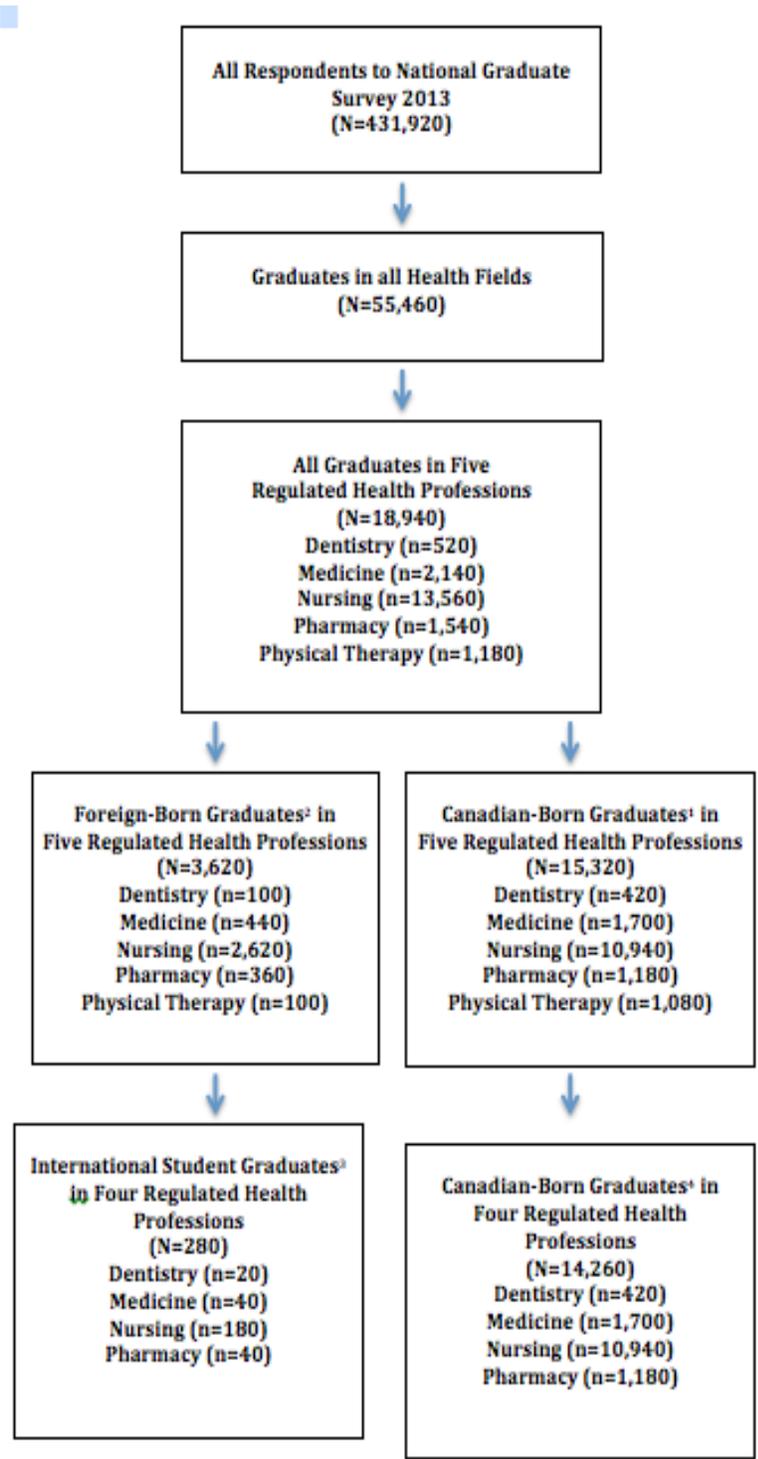
**Table 2. International and Canadian-born student graduates at time of program registration**

Major field of study	International Graduates			Total	Domestic Total
	Retained		Visa student		
	Cdn natur	PR			
Dentistry	20	0	0	20	420
Medicine	20	20	0	40	1,700
Nursing	20	80	80	180	10,940
Pharmacy	20	20	0	40	1,180
Physical therapy	0	0	0	0	1,080
<b>Total</b>	<b>80</b>	<b>120</b>	<b>80</b>	<b>280</b>	<b>15,320</b>

Notes: Domestic are Canadian-born students; Cdn natur denotes Canadian by naturalization; PR represents Permanent resident. International students are those who were visa students during their postsecondary education. Retained includes international students who were on a visa during their post-secondary education, but changed their status to permanent resident or citizenship by naturalization during or after graduation. Remaining visa students represent those who entered Canada on a student visa and had not changed their residency status at the time of interview. Source: NGS 2013



Figure 1. Sampling Frame for International Students Graduates in the Five Regulated Professions



<sup>1</sup> Includes students born in Canada

<sup>2</sup> Includes students who at time of survey indicated they were either Canadian permanent residents, naturalized citizens or in Canada on Student Visas

<sup>3</sup> Includes only those students who began their program while on Student Visas

<sup>4</sup> Reflects the Canadian-born graduates for the four professions used in the final analysis.

### *Data Analysis*

We extracted the NGS data for the international and domestic students in the four regulated health professions via the Statistic Canada RTRA system. The analyses were also conducted with the RTRA system using SAS. Due to the limitations of the RTRA system we were unable to conduct inferential statistics. **Overview of the RTRA System.**

The RTRA system is an on-line remote access facility allowing users to run SAS programs, in real-time; against micro-data sets located in a central and secure location. Researchers using the RTRA system do not gain direct access to the micro-data and cannot view the content of the micro-data file. Instead, users submit SAS programs online, which allow the RTRA to service its clients rapidly.

**Data analysis using the RTRA System.** The following statistical procedures can be conducted through the RTRA system: frequencies, means, percentiles, proportions, ratios and share (Statistics Canada, 2014). [Note. For other complex analyses including regressions and inferential analyses, the survey data can be accessed through the Statistics Canada Research Data Centre (RDC).] For information about the RTRA see <http://www.statcan.gc.ca/eng/rtra/inf>.

The descriptive statistics output through the RTRA system are weighted and rounded according to the rounding base specified for each survey dataset. Some outputs of sensitive variables deemed to pose disclosure risks to protect respondents' confidentiality are deleted from the micro-data files. Descriptive statistical outputs are suppressed for cases of small frequency counts that pose disclosure risks or residual disclosure of identifiable data. For more information see Statistics Canada NGS 2013 website at <http://www.statcan.gc.ca/eng/rtra/programming#pcontent>.

**Limitations of the RTRA System.** The RTRA system constraints include limitations associated with access and format of data analyses and output. For more information about the RTRA system constraints view the Statistics Canada's RTRA website at <http://www.statcan.gc.ca/eng/rtra/limitation>

### *Phase II & III: Qualitative Analysis of Interviews –Students & Key Informants*

In order to understand the challenges faced by international students during the process of settlement and professional integration in Canada, we originally intended to collect qualitative data by approaching two different groups of participants – international students who study medicine, nursing, dentistry, pharmacy, or physiotherapy in Canada and the stakeholders – members of government, educational institutions and professional associations – who work directly or indirectly with the international students.

## Phase II Data Collection

McMaster University and the University of Ottawa were chosen as the key sites for the qualitative data collection with students in light of the affiliation of the research team members and their having a number of health professional education programs under investigation.<sup>iii</sup> Upon approval of study protocol by the Ethics Boards of McMaster University and the University of Ottawa, recruitment flyers (see Appendix III) were sent to the administrative assistance of the programs in medicine, nursing and physiotherapy of McMaster University and the University of Ottawa. Upon contacting medical, nursing and physiotherapy programs at McMaster University and University of Ottawa, we realized that it would be very hard to recruit the students from these universities given that the departments we contacted had either few or none of the international students enrolled. For instance, we have been told that MD programs at both universities had no international students enrolled at the time of the study. A medical program representative from University of Ottawa explained that in the context of accountability to the taxpayers who fund much of the costs to train Canadian medical students and ensure they provide the best possible experience for these students, they do not feel that they have the capacity to take on additional students who may in turn take away clinical and teaching opportunities for the Canadian students.

Similarly, physiotherapy programs at McMaster University and University of Ottawa had no students enrolled at the time of the study. One representative from University of Ottawa revealed that since the opening of the Master in Physiotherapy program in 2007, only one international student got admitted. She also explained that the Physiotherapy Program at University of Ottawa is in French only, which may explain why they rarely receive applications from international students.

The only programs that admit international students at the departments we targeted are the nursing programs. Upon contacting administrative assistants from Schools of Nursing at McMaster and University of Ottawa and asking them to advertise our study, the study flyers were circulated to the international students at departments via e-mail (in the case of students from University of Ottawa) and posted on departmental bulletin boards (in the case of students from both universities). While we scheduled four focus groups to be held in February, during reading week period (two at McMaster University and two at University of Ottawa), none of the students showed up. This could be related to the fact that there were very few students at the

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<sup>iii</sup> Originally, we planned to recruit international students studying dentistry and pharmacy from the University of Toronto, but upon learning about the length and the complexity of the process (e.g. the Ethics Board at the University of Toronto needed an application from a researcher who is affiliated with the University of Toronto and they anticipated a long review period) we decided to drop out these two groups of students from our pilot project.

nursing programs in these two universities and the timing of the study.<sup>iv</sup> Given the above-mentioned troubles with student recruitment, we decided to forgo focus groups and contact stakeholders.

### **Phase III Data Collection**

Recruitment e-mails were sent to the stakeholders, asking them to participate in the study. Once the stakeholder expressed a potential interest to participate in the study, he/she was provided via email with the letter of information and the consent form (see Appendix IV). The stakeholders were to suggest a suitable time for an interview. The interviews with stakeholders were semi-structured, conducted via phone and lasted approximately somewhere between 10-35 minutes. With the permission of participants, the interviews were audio recorded. We interviewed 11 stakeholders, including representatives of provincial and federal ministries of immigration, educational and training institutions, regulatory bodies and professional associations, and one immigration consultant.

The stakeholders were asked to comment on the role of their organization in the process of integration of international students as well as on their perceptions regarding barriers and facilitators experienced by international students who plan to settle in Canada and work in their professional field (see Appendix V for the interview guide).

Each of the audio-recorded interviews was transcribed verbatim, with participant's approval. Transcripts were then entered into the NVivo 9, a qualitative data analysis software program for coding. A preliminary coding scheme was developed by the team members responsible for the qualitative component of the study and subsequently applied using this program to relevant segments of the interviews. Regular reliability checks through cross-coding of selected data were undertaken to ensure accurate coding of the data. These codes were then organized into higher-level categories according to the report template created by the research team.

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<sup>iv</sup> In order to understand our recruitment issues, research assistant contacted other universities to inquire about the number of international students enrolled in their health programs. For instance, we found out that at the School of Nursing at Queen's University they only have 2.2% international students (out of 92 students) at undergraduate level. Similarly, Western has only a couple of international nursing students both at undergraduate and graduate programs. Currently, there is no undergraduate physiotherapy program at University of Toronto. In their Master's physiotherapy program, they have no international students enrolled. One representative of the Physiotherapy program at Queen's University told us the candidates need to have PR or be a Canadian citizen in order to be eligible to enrol in the program. One representative of the physiotherapy program at Western told us that they do not accept international students at the department and that she believes that has to do with their credentialing. On the contrary, McGill University has lots of students enrolled at their physiotherapy program, both at undergraduate and graduate levels.

