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The Future of Health Care Work and the Place of Migrant Workers within It: Internationally Educated Nurses in Ontario Canada during the COVID-19 Pandemic

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Abstract:

The COVID-19 pandemic highlighted the importance of immigrant health workers in OECD nations, and intensified debates about the current and future supply and distribution of such workers, particularly nurses. This review paper considers internationally educated nurses in the case of Ontario, Canada, and the policy responses developed during the pandemic to address the increased utilization of immigrant health workers. To further consider the evolving place of migrant workers within health, the broader issue of the future of health care work is examined to imagine what a sustainable and resilient health workforce agenda that integrates internationally educated nurses might look like.

Keywords: COVID-19, Internationally educated nurses, Immigration, Health care workers, Future of care work.

Introduction:

The importance of immigrant health care workers to Organization for Economic Co-operation and Development (OECD) member states' health systems has become increasingly evident during the COVID-19 pandemic (ILO 2019; Kumar et al. 2022). On average across OECD nations, 16 per cent of nurses and just under 30 per cent of doctors are foreign born (OECD 2020). Immigrants make up 29 per cent of physicians and 22 per cent of nursing assistants in the USA, 8.5 per cent of nurses and 26.4 per cent of physicians in Canada and in the UK 13.3 per cent of National Health Service (NHS) workers report a non-British nationality (OECD 2020). The global nature of the health workforce resulted in government policies to protect state access to migrant workers during the COVID-19 pandemic. For example, the UK government issued

year-long visa extensions to all staff working for the National Health Service (NHS), waiving the normal visa fees.[1] In the USA senators introduced the Health Workforce Resilience Act (S.3599) to provide 15,000 additional visas for physicians and 25,000 for nurses during the pandemic (Shaffer et al. 2021). Such policy responses in times of pandemic border closure indicate the value of access to a pool of migrant health workers, and their contribution to the resilience of essential service delivery (Anderson et al. 2021). Yet, it also reignites debates on the ethics of global health worker migration and recruitment, which predominantly draws health professionals from the Global South to Global North countries (Pang et al. 2002; Walton-Roberts 2022a). Some have argued that securing access to migrant health workers results in an unsustainable care model (Leiblfinger et al. 2020). Addressing these health workforce issues must form part of any long-term response to health system weaknesses revealed by the COVID-19 pandemic.

This review paper examines the current context and possible future implications of global health worker migration with a particular focus on the integration of internationally educated nurses (IENs) in Ontario Canada, and considers some of the policy options employed to mitigate the negative outcomes accompanying their global circulation. The case of Ontario is instructive since it is the province that receives the largest number of immigrants to Canada (attracting 44% of recent immigrants in 2021),[2] and is the appropriate scale at which to examine the integration of IENs into the health workforce, since the health sector and professional credentials are both regulated at the provincial scale. Nurses also represent the largest single occupational group in health care and are consistently cited as central to achieving various global health goals, including the Sustainable Development Goals (SDGs) and Universal Health Care (UHC) (Sensor et al. 2021). Nurses also present an important migrant labour group to monitor where women are overrepresented (women represent two-thirds of the health workforce globally) (World Health

Organization (WHO) 2017). The focus on gender is also central to consider for any analysis of the future of health care work if equitable and sustainable health workforce agendas are to be met (ILO 2019).

This paper develops over four sections. The first focuses on the presence and role of IENs in Ontario's health care sector and reflects on the challenges that emerged during the COVID-19 pandemic. The second section reviews some of the policy changes introduced at various levels of governance to improve the integration of IENs and enhance health system resilience. The third section continues this analysis of health system resilience and IENs by exploring the future of health work, a key labour market growth area where debates about the care crisis and decent work reinforce and the policy significance of this occupational sector, and its reliance upon immigrant workers (Kumar et al. 2022). Examining the future of health care work in the wake of the COVID-19 pandemic reveals what if any initiatives might enhance health system resilience, including more effective immigrant worker integration and governance approaches (Triandafyllidou and Yeoh 2023).

