Staffing Standards for Nova Scotia Nursing Homes

With a Preface on Long-term Care Staffing In Nova Scotia and the COVID-19 Pandemic

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Preface: Long-term Care Staffing in Nova Scotia and the COVID-19 Pandemic, Paul Curry, PhD

Shortly after this paper was completed, COVID-19 was declared a pandemic by the World Health Organization. Borders were shut down, many businesses and public facilities temporarily shuttered, and strict public health measures were put in place.

In the ensuing weeks, COVID-19 has proven to be particularly devastating for residents of nursing homes (also known as long-term care facilities). In Nova Scotia, as of mid-June 2020, about 90% of coronavirus deaths occurred among nursing home residents, and the outbreak was particularly severe at our largest facility, Northwood. The Nova Scotia Nurses' Union represents close to 40 RNs and NPs working at Northwood[1], and we are incredibly proud of the commitment and sacrifice they have demonstrated over the past few months. While the situation at Northwood should be reviewed, it is worth noting that its vulnerabilities are very similar to many other facilities across the province, and it is likely that other facilities were lucky to have avoided a similar fate. This dreadful outcome was not unique to Nova Scotia, with dozens of outbreaks in nursing homes across the country (and internationally), and scores of heartrending deaths.[2] Many facilities had far worse outcomes than Northwood.

We expect and advocate for in-depth and independent reviews of the COVID crisis in long-term care, both in Nova Scotia and across the country. One well-known concern is the hospital-inspired design of many long-term care facilities and the continued use of shared rooms. We are not in a position to provide a full analysis of the situation, though we welcome the opportunity to participate in the coming months. However, as we present this work calling on reforms to the long-term care sector in Nova Scotia, it is incumbent on us to reflect on the cruel lessons the pandemic has taught us with respect to the issue of staffing in the long-term care sector, and in the context of the broader framework of reform the Nurses' Union outlined in its 2015/2016 publication Broken Homes (Curry, 2015).

[1] Most of the other staff there are represented by Unifor.

[2] Reporter Nora Loreto has compiled data on COVID-19 and long-term care facilities in Canada which can be found here: https://docs.google.com/spreadsheets/d/1M_RzojK0vwF9nAozI7aoyLpPU8EA1JEqO6rq0g1iebU/edit#gid=0

Resource Issues in Long-term Care Sector

In the Broken Homes report, we wrote about the resource disparity between the long-term and acute care sectors. Residents are not provided with the same amount of staff time and fewer interventions are available, and the nurses themselves often feel undervalued as they deal with a lack of resources and short-staffing situations. Long-term care nursing has become a complex area within nursing care, requiring high levels of autonomy and leadership, along with expert assessment skills, and in many places it is now recognized as a specialty in its own right. This is not always the sentiment here in Nova Scotia. As one nurse told us during a focus group for Broken Homes,

> *I think as a society we don't value the nurses in LTC. Some of that is that we don't value the senior that is no longer producing for the country...there's no value in them. They're not paying taxes, not working, they're a liability now.*

And another nurse commented, when asked what would help,

> *Recognition from everyone of the significance and value of every life that is cared for in long-term care, despite their ability to contribute to society or not anymore. I think if we had that, the rest would come.*

One aspect of this underfunding issue is that nursing homes do not, in general, have access to the infectious disease specialists and occupational health and safety specialists available in hospitals.[3] The former are trained in public health and epidemiology. They diagnose and treat infectious disease, monitor for its spread, and develop practices and protocols to help ensure disease transmission is limited or eliminated within facilities. Occupational Health and Safety specialists focus on the safety of the workplace for those employed there

[3] *Some larger organizations, including Northwood and Shannex, do have specialists in these areas.*

(including contractors and volunteers) and ensure there are appropriate and safe protocols, reporting mechanisms, and controls for workplace hazards, including infectious diseases.

Both types of professionals are essential, particularly in the midst of an infectious disease outbreak. They could help ensure each of our facilities has an effective pandemic preparedness plan in place, that staff have appropriate levels of personal protective equipment and are regularly trained on its use, that early-detection and mitigation strategies are in place, that residents are able to be appropriately cohorted, that there is a staffing contingency plan in place, and so on. In licensing and inspection reports on long-term care facilities from 2019 and 2020, there were 28 shortcomings related to infection prevention and control (Nova Scotia, 2020a). Having dedicated infection control specialists, even shared across groups of facilities, could help remedy these issues.

In 2018, the Workers Compensation Board and the continuing care sector's health and safety association, AWARE-NS, led consultations with front-line workers, unions, employers, government and other associations to develop an action plan around improving health and safety in homecare, long-term care and community services. These sectors report among the highest levels of injury in the province; the Department of Health and Wellness pays millions of dollars annually to insure health workers and the amount has been steadily increasing over the past ten years. The ensuing report, entitled 'Charting the Course' (Nova Scotia, 2018a), argued for the need to develop an effective health and safety culture in long-term care and other sectors, starting at the leadership level. It argued for effective communication strategies to support a culture of 'safety for all', including clients, families and workers, and it made the case that achieving all of this would require investing additional resources in the sector.