## Phase 1 Research Findings

### *Study Sample*

The study sample consisted of 280 international students and 14,260 domestic students in the five professions: dentistry, medicine, nursing, pharmacy and physiotherapy.

Below we present the findings for our study sample beginning with the international students followed by the domestic students in the four professions of interest: dentistry, medicine, nursing, pharmacy and physiotherapy. A discussion of a descriptive comparison between the two groups is then presented. Table 3 (Appendix VI) summarizes the information about the personal factors, human capital factors and employment outcomes for the international students and domestic students.

### **International Students**

**Personal factors - international students.** The majority of the international students in the four professions were female (n=180, 69%); on average were 32 years in age at the time of their graduation. The primary regions of their births were North America and Southern Asia. Sixty-four percent reported their race as White (n=180) and greater than one-third indicated they were Asian (n= 100, 36%). The majority spoke English at the time of graduation (n=180, 64%). None of the international students reported being able to speak both English and French.

The sample was evenly distributed between international students who were married and single. One-third (n=60) reported having dependent children. One-half of the international students immigrated to Canada between 1997-2001 (n= 140, 54%). Most of the international students became Canadian citizens or permanent residents (n=200, 71%). Only a small proportion (n=80, 29%) remained in Canada on student visas at the time of the survey.

**Human capital factors - international students.** International nursing students represented the largest proportion of international students (n=180, 64%) followed by medicine (n=40, 14%), pharmacy (n=40; 14%) and dentistry (n=20; 7%). None of the international students were graduates of a physical therapy program. (This forced us to eliminate physiotherapy students from our analysis and concentrate on international students in the four remaining professions: dentistry, medicine, nursing and pharmacy.) Women dominated dentistry and nursing (n=80, 80%), while more men were in pharmacy programs (n=40, 50%). All of the international students in medicine were men. Although a good proportion (43%) did not indicate their rank in their graduating class, 57% (n=160) of the international students in our sample revealed they ranked in the top 25% or higher. Nearly all obtained a Canadian licence, registration or professional designation after graduation (n=220, 79%). The majority (n= 140, 54%) of the international students had completed a bachelor degree or above prior to their enrolment in the health professional program in Canada.

**Employment outcomes - international students.** For their first job after graduation, nearly all of the international students were employed in Canada (n=240, 86%). Only a small proportion of the international students indicated they were employed outside of their profession (n=40, 14%). Quebec and the Prairies employed two-thirds of the international students, followed by the Atlantic Provinces and Ontario (n=40, 14%, respectively). British Columbia employed the smallest proportion (n=20, 7%). Most were employed in permanent positions (n=160, 57%) and were employees (n=220, 78%). For the year 2012, overall the international students earned \$94,000, and on average worked 48 hours per week. Almost half of the international graduates had left their first jobs about three years after graduation.

**Students remaining on student visas after graduation.** We further explored the personal factors, human capital factors and employment outcomes for the 80 international students who at the time of the survey remained on student visas. Of the 29% who remained on student visas, all were nursing graduates, female, born in Europe and self-reported being White. All spoke French at the time of graduation (n=180, 64%). None were married or had dependents. They all reported being in the top 25% of their class and had obtained the license, registration and professional designation to practice their profession in Canada. All were employed in the nursing profession and held permanent positions in Quebec. No other information including yearly earning or number of work hours per week was available for this group of students.

### **Domestic Students**

**Personal factors - domestic students.** The majority of the domestic students in the four professions were female (n=12,500, 88%) and were on average 27 years in age at the time of their graduation. Less than one percent (n=60) of the domestic students indicated they were immigrants, meaning that they were born outside of Canada to Canadian parents. The majority of the domestic students reported their race as White (n=12,600, 88%), six percent indicated they were Asian (n= 800, 5%) and less than one percent were black (n=60). At the time of graduation, a majority spoke English (n=8880, 62%), 28% (n=4,040) spoke both English and French and far less spoke only French (n=1,300, 9%). The majority of the domestic students were married (n=9,260, 65%) and had dependent children (n=4,960, 35%).

**Human capital factors domestic students.** Most of the domestic students were in nursing programs (n=10,940, 76%), followed by medicine (n=1,700, 12%), pharmacy (n=1,180, 8%), and dentistry (n= 420, 3%). The majority (n=11,480, 80%) indicated they ranked in the top 25% or higher in their class. Nearly three-quarters (n=10,380, 73%) reported they had obtained registration, professional designation and were licensed to practice their profession in Canada. Twenty-one percent (n=2920) did not indicate if they had obtained a license, registration or professional designation to practice their profession in Canada. One-third (n= 4,800) had completed a bachelor degree or higher prior to enrolment in the health professional program.

**Employment outcomes - domestic students.** Almost all of the domestic students were employed in Canada (n=13,640, 96%) at the time of the survey. Quebec (n=3,900, 27%) and Ontario (n=4,160, 29%) employed the largest proportion of the domestic students in the five regulated professions. The Yukon employed less than one percent of the domestic students. Thirty percent (n=4260) of the domestic students indicated they were employed in their profession while 10% (n=1,480) were employed in other types of work. Almost three-quarters (n=10,480, 74%) were employed in permanent positions and were not self-employed (n=12,680, 89%). On average they worked 42.5 hours per week. Overall, the domestic students on average earned \$112,500 per year. About 66% of Canadian-born graduates, which is far above that of the population of international students (43%), are still working for their first employers three years after graduation (see Table 3-Appendix VI).

### Summary of Quantitative Findings

The two groups of students, international and domestic, differed slightly from one another. While the majority of the respondents were white and female, international students were approximately five years older than the domestic students. This may be because a higher proportion of international students than domestic students had completed a bachelor degree or higher prior to their enrolment in the health professional program in Canada. Additionally, fewer international students were married and had dependent children than the domestic students.

Their language skills also varied, with a higher proportion of domestic students being bilingual (English and French) whereas the international students primarily spoke English. As mentioned above nursing students dominated both groups, however, the distribution among the other professions seems to be relatively equal. A slightly higher proportion of the international students had obtained Canadian licenses, registration or professional designation after graduation. Respondents from both groups indicated they were ranked in the top 25% of their class.

Ontario was the major employer for students from both groups. However, as compared to other provinces more international students were employed in the Prairies, while a higher proportion of domestic students were employed in Quebec. Domestic students earned more in 2012 than international students, yet international students worked more hours per week.

Our analysis revealed that the majority international students in four of the five selected health regulated health professions who participated in the survey formally immigrated, by obtaining permanent residency or citizenship status during or after their graduation. All of them were also employed full-time. A fairly high proportion of the respondents from both groups (International (30%) and domestic (59%)) did not respond to the question about their first

employment in Canada. However, we were able to establish that, with the exception of nurses, most graduates were employed not in the field in which they were trained. Although most of the respondents self-reported having licenses, these findings indicate that having a license does not guarantee employment success in one's trained occupation.

Interestingly, nurses represented the largest proportion of international students who became Canadian immigrants as well as all of the students that remained on student visas after graduating were nurses. This signifies that the student migration pathway seems to be a promising strategy for international immigration. This finding supports our hypothesis that international students upon graduation are highly employable as they have the human capital required to obtain professional registration and the language skills needed to practice their profession in Canada.

Only a small proportion (n=80, 29%) remained on student visas after graduation, however all of these respondents were employed in their profession in Canada. Using our sample we computed a retention rate by using the number of international students in the four regulated professions (dentistry, medicine, nursing, pharmacy) who formally immigrated and were employed in Canada. A retention rate of 71% (200/280) indicates that most international students from the four regulated health professional programs become Canadian residents. To further understand how international students in the health professions compared to international students in all health fields, we extracted data on students (Table 5: Appendix VIII). To do this we used the total number of international graduates in all health fields (see Appendix VII) who became Canadian immigrants (Canadian naturalized citizens or permanent residents) and we detected a lower but promising retention rate of 55% (620/1120=55.4%). (See Table 4, Appendix VII). These findings further support the federal government's objective of retaining highly educated international students and support the hypothesis that international students are highly employable, especially those students in the regulated health professions.

It must be noted however that not all international students are free to pursue immigration. For example international students sponsored by some foreign governments would have left immediately after graduation and would not have had the opportunity to participate in the survey. In addition, some international students may have come into Canada through managed migration for e.g. career advancement, bilateral training agreements and may have left or are still on visas for further training. However these statistics should be used with caution as our sample may not be entirely representative of the population due to the lower response rate, small sample size for the regulated professions and the possibility that many graduates who left the country did not have the opportunity or chose not to participate in the survey.

None of the international students were graduates of Canadian physiotherapy programs. Thus it could be inferred that international students do not occupy very many 'seats' in these programs, or they do not remain in Canada. Although further research is needed to clarify these assumptions, it does corroborate what we found during the Phase II recruitment process.

For the 29% of international student graduates in our sample who remained on student visas all were nurses. Thus it could be surmised that since the nursing profession has many levels of academic education, it is possible they were pursuing advanced degrees (Masters or PhDs). This would have permitted these international students to renew their student visas and remain in Canada without applying for permanent status. It is also possible that some of the 80 international nursing student graduates may apply for permanent residency or citizenship during their studies, thus remaining in Canada after the student visa expires or upon graduation. Thus, renewing nursing students' visas to pursue higher education could be one strategy for retaining this group of international students.

### **Limitations**

As mentioned earlier, the NGS 2013's response rate was 49%; thus, it does not provide information for >50% of targeted population or for those graduates who do not reside in the Canada or the United States. In addition, Statistics Canada disclosure rules were applied through the RTRA system, so some earnings, age and hours were not disclosed for the variables with small counts (frequencies). There were also considerable missing data (or low counts) for the worked hours and yearly earnings variables which could have led to the totals for these variables not being a complete representative of the graduates working in the regulated professions. This in combination with the low response rate and inability to control for cofounders signals the interpretation of the employment outcomes (earnings and hours) should be conducted with caution. Additionally, the NGS has no urban or rural settlement information for the respondents and so it was inferred that the respondents lived in the same provinces where they were employed; which may not always be the case. Measurement error should also be assumed, as it is a limitation of survey methodology.

### **Phase 3 Research Findings**

The key research findings that emerged from the stakeholder interviews addressed the advantages of international students, a discussion which was couched in the broader debate about brain gain, circulation and the health workforce context. That is, our key informants noted that one of the biggest barriers for integration of international students is the policy disconnect that exist at the institutional level.

## *Advantages of International Students: Brain Gain, Brain Circulation & the HHR Context*

There are a variety of reasons for international students to choose Canada for pursuing undergraduate and graduate education. Our key informants identified a number of factors that make Canada an attractive choice for international students. These include high quality and affordable education, Canada's reputation as a peaceful and welcoming country and the possibility to obtain permanent residency after they finish their studies in Canada.