1. IENs in health care and challenges faced during the COVID-19 pandemic.

Immigrant workers in health systems

In a report for the International Council of Nurses, Buchan and Catton (2020) highlight that one in eight nurses globally practice in a country other than where they were born, and more than 20 countries have nurse emigration rates exceeding 50 per cent, mainly small island states in the Caribbean and Pacific, and various African countries. Five destination countries, USA, Germany, UK, Australia, and Canada are home to over 80 per cent of all foreign-born nurses working in

the OECD (OECD 2019). IENs in OECD nations range from less than 1 per cent in Estonia and Slovenia to over 25 per cent in Switzerland, with the average across OECD countries increasing from 6.6 per cent to 7.4 per cent between 2011 and 2016 (OECD 2019). In Canada Licensed (Registered) Practical Nurses who are immigrants (foreign born) increased from 9 per cent in 1996 to 21.2 per cent in 2016; and for Registered Nurses these figures are 12.8 per cent to 15.9 per cent (Cornelissen 2021). In 2020 in Ontario 11 per cent of Registered Nurses were foreign trained (IENs) (CIHI 2020). Canada's increasing dependence on immigrants in the health sector is confirmed by these figures, which includes both foreign trained and foreign born workers who may have received part or all their training in Canada.

The growing presence of immigrants in core economies' labour markets is arguably a symptom of the overall decline of working conditions, not a cause of it (Coe et al. 2020). Several macro economic trends are transforming conditions of employment, and these are evident in health care. First, we have seen deteriorating working conditions in the public health sector globally as financial austerity targets public sector health workers (Ambrose and Archer 2020; Humber 2020; Brunswijck 2018). Poor conditions of work in the health sector provides a key migration driver for those leaving source regions (Connell 2010), but it also undermines domestic worker interest in joining the sector in core nations. While the relative state of working conditions between sending, receiving and transit states informs migration decision making, the structural pressures on public health systems generally creates working environments where excessive cost containment acts as a downward force on employment conditions (Labonté and Stuckler 2016). Even in national contexts with better pay and working conditions, the devaluation of feminized care professions relative to other sectors (especially more male dominated medical professions), the intimate and sometimes stigmatized body work of nursing care, coupled with the

marginalization and constrained power of such workers within increasingly corporatized organizational settings adds to its relative devaluation (Latimer 2014).

Migrant workers are slotted into these occupational contexts, and the reliance on IENs creates a number of cascading effects on health systems, including the challenges of brain drain from source countries and the complexities of international credential recognition and workplace integration in destination countries, both of which can result in skills underutilization (OECD 2022). The issue of skills underutilization for immigrant workers is particularly acute in health care, which represents an intense forum where issues of race and gender take on significance in terms of labour segmentation (Bourgeault 2013; Walton-Roberts 2022b). In Canada this segmentation includes IENs recruited into non-regulated care professions, particularly via the former Live-in-Caregiver immigration program (Salami and Nelson 2013), and recent immigrant cohorts working as care aides and other health care support workers in Canada (Turcotte and Savage 2020). Turcotte and Savage (2020) note that within the most recently arrived immigrant cohorts working in this unregulated care sector, 45 per cent have at least a bachelor's degree, with over 40 per cent of those in a health-related field.

The underutilization of immigrant skills results in immigrant's disproportionate relegation to the lower cadres of health and care occupations. We can see this in the case of Jeff Kua, an operating room nurse from the Philippines who came to Ontario through the Live-in Caregiver program. He always intended to return to his occupation, but his nursing credentials were not recognised by the nursing regulatory body, the College of Nurse of Ontario (CNO). Jeff had passed the entry to practice NCLEX exam in 2009, but the CNO only started to accept this qualification in 2015; "It's crazy, because for me, I [passed the] NCLEX… Before I came to Canada, in 2009, I wrote the exam. I've been telling CNO that I [passed the] NCLEX, so why do I have to go back to

school?" (Toronto Star, 2021). Similar experiences are also evident for IENs who came to Canada as international students, as in the case of Ravin Murugan a Registered Nurse (RN) from India who came to Canada as a student and applied to have his credentials recognized by the CNO:

> the process is tedious and there is no transparency. Nobody can tell you what stage…your application is in, the customer service [agents] are not nurses. There's so many calls, we cannot blame them. All they can see is the computer screen and say, "unfortunately, your status is still pending." Yeah, of course I can see that myself in the computer. Yeah, but they have no information. So, I have two, two and a half years [of waiting]. There's two more steps I did before I get the eligibility. The first thing they gave me is RPN [Registered Practice Nurse] license. They didn't give me RN…I started working in [a long-term care] home..[3]

The presence of immigrant workers with RN credentials but not working at their skill level highlights the need for an integrative approach that connects across all scales of regulated (nurses) as well as unregulated (care aides) occupational groups to fully analyze the contribution of immigrants to health and assess relevant immigration governance systems. Figure 1 and Table 1 attempt this by combining recent data on unregulated and regulated health and care workers in Ontario (immigrants and non-immigrants). The resulting labour market profile across all these groups represents what has been termed an hourglass shape or economy (Anderson 2009). The top end of the hourglass includes regulated nursing positions (Nurse Practitioners and RNs), there is a pinching in the middle rank of Registered (or licensed) Practical Nurses, while the bottom end includes care aides, an unregulated occupational category that comprises high numbers of feminized and racialized immigrants who provide direct care to patients under the supervision of regulated health workers (Turcotte and Savage 2020).

