



Measuring the Reserve Supply of Nursing Staff Time in Quebec

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1 ABSTRACT

Situation: In Quebec, the shortage of nurses is believed to be one of the most important factors explaining excessive waiting time for health services. The problem is expected to worsen with the population aging and nurses aging. Sub-optimal levels of nurse staffing can lead to unacceptable patient health outcomes such as increased morbidity and mortality rates and decreased quality of life.

Objective: The objective of this report is to qualify and quantify the reserve supply of nurses and to identify factors contributing factors to that supply.

Methods: Data were gathered via an electronic questionnaire targeting the total population of nurses (almost 70,000) currently working in Quebec.

Results: Some 1,420 nurses responded to the survey. Although almost half of respondents reported that