Not all students decide to stay in Canada and apply for permanent residency. In fact, some key-informants stressed out that it is important *not* to assume that all incoming students plan on staying to live here. Nevertheless, there was an overwhelming agreement among the key-informants that international students bring certain advantages to Canadian society if they decide to stay in Canada as immigrants. Cultural and ethnic diversity were often cited as two major benefits that immigrants bring to Canadian society, but international students were often seen as possessing additional advantages that could potentially speed up their integration. One of the key-informants outlined these advantages this way:

*They've been training in Canadian institutions so language should not be a barrier, [they have] the credential that are required for work in the health sector, they've lived in a Canadian community for a specific period of time to obtain that credential so all of those are very beneficial (Interview 2).*

Overall, international students were perceived by our respondents as different from the rest of immigrants in two ways. First, they were assumed to be familiar with the cultural and social landscape of Canadian society. Second, they had Canadian education and therefore could bypass a long (and often time cumbersome) process of credential assessment and verification that is experienced by IEHPs who decide to pursue professional licensure in Canada.

At the same time, international students were still perceived by key-informants as in need of support throughout the immigration process, especially with regards to their integration into Canadian society after they are done with their studies:

*I think that what is sometimes forgotten is [that] when you are living in a university environment whether you are on campus or not, you have a group of peers around you, you focus on your studies... I won't say it's a very sheltered environment, but it's an environment that is very accepting of international students and it's not like being out there in the real world... there is sometimes an issue with that transition from university life to community life.*

Many suggested that language and lack of knowledge about the immigration system are the major barriers for the professional integration of international students. Interestingly, most key-informants did not see international students as the answer to shortages in health human resources. This stems from the reasons described below.

First, while the phenomenon of international students is growing rapidly, overall, the number of international students studying health professions in Canada is relatively small. Most of our respondents were representatives of educational and immigration institutions, hence were not aware of the shortages in the health human resources sector that international students could fill:

*We are not aware of any areas right now where there are shortages, so we are not trying to respond to shortages, we don't have any policies right now that are aimed at addressing shortages... I think generally the government tends to respond to domestic shortages firstly with a domestic response in terms of supporting people in Canada to get the appropriate education to address shortages. (Interview 3)*

Even our stakeholders from the health sector did not see the international students as a solution to HHR shortages. Our nursing stakeholder, for instance, noted that “*right now we are no longer in a position of absolute shortage of RNs*” and therefore there is no need for treating international students (and their succinct numbers) as a solution to HHR shortages in the nursing workforce. Moreover, reconfiguration of the tasks and duties of RNs, RPNs, and PSWs that is currently happening at the health sector, makes it difficult to see international students as a potential solution to fill in the shortages in the areas where nurses are needed.

An additional challenge identified by another key-informant focused on geographic distribution of shortages:

*Where we have a shortage in health human resourcing is not the global cities, we don't have a shortage in Toronto, we don't have a shortage in Vancouver, we don't have a shortage in Ottawa, [or] Montreal. We have shortage in other jurisdictions of the country, right? The doctors... or the nurses don't necessarily want to come [there] ....[and] international students when they come to work here are not necessarily going to work in those places (Interview 1).*

Finally, key-informants raised ethical concerns related to the recruitment of international students to stay in Canada. There is a fine line between presenting Canada as welcoming country and “luring” the students to stay in Canada, and the study participants were keenly aware that the Canadian institutions should not cross this line. One of the participants said:

*Internationalization, in generally, [is] a good thing but you have to be careful of not only the balance, but [also] the ethical considerations are important, because we don't want to be seen (nor do we want to contribute to) negative brain drain. [We are] happy to contribute to brain circulation of people who are interested in coming to Canada but we don't want to be seen as vultures of the world. We want to be seen as partners (Interview 6).*

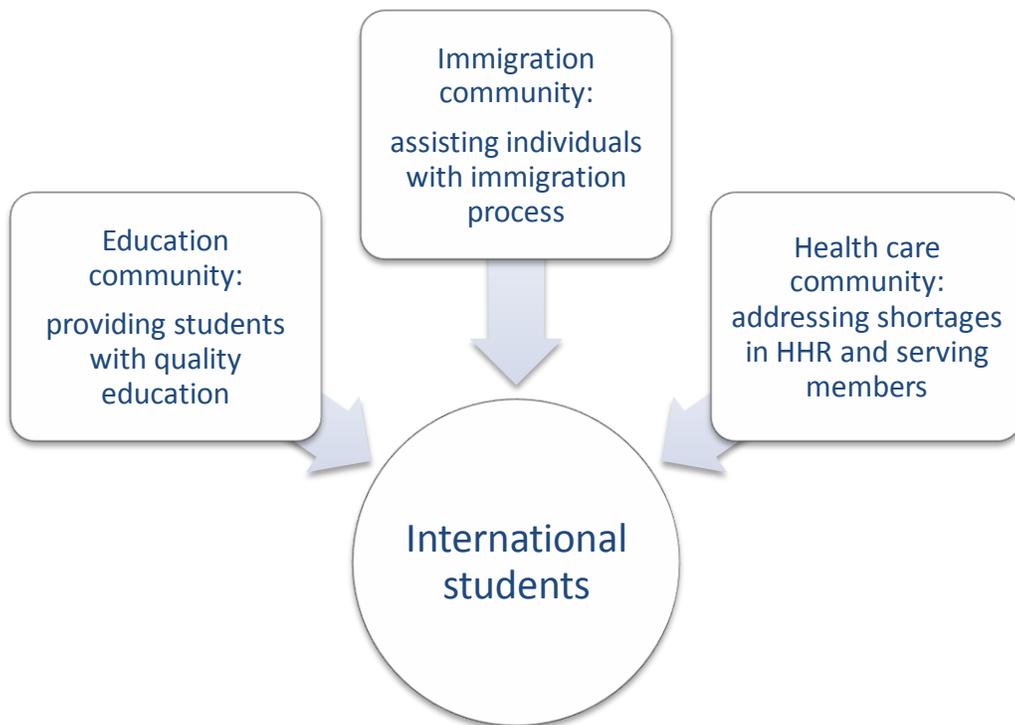
In the literature on the ethics of the recruitment of skilled workers, the brain drain refers to the phenomenon of unethical recruitment of highly skilled professionals (such as physicians or nurses). This practice is internationally condemned by many international and national organizations and institutions and is found to be highly problematic for the sustainability of labour markets, especially in the global south that loses its workers to economically advantaged countries. Brain circulation – training professionals with the intention to let them contribute their skills to other health care systems – was suggested as one of the approaches that can potentially resolve the ethical challenges of attracting professionals from the global south, both in highly skilled migration in general (Kapur & McHale, 2005) and in health professionals migration (Kingma, 2006). As the quote above indicates, this practice clearly resonated with our key-informants about the position of international students. For the most part, international students were seen as potential “ambassadors of Canada” who can attest internationally to the quality of Canadian education and promote Canadian cultural values in their home country and/or around the world. Although many study participants suspected that was a (sizeable) group of international students who are coming to Canada with an intention to stay, it was seen as ethically problematic to treat all students as potential immigrants.

To summarize, international students who decide to permanently stay in Canada were seen by our key-informants as bringing a set of unique advantages to the Canadian labour market. As immigrants, they have a potential to offer diversity to Canadian society, contributing to the ethos of multiculturalism that is valued in Canada. Moreover, stakeholders saw students’ local education and familiarity with Canadian society as two key facilitators for successful (and relatively rapid) integration of these students in the labour market, which put them ahead of the rest of the newcomers. While our respondents clearly indicated that we should not assume that all international students want to stay in Canada, there was a strong agreement that there is a need for a straightforward path that international students can take to apply for permanent residency. But the existence of this path was highly debated among our key-informants. In the next section of this report, we discuss the policy context in which international students seek permanent residency, identifying disconnects in policy and practice, as well as barriers and potential facilitators for integration.

***Policy context: Barriers and facilitators for integration***

Our interviews with key stakeholders indicate that one of the biggest barriers for integration of international students is the policy disconnect that exist at the institutional level. We identified three major stakeholders that could potentially play a role in the successful integration of international students: educational institutions, immigration bodies, and health care organizations/associations (See Figure 2). Granted, each community has specific goals and sees international students from its own perspective. While all three see international students as a potential benefit for HHR (and the larger Canadian society), the lack of dialogue within and between these three communities creates unnecessary barriers for those international students who would like to stay in Canada. In what follows, we briefly define the role of each community and its perspective on international students.

**Figure 2: Policy Context for Integration of International Students**



**Educational perspectives**

As mentioned below, many of our stakeholders saw international students as “the ambassadors” of Canadian education and believed that they could promote Canadian

education worldwide. Given this fact and that international students bring considerable revenue to the Canadian education system, it is truly surprising that the education community plays such an insignificant role in the process of integration of international students who would like to stay in Canada. Admittedly, the limited role of the education community is not exclusively applicable to international students who are applying for permanent residency. Rather, one of the stakeholders from the education community commented:

*The Ministry of Training, Colleges and Universities' role in international education... is actually quite limited. The universities and colleges and other post-secondary institutions in Ontario are responsible for their own recruitment strategies. We play a coordinating role in some major post-secondary sector events. We work closely with the federal government, but we don't have a formal, we don't have a significant role in recruiting students or promoting our institutions abroad, as I say, other than at some conferences coordinated between the provinces and federal government. We do have some student exchange programs that we fund and we do have a scholarship program for international PhD students, but those are limited interactions in this area. Mostly, we see our role as promoting high quality academic intuitions here in Ontario that are welcoming and outward looking and accessible and that's, sort of, our key role and, of course, that makes them attractive to international students (Interview 3).*

Our analysis suggests that most post-secondary institutions decide on their own about their degree of involvement with the immigration community. Those institutions that see it as appropriate can develop a partnership with immigration bodies to provide information to the students who are interested in applying for permanent residency. In some universities and colleges there are specific services, such as international students' counselors/immigration advisors, that can assist students with the immigration process. Recent changes in federal policy with regards to immigration advisors created a new complexity for those post-secondary institutions that would like to help international students with making decisions about immigration processes. One of the stakeholders we interviewed noted:

*Bill C-91... [is] now applied to the post-secondary sector or to the entire education sector. So, anyone advising on immigration matters have to be registered with the ICCRC [Immigration Consultants of Canada Regulatory Council] and, you know, it's a good thing in some respects, but being applied to education is a difficult issue. All that said international student advisors can be, you'll need the right information to help those students make those decisions, but those decisions are often made before they apply to study...So it is very much an institutional strategy on how to service our international students... [We have] to acknowledge that many of them do want to immigrate and we'll be ensuring they have the right information to help people do that (Interview 2)*

Most of our study participants believed that the decision to come to Canada does not appear during the students' stay in Canada. Rather, the assumption that was made by our key-informants was that while some students come to Canada just to receive education, many others come with an intention to use the studies as a pathway for immigration. Therefore, providing timely and correct information about the immigration process was seen by all our respondents as one of the major facilitators for a successful immigration process. The Bill C-91 that was introduced in June 2014 restricted the ability to give out advice about immigration only to those who are registered to do so. On the one hand, this ensures that information that is being given out to students is accurate. On the other hand, it limits the ability of post-secondary institutions to provide services to international students, since not all of them have a population of international students large enough to warrant hiring a registered immigration advisor.