Unfortunately, while good progress has been made on two of the 21 recommendations, there continues to be a lack of commitment to addressing the remaining 19 and to providing the resources required to implement actions that will result in a sustainable improvement to the health and safety culture in nursing homes.

Resources for Challenging Behaviours

One of the areas where this disparity in resources is most evident is around treating residents with challenging behaviours. In Canada, over 80% of nursing home residents suffer from mild to very severe cognitive impairment, with 32.3% in the very severe category (CIHI, 2019). Furthermore, 40.8% of long-term care residents display some level of aggressive behaviour.

Many nursing home residents enter the long-term care sector via the hospital, and many others often need to spend some time in hospital when they require more intensive care. While in hospital, someone with behavioural issues (e.g. dementia-induced wandering, violent tendencies, etc.) may be given one-on-one coverage from staff who can provide dedicated attention and deescalate tense situations which might otherwise lead to violence. This level of coverage does not follow the patient as they enter or return to a long-term care facility. Sometimes additional funding is approved from the Department of Health and Wellness to acquire staff for someone with behavioural issues, but this is typically only part-time for a few hours a day, and it is typically temporary.

In focus groups for Broken Homes, one nurse told us,

> *...In hospital they have one-on-one sitters, they arrive at your facility and [we are told] 'they don't need a sitter anymore'. You fight for the sitter and then only get them for 3 days and you have to reapply and reapply ... Passing this one guy [a resident in nurse's facility] in the hallway put anyone at risk. He had a 16-hr/day attendant to provide one on one stimulation in another facility attached to a hospital. He arrived in my facility - none of that. We fought for a year and you know what we've got? Three hours a day... So staff have to attend to him and they do that at the cost of the 57 other residents that they're not able to be with.*

And another nurse told us,

> *Every LTC in the province should have single rooms. There's more incompatibility than anyone can imagine. We need single rooms and smaller units. More people in small places leads to chaos, aggression, and violence.*

Hospital nurses and other staff who interact with patients receive a day-long non-violent crisis intervention training as a part of their orientation. Some long-term care staff have this training, but too many do not as facilities struggle to have access to the trainers and training, or struggle with staff availability, challenges finding replacement staff and difficulty providing time off.

In a joint union/employer/government committee following the Broken Homes report, the group recommended to the Minister of Health and Wellness that the province establish several behavioural units across the province to deal with particularly challenging behaviours (Long-term Care Working Group, 2017). On this model, residents who exhibit severe behaviour problems would be placed on these units where specially trained staff would help develop care plans and strategies for both residents and staff that will allow them to learn to deal with their challenges as best as possible and then return to their home facility. Unfortunately, this has yet to be acted upon.

All of this is highly relevant to the COVID-19 crisis. The principal strategy for stopping the spread of the virus is isolating infected individuals and practicing physical distancing. This is virtually impossible when dealing with the many residents suffering from dementia or who exhibit challenging behaviours. We cannot simply expect residents to remain isolated of their own accord, and we do not have the staff available to enforce this.

Staffing and COVID-19

The current paper focuses on the need for evidence-based staffing levels in the long-term care sector. Clearly, the problems we have seen with respect to COVID-19 and the sector, are multifaceted, and hopefully a dedicated review will involve a detailed root-cause analysis. Even at this time, however, we can point to the important role that staffing plays.

One of the essential roles nurses play in long-term care is using their professional training to perform regular assessments of clients. More licensed staff means better, more regular assessments and earlier detection of problems. Clients are supposed to undergo a full assessment, initiated upon admission, with some aspects completed within the first day, and the full risk assessment done within two weeks. (Nova Scotia, 2019) Inspection reports reveal a total of 37 assessment-related citations in 2019 and 2020 (until June, Nova Scotia, 2020). Furthermore, a full care plan must be completed within 6 weeks of admission and reviewed annually at a minimum. There were 52 instances where aspects of this were not being met across 34 different reports.

Further, nurses regularly perform point-of-care risk assessments as they interact with residents. As per government's long-term care facility requirements, part of the rationale of the assessments is to determine:

> *a) the likelihood of exposure to an infectious agent is evaluated for a specific interaction, with a specific resident, in a specific environment (e.g., single room, hallway), under available conditions (e.g., no designated handwashing sink); and*
>
> *b) the appropriate actions/personal protective equipment needed to minimize the risk of exposure, for the specific resident, other residents in the environment, staff, visitors, contractors, etc., are utilized. (Nova Scotia, 2019)*

With low staffing levels, these assessments are often delayed, happen less frequently, or are performed in a rushed and pressured environment. With sufficient staffing levels, residents with an infectious disease like COVID-19 or influenza can be identified for testing earlier, and there is more time to isolate them and instantiate the appropriate controls, including the development of new care plans, setting up dedicated bathrooms and other spaces, establishing personal protective equipment protocols, and so on.

In Broken Homes, we lamented the delayed introduction of the RAI-LTCF tool, a reform promised for decades, and recommitted to again after our report (Nova Scotia, 2018b). The tool, discussed in greater detail in Dr. Harrington's paper, provides valuable information on the health and well-being status of

residents, and the care they require. Introduction of this tool is supposed to come with dedicated staff time to perform regular assessments which again would help with identifying ill and infected residents. To our knowledge, the tender for implementing the tool has only recently been posted.