The hourglass shape of the health care labour profile reveals inequality through labour market hierarchies, with racialized immigrant workers distributed (or trapped in cases where their

credentials exceed that required by their position) toward the bottom end of the profile as Jeff and Ravin's stories illustrate. The increased hierarchization of specialized health care cadres permits differentiation to intensify (managed by self regulating governing bodies such as the CNO), and segmentation deepens in terms of the level of regulatory oversight, scope of practice and worker pay and benefits. Immigrant status, country of training and other axes of difference become relevant factors in this overdetermined sorting process (Walton-Roberts 2020a).

<Insert Table 1 and Figure 1 about here>

Consequences of the COVID-19 Pandemic on nurses

The deteriorating conditions of work for all nurses has come into sharper focus as the COVID-19 pandemic stretches the global health workforce everywhere. Indeed, the pandemic has also heightened nurses' vulnerabilities through the public's perception of them as "heroes" during COVID-19, since this discourse acts to position nurses as servants to the people, not as workers with basic rights and protections (Mohammed et al. 2021, p.7).

Disruptions to health worker supply was one of the first effects of the pandemic. The World Health Organization (WHO) pulse survey has shown how a shortage of health workers was linked to service disruptions during COVID-19, including clinical staff deployment to other services (reported by 49 per cent of respondent countries) (WHO, 2020). In Canada nurses increased the number of overtime hours worked during the first wave of the pandemic in March to May of 2020, with older nurses working more hours (possibility reflecting more experienced nurses being called upon to manage complex COVID-19 infection cases) (Statistics Canada,

2020). In a survey of 765 nurses across Ontario in 2020, 90 per cent said their workload had increased during the pandemic, 96 per cent said it had become exponentially more stressful, and 34 per cent said they were considering leaving the profession (Registered Practical Nurses Association of Ontario 2021).

Globally, the effect of the pandemic on nurses was interpreted as a form of mass trauma, as they bore disproportionate risk of infection and mortality from COVID-19, and health systems failed to adequately monitor and report data on these conditions (ICN, 2021a). Disproportionate infection and mortality rates were also experienced by workers in the long-term care (LTC) sector, where minority and immigrant workers are overrepresented (Turcotte and Savage 2020; Gahwi and Walton-Roberts 2022). Health care workers higher risk of exposure to infection coupled with poor working conditions, including understaffing, and shortages of appropriate Personal Protective Equipment (PPE), resulted in at least 115,000 deaths of health workers globally (ICN 2021a). During the pandemic reports indicated higher infection and mortality rates recorded by minority and immigrant health care workers in part related to the nature of employment, and stratification into front facing care roles carrying increased risk of exposure (Ogundele and Walton-Roberts 2021). Core nation's reliance on immigrant health workers was also evident prior to the COVID-19 pandemic, but the stress on systems because of the pandemic has increased an awareness of this reality (OECD 2020). The COVID-19 pandemic has thus intensified concerns that were being clearly articulated by the WHO about health system stability and the need for health worker investment prior to the pandemic (WHO 2016a, 2016b), concerns which are now firmly on global and national policy agendas.

2. Policy responses

Global policy context

The COVID-19 pandemic and its effects on the health workforce and immigrant workers within it needs to be seen as part of continuum of global and national policy debates that highlight health workforce sustainability and conditions of work. At the international level, the WHO had already declared 2020 the year of the nurse and the midwife to draw attention to the need for increased investment in this workforce. As the pandemic was announced, this attention seemed prescient as the reality of staff shortages, ongoing emigration of health workers from lower income nations, and intense working experiences for nurses during COVID-19 mounted (Walton-Roberts 2020b). The WHO's commitment to the health workforce agenda continued into 2021 in response to the pandemic, as the WHO marked 2021 as the year of health and care workers. A year long campaign under the theme of Protect, Invest, Together, focused on prioritising COVID-19 vaccines for health and care workers, acknowledging those health and care workers who had lost their life to the pandemic, and mobilizing to protect this workforce and acknowledge their crucial role in achieving the SDGs and pandemic recovery. To further support this initiative, the Working for Health Action Plan (2022-2030) calls to accelerate investments in health worker education, employment, skills, protection, and safeguarding (WHO 2022).