Overall, the role of the education community in the process of immigration of international students was identified by our participants as potentially valuable, but not well defined. Our stakeholders from the immigration community identified the role of post-secondary institutions in this manner:

*I think it's important to think a little about whose role and responsibility it is to support permanent residency [of international students]. So, the question for educational institutions, for example, their role is to support education of international students in graduating.*

As this stakeholder suggested, educational institutions' primary goal is to deliver education. This is their mandate and, technically, assisting students with applying for permanent residency is not part of their responsibilities. Identifying the potential benefits of the education community's involvement in the immigration process, this stakeholder continued:

*There are some interesting projects taking place right now... between the international student offices of the post-secondary institutions [and] settlement agencies to support international students to get access to information about connecting with community resources and finding language classes, making connections in the community, and we certainly feel that creating a welcoming environment and liaising between post-secondary institutions and the settlement community can support those who would like to stay permanently to have more option to do so and have more success in Ontario (Interview 7).*

According to these stakeholders, post-secondary institutions do play a role in assisting international students during the integration process. Clearly, some post-secondary institutions invest a lot in providing students with information, connecting them with community services,

hiring immigration advisors and counselors for the international students and making sure that the students receive a memorable experience while living in Ontario. At the same time, because most of these services are provided on an ad-hoc, voluntary basis and are not coordinated at the provincial (or national) level, the education community does less than it could potentially do for the international students. Post-secondary institutions are in a unique position to reach out to the students, to provide timely information, and to connect students with local settlement services. Our study participants unanimously agreed that the education community is a major stakeholder in the immigration of international students and it can (and indeed should) accept a more substantial role in this process.

### **Immigration perspectives**

The immigration stakeholders whom we interviewed believed that the current government is welcoming to the students who wish to apply for permanent residency. While they were clear that they do not wish to recruit students because of ethical consideration of poaching “the best and the brightest”, they saw the students as highly desirable potential immigrants and the government as supporting the students through immigration process:

*I think that CIC is generally doing a really good job of trying to listen to the challenges and make changes that are possible. I think some of the things that they have been doing - online applications and simplifying applications - is in the right direction, so, I would say they should continue in the direction of making processes more easily accessible and user friendly and simple. After all, it's the government that issued - you may have heard - the internationally educated strategy that was released last January. So, it is the government that wants to support international students in Canada. So, continuing at making the process simple and user friendly and accessible is definitely the right direction (Interview 6).*

The stakeholders identified a number of pathways that can be taken by international students who are planning to apply for permanent residency in Canada. These include the general (federal) application for skilled worker, provincial nominee programs, Canadian experience class (a designated pathways for those applicants who have experience working in Canada), and other programs that are available to individuals who are willing to immigrate to Canada. Although the students were seen as potentially valuable immigrants, they were *not* seen as a group that warrants preferential (or special) treatment. Such a view is in accordance with the Canadian immigration policy system that does not seem to allocate preferential treatment to international students. Indeed, currently, no immigration streams are offered exclusively to students or are offered to students at the expense of other potential immigrants. This can be explained by their relatively small numbers and the need to see the immigration process as very clear, transparent, accountable and fair to all applicants.

Unfortunately, some policies, when they are tailored to all applicants, may put some groups at a disadvantage. Our analysis revealed that the new express entry system that has been recently introduced by the government to prioritize applications from candidates with the job offer in Canada, has been seen as controversial by some of our key-informants<sup>v</sup>. The government stakeholders identified this system as simply a change in how the applications are being assessed by the immigration officers, but those who work with the students “on the ground” saw this system as placing additional barriers for international students. One of the study participants described it as follows:

*[With the Express Entry System] It's not mandatory to have the Labour Market Impact Assessment, but, so far, the people that have been pulled without it have had very, very high points. Most normal graduates who... get their first job would not be able to get LMIA... There's many post graduate students that will not get pulled and many that are here now with their work permits expiring that have not been pulled from the system yet. So there is no guarantee at all that you're going to get pulled from the system and a lot of them will not get the points to get pulled.*

Although the government representatives discussed this policy as impacting primarily the *timing* at which the application is being processed, this key-informant saw it as impacting the chance of obtaining the permanent residency status:

*Before January 2015, once they [international students] had graduated, they got a post graduate work permit for 3 years if they studied 2 years or longer, and after 1 year of working they could apply for permanent residency. And now they can apply, but there is no guarantee they're going to be pulled to be processed. It's not transparent at all, it is very nerve raking for the students, they don't know whether they [will be] pulled or not, whether they have to go home or not... If you graduate and get a good job and work, there is no guarantee you'll be able to stay. In order to have any certainty, the company has to be able to prove [that] there no Canadians available to take the job, which is a labour market opinion, which is very hard to do... almost impossible to do, you can't get it as new grads. Employers have to advertise the job to all Canadians and pay higher wages to a new graduate. Most of them won't want to do that...*

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<sup>v</sup> As of January 1, 2015, in order to qualify for PR, international students need to fill in Express Entry Profile to inform CIC about: their identity, contact information, education and work experience in more detail, language and family who would come with them to Canada (dependents)( CIC, 2015). Also, to complete the process, students need to register with the Government of Canada's Job Bank in the case that they don't have a valid job offer, or a nomination from a province or territory (CIC, 2015).

Admittedly, the change in the system is a new phenomenon and it is still unclear what implications it will have for the international students wishing to apply for permanent residency in Canada. The government stakeholders from the immigration community who participated in our study argued that this policy does not change the playing field for the students. Moreover, they believed that this government is friendly and welcoming to the international students, although it does recognize that the choice to stay in Canada should be done by students themselves, with no attempts for passive recruitment on behalf of the immigration community.

Providing information about the immigration process to those students who are interested was seen by our key informants as a key facilitator during the process. The students were often seen as lacking knowledge about system navigation and the stakeholders pointed out that there are a number of initiatives that exist to provide students with such information. In particular, the International Student Connect Program was seen by the stakeholders as a promising practice:

*Essentially what was released uses a lead agency across the immigration services and they are working with post-secondary institutions and settlement agencies to pilot deliver some workshops and orientation referral information to international students and these are being delivered on campuses and this is rolling out as of February ... It comes out of a needs assessment that was done last year, which was connecting a number of focus groups as well as other pieces of research to identify the needs of international students. And so, there is a handbook that has been developed, quite substantial handbook that's come out, as well as a number of fact sheets, and, I believe that settlement agencies are working directly with the post-secondary institutions to develop the workshop content and it's kind of based on a model that we want to have standardized information settlement information that's based on another model of orientation to Ontario. (Interview 7)*

In addition to these new promising practices, there is substantial information for international students that exist on the Internet and is easily accessible to students. There is also a special tool that is available on the website of CIC, which directs the applicant to the appropriate (and the fastest) route for immigration to Canada. All these services clearly demonstrate that the immigration community is seeking to provide as much information as possible to international students.

To summarize, three important points need to be made to explain the role of the immigration community in the process of integration of international students. First, the stakeholders from the immigration community do not see international students as immigrants. While they recognize the right of students to apply for permanent residency, they need to make sure that they do not step over the symbolic barrier between welcoming those who come with an intention to stay and recruiting those who were not planning to stay in Canada. Consequently,

providing information about the immigration process (preferably in a neutral way, such as Internet websites that can be accessed by students who are interested in permanent residency) becomes the primary tool for the immigration community to facilitate the process of integration for international students. Second, because international students do not have a separate immigration category, some of the programs and policies that are used by the immigration system to grant entry to permanent residents may have unintentional negative consequences for students. In particular, the express entry system was identified as the problematic practice by some of our participants as it puts students at a relative disadvantage over other, more qualified immigrants. Finally, despite the small number of international students and despite the fact that not all of them plan to stay in Canada, it is clear that they are a desirable group of potential newcomers. Recognizing this, the immigration community is developing various programs and workshops to assist students who wish to apply for permanent residency. However, to do this successfully, they need the support and cooperation of the education community.

### **Health care system's perspectives**

The disconnect between different stakeholders who are involved in the process of professional integration of international students is also evident in the role that health professions' associations play in assisting students with settlement services. During our initial process of recruiting key-informants for this study, we approached a variety of regulatory colleges and professional associations. We were told by the vast majority of these institutions that they do not play any role in the settlement process of international students. As we noted above, this can partly be explained by the small number of international students and partly by the fact that the health care community does not want to be seen as "poaching" international students to stay in Canada.

Overall, both regulatory colleges and professional associations noted that they do not see international students as a separate group of professionals that should be treated differently than any other applicants (or members). Regulatory bodies, for instance, claimed that their assessment (and subsequent licensure) is based on the credentials and qualification of any candidate. Similarly, professional associations granted membership to all qualified, regardless of their place of birth and/or education.

Generally, this approach to international students can be seen as both fair and logical, but our analysis revealed that it may create some unnecessary barriers during the process of professional integration of international students. International students *are* a unique group – they have Canadian credentials, but they may not have sufficient language skills; they may pass the licensure exam, but they may not have permanent residency status; they may have a work permit after their studies, but have little understanding of system navigation; they may have

better language skills than other immigrants, but they still need support in filling out applications for permanent residency. Simply put, despite the fact that many international students lived in Canada for some time, they still may not have the same knowledge of the process of professional certification, but, because of their unique position in Canada, they may also be denied certain forms of support. One of our stakeholders noted:

*[International] students are not eligible for settlement services because they are temporary immigrants. So, until they receive the permanent residency status they aren't eligible for those services (Interview 2).*

As this stakeholder pointed out, the regular settlement services that exist to provide support to newcomers in Canada may not necessarily be available to international students. Combined with the fact that educational institutions are under no obligation to provide information to international students about the immigration and professional certification process, some international students can find themselves at a disadvantage. This disadvantage is evident not only in comparison with Canadian-born graduates, but also with immigrants who arrived in Canada and have access to all the available services for internationally educated health professionals.

In this situation, professional associations can certainly take a more proactive role in informing international students about the processes of immigration, professional certification and job opportunities available in the Canadian healthcare sector. One of the key-informants noted:

*We have a few nurses... They've been in Canada a while and they started right from the beginning and they have been sometimes upset, sometimes angry by the lack of clarity and lack of honesty... From a professional association [perspective] we use very neutral terms and some people have perhaps understood that to be more encouraging than was really meant to be and they would very much appreciate people being more clear, more direct that if you want to be a nurse in Canada here's what it takes, here's what it will cost you, here's how long it will take and here's the opportunities for work in the future. That, frankly, to work in the main hospitals and the prime areas, like pediatrics, you know, the attractive spots, that's difficult even for a young person growing up in Canada, those are not easy jobs to get, that where you are intended to end up, that where the jobs are right now are long term care, chronic care, community or more rural areas... I think being honest about what that is would be helpful (Interview 5).*

Being transparent about the prospects of immigration and professional integration was often seen by key-informants as a major facilitator for successful integration of international students in the Canadian society in general and the health care system in particular. Many pointed out that professional associations can take upon themselves this role. Providing such information in

a timely fashion, before the students make final decisions about immigration, was seen as another key-facilitator for students' integration. Echoing some other stakeholders, one of the key-informants pointed out:

*Some of the sector councils and some of the regulatory bodies are doing a lot of work on pre-arrival [activities] with federal skilled workers and provincial nominees and they could very much extend that to working with international students who would be potential employees. It very much depends on the regulatory bodies involved and the group [of] employers. Some are very open to those kinds of things and others not so much and we find that we do a lot of work with Health Care Regulatory bodies, schools of nurses, schools of physiotherapy and others, it varies very much from organization to organization, but there could be a very clear role for them in helping prepare students to stay in Canada and just helping them to understand the job market, what they need to do to get that job and what they need to do stay. (Interview 2)*

Overall, our analysis revealed that professional associations and the broader health care community could play a much more prominent role in assisting international students during the process of potential integration. Particularly, they can provide students with timely and accurate information about the integration process, job market, types of jobs that are available for new graduates and the amount of time it would take the students to obtain a professional license. It seems that treating international students like “everybody else” neither suits students nor the health care community. Canadian credentials and experience of living and working in Canada certainly help international students in passing licensure examination and obtaining work, but it does not erase the fact that some of the students may need access to language services, some may not be aware of how to apply for permanent residency, and some may not understand how the system is navigated. This niche can be filled by professional associations who can take a much bigger role in assisting the international students with the process of professional integration.