The nursing literature points to a relationship between staffing levels and the ability to practice good infection control. As is typical in this literature, there is little research on the relationship between facility-acquired infection (known as nosocomial infection) and nurse staffing levels that is particular to the long-term care sector. There is strong evidence of this from the hospital sector, which lends credence to this correlation. Hugonnet, Villaveces, and Pittet (2006) compared three different approaches to studying the effect of nurse staffing on hospital acquired infections. Each approach found that lower nurse staffing was associated with an increased risk of nosocomial infections. Hugonnet, Chevrolet, and Pittet (2007) showed that higher staffing was associated with a reduction in infection risk and that maintaining a higher nurse-to-patient ratio was associated with a reduced incidence of infections. Beltempo, Blais, Lacroix, Cabot, and Piedboeuf (2017) found that, in a neonatal intensive care unit, infection rates for infants were higher with higher levels of nurse overtime. And Hang, Needleman, Liu, Larson, and Stone (2019) found that understaffing was associated with an increased risk of hospital acquired infections. A paper in press for Policy, Politics & Nursing Practice (Harrington et al., 2020), looking specifically at long-term care staffing levels and COVID-19 infections, shows that homes with lower levels of RN staffing had higher levels of COVID infection rates.

One of the initial problems in the Northwood case was the lack of available staff after many were off sick or put on isolation at the beginning of the outbreak. With already low staffing levels as funded by the province, the facility was quickly in a crisis situation and put out a call to organizations like the IWK, NSHA, VON and unions, including the NSNU, in order to recruit staff from other sectors. Many nurses, continuing care assistants (CCAs), and other workers took up this call, despite the personal risk involved. On April 19th 2020, the Department of Health and Wellness also ordered staff from the QEII Health Sciences Centre COVID-19 unit to report to Northwood to help deal with the immediate shortage. If long-term care facilities in Nova Scotia had higher staffing levels, they would be better positioned to handle these crisis situations. While the outside help was welcome and beneficial, it is better if facilities have enough of their own staff to help mitigate crises.

On May 20th 2020, the Canadian Military released a short report based on the experiences of its members who were deployed to help with staffing crises in several nursing homes in Ontario (Canadian Armed Forces, 2020a). This was followed by a similar report released concerning the situation in Quebec long-term care facilities, which noted an inability to cohort and control outbreaks, poor infection control practices and a lack of qualified personnel (Canadian Armed Forces, 2020b).

The Ontario report made headlines across the country as it detailed deplorable conditions of care. Some aspects of neglect on the part of staff were inexcusable. However, a brief analysis reveals that many of them are rooted in systemic staffing shortages. The report noted, for example, that staff were rushed, engaged in hurried and inappropriate feeding, that residents were left soiled for long periods, that there were poor shift handover practices, that agency staff were poorly prepared, that aggressive behaviours were often unaddressed and residents were left to wander freely. These are problems that flow from having inadequate numbers of appropriately trained staff to provide the care that residents require. The problems identified in the military report are not reflective of the conditions of care at Northwood or other facilities in Nova Scotia, but they do speak to the critical and pervasive role staffing levels play in the overall quality of care and wellbeing of residents, and the need for dedicated resources to ensure staff training for dealing with challenging behaviours and other needs.

In 2019, the Department of Health and Wellness began posting licensing and inspection reports online, which is something we requested in Broken Homes. This is a welcome addition. To ensure quality care, particularly in the face of a pandemic, the Department and the greater public need to be able to have their finger on the pulse, to understand clearly the strengths and challenges in our long-term care system. These reports are a small first step in this direction.

A review of the reports reveals that in those completed in 2019 and 2020 (up until June), 16 facilities were cited for not meeting the minimum 24-hour RN coverage required by the regulations. Facilities are also required to have a written human resource plan for the delivery of quality services, and here 70 deficiencies were noted, with some facilities having more than one deficiency. When it came to medication management, there were a total of 99 mentions of failure to meet standards, a problem often related back to understaffing in the nursing literature.

In recent years, the Nova Scotia government has made welcome investments in homecare, helping more people receive care where they prefer it. However, budgets in long-term care have mostly seen stagnation or even reductions. One effect of keeping people in home longer is that those who do enter long-term care have higher needs than ever before. And this evolution has not been met with staffing increases in the long-term care sector. As one nurse put it in our consultations:

> *The complexity as compared to years ago...it's incredible, it's absolutely incredible... who we're expected to care for in terms of complexity, in terms of skill, in terms of knowing more than ever.*

In Broken Homes, we noted both that nurses deem core staffing levels inadequate and that facilities very frequently are operating below these core levels (Curry, 2015). Facilities struggle to even meet the low standards currently in place. Part of this low staffing is rooted in poor working conditions and the challenges around access to resources we discussed previously. This results in high turnover and recruitment challenges.