The WHO's leadership on health care workers during the COVID-19 pandemic also reveals the convergence of various global initiatives focused on international migration and mobility. Under the direction of the WHO and related actors, there are already efforts in place that attempt to shape health worker international recruitment and migration toward greater systemic resilience through migration governance, as broadly discussed by Triandafyllidou and Yeoh (2023). The WHO's leadership in migration governance includes the 2010 Code of Practice on the

International Recruitment of Health Personnel or "the Code" (Taylor and Dhillon 2012), as well as precursors to the Code, such as the International Labour Organisation's (ILO) 1975 Nursing Personnel Recommendation, which highlights equality of opportunity and treatment for nurses in international migration contexts (Yeates and Pillinger 2019). The WHO Code reflects long held concerns about the brain drain of health care workers and the consequences their exodus has on low-income country health systems (Mackintosh et al. 2006). In terms of systemic resilience, the WHO Code aims to build member state solidarity by protecting those nations facing a "critical shortage" of health workers—currently 47 countries—from active recruitment of health care workers, as well as encouraging all member nations to move toward health worker self sufficiency in the long run. The Code does not rule out international migration but encourages government-to-government bilateral agreements that offer substantial benefits for all health workers across all health systems (Clemens and Dempster 2021). The Code is voluntary, and thus holds all the limitations of such soft law, but it does form part of a shared global responsibility in health that, if effectively implemented, has the *potential* to contribute to building self-sufficiency in health workforces based on mutually beneficial, sustainable, and progressive policies (Yeates and Pillinger 2019).

These codes and instruments also intersect with other global migration governance efforts. The WHO also created the International Platform on Health Worker Mobility, which recognizes the Global Compact for Safe Orderly and Regular Migration, especially the need for global governance and coordination on international migration. The platform also builds upon The Global Strategy on Human Resources for Health: Workforce 2030 and the report of the High-Level Commission on Health Employment and Economic Growth, Working for Health and Growth (WHO, 2016b). Just prior to the pandemic the WHO also examined the gendered nature

of the health care workforce acknowledging that "global health is delivered by women and led by men" (WHO, 2019). The report explains how gender and other intersectional inequities (including race and immigrant status) can undermine health systems and exacerbate health worker shortages.

These overlapping global agendas offer an unprecedented opportunity to attend to all dimensions of health worker mobility, including the emerging policy focus on resilient health systems (European Commission, 2021), migration systems (Anderson et al., 2021), and the focus on gendered dimensions of the care economy and the place of immigrant and racialized women within it (Lightman 2021). Certainly, the pandemic has created a groundswell of government interest in assessing the value and significance of the care economy. A European Parliament commissioned report (Barry and Jennings 2021) offers a series of recommendations on the care economy, including; public investment in the care economy as social infrastructure be a key priority of the EU's pandemic recovery, the development of a EU care strategy based on comprehensive care provision data, improved career structures for care workers including reciprocal recognition of qualifications at the EU and global level, and improved care worker protections including residency rights and access to citizenship. The USA has attempted to take a lead within the G7 to create a global infrastructure initiative "Build Back Better World (B3W) to focus on climate, health and health security, digital technology, and gender equity and equality in low- and middle-income nations. The Association of Southeast Asian Nations social cultural community meetings reaffirmed their commitment to social protection and indicated that a 'comprehensive framework on the care economy is being developed" (Sagoo 2021, p.58). Government investment promotion agencies (IPAs) are also focused on health investments in response to the pandemic, with a United Nations Conference on Trade and Development

(UNCTAD) survey of 188 IPAs showing half feature health as a priority for investment, this includes policy advocacy in areas such as facilitation of work permits and visas, and government programmes to build skills and a talent pool in the health sector (UNCTAD 2021). Mounting evidence is also being promoted to demonstrate how public health budgets result in significant returns on investment in terms of human health improvements, and that the social and economic benefits of investing in the health workforce are essential to achieving UHC and the SDGs (Masters et al. 2017; WHO 2016b).

There are some positive signs that the global pandemic has inspired changes that will promote greater resilience and sustainability in the health workforce for some countries based on increased domestic enrollment in health professions. Canada has seen increased domestic enrollments, for example the Ontario higher education system saw increased admission for nursing programs by some up 80 per cent (Eduvation Blog 2021). In the UK admissions for nursing programs reached 60,130, the highest numbers since 2007 when data was first collated (Ely 2021). However, the USA, which is traditionally the largest destination market for immigrant nurses, reports that despite increasing interest from domestic candidates during the pandemic (Kowarski 2020), the nursing education sector reports persistent capacity issues due to budget constraints, lack of faculty, and clinical preceptors. In 2019 for example, 80, 047 qualified applicants were turned away from baccalaureate and graduate nursing programs across the USA (American Association of Colleges of Nursing (AACN) 2020).