While our study participants raised some caution that actively assisting international students with settlement in Canada may be ethically problematic, two counterpoints can be raised. First, a sizeable proportion of international students come to Canada with an intention to stay. Second, although our key-informants opposed recruitment of health care providers (and therefore raised concerns about the ethics of providing information about settlement to international students), Canada continues to recruit health care professionals from abroad. While this does not happen at a national level, some provincial bodies, RHAs, and even some hospitals recruit health care providers from other countries to fill local shortages. In this context, an argument can be made that from the ethical standpoint, it is more ethically sound to recruit students who received Canadian education, who already are in the country and who

are determined to stay here than to send the recruiters to other countries to find health care professionals whose education and training was funded by others.

## Discussion

Although we did not find that international students to be particularly prevalent in the health professions nor do they figure prominently in dialogues regarding health workforce shortages, we did garner some interesting insights that begin to address some important gaps in our knowledge. The quantitative findings indicate that the study-migration pathway for a student in the health profession is a potentially promising path to permanent residency in Canada. It is also an avenue that leads to employment, specifying that international students are well suited for the Canadian labour market. The notion that facilitating the integration of international students as a method for retaining some of the most talented and brightest new minds in Canada was somewhat supported by the NGS data. We found that in general the international students were older than domestic students and as such entered their health professional programs with university degrees and a command of English or French. Additionally, upon graduation the international students in the health professions ranked in the top 25% of their class and were highly proficient in one of the country's two official languages. These findings are consistent with the literature (Arthurs & Flynn, 2013, Ziguras & Law, 2006) and support our research hypotheses. The quantitative analysis also revealed that some health professional programs have greater numbers of international students who remain in Canada than others. For example the NGS database did not include any international students who were graduates of physical therapy programs. This could suggest the study-migration pathway may be most suitable for international students in selected health professions, such as medicine and nursing.

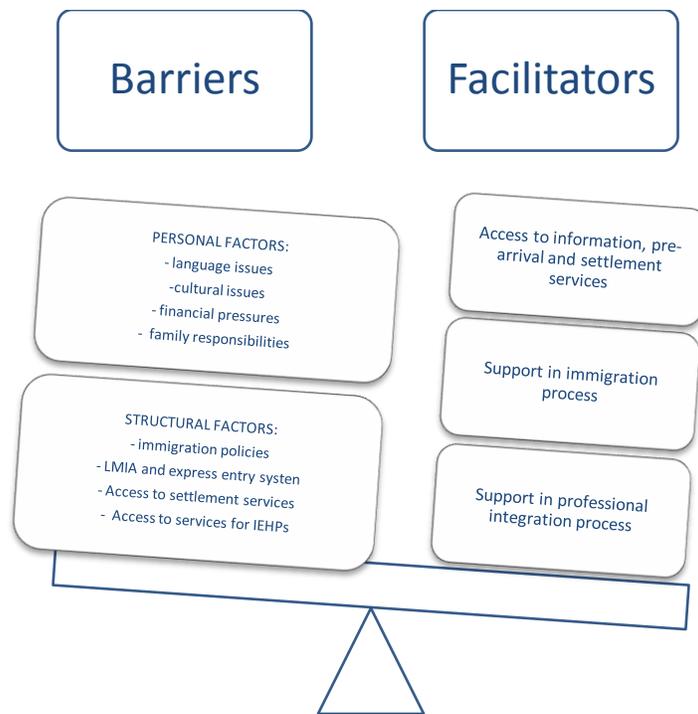
Our interviews with stakeholders indicated that policy makers see international students as an attractive group of potential immigrants. In particular, given that they study in Canadian educational institutions, the students are perceived as possessing the human capital that fits the Canadian labour market. They are also believed to possess advanced language skills and cultural competency as well as to be familiar with the Canadian health care landscape. Therefore, it is not surprising that Canadian policy makers see international students as an asset for the Canadian economy, educational system and international image (CBIE, 2015; McMullen & Elias, 2011).

Although international students are seen as an “elite” group of potential newcomers, our stakeholders articulated their reluctance to see international students as *immigrants*. Recent surveys of international students show that only 50% of them want to seek permanent residency in Canada (CBIE, 2015). In this light, treating all international students as immigrants can be interpreted as “poaching” and “stealing” highly skilled individuals from their home

countries and therefore contributing to the brain drain from the global south, which is already suffering from the lack of highly skilled professionals (Kapur & McHale, 2005; Kesselman, 2001). Therefore, our stakeholders were very keen on sketching the careful balance between providing information about immigration to those students who intend to stay in Canada and abstaining from any practices that can be construed as active or passive recruitment of international students. Seeking this balance can also account for the apparent disconnect between the educational, immigration and health care policy community. The interviews with stakeholders revealed that all three could potentially assume a much more prominent role in assisting the students who are seeking permanent residency.

While literature on international students is growing, the contribution of our study is in its emphasis on the international students enrolled in the health-related programs in higher education. Overall, our findings indicate that there are a number of structural and personal barriers that these international students may experience in Canada. Figure 3 provides a graphical summary of the key barriers and facilitators for integration of international students.

**Figure 3: Barriers and Facilitators for Integration of International Students**



At the personal level, students may experience problems with adjusting to the life in Canada, including language and cultural issues, financial pressures that may arise during the studies and/or immigration process, and family responsibilities. As we noted earlier, our key informants believed that compared to other immigrants, international students are more proficient in language and cultural competency because of their years spent in the Canadian education system. It was also pointed out by our stakeholder that obtaining a degree from the Canadian university or college does not eliminate these barriers and some students may still experience difficulties with language and/or cultural reality of the Canadian labour market.

Financial and family pressures were also listed by our stakeholders as major barriers for the successful integration of students. These could have a dual effect – some stakeholders believed that family and/or financial pressures could motivate students to come back to their home countries, whereas others saw these pressures as an incentive for the students to rapidly integrate into the Canadian health care system. Obtaining the job in Canada could provide students with the opportunity to pay out the debt for pursuing education and/or provide their families with the opportunity to immigrate to Canada and to settle here.

At the structural level, international students are faced with a variety of policies and practices that may complicate their process of integration into Canadian society. The lack of communication between the education and immigration communities creates barriers for access to information about the migration process. The literature suggest that educational institutions may play a unique role in the process of integration of international students, providing these students with immigration advice, counseling services, and workshops for cultural settlement (Andrade, 2006; Ogilvie & Burgess-Pinto, 2007). Given that educational institutions establish services for students on the ad-hoc basis, some students may lack access to timely advice on immigration and can experience additional barriers for integration. Moreover, immigration policies (and especially the new Express Entry system) received substantial criticism from some of our stakeholders. A requirement to have Labour Market Impact Assessment (LMIA) in particular was seen as hardly accessible to the newly graduates from Canadian colleges and universities. In addition, because international students are seen as temporary visitors, in some cases they are denied access to settlement services and IEHP services that are directed towards *immigrants*. This places yet another barrier for students' successful integration.

Our analysis identified a number of promising practices that may facilitate the process of integration for international students.

1. Provide access to information, pre-arrival, and settlement services – Providing access to information about immigration and professional integration in a timely fashion to these students can be helpful in facilitating their settlement, if they so wish to stay. Our

stakeholders identified a number of promising practices that emerged in the last few years to give students access to information. These include websites and online information portals, on-site immigration counselors at the educational institutions, as well as workshops and information sessions designed for international students.

2. Support in the immigration process – many individuals find it difficult to navigate through the immigration process so providing international students with a designated immigration consultant may facilitate their integration process. At present, international students do not have distinct path for immigration process and are reviewed with all other applicants for Canadian residency. Given that all our stakeholders recognize the “elite” status of this group of potential immigrants, it would be prudent to review current approach to identify potential benefits of providing a unique path for international students. If international students are indeed a group of newcomers that can be rapidly integrated into the labour force, paving out a separate path for their integration may be a promising practice. It should be noted, however, that there are two major caveats for this suggestion: (1) a relatively small number of international students may render the review of current immigration policy not feasible; (2) a designated immigration path for the international students can be perceived by some as an active recruitment of highly skilled professionals by the international community.
3. Support in professional integration process – international students are a unique group of health care professionals – they bring with them cultural diversity and locally acquired skills. Because of their uncertain immigration status and their relatively small numbers, they are not always recognized as a valuable group of professionals in health policy community. Recruiting participants for this study, we identified a gap in health professionals’ community knowledge about international students – many of key informants that we approached asking for an interview commented that they are unfamiliar with this group and/or that their organization does not recognize international students as a unique group of applicants (e.g. for licensure or professional membership). Our analysis indicate that providing international students with the knowledge about professional practice in Canada and the steps needed to acquire professional licensure and/or finding employer can significantly facilitate the process of integration for international students.

Recent surveys of international students suggest that approximately 50% of them intend to stay in Canada upon graduation (CBIE, 2015) and our secondary analysis of NGS data revealed that this number is even higher in health professions. The qualitative analysis of the interviews with key informants from educational, immigration, and health policy community reveals that they perceive international students as a highly attractive group of potential immigrants. While we certainly should be aware that not all students who come to study in Canada will seek the opportunity to stay here, the major conclusion from our analysis is that more can be done to

facilitate the process of integration for those students who do seek permanent residency upon completion of their education. Addressing personal and structural barriers identified during our analysis and promoting cooperation between educational, immigration and health policy community to implement promising practices that will facilitate the process of integration for international students seems like a good way to formally recognize the unique advantages that international students can bring to the Canadian labour market.

### *Implications for future research*

This pilot study provides the following implications for a larger cross-sectional study. First the NGS data could be mined through a Statistics Canada Research Data Centre (RDC) where a more in depth analyses can be performed by using a variety of inferential statistics and modeling techniques. Conducting the analyses at the RDC, requires the researcher to be located in the lab, so funds are needed to permit the researcher to travel and stay near the RDC for approximately seven to ten days. We also recommend the use of other data sources, such as the Canadian Census or the National Household Survey data be explored to supplement the NGS data. Ultimately, we recommend a survey be designed to capture the factors that influence the retention of international students as well as those factors that determine students in the health professions from remaining in Canada. A Pan Canadian study may provide a more comprehensive understanding of the influence of existing education, professional and immigration policies on international health professional students' decisions to remain in Canada as well as return to their country of origin.

While the qualitative component of this pilot study has brought important insights on the post-graduation pathways of international students, we experienced challenges recruiting international student participants. The programs of medicine, nursing and physiotherapy at the universities we targeted had either few or no international students enrolled at the time of the study. Our recruitments efforts could have been more successful if we targeted schools known to have a higher proportion of international students and/or former international students. Incorporating students' perspective in the research would help us better understand the factors that preclude or help their integration into Canadian society. Finally, future research could expand upon the number and range of stakeholders representing provincial and federal ministries of immigration, educational and training institutions, regulatory bodies and professional associations, employment counsellors and immigration consultants.