As the aforementioned 'Charting the Course' report said:

> *In order to work safely, the right human resource and infrastructure supports must be in place. The complexity and acuity level of clients in the home care, long term care and disability support sectors is increasing. During consultations, challenges related to staffing levels to ensure safe work practices, and high rates of staff turnover were consistently discussed. Based on assessments of client needs and acuity, policy/process should be developed to ensure the right number and the right type of staff are in place to support safe work (Nova Scotia, 2018a).*

Well-trained staff in sufficient number is an important bulwark against a threat like COVID-19. Nurse assessments are critical for monitoring the health of residents, identifying problems early and putting adequate controls in place. Nurse staffing is directly related to improved infection prevention and control, and adequate overall staffing is crucial for ensuring facilities can deal with crisis

situations where staffing levels are threatened, and for ensuring an appropriate culture of safety at the workplace.

Conclusion

Nurses, CCAs, others working in nursing homes, unions, academics and other associations have for a long time recognized the need for serious reform. The COVID-19 crisis has placed some of these needs in stark relief. As we look to collectively reform the sector, we should keep in mind that many of the problems go beyond the pandemic. In the current publication we have chosen to focus on staffing. This emphasis should not serve to detract from other concerns, including safety, access to primary healthcare, access to allied healthcare professionals, behavioural challenges and more. Nevertheless, staffing plays a role in all these areas, and it is the most significant single reform that can be done to improve the lives of nursing home residents, and the working conditions of staff.

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Foreword

The state of Nova Scotia's long-term care system continues to be a leading concern of the members and leadership of the Nova Scotia Nurses' Union. These concerns were articulated and validated in our 2015 publication Broken Homes. In that book, we called for a series of reforms to the long-term care sector in order to improve care for residents, improve working conditions for staff, and improve data collecting and transparency.

The report made 15 important recommendations. Collaboration with government and employers in the ensuing years has resulted in several key improvements which are now beginning to be implemented in earnest. The single most important recommendation from the report, however, the one that would do the most to improve the quality of life for residents, and the working conditions for health providers, remains unrealized. That is the call for explicit, evidence-based staffing standards. At a minimum, this would mean an average of 4.1 hours of care per resident per day, including 1.3 hours of nursing care (RN and LPN combined).

In late 2018, the Nurses' Union had high hopes for reform. The Minister of Health established an expert panel to look at ways to improve the quality of long-term care in Nova Scotia. In its terms of reference, the panel was tasked with "recommending appropriate staffing levels, staff complement and skill mix for long-term care facilities". The panel's report made many important recommendations, including many that were also previously made by the Nurses' Union and agreed to by government. Unfortunately, citing a lack of provincial data, the panel did not fulfill the task of establishing a staffing ratio.

The Nurses' Union saw this as a missed opportunity. In our view, and in the opinion of experts we consulted, there is more than enough evidence to establish minimum staffing standards for Nova Scotia, even if based on a best-case scenario. These standards can be adjusted – almost certainly upwards – if better data becomes available.

For the past two decades, and through governments of all political stripes, Nova Scotia has been promising to implement the internationally recognized resident assessment instrument (RAI). This tool would give us the clarity we need with respect to the acuity and complexity of resident needs in the long-term care sector. The fact that we still lack this clarity is a problem laid squarely at the feet of (20 years of) government.

In light of all of this, the Nova Scotia Nurses' Union contracted Dr. Charlene Harrington to investigate the long-term care staffing situation in Nova Scotia and fulfill the task of recommending a minimum staffing standard. Dr. Harrington is recognized internationally as a foremost expert on long-term care staffing. She served on the U.S. Institute of Medicine (IOM) Committee on Nursing Home Regulation whose 1986 report led to the passage of the Nursing Home Reform Act of 1987. She served on three IOM committees that examined the nursing workforce, long term care quality, and patient safety (1996, 2001, 2003). She has testified before the U.S. Senate Special Committee on Aging several times and has written more than 140 articles and chapters, co-edited five books, and lectures widely. In short, you cannot research the topic long without knowing her name and reading her work.

We are proud to present this research for all Nova Scotians, particularly those who live in long-term care facilities, their family members, and the nurses and other health care workers who have dedicated themselves to providing the best care possible. It is our hope that government will heed the evidence and make the investments necessary to provide the care our residents deserve.

Janet Hazelton, BScN, RN, MPA
President, Nova Scotia Nurses' Union

Staffing Standards for Nova Scotia Nursing Homes, Charlene Harrington, PhD

Nursing care, provided by registered nurses (RNs), licensed practical nurses (LPNs), and nursing assistants or aides, is the fundamental service provided to individuals living in nursing homes. Nursing homes are required to provide sufficient nursing care to meet the needs of their residents.

This report examines nurse staffing and staffing standards in Nova Scotia nursing homes. First, research studies are reviewed regarding the relationship between nurse staffing levels, quality of care, and the benefits of establishing minimum nurse staffing levels. Second, the report discusses the minimum staffing levels that have been identified in research studies and the variation in staffing standards and levels by country. Finally, the report examines Nova Scotia nursing homes in terms of: (1) the current required and actual nurse staffing levels; (2) the average acuity levels in nursing homes; and (3) the minimum staffing levels appropriate for the acuity in nursing homes. A recommendation is made to establish a higher minimum staffing standard for Nova Scotia nursing homes.