The increased domestic interest in nursing education in countries like the UK, Canada and USA is certainly positive, but global distributional imbalance in nursing densities and training capacities will remain, and even intensify in the post-pandemic period (ICN 2021b). Moreover, the disruption COVID-19 caused in the education and graduation of nurses and the knock-on

effects this will have for health workforce planning more generally, reinforces the need for further investment (WHO 2016a; Bourgeault 2021). These developments also reinforce the importance of higher income nations making the necessary investments to move toward self sufficiency as mandated in the WHO Code (Buchan and Catton 2020). Part of this approach will require investment in health worker education, but also improved working conditions and adequate renumeration. Despite the momentum toward enhancing self sufficiency and boosting investment in domestic training that is promoted by the WHO, the current global nurse shortage means that those nations already partially reliant on IENs will continue to need their services. The COVID-19 pandemic has spurred policy change in how states manage the integration of IENs, as the case of Ontario demonstrates.

Ontario policy responses

While investing in the training of more nurses is a necessary policy response to the pandemic, the reality is that for many OECD nations domestic training systems cannot supply nursing personnel fast enough for current demands, and international migration will remain one of many solutions high income nations rely upon to address their needs. In Canada there are already immigrants in the country whose skills can be utilized if systems are designed that offer rapid pathways to practice. Moreover, governments must connect the dots between national and international labour supply to review how their labour markets exhibit internal segmentation within and between different cadres of health workers (Harun and Walton-Roberts 2022). This involves deeper investment in bridging programs for immigrants, mandating and enforcing fair access to professions, and creating career progression and laddering opportunities across all health cadres (RPN Association of Ontario 2020).

The pandemic created a demand and an opportunity for government policies to promote more flexible approaches to professional licensing, including regulatory exceptions to allow internationally trained health professionals to work during the pandemic (OECD 2020). In Canada various policy responses have emerged to deal with the issue of shortages, particularly easing the integration of IENs already in country. The application process for IENs in Ontario is managed by CNO, and during the pandemic the backlog of applicants in the CNO system was over 20,000. In January 2020 the acute shortage of unregulated care aides (personal support workers) in LTC facilities resulted in the creation of the LTC staffing pool program, where the Ontario Health ministries and the CNO worked to identify a pool of IEN CNO applicants who could be deployed to LTC homes in need of staffing support.[4] In response to this announcement, the CEO and President of the Registered Nurses Association of Ontario (RNAO), the professional association representing RNs, nurse practitioners (NP) and nursing students in Ontario wrote a letter to the CNO criticizing this exploitative policy approach to segmenting IENs into lower skilled roles:

> Much could have – and still can be – done to expedite IEN applicants through the registration process and into our health system to join our now critically short nursing workforce as nurse practitioners (NP), registered nurses (RN) and registered practical nurses (RPN). The creation of temporary initiatives such as the Long-Term Care Staffing Pool Program will not accomplish this. Indeed, exploiting this pool of skilled applicants as a reserve of lesser-skilled labour in a time of crisis is unhelpful and shortsighted; it's a disservice to Ontarians in desperate need of nurses for both COVID- and non-COVID-related health care. IENs have a significant contribution to make to Ontario's health system in their capacity as nurses. The CNO should focus on expediting their applications for registration instead of facilitating their use in lower-skilled roles.[5]

Later that same month the CNO and Ontario Health announced the Supervisory Practice Experience Partnership (SPEP) to provide eligible IEN applicants with the opportunity to satisfy outstanding language proficiency and/or and evidence of safe practice requirements. The SPEP is a minimum 140-hour practice experience under supervision of a qualified preceptor. Unity

Health in Toronto applied to become a SPEP employer and enrolled 23 IENs (12 RNs 11 RPNs). Out of this group of applicants 17 completed the SPEP with Unity Health and 14 were hired permanently at the end of the program. One of the applicants from the program stated:

> SPEP was a very good experience. I was able to update my knowledge on procedures and learn how to work with the latest equipment. I am also thankful for the hospital I was matched with. I don't think I could have managed to find a similar placement if I had to do it myself. [6]

In addition to the SPEP the CNO announced a modernization of their application assessment process, including several revisions to how applicants can meet their nursing registration requirements. These innovations appear to be improving registration systems, as the CNO reported 2022 as a record-breaking year in terms of the number of new nurses registered, including a new record for the number of IENs. In the first 6 months of 2022 the CNO had registered 3,967 IENs, a 132 per cent increase over 2021 numbers.[7]