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# Appendices

## Appendix I Ethic Certificates

MREB Clearance Certificate https://emcs.mcmaster.ca/mrebo/print\_approval\_banner1.cfm?ID=542

 <p style="font-size: x-small;">Inspiring Innovation and Discovery</p>	<p><b>McMaster University Research Ethics Board (MREB)</b></p> <p style="font-size: x-small;">c/o Research Office for Administrative Development and Support, MREB Secretariat, GH-305/H, e-mail: ethicsoffice@mcmaster.ca</p> <p><b>CERTIFICATE OF ETHICS CLEARANCE TO INVOLVE HUMAN PARTICIPANTS IN RESEARCH</b></p>		
<p>Application Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> Addendum   Project Number: 2014 196</p>			
<p><b>TITLE OF RESEARCH PROJECT:</b></p> <p style="font-size: x-small;">The Study-Migration Pathway: Understanding the Factors that Influence the Employment and Retention of International Students as Regulated Health Professionals in Canada</p>			
<b>Faculty Investigator(s)/ Supervisor(s)</b>	<b>Dept./Address</b>	<b>Phone</b>	<b>E-Mail</b>
E. Neiterman	Sociology	23609	neitee@mcmaster.ca
<p><b>Co-Investigator(s):</b> C. Covell, I. Bourgeault</p>			
<b>Student Investigator(s)</b>	<b>Dept./Address</b>	<b>Phone</b>	<b>E-Mail</b>
J. Atanackovic	Nursing	905-920-53	atanacj@mcmaster.ca
<p><b>Co-Investigator(s):</b></p>			
<p>The application in support of the above research project has been reviewed by the MREB to ensure compliance with the Tri-Council Policy Statement and the McMaster University Policies and Guidelines for Research Involving Human Participants. The following ethics certification is provided by the MREB:</p> <p><input type="checkbox"/> The application protocol is cleared as presented without questions or requests for modification.</p> <p><input checked="" type="checkbox"/> The application protocol is cleared as revised without questions or requests for modification.</p> <p><input type="checkbox"/> The application protocol is cleared subject to clarification and/or modification as appended or identified below:</p>			
<p><b>COMMENTS AND CONDITIONS:</b> Ongoing clearance is contingent on completing the annual completed/status report. A "Change Request" or amendment must be made and cleared before any alterations are made to the research.</p>			
<b>Reporting Frequency:</b>		Annual: Oct-24-2015	Other:
Date: Oct-24-2014 Chair, Dr. B. Detlor			

of 1 24/10/2014 8:39 AM



**Ethics Approval Notice**  
**Health Sciences and Science REB**

## Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Elena	Neiterman	Others / Others	Principal Investigator
Ivy	Bourgeault	School of Management / School of	Co-investigator
Christine	Covell	Health Sciences / Others	Co-investigator
Jelena	Atanackovic	Others / Others	Research Assistant

File Number: H11-14-06

Type of Project: Professor

**Title:** The Study-Migration Pathway: Understanding the Factors that Influence the Employment and Retention of International Students as Regulated Health Professionals in Canada

<u>Approval Date (mm/dd/yyyy)</u>	<u>Expiry Date (mm/dd/yyyy)</u>	<u>Approval Type</u>
11/24/2014	11/23/2015	Ia

(Ia: Approval, Ib: Approval for initial stage only)

**Special Conditions / Comments:**

N/A

## Appendix II - List of Variables<sup>vi</sup> and Corresponding Survey Questions

1. To identify students who were not citizens by birth and their current residency status in Canada.
  - a. CTZNSHIP --Respondent status in Canada at the time of the interview. This variable was derived from the variables DE\_Q19, DE\_Q21 and DE\_Q24.
  - b. VISA --Visa student when pursuing postsecondary education in Canada. This variable was derived from the variables DE\_Q19, DE\_Q21, DE\_Q24 and DE\_Q28.
2. Age: two questions are asked
  - a. AGEINT--Respondent's age at interview. Statistics Canada derived variable: This variable was derived from SRC\_B11 (entry/exit module) and date of interview.
  - b. GRADAGE --Age of respondent at the time of graduation. This variable was derived from the variables SRC\_B11 (from the entry/exit module), PR\_Q11A and PR\_Q11B.
3. Gender
  - a. SEX\_Q01--Sex of respondent
4. Marital status
  - a. MSNC\_Q01 --What is your marital status? What is (your) marital status? (Are you)... ?
5. Have any dependent children?
  - a. DE\_Q02--Do you have any dependent children?
6. Region of immigration (or birth)
  - a. LTDE13A -- In what country (were you) born?
  - b. Coded from NGS 2013 Appendix E Country Immigration Codes Mar312014
  - c. Coded regions of the world based on UN population division department of economic and social affairs world population prospects: the 2012 revision classification of countries by major area and region of the world
7. Race
  - a. PG\_Q01A to PG\_Q01L-- (You) may belong to one or more racial or cultural groups on the following list.
8. Immigration year
  - a. DE\_Q15-- for respondents not born in Canada, in what year did (you) first come to Canada to live?
9. Language spoken at time of graduation
  - a. DE\_Q05A-- At the time of your graduation, of English or French which language(s) did you speak well enough to conduct a conversation? Is it...?

### Human capital factors

1. Rank
  - a. PR\_Q05--Compared to the rest of your graduating class in your field(s) of study, did you rank academically...?
2. Obtained license, registration or professional designation

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<sup>vi</sup> Some variables are derived from others, for e.g., earnings.

- a. PR\_Q16--Have you obtained this licence, registration or professional designation? By obtained I mean that you have met all of the requirements, which include, but may not be limited to, successful completion of all national and/or provincial examinations?
- 3. Highest level of education completed prior to enrolment
  - a. EDBEFOR-Highest level of education completed prior to enrolment: aggregated
- 4. Major field of study
  - a. What was your major field of study or specialization for you [certificate /diploma/degree] program?
  - b. PRCIP1--What was your major field of study or (including residency programs) specialization for you [certificate /diploma/degree]/ program? Used NGS Appendix A (CIP 2013)

### Employment outcomes

- 1. Earnings
  - a. JOBININT Respondents who held a job in the week prior to the 2012 interview. Note: This variable was derived from the variables LF\_Q77A, LF\_Q77B, LF\_Q78, LF\_Q79, LF\_Q83 and LF\_Q84. If the respondent did not work a full year, this derived variable estimates what their annual earnings would have been if they had worked 12 months.
  - b. What were your total earnings from wages, salaries and self-employment income, before taxes and deductions, for all jobs you had in 2012?
- 2. Hours a week worked at job
  - a. LMA6\_Q16-- (Excluding overtime, on average, how many paid hours do you usually work per week? / On average, how many hours do you usually work per week?)
- 3. Employment status/class of worker
  - a. LMA3\_Q10 --Were you an employee or self-employed?
- 4. Permanent or not permanent job
  - a. LF\_Q24--Was this job permanent, or is there some way that it was not permanent (e.g. seasonal, temporary, term, casual, etc.)? Respondents who were paid workers last week
- 5. Type of temporary work
  - a. LF\_Q25--In what way was this job not permanent?
- 6. Province of current work
  - a. LF\_Q19-- In what province or territory was this job located?
- 7. Country of current Job
  - a. LF\_Q18-- In what country was this job located?
- 8. Occupations
  - a. EMCOCC Unit group of occupations-- for 1st job after graduation used NGS 2013 Appendix C NOC 2011
  - b. This variable was derived from the variables EM\_Q02B, EM\_Q02C and EM\_Q05. Codes are from the North Occupational Classification (NOC) 2011. See Appendix C for details. Occupation codes of the 2007 NGS (2005 graduates) were based on NOC-S 2001. Occupation codes of the 2007 NGS (2005 graduates) were based on NOC-S 2001. Occupation codes of the 2002 NGS (2000 graduates) were based on NOC-S 2001
- 9. Still with first employer after graduation?
  - a. LF\_Q22C-- Is current employer your first employer after graduation? Respondents who had a job or business last week

## Appendix III - Recruitment Flyers

### **Volunteers are needed for the study**

#### **The Study-Migration Pathway: Understanding the Factors that Influence the Employment and Retention of International Students as Regulated Health Professionals in Canada**

We are looking for international students who came to study medicine/nursing/dentistry/pharmacy/physiotherapy in Canada.

#### **Volunteers to do what?**

We would like you to participate in focus-group interviews that will last approximately 1-1.5 hours. The focus group will consist of 8-10 international students who came to Canada to study medicine/nursing/dentistry/pharmacy/physiotherapy. We will ask students about their decision to come back to their country of origin after finishing their program or staying in Canada. We will also ask about barriers and facilitators for staying in Canada after finishing their studies.

#### **What are the risks?**

For some, answering personal questions about migration to Canada may cause emotional discomfort. In that case, you may choose not to answer a question or stop participating completely.

#### **What are the benefits?**

We hope to learn more about the factors that influence international students' decision to stay in Canada after completing their studies. In compensation for your time, you will be provided with \$20 cash voucher.

#### **Whom to contact?**

If you are interested in participating or learning more about the study, please contact Dr. Atanackovic at [atanacj@mcmaster.ca](mailto:atanacj@mcmaster.ca) or (XXX) XXX-XX-XX

This study has been reviewed by, and received ethics clearance through,  
The McMaster University Research Ethics Board

DATE: September 2014

**LETTER OF INFORMATION / CONSENT**

**The Study-Migration Pathway: Understanding the Factors that Influence the Employment and Retention of International Students as Regulated Health Professionals in Canada**

**Principal Investigator:**

Dr. Elena Neiterman  
Department of Sociology  
KTH-633 McMaster University  
Hamilton, Ontario, Canada  
(905) 525-9140 ext. 23609  
E-mail: [neitee@mcmaster.ca](mailto:neitee@mcmaster.ca)

Christine L. Covell PhD, RN  
Postdoctoral Fellow  
Institute of Gender and Health  
Canadian Institutes of Health Research  
University of Ottawa  
(613) 562-5800 ext. 2505  
Email: [christine.covell@uottawa.ca](mailto:christine.covell@uottawa.ca)

Ivy Lynn Bourgeault, Ph.D.  
Professor, Telfer School of Management  
CIHR Research Chair in Gender, Work and Health Human Resources  
Scientific Director, Ontario Health Human Resource Research Network & Population Health Improvement Research Network (PHIRN)  
University of Ottawa  
(613) 562-5800 ext. 8614  
Email: [ivy.bourgeault@uottawa.ca](mailto:ivy.bourgeault@uottawa.ca)

**Research Assistant:**

Dr. Jelena Atanackovic  
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School of Nursing, Faculty of Health  
York University, Toronto, Ontario, Canada  
(905) 920-5398  
Email: [atanacj@mcmaster.ca](mailto:atanacj@mcmaster.ca)

**Research Sponsor:** *Pathways to Prosperity (P2P)*

**Purpose of the Study:**

You are invited to take part in the study examining factors that influence international students' decisions to stay in Canada after completing their studies in medicine, nursing, dentistry, pharmacy, or physiotherapy. Our goal is to understand what factors influence students' decisions

## Appendix D: Letter of Information/Consent For Stakeholders

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to withdraw, there will be no consequences to you. In cases of withdrawal, any data you have provided will be destroyed unless you indicate otherwise. If you do not want to answer some of the questions you do not have to, but you can still be in the study.