Research shows that higher nurse staffing levels are related to better quality care

Over the past 25 years, numerous research studies have examined the relationship between nurse staffing and quality (Bliesmer, Smayling, Kane, Shannon, 1998; Bostick, Rantz, Flesner, and Riggs, 2006; Castle, 2008; Dellefield, Castle, McGilton, and Spilsbury, 2014). Studies have varied widely in methods, sample size, and design and many studies have used administrative databases. On the whole, these studies document a strong positive impact of nurse staffing (particularly RN staffing) on both process and outcome measures of nursing home quality (IOM, 2004). A systemic review of 87 research articles and reports from 1975-2003 found that high total staffing levels, especially licensed staff, are associated with higher quality of care in terms of resident outcomes,

particularly functional ability, pressure ulcers, and undesired weight loss (Bostick, et al., 2006). Castle's (2008) review of 59 studies on nursing home staffing from 1991-2006 found that 40 percent of the quality indicators had significant positive associations with staffing and only 5 percent were negative.

Spilsbury, Hewitt, Stirk, and Bowman's (2011) review of 50 research studies of staffing and quality from 1987-2008 found a number of studies that showed a positive relationship between staffing and quality while other studies had mixed results. Another review of 20 longitudinal nursing home research studies found that more staff led to fewer pressure ulcers but other outcomes had mixed findings regarding staffing and quality (Backhaus, Verbeek, van Rossun, Capezuti, and Hammers, 2014). Finally, Dellefield et al. (2014) reviewed 67 articles on RN staffing published from 2008-2014. They found many studies showed that higher RN staffing levels are associated with better resident care in terms of fewer pressure ulcers, lower restraint use, reduced hospitalizations, fewer deficiency citations, decreased mortality, and decreased urinary tract infections.

In fact, many studies show that higher RN staffing levels are associated with higher quality resident care in terms of fewer pressure ulcers, lower restraint use, less incontinence, fewer deficiency citations, decreased infections, lower pain, improved independent with ADLs (activities of daily living - i.e., incontinence care and toileting, repositioning, eating, dressing and hygiene, and exercise or range of motion), undesired less weight loss, dehydration, and missed morning care, less improper and overuse of antipsychotics, and lower mortality rates (Alexander, 2008; Castle and Anderson 2011; Castle & Engberg, 2007, 2008; Decker, 2006; Dixon, Kaambwa, Nancarrow, Martin & Bryan, 2010; Horn, Buerhaus, Bergstrom & Smout, 2005; Koch, Eriksen, Elstrøm, Aavitsland & Harthug, 2009; Konetzka, Sterns, & Park, 2008; Limcangco, Williams, Rhodes, Hurd, 2013; Mäki-Turja-Rostedt, Stolt, Leino-Kilpi & Haavisto, 2019; Phillips, Birtley, Petroski, Siem & Rantz, 2018; Simmons et al, 2004; 2008; 2013; Tong, 2011; Trivedi, DeSalvo, Lee, et al., 2012; Zimmerman, Gruber-Baldini, Hebel, Sloane, Magaziner. 2002).

According to the literature, the relationship between staffing and quality is strongest with RNs, likely due to their higher level of nurse training (Schnelle, Simmons, Harrington, Cadogan, Garcia, and Bates-Jensen, 2004; Zhang,Unruh, Liu, and Wan, 2006; Harrington et al., 2007; Lin, 2014). Castle and Anderson (2011) also showed that when longitudinal data and a dynamic estimation model for quality was used, there is a robust positive association between RN and nurse assistant staffing and quality indicators, including physical restraints, catheter use, pain management and pressure sores. At the same time, there is a minimum threshold of staffing that must be reached before staffing levels show higher quality (CMS, 2001; Schnelle et al., 2004).

Studies show that other related staffing factors improve outcomes, including high professional staff mix, low nursing turnover rates, consistency of staffing, worker stability (measuring average length of employment), and low agency staff (Castle and Engberg, 2007; 2008; Castle, Engberg, Men, 2008). There is also a strong relationship between increases in skilled nurse staffing levels and reduced emergency room use and rehospitalizations from nursing homes (Grabowski, Stewart, Broderick, and Coots, 2008; Konetzka, Spector and Limcangco, 2007; Thomas et al., 2014; Spector et al., 2013).

In many studies, quality measures are taken from un-audited data reported using the Resident Assessment Instrument, a tool developed by an international network of researchers and scholars from over 35 countries. Facilities use assessment forms that feed into the RAI Minimum Data Set. Other studies rely on deficiencies issued by state surveyors. Deficiency data is given more weight for the Medicare Nursing Home Compare ratings in the US (CMS, 2017b). Many recent studies have found a relationship between higher staffing and lower deficiencies or higher quality composite measures (Castle and Engberg, 2008; Castle, Wagner, Fergerson, and Handler, 2011; CMS, 2001; Harrington, Zimmerman Karon, et al., 2000; Kim, Harrington, and Greene 2009; Kim, Kovner, Harrington, Greene, and Mezey 2009; Schnelle et al., 2004; Wwagner, McDOnald, & Castle, 2010; an, Zhang, and Unruh, 2006). Lin's (2014) study (taking into account endogenous relationships and market factors) found that increasing RN staffing has a large and significant effect on quality.