We have seen how immigrant health workers are increasingly significant for many OECD nations' health systems, the COVID-19 pandemic has highlighted this reality and generated interest in policies that enhance health system resilience through investments in health workers, including improving the workplace integration and utilisation of IENs. Continuing this trajectory beyond the effects of the pandemic and taking seriously the changes needed to increase both the sustainability of health workforces and the systemic resilience of migration systems that contribute to it, also requires more forward-looking interventions. The Ontario case illustrates some examples for improving system resilience through the effective incorporation of IENs. Further developments that are relevant to examine in terms of how they might contribute to resilient health worker migration governance systems include certain technological changes and

labour market transformations in health. This includes artificial intelligence (AI), digitization, restructuring of the professions and human-robot interaction.

The future of health care work

Health and social care are expanding labour market sectors, and human workers will remain vital despite technological transformation. This can be illustrated by a Statistics Canada report on the changing nature of work and the impact of automation technology using detailed job tasks performed by employees from 2011 to 2018—a period of rapid advances in AI and machine learning (Frank et al. 2021). The report noted a gradual shift in occupations away from routine to non-routine tasks, and found the share of total workers in occupations in support of health services increased by 140.9 per cent between 1987 and 2018. This reflects structural demographic changes in that population aging is increasing demand, but also that the work of health and allied professions is comprised of typically non-routine tasks that are not easily automated. In fact, automation in the care sector typically restructures the nature of work, rather than displacing workers, and nursing professionals, professions in health, and assisting occupations in support of health services are all sectors where the employment share is increasing significantly (Frank et al. 2021).

Mark Britnell (2019) provides a useful review of how innovation, new technology and new work and care models can enhance health care practices and address workforce shortages, maldistribution and create more appropriate skill mixes. Adoption of new technologies is a persistent theme in his analysis, and Britnell highlights the potential for AI, Blockchain, and robotics to disrupt health workforce systems through automation and task shifting, while retaining human skills, empathy, and compassion as central. Automation and AI will have

important influences in health care, but the key message from Britnell is that human workers will remain central. The significance of AI for nurses and their responsibility in ethical and care centered health is increasingly being noted (Buchanan etal 2020). Researchers such as Britnell (2019) argue that AI can stimulate disruptive digital possibilities and increase time for care and boost productivity. To do so, health systems must become learning systems that educate, re-educate, support staff, and embrace task shifting, and create new cadres of care workers for integrated care. It will be vital that immigrant workers are fully utilized in such system changes.

One of the more immediate and direct consequences of technological change for IENs may be in the digitization of credentials through block chain and related systems. Blockchain offers a secure ledger where individuals can store a record of their credentials verified by network members (Skiba 2017). The use of this process could have transformative potential in the field of immigration and international credential recognition (Kalla et al. 2020). The implications of such digital credentialing for the recognition of learning across borders is evident but depends upon greater international collaboration to overcome the various silos that currently structure the health education and training ecosystem (UNESCO 2018). Arguments for a move from physical to digital credentials has been boosted by the effects of the COVID-19 pandemic, which suggests that digital credentials can reduce administrative burdens and the risk of accepting falsified credentials, as well as be resilient to increased verification demands, such that accompany the increased global mobility of health professionals (Brogan et . 2022). More broadly the credential digitization debate builds on enduring calls for transparent, standardised, and harmonized credentials to facilitate global labour mobility, which is the focus of work by US-based CGFNS, the world's largest credentials analysis organization for the nursing and allied health care professions (Hughes et al. 2022). CGFNS have launched a Digital Innovation Lab to

evaluate digital credential solutions to meet the demands for health professional mobility in the future.[8] Digitization processes were in development prior to the COVID-19 pandemic, but the need to manage surge and trans jurisdictional staffing has boosted interest in credential digitization.