### Information about the Study Results:

We expect to have this study completed by March 2015. If you would like a brief summary of the results, please let us know how you would like it sent to you.

### Questions about the Study:

If you have questions or need more information about the study itself, please contact us at:

Dr. Elena Neiterman  
Department of Sociology  
KTH-633 McMaster University  
Hamilton, Ontario, Canada  
(905) 525-9140 ext. 23609  
E-mail: [neitee@mcmaster.ca](mailto:neitee@mcmaster.ca)

This study has been reviewed by the McMaster University Research Ethics Board and received ethics clearance. If you have concerns or questions about your rights as a participant or about the way the study is conducted, please contact:

McMaster Research Ethics Secretariat  
Telephone: (905) 525-9140 ext. 23142  
C/o Research Office for Administrative Development and Support  
E-mail: [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca)

---

### CONSENT

- I have read the information presented in the information letter about a study being conducted by Elena Neiterman, Christine Covell and Ivy Bourgeault.
- I have had the opportunity to ask questions about my involvement in this study and to receive additional details I requested.
- I understand that if I agree to participate in this study, I may withdraw from the study.
- I have been given a copy of this form.
- I agree to participate in the study.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name of Participant (Printed) \_\_\_\_\_

1. I agree that the interview can be audio recorded.

... Yes.

... No.

2. ... Yes, I would like to receive a summary of the study's results.

Please send them to me at this email address \_\_\_\_\_

Or to this mailing address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

... No, I do not want to receive a summary of the study's results.

3. I give my permission to keep the transcript from my interview indefinitely.

... Yes.

No.

## Appendix V -Stakeholder Interview Guide

1. There are some international students that come to Canada to study and eventually decide to stay in Canada. Why do you think this is happening?
2. How prevalent do you think this phenomenon?
3. What do you think make it difficult for international students who would like to stay in Canada to go through the immigration process?
  - a. Probes : immigration application, financial issues, family responsibilities, feeling obligated to come back
4. What do you think would help students who would like to stay in Canada to receive a permanent residency status?
  - a. Probes: support from families, educational institutions, professional associations, immigration offices, etc.
5. Do you/your organization see international students as a potential solution to HHR shortages? Why? Why not?
6. What problems and benefits do you see with focusing on the recruitment of international students to stay in Canada?
7. Is there something that we forgot to discuss?

## Appendix VI

**Table 3: Descriptive Statistics of International- and Domestic Graduates Across Four Health Professions**

	International graduates							Domestic graduates					
	Retained graduates				Graduates remaining								
<b>PERSONAL FACTORS</b>	Dentistry	Medicine	Nursing	Pharmacy	on visa	Total	%	Dentistry	Medicine	Nursing	Pharmacy	Total	%
<b>Age</b>						Ave						Ave	
Age at interview	--	--	35	32		36		31	31	33	29	31	
Age at the time of graduation	--	--	31	29		32		27	28	29	25	27.25	
<b>Gender</b>													
Female	20	0	80	0	80	180	69.2	220	1280	10120	880	12500	87.8
Male	0	20	20	40		80	30.8	200	420	820	300	1740	12.2
<b>Marital status</b>													
Married		20	80	40		140	50.0	200	1120	7,360	580	9,260	65.1
Single	20	20	20		80	140	50.0	220	580	3,560	600	4,960	34.9
<b>Have any dependent children</b>													
Yes	0	20	20	20		60	23.1	80	500	4140	240	4,960	34.8
No	20	0	80	20	80	200	76.9	340	1200	6800	960	9,300	65.2
<b>Region of immigration (or birth)</b>													
Africa												0	0.0
East Europe												0	0.0
Latin America & Caribbean	20					20	7.7					0	0.0
North America			40			40	15.4	420	1680	10880	1180	14160	99.6
North, South, West Europe		20			80	100	38.5		20			20	0.1
Oceania						0	0.0					0	0.0
South East Asia						0	0.0					0	0.0
Southern Asia			20	20		40	15.4			20		20	0.1
West Central Asia				20		20	7.7					0	0.0
Other Asia		20	20			40	15.4			20		20	0.1

**Table 3: Descriptive Statistics of International- and Domestic Graduates Across Four Health Professions (Continued)**

PERSONAL FACTORS (continued)	International graduates							Domestic graduates					
	Retained graduates				Graduates remaining			Dentistry	Medicine	Nursing	Pharmacy	Total	%
	Dentistry	Medicine	Nursing	Pharmacy	on visa	Total	%						
<b>Race</b>													
Arab						0		0	0	0	0	0	0.0
Black	20		20			40	14.3	0	0	40	20	60	0.4
Chinese		20				20	7.1	40	40	200	40	320	2.2
Filipino						0	0.0	0	0	80	0	80	0.6
Japanese						0	0.0	0	0	0	0	0	0.0
Korean						0	0.0	0	0	0	0	0	0.0
Latin American						0	0.0	0	0	20	0	20	0.1
South Asian				20		20	7.1	0	40	80	40	160	1.1
South East Asian		20				20	7.1	100	20	40	80	240	1.7
West Asian						0	0.0	0	0	0	0	0	0.0
White			80	20	80	180	64.3	280	1520	9800	1000	12,600	88.4
More than one race								0	40	40	0	80	0.6
Other								0	40	640	20	700	4.9
<b>Immigration year</b>													
Before 1961												0	0.0
1962-66												0	0.0
1967-71									20			20	0.1
1972-76												0	0.0
1977-81		20				20	7.7					0	0.0
1982-86						0						0	0.0
1987-91		20				20	7.7			160		160	1.1
1992-96						0				20		20	0.1
1997-01			60		80	140	53.8					0	0.0
2002-06	20		20	40		80	30.8					0	0.0
2007-11												0	0.0
Non Response								400	1680	10760	1180	14020	98.6

**Table 3: Descriptive Statistics of International- and Domestic Graduates Across Four Health Professions (Continued)**

	International graduates							Domestic graduates						
	Retained graduates				Graduates remaining									
	Dentistry	Medicine	Nursing	Pharmacy	on visa	Total	%	Dentistry	Medicine	Nursing	Pharmacy	Total	%	
<b>Personal Factors (continued)</b>														
<b>Language spoken at time of graduation</b>														
English	20	40	100	20		180	64.3	180	880	7260	560	8880	62.4	
French	0	0	0	20	80	100	35.7	20	0	1240	40	1300	9.1	
Both English & French								200	820	2440	580	4040	28.4	
<b>Human Capital Factors</b>														
<b>Rank</b>														
In the top 10%			20			20	7.1	60	220	4020	200	4500	31.6	
< 10%, but in the top 25%			20	20	80	120	42.9	200	320	3820	560	4900	34.4	
< the top 25%, but in top half				20		20	7.1	60	640	1120	260	2080	14.6	
Below the top half						0		0	20	120	80	220	1.5	
NA	20	40	60			120	42.9	80	500	1860	100	2540	17.8	
<b>Obtained license, registration or professional designation</b>														
Yes	20	40	80	0	80	220	78.6	320	780	8440	840	10380	73.0	
No	0	0	20	20		40	14.3	0	460	440	20	920	6.5	
NA				20		20	7.1	80	460	2060	320	2920	20.5	
<b>Highest level of education completed prior to enrolment</b>														
No post secondary education	0	0	20	0		20	7.7	20	100	4100	560	4,780	33.6	
Below trades, vocational, diploma/cert	0	0	0	0		0	0.0	0	0	300	0	300	2.1	
College Diploma	0	0	20	0	80	100	38.5	80	260	2820	180	3,340	23.5	
University Diploma below Bachelor	0	0	0	0		0	0.0	0	20	320	40	380	2.7	
Bachelor and Above	20	20	60	40		140	53.8	220	1100	3200	280	4,800	33.8	
Masters	0	0	0	0		0	0.0	0	180	180	120	480	3.4	
Doctorate	0	0	0	0		0	0.0	100	40	0	0	140	1.0	

**Table 3: Descriptive Statistics of International- and Domestic Graduates Across Four Health Professions (Continued)**

	International graduates							Domestic graduates						
	Retained graduates				Graduates remaining									
	Dentistry	Medicine	Nursing	Pharmacy	Total	%		Dentistry	Medicine	Nursing	Pharmacy	Total	%	
<b>Employment Outcomes</b>														
<b>Ave earnings</b>	--	--	\$77,000	--	\$94,000			\$184,000	\$117,000	\$64,000	\$85,000	\$112,500		
<b>Average hours a week worked at job</b>	--	--	44	--	48			36	60	36	38	42.5		
<b>Employment status</b>														
Employee	20		100	20	80	220	84.6	60	1140	10420	1060	12680	89.0	
Self-employed		20				20	7.7	360	520	80	80	1040	7.3	
Validskip				20		20	7.7		20	440	60	520	3.7	
<b>Permanent/ not permanent job</b>														
Permanent			80		80	160	61.5	60	160	9220	1040	10480	73.6	
Not Permanent		20		20		40	15.4		980	1200	20	2200	15.4	
NA	20	20		20		60	23.1	360	540	520	140	1560	11.0	
<b>Type of temporary work</b>														
Seasonal										80		80	0.6	
temp, term, contract									960	580	20	1560	11.0	
casual			20			20	7.7			480		480	3.4	
other						0			20	40		60	0.4	
NA	20	40	80	20	80	240	92.3	420	720	9760	1160	12060	84.7	
<b>Province of current work</b>														
Atlantic		20		20		40	14.3	20	140	920	120	1200	8.4	
British Columbia		20				20	7.1	20	140	1500	20	1680	11.8	
Ontario	20		20			40	14.3	160	600	3020	380	4160	29.2	
Prairies			80			80	28.6	60	260	2160	160	2640	18.5	
Quebec					80	80	28.6	160	520	2760	460	3900	27.4	
Validskip				20		20	7.1		20	500	40	560	3.9	
Yukon, North West Territories									20	80	0	100	0.7	
<b>Country of current Job</b>														
Canada	20	40	80	20	80	240	85.7	420	1660	10440	1120	13640	95.8	
United States						0				40		40	0.3	
Other						0						0	0.0	
NA			20	20		40	14.3		40	460	60	560	3.9	

**Table 3: Descriptive Statistics of International- and Domestic Graduates Across Four Health Professions (Continued)**

	International graduates							Domestic graduates						
	Retained graduates				Graduates remaining									
EMPLOYMENT OUTCOMES (continued)	Dentistry	Medicine	Nursing	Pharmacy		Total	%	Dentistry	Medicine	Nursing	Pharmacy	Total	%	
<b>Occupations (1st job after graduation)</b>														
Physicians	0	0	0	0		0	0.0	0	220	20	0	240	1.7	
Pharmacists	0	0	0	0		0	0.0	0	0	0	300	300	2.1	
Physiotherapist	0	0	0	0		0	0.0	0	0	0	0	0	0.0	
Registered Nurses	0	0	60	0	80	140	53.8	0	0	3600	0	3,600	25.3	
Dentists	0	0	0	0		0	0.0	80	40	0	0	120	0.8	
Non response	20	40	20	0		80	30.8	300	1400	6160	620	8,480	59.6	
Other	0	0	0	40		40	15.4	20	20	1160	280	1,480	10.4	
<b>Currently at first job?</b>														
<b>Yes</b>	20	40	60	20		140	53.8	240	1560	6820	740	9360	65.7	
<b>No</b>			20		80	100	38.5	180	80	3660	400	4320	30.3	
<b>NA</b>						20	7.7		60	440	60	560	3.9	
<b>Total</b>	20	40	100	40	80	280		420	1,700	10,940	1,200	14,260		