Research studies show the benefits of minimum staffing standards

Many studies have identified the benefits of establishing higher minimum staffing standards. The proportion of residents with pressure ulcers, physical restraints, and urinary catheters decreased following the implementation of the US Nursing Home Reform Act with its 24-hour licensed nurse standards (Zhang and Grabowski, 2004; Zhang, Gammonley, Paek and Frahm, 2008). Higher minimum RN and total staffing standards were positive predictors of nursing hours and higher standards had a stronger effect on staffing than higher Medicaid payment rates (Harrington, Swan and Carrillo, 2007). Several other studies have found positive effects of state minimum staffing levels (Mueller, Arling, Kane, Bershadsky, Holland, and Joy, 2006; Park and Stearns, 2009; Tong, 2010; Zhang et al, 2006). Moreover, states that have introduced higher minimum staffing standards for nursing homes had improved nurse staffing levels and quality outcomes (Bowblis, 2011; Harrington, Swan and Carrillo, 2007; Lin, 2014; Mueller et al., 2006; Mukamel et al. 2012; Park and Stearns 2009). The minimum standards improve quality in terms of resident health outcomes and reducing deficiencies for all nursing homes.

Minimum staffing standards identified in research studies

Although studies of recommended nursing home staffing levels were not found outside the US and are needed, there have been many definitive studies in the US. A US Centers for Medicare and Medicaid Services (CMS) study involving over 5000 facilities in 10 states established the importance of having a minimum of 0.75 RN hours per resident day (hprd), 0.55 LPN hprd, and 2.8 (to 3.0) certified nursing assistant hprd, for a total of 4.1 nursing hprd to meet US federal quality standards (CMS, 2001). These numbers are meant as an average as some residents will require more time than others. As part of this study, a simulation model of nursing assistants established the minimum number of staff necessary to provide five basic aspects of daily care in facilities with different levels of resident acuity or care needs. The results found that the minimum threshold for nursing assistant staffing is 2.8 hprd to ensure consistent, timely care to residents (CMS, 2001), which was later confirmed in an observational study (Schnelle et al., 2004).

A recent simulation study found that 2.8 nursing assistant hprd is needed in nursing homes with low workloads in order to have less than 10 percent omissions in care and the level of 3.6 nursing assistant hprd is needed in nursing homes with high workloads (Schnelle et al., 2016). A 3.6 nursing assistant hprd staffing level translates to one nursing assistant for every 5.5 residents on the day and evening shifts and one nursing assistant to 11 residents on the night shift. By measuring the resident care needs based on the level of resident dependency for activities of daily living, the specific nursing assistant staffing levels can be objectively determined and used in every nursing home (Schnelle et al., 2016).

A number of organizations in the US have endorsed mandating a minimum level of 4.1 total hprd with at least 30 percent of total nursing care hours provided by nurses, and with an RN on duty 24 hours per day (Institute of Medicine, 2004; American Nurses' Association, 2014; Coalition of Geriatric Nursing Organizations, 2013; The Consumer Voice, 2018). Some experts have recommended higher minimum staffing (a total of 4.55 hprd) to improve the quality of nursing home care, with adjustments for resident acuity (Harrington Kovner, et al., 2000). Many experts consider that the best approach is to set strict nurse staffing standards so that nursing homes are required to meet minimum staffing levels and to adjust staffing upwards to meet resident needs when required (Harrington, Schnelle, et al., 2016).

CMS's Medicare Nursing Home Compare five-star rating system website reports the actual staffing levels for each nursing home compared with the state and national staffing averages in order to provide public transparency and to give nursing homes an incentive to improve staffing levels. In addition, CMS developed a method to determine what nurse staffing levels are needed for each nursing home based on its resident acuity (CMS, 2017a). From 2008-2017, CMS calculated the "expected hours" of care based on the resident acuity reported by each facility and CMS Staff Time Measurement Studies (CMS, 2017a). CMS's "expected" staffing levels, taking into account resident acuity, showed that the average US nursing home should have 4.17 total nursing hprd, including 1.08 RN hprd in 2016 (Harrington, Schnelle, et al., 2016).

Staffing standards and levels vary in the US and Canada

In the US, federal standards require that all nursing homes:

> *must have sufficient nursing staff with the appropriate competencies and skills sets to provide nursing and related services to assure resident safety and attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident, as determined by resident assessments and individual plans of care and considering the number, acuity and diagnoses of the facility's resident population in accordance with the facility assessment. (CMS, 2019)*

Facilities must have sufficient numbers of RNs, LPNs and nursing assistants on a 24–hour basis to provide nursing care to all residents including a charge nurse on each shift, an RN for at least 8 consecutive hours a day, 7 days a week, and a designated RN to serve as the director of nursing on a full time basis, unless they have a CMS waiver. The director of nursing may serve as a charge nurse only when the facility has an average daily occupancy of 60 or fewer residents. Nursing homes are required to post their nurse staffing information on a daily basis and staff must have the specific competencies and skills to care for resident needs.

New US federal regulations established in 2016 require long-term care facilities to conduct a facility assessment regarding what qualified staff are needed to meet patient needs and to carry out all functions at the facility. This assessment is performed for the whole facility considering “the number, acuity and diagnoses of the facility’s resident population (CMS 2017b). Because the US staffing standards are not clearly specified, wide variations in staffing levels are found throughout the country (Harrington et al., 2012).