Technological change will also involve the inevitable restructuring of professional hierarchies among health care workers. Susskin and Susskin (2015) discuss the future of the professions by considering processes of decomposition (breaking jobs into discrete tasks to identify which tasks can be automated, and which can be redistributed). Such task decomposition is evident in cancer care, where "nurse navigators" assist the patient in understanding and managing aspects of their treatment. In this case, nurses take over some parts of the medical process that require face to face and empathetic relationship building with the patient, relieving other medical professions of these tasks, and improving outcomes in the process (Lee et al. 2011). A similar task decomposition approach can be applied to inter-professional collaboration, this brings medical and allied health professionals together in horizontal teams, including regulated workers such as nurses and physicians and non-regulated workers such as care aides. This approach is evident in LTC settings, where patient populations' care needs have become increasingly complex. Researchers have demonstrated how support workers (which include disproportionate numbers of immigrants in the Canadian case) can be integrated into intra-professional care teams. Within an inter-professional team context all workers can be aided technologically with certain tasks, which then contributes to better experiences for workers and improved care outcomes for patients (Boscart et al. 2017). Enhancing the opportunities for cooperation and effective teamwork across the full range of health and care support workers in Canada is potentially transformative, since care aide staff, who administer the most direct care, are disproportionality

comprised of racialized, feminized and immigrant workers whose work is low paid and tends to be perceived as low value, despite its significance to patient wellbeing (Armstrong et al. 2008). The care-aide occupational group is likely to expand as demand for home care services increases with the growth of the aged population in the EU (Cangiano 2014) and North America (Hartmann and Hayes 2017). Collaborative team-based approaches supported through technological change can counter the segmentation and hierarchization evident in current health workforce settings by building more resilient systems of care where all workers' inputs are enhanced and recognized.

Other technological changes that have potential influence over immigrant health workers is in the realm of Human-Robot interaction (HRI); "the study of the functionality and the usability of robots when performing tasks that involve human beings" (Olaronke et al. 2017, p.46). There is potential for HRI in workplaces to lead to more creative options if the HRI increases autonomy for the operator, but it can also become merely a monitoring relationship, where the human workplace becomes irrelevant to the operation of the robot. Research in Japan, where HRI is especially advanced in LTC settings where increased numbers of migrant workers are being utilised (Wright 2019), has found that robots displace certain *tasks* for workers, rather than entirely replace them. For example, robots might replace the work of leading patient activities, but the worker must still monitor the robot and oversee robot- patient interaction. This suggests outcomes for the future of health work and the place of immigrant workers within is not predetermined, and that ongoing technological change can be combined with promoting the effective utilization and rights of immigrant workers as the type of tasks and responsibilities workers assume in these new workplace changes.

3. Conclusion

The global COVID-19 pandemic has exposed the dependence of high-income nations on globally trained health care workers, and their efforts to protect access to this pool of workers to provide essential health services. This is apparent across all occupational cadres, but nurses present an important barometer within this internationalized labour force, since they comprise the biggest single health occupational group globally, and the significant inclusion of women highlights how gender interacts with migration policies in positioning this occupational group. The renewed appreciation for the role of IENs in health systems reignited debates about the ethics of international health worker recruitment, but it also raises questions about health system sustainability and resilience. To explore these concerns this review paper considers IENs in Ontario's health system, how policy regarding their integration and utilization adjusted under COVID-19.

The utilization of feminized and racialized immigrant workers within health systems has intersected with forms of value extraction through the devaluation of care. IEN inclusion in health care systems reflects multiple structural processes, including lack of public investment, increased marketization and profit or cost containment efforts, all of which have weakened worker protections and increased labour market segmentation. In Ontario, Canada we can see the consequences of this in terms of the nature of the nursing and care labour market, with an hourglass shaped labour market with Nurse Practitioner specialization at the top, Registered Nurses squeezed in the middle, with expansion at the bottom end for Registered Practical Nurses and care aides, which includes a disproportionate share of immigrant women, whose skills are often underutilized.

Despite widespread mobility restrictions on other immigrant and refugee groups, health workers have remained in demand during the COVID-19 pandemic. Evidence suggests that minority

health workers, including immigrant, racialized and other marginalized workers, faced increased infection and mortality rates. The mass trauma experienced by nursing personnel (ICN, 2021a) and the delays caused by the pandemic to the training and recruitment of new health workers has resulted in significant disruptions to the supply of this workforce. This indicates that reliance on international trained immigrant health workers will remain a key tool of OECD nations. To address this ongoing and now intensified global policy problem of retaining and recruiting adequate numbers of nurses to meet UHC and SDGs goals, new policy agendas are being promoted to bolster health and care sectors. At the global scale we see commitments to invest in the care economy, recognizing the central place of women (including immigrant women), in the provision of vital forms of care needed by all citizens.

In the case of Ontario, we witnessed direct policy change in response to the shortages experienced in the LTC sector, and this included turning to the backlog of IEN applicants to the CNO. Further policy developments also enhanced the ability of IENs to complete their registration via a supervised practice, and this appears to be yielding positive results. The CNOs overall modernization of the application process appears to be resulting in increased numbers of nurses being registered, especially IENs.