Notes: '--' denotes data suppression due to small counts. Although it is obvious, in interpreting the descriptive statistics, it is important to note that not all the respondents answered all the questions. Data are rounded through the RTRA system before output. \*International graduates here include the 80 who did not integrate as at the time of the interview. The total of NGS respondents is 431,920: non response is 10,380; and other category is 2,160. "Other Asia" is Eastern Asia including South and North Korea, China, Japan, Taiwan, Hong Kong, Mongolia and Macao. All health fields include fields such as Alternative and Complementary Medicine and Medical Systems, Massage Therapy/Therapeutic Massage, Homeopathic Medicine/Homeopathy, etc. We include them because Traditional Chinese/Asian Medicine is now regulated in Ontario (though not all provinces). See here <http://www.ctcmpao.on.ca/>). Veterinary studies are excluded from all health fields sub-sample. **General comments:** Due to issues of missing values the hours and earnings variables do not represent the whole sub-group samples. For example, the sub-sample of all international students during post secondary education (post-sec edu) on visa and in all health fields is 1,120 respondents, however, the average earnings is based on 600 respondents, and average hours worked is based on 720 respondents. We categorized the regions of the world based on United Nations population division department of economic and social affairs world population prospects: the 2012 revision classification of countries by major area and region of the world. The last **Total** row is an overall total for the four professions, but note that, not all the respondents answered the questions so some variables may not add up to the overall **Total**. Domestic students=Canadian-born.

Source NGS 2013

## Appendix VII

**Table 4. Descriptive Statistics of International and Domestic Graduates Compared with International Students on Visa**

	International graduates (retained in Canada)		Domestic graduates		Population of International students on visa during their training in all health fields	
<b>PERSONAL FACTORS</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>Age</b>	Ave		Ave			
Age at interview	36		31		37	
Age at the time of graduation	32		27.25		34	
<b>Gender</b>						
Female	180	69.2	12,500	87.8	640	57.1
Male	80	30.8	1,740	12.2	480	42.9
<b>Marital status</b>						
Married	140	50.0	9,260	65.1	780	69.6
Single	140	50.0	4,960	34.9	340	30.4
NA						
<b>Have any dependent children?</b>						
Yes	60	23.1	4,960	34.8	260	23.2
No	200	76.9	9,300	65.2	860	76.8
<b>Region of immigration (or birth)</b>						
Africa			0	0.0	80	7.1
East Europe			0	0.0	0	0.0
Latin America & Caribbean	20	7.7	0	0.0	200	17.9
North America	40	15.4	14,160	99.6	160	14.3
North, South, West Europe	100	38.5	20	0.1	60	5.4
Oceania	0	0.0	0	0.0	0	0.0
South East Asia	0	0.0	0	0.0	400	35.7
Southern Asia	40	15.4	20	0.1	0	0.0
West Central Asia	20	7.7	0	0.0	20	1.8
Other Asia	40	15.4	20	0.1	200	17.9
Other						
<b>Race</b>						
Arab	0		0	0.0	0	0.0

**Table 4. Descriptive Statistics of International and Domestic Graduates Compared with International Students on Visa (continued)**

	International graduates (retained in Canada)		Domestic graduates		Population of International students on visa during their training in all health fields	
<b>PERSONAL FACTORS <i>continued</i></b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
Black	40	14.3	60	0.4	260	23.6
Chinese	20	7.1	320	2.2	160	14.5
Filipino	0	0.0	80	0.6	20	1.8
Japanese	0	0.0	0	0.0	20	1.8
Korean	0	0.0	0	0.0	0	0.0
Latin American	0	0.0	20	0.1	20	1.8
South Asian	20	7.1	160	1.1	320	29.1
South East Asian	20	7.1	240	1.7	0	0.0
West Asian	0	0.0	0	0.0	80	7.3
White	180	64.3	12,600	88.4	220	20.0
More than one race			80	0.6	0	0.0
Other			700	4.9	0	0.0
<b>Immigration year</b>						
Before 1961			0	0.0	0	
1962-66			0	0.0	0	0.0
1967-71			20	0.1	0	0.0
1972-76			0	0.0	120	10.7
1977-81	20	7.7	0	0.0	0	0.0
1982-86	0		0	0.0	0	0.0
1987-91	20	7.7	160	1.1	20	1.8
1992-96	0		20	0.1	40	3.6
1997-01	140	53.8	0	0.0	220	19.6
2002-06	80	30.8	0	0.0	320	28.6
2007-11			0	0.0	400	35.7
Non Response			14,020	98.6		0.0
<b>Language spoken at time of graduation</b>						
English	180	64.3	8,880	62.4	840	75.0

**Table 4. Descriptive Statistics of International and Domestic Graduates Compared with International Students on Visa (continued)**

	International graduates (retained in Canada)		Domestic graduates		Population of International students on visa during their training in all health fields	
<b>PERSONAL FACTORS continued.</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
French	100	35.7	1,300	9.1	160	14.3
Both English & French			4,040	28.4	120	10.7
Neither Eng nor French						
Non Response						
<b>HUMAN CAPITAL FACTORS</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>Rank</b>						
In the top 10%	20	7.1	4,500	31.6	540	48.2
Below the top 10% but in the top 25%	120	42.9	4,900	34.4	420	37.5
Below the top 25% but in the top half	20	7.1	2,080	14.6	20	1.8
Below the top half	0		220	1.5	0	0.0
NA	120	42.9	2,540	17.8	140	12.5
<b>Obtained license, registration or professional designation</b>						
Yes	220	78.6	10,380	73.0	460	41.8
No	40	14.3	920	6.5	60	5.5
NA	20	7.1	2,920	20.5	580	52.7
<b>Highest level of education completed prior to enrolment</b>						
No post secondary education	20	7.7	4,780	33.6	60	33.6
Below Trades, vocational, diploma/cert	0	0.0	300	2.1	0	2.1
College Diploma	100	38.5	3,340	23.5	340	23.5
University Diploma below Bachelor	0	0.0	380	2.7	0	2.7
Bachelor and Above	140	53.8	4,800	33.8	620	33.8
Masters	0	0.0	480	3.4	80	3.4
Doctorate	0	0.0	140	1.0	0	1.0

**Table 4. Descriptive Statistics of International and Domestic Graduates Compared with International Students on Visa (continued)**

	International graduates (retained in Canada)		Domestic graduates		Population of International students on visa during their training in all health fields	
<b>EMPLOYMENT OUTCOMES</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
Ave earnings	\$94,000		\$112,500		\$68,000	
Average hours a week worked at job	48		42.5		40	
<b>Employee or self-employed</b>						
Employee	220	84.6	12,680	89.0	700	62.5
Self-employed	20	7.7	1,040	7.3	40	3.6
Valid skip	20	7.7	520	3.7	380	33.9
<b>Job permanent or not permanent</b>						
Permanent	160	61.5	10,480	73.6	520	46.4
Not Permanent	40	15.4	2,200	15.4	160	14.3
NA	60	23.1	1,560	11.0	440	39.3
<b>Type of temporary work</b>						
Seasonal			80	0.6	0	0.0
temp, term, contract			1,560	11.0	140	12.7
casual	20	7.7	480	3.4	20	1.8
other	0		60	0.4	0	0.0
NA	240	92.3	12,060	84.7	940	85.5
<b>Province of current work</b>						
Atlantic	40	14.3	1,200	8.4	0	0.0
British Columbia	20	7.1	1,680	11.8	120	10.9
Ontario	40	14.3	4,160	29.2	200	18.2
Prairies	80	28.6	2,640	18.5	180	16.4
Quebec	80	28.6	3,900	27.4	180	16.4
Valid skip	20	7.1	560	3.9	420	38.2
Yukon, North West Territories			100	0.7	0	0.0
NA						
<b>Country of current Job</b>						
Canada	240	85.7	13,640	95.8	700	62.5
United States	0		40	0.3	20	1.8
Other	0		0	0.0	0	0.0
NA	40	14.3	560	3.9	400	35.7

**Table 4. Descriptive Statistics of International and Domestic Graduates Compared with International Students on Visa (continued)**

	International graduates (retained in Canada)		Domestic graduates		Population of International students on visa during	
<b>EMPLOYMENT OUTCOMES (continued)</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>Occupations (1st job after graduation)</b>						
Physicians	0	0.0	240	1.7	20	1.7
Pharmacists	0	0.0	300	2.1	0	2.1
Physiotherapist	0	0.0	0	0.0	20	0.0
Registered Nurses	140	53.8	3,600	25.3	160	25.3
Dentists	0	0.0	120	0.8	0	0.8
Non response	80	30.8	8,480	59.6	660	59.6
other	40	15.4	1,480	10.4	260	10.4
<b>Currently at first job?</b>						
Yes	140	53.8	9360	65.7	480	42.9
No	100	38.5	4320	30.3	240	21.4
NA	20	7.7	560	3.9	400	35.7
<b>Total</b>	<b>280</b>		<b>14,260</b>		<b>1,120</b>	

Notes: see notes under Table 2; however international graduates still on visa are included in the total number of international students in the four health fields. Population of international graduates on visa during their training in all health fields includes our sample of 280 (retained international graduates) Source: NGS 2013

## Appendix VIII

**Table 5. Distribution of retained international graduates of health studies**

Major field of study	International graduates			Residency status of respondents in health at time of interview					Total*
	International graduates retained in Canada		International graduates during post-secondary studies in health fields	Visa students	Canadian by birth	Canadian naturalization	by Permanent resident	Other & no response	
	Cdn natur	PR							
Dentistry	20	0	20	0	420	100	0	0	520
Medicine	20	20	40	0	1,700	320	20	100	2,140
Nursing	20	80	180	80	10,940	1720	400	420	13,560
Pharmacy	20	20	40	0	1,180	260	80	20	1,540
Physical therapy	0	0	0	0	1,080	60	0	40	1,180
Sub-total	80	120	280	80	15,320	2,460	500	580	18,940
Other health fields	320	100	840	420	30,560	3,880	840	820	36,520
All health fields	400	220	1,120	500	45,880	6,340	1,340	1,400	55,460

Notes: Cdn natur denotes Canadian by naturalization; PR represents Permanent resident. International graduates are those who were visa students during their postsecondary education. Retained means a foreign student who was on a visa during his/her post-secondary education, but changed his/her status to permanent resident or citizenship by naturalization. \*Total here includes those who did not response and those who marked status as "other & no response" category. General comments: The 80 respondents under column H represent the international students who were on visas during their post-secondary education and remained on visas at the time of the survey interview. Most international graduates in the five selected health occupations end up becoming Canadian residents (200/280=71.43% retained). If we use the total number of international graduates in all health fields who changed their residency status (from temporary residents to immigrants) then we have 620/1120=55.4%. Although the response rate of NGS 2013 is 49.1%. Source: NGS 2013