Nurse staffing standards have been found to vary by province in Canada, and where specified, the direct care standards were generally lower than in the US (Harrington et al., 2012). In contrast, the Canadian standards for RNs were generally higher than in the US because most provinces (seven of nine provinces that reported information) required 24-hour RN staffing in facilities. These

Canadian standards generally did not vary by size of facility or acuity of residents (Harrington et al., 2012).

British Columbia reported that direct nursing care staffing (RNs, LPNs, and nursing assistants) varied between 2.1 and 3.3 hprd in 2006 (McGregor et al., 2010). Ontario reported that paid hours of nursing and personal care ranged between 1.9 and 5.1 hprd in 2007 (Sharkey, 2008). Daly and colleagues (2017) pointed out that the variance in Canadian standards and staffing levels is related to the different provincial payment policies. Payment levels are higher (set for 3.6 hours per resident day) in Manitoba than in Ontario and British Columbia (Daly et al., 2017).

Concerns have been raised that inadequate staffing levels in Canada leads to poor quality of care (Berta, 2005; Canadian Federation, 2017; Curry, 2015; Daly and Szebehely, 2011; Jansen, 2010; Wagner and Rust, 2008). In the US, experts have advocated for greater clarity regarding the minimum staffing standards in order to improve the quality of care (Harrington, Schnelle, Simmons and MacGregor, 2016).

Required and actual nurse staffing levels in Nova Scotia

Nova Scotia's 1989 *Homes for Special Care Act* governs two types of homes. Nursing homes are an option for people who have difficulty performing everyday tasks, such as dressing or bathing. They are appropriate for residents who are medically stable yet have nursing needs beyond what is provided by home care. Residential care facilities are for those who need personal care, supervision and accommodation in a safe and supportive environment and who are able to exit on their own in an emergency (Nova Scotia, 2019a).The regulations for the Act are originally from 1977 and require an RN on duty 24-hours/day for any home over 30 beds, and 8hrs/day for any home under 30 beds (Nova Scotia, 2019b).

A survey of nurses in long-term care found that many homes are not meeting the staffing requirement specified in the 1989 *Homes for Special Care Act* and many nurses are concerned about current staffing levels (Curry, 2015). As part of the study of RNs and LPNs working in the sector, nurses reported an average of 3.57 hours of care per resident per day, including 1.01 hours of nursing care (0.39 RN, 0.62 LPN), and 2.57 hours of CCA care (3.57 total) (Curry,

2015). These numbers are based on hours worked and exclude times dedicated for meals and breaks.

Despite the lack of specifics in the legislation and regulations, the Nova Scotia Department of Health and Wellness does have staffing standards that they fund. Nova Scotia has a mix of public (often municipal), not-for profit and for-profit (now above 50% of beds) nursing homes. The RN, LPN and nursing assistant (known as continuing care assistants – CCAs) care in all of these nursing homes are funded through the province.

In 2012, the Department of Health and Wellness reported that they funded staffing according to three models. On the 'traditional' approach, they claimed to fund 3 hprd of CCA care and 1 hprd of nursing (RN + LPN). On the 'augmented traditional' approach, residents are divided into households of 12 to 15 and receive 40 hours of CCA care along with an average of one hour of nursing care (RN and LPN combined). On the 'full scope' model, CCAs perform work beyond personal care, such as housekeeping and meal support. Households are given 40 hours of CCA personal care and 10 hours of other CCA work (e.g. housekeeping), again with one hour of nursing care (Curry, 2015).

Since that time, some nursing homes have reported to the union that their funding amounts to 3.45 hours per resident per day, with one hour of RN/LPN combined, and 2.45 hours of CCA care (Curry, 2019). This number seems to align better with the self-reported data from nurses in 2015 (Curry, 2015).

In 2020, the Nurses' Union submitted a freedom of information request to the Department of Health and Wellness, requesting clarity on the staffing models. The response confirmed that the Department is funding according to the 'augmented traditional' and 'full-scope CCA' models mentioned above (Nova Scotia, 2020). The 40 hours of CCA care represents hours paid rather than hours worked, which excludes meals and breaks. If we remove time that is not worked, these ratios would be between 3.33 and 3.92 hours per resident day, which aligns better with the other data sources.

Resident acuity in Nova Scotia nursing homes

The increasing acuity of nursing home residents has been reported to be a major concern because staffing should be adjusted for the needs and acuity levels

of residents. British Columbia and Ontario both reported growing nursing home acuity (McGregor et al., 2010; Sharkey, 2008), as did the US (MedPac, 2017). Nurses in Nova Scotia nursing homes also reported growing resident acuity (Curry, 2015). Little evidence has been found that nursing homes adjust staffing to meet the acuity of residents in Canada and the US (Harrington et al 2016).