Looking beyond the effects of the COVID-19 pandemic and thinking about the future of work, human workers remain central to health care even as profound transformations, including automation, AI, professional restructuring and robotization are underway. Even as health professions restructure in response to new technology, the centrality of health and care workers, particularly immigrant women, will remain. We have come to recognise this reality acutely during the pandemic, and the desire for, and tools to achieve, greater resiliency in health care systems, including how IENs are more effectively utilized and integrated, are available. Policies

that enhance the integration and more effective utilization of IENs have been spurred on by the pandemic, particularly for high income nations that are facing burnout and weak retention of nursing staff. For these countries the international recruitment of nurses will remain high on the list of possible solutions. Because of this, health system resilience and sustainability will depend on policy innovations that embrace a future of health care where IENs' skills are fully utilized and they are effectively integrated into health workforce teams.

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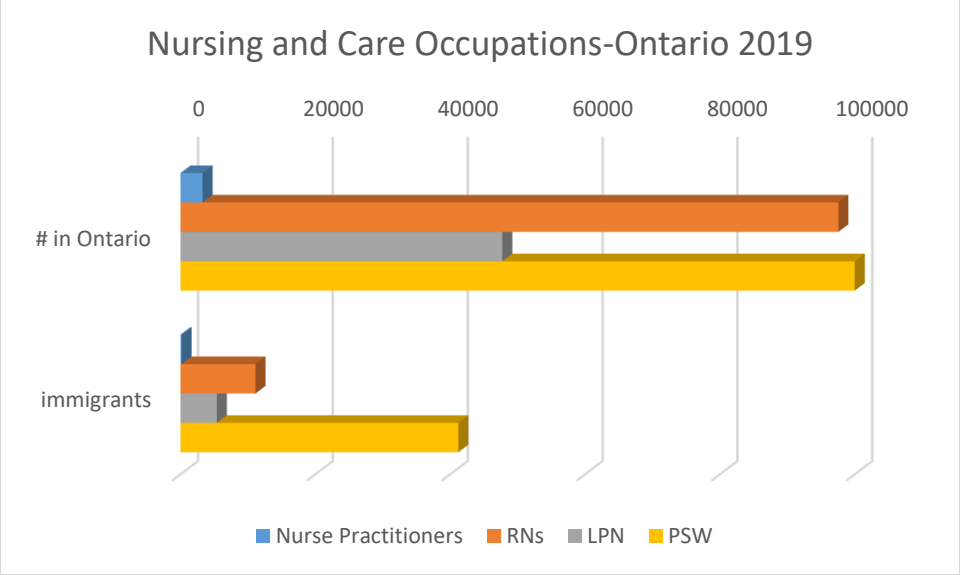
Table 1: Cadre of nursing professional and Nurse aides in Ontario, by gender and by immigration status. Canadian Institute for Health Information (source Health Workforce in Canada, 2019 — Quick Stats. Ottawa, ON: CIHI; 2020).

Rank 2019 regulated[9]/unregulated	# in Canada (Ontario)	% women (Ontario)	% Immigrants (Ontario)
Nurse Practitioner	6,159 (3,272)	93.2%	4.5% (4.9%)
Registered Nurse	300,669 (97,575)	92.3%	9.4% (11.4%)
Registered psychiatric nurses	6,050 (0)	___	___
Licensed practical nurses	127,097 (47,729)	90.5%	7.8% (11.3%)

nurse aides, orderlies and patient service associates (2016) [10]	245,500 (100,000)[11]	86% (Canada)	36% (41.2%)

Figure1 Hierarchy of nursing and care positions in Ontario and the share of immigrants (source as in Table1).



[1] https://www.gov.uk/coronavirus-health-worker-visa-extension
[2] https://www150.statcan.gc.ca/n1/daily-quotidien/221026/mc-a001-eng.htm
[3] Ravin's story was included in a 2020 Global Nurse Migration Pathway story map https://storymaps.arcgis.com/stories/f307d01eb16d4cc9af7d5e1c10529101
[4] https://ltchomes.net/LTCHPORTAL/Content/Snippets/AssocDM-ADM-Memo-LTC-Staffing-Pool-2022-01-17-signed.pdf
[5] https://rnao.ca/sites/default/files/2022-01/RNAO_letter_to_CNO_re_IENs.pdf
[6] https://www.cno.org/en/news/2022/june-2022/cno-new-record-registering-iens/?s=09
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[10] Turcotte and Savage

[11] PSWs employed in all sectors 2018 'Long-Term Care Staffing Study Advisory Group' July 30 2020 https://files.ontario.ca/mltc-long-term-care-staffing-study-en-2020-07-31.pdf