In Nova Scotia, Table 1 shows the average aggregate acuity for nursing home residents based on the RAI RUG-III classification system over the period of 2011-2018. RUG stands for Resource Utilization Group, and in this classification system, residents are assigned to one of seven major categories based on medical condition and functional abilities (interRAI, n.d.). The data represent a small proportion of Nova Scotia's 7000 long-term care residents. During the 20l1-2014 period, between 63 and 71 percent of residents were classified in the lowest acuity categories of reduced physical functioning or impaired cognition. The percent of lowest categories increased in the 2015-2018 period, however, this must be interpreted cautiously as the number of residents reported on is very low.

Table 1. Nova Scotia Nursing Home Resident Casemix Based on RUG-III Classification, 2011-2018

	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
RUG-III class	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Special Rehabilitation	20	2.7	17	3.2	29	5.9	-	-	16	4.3	—	—	—	—
Extensive Service	11	1.5	--	--	-	-	-	-	0	0.0	0	0.0	0	0.0
Special Care	56	7.6	47	8.7	47	9.6	32	6.8	33	8.9	7	7.2	18	11.5
Clinically Complex	125	16.9	95	17.6	72	14.7	100	21.1	61	16.5	7	7.2	15	9.6
Impaired Cognition	163	22.1	115	21.3	112	22.9	99	20.9	81	21.9	15	15.5	30	19.1
Behaviour Problems	12	1.6	--	--	-	-	-	-	12	3.2	—	—	—	—
Reduced Physical Function	352	47.6	249	46.2	221	45.2	197	41.6	167	45.1	63	64.9	89	56.7
Total	**739**	**100**	**539**	**100**	**489**	**100**	**473**	**100**	**370**	**100**	**97**	**100**	**157**	**100**

Source Canadian Institute for Health Information CCRS Quick Stats 2011-2018.

It is likely that the resident case mix varies across nursing homes with some having higher percentages of residents in the higher categories.

Discussions with CIHI and the Department of Health and Wellness reveal that it is unclear how representative the data is, or even if it might include data from lower-acuity residential care facilities as opposed to nursing homes (Curry, 2019). Given that Nova Scotia has one of the oldest populations in the country (Statcan, 2019) and the highest rate of chronic disease (CIHI, 2019), it is questionable whether the province's long-term care residents are significantly healthier than counterparts in other provinces where reporting is much more

robust. It should also be noted that these data are at odds with reports by nurses in nursing homes that found acuity levels were increasing significantly over time (Curry, 2015).

Recommending nurse staffing levels in Nova Scotia nursing homes

According to the sparse data available, Nova Scotia long-term care residents appear to have relatively low acuity. This picture will be filled out as the adoption of the interRAI-LTCF goes province-wide in the coming years (Nova Scotia, 2018). In the meantime, it is reasonable to recommend that Nova Scotia nursing homes should have staffing levels that meet at least minimum professional standards established in research literature.

The recommended minimum nurse staffing levels based on the best available evidence have been identified as 1.3 hprd of nursing care (0.75 RN, 0.55 LPN), and 2.8 (to 3.0) CCA hprd, for a total of 4.1 nursing hprd (CMS, 2001).

Table 2 shows the hours and conversions to resident ratios.

Table 2. Nursing Home Minimum Nurse Staffing Ratios and Hours Per Resident Day

At least 1 RN on premises for every:	28 residents during the day (.29 hprd)
	30 residents during the evening (.26 hprd)
	40 residents during the night (.20 hprd)
	Total: .75 hprd
At least 1 LPN for every:	40 residents during the day (.20 hprd)
	40 residents during the evening (.20 hprd)
	56 residents during the night (.14 hprd)
	Total: .54 hprd
At least 1 CCA for every:	7 residents during the day (1.14 hprd)
	7 residents during the evening (1.14 hprd)
	15 residents during the night (.53 hprd)
	Total: 2.81 hprd
Total Nurse Staffing	4.1 hprd

Source: Source: CMS, 2001, American Nurses Association, 2014; Coalition of Geriatric Nursing Organizations, 2013; Consumer Voice, 2013. Ratios and conversions made by the authors.

Where resident acuity is higher, CCA staffing should be higher (up to 3.6 hprd) and RN and LPN levels should be increased. The Staff Time Measurement studies in the US showed that in homes with the very highest level of resident acuity, staffing should include 2.88 RN hprd, 1.5 LPN hprd, 3.06 CCA hprd for total staffing of 7.44 hprd (US DHHS, 2000; White, Pizer, & White, 2002).

It is recommended that Nova Scotia establish a higher minimum nurse staffing standard for nursing homes than is currently funded by the province. These minimums shown in Table 2 are for the lowest resident acuity levels. This is consistent with Recommendation 1 in the *Broken Homes* report:

> *Implement explicit, evidence-based staffing standards that will better guarantee the health and well-being of long-term care residents, and of the nurses and CCAs who care for them. Residents should receive a minimum average of 1.3 hours of*

> *nursing care per day (RN and LPN), as well as 2.8 hours of care from CCAs for a total of 4.1 care hours per resident day. This is an average, and staffing plans should take into consideration the varying levels of acuity and complexity of care. (Curry, 2015)*

This increase in minimum staffing level would no doubt result in better outcomes of care for residents as well as better working conditions for nursing home staff. These standards could be established as part of the provincial funding model. Ideally, the standard should be a regulatory requirement so that nursing homes cannot drop below the minimum level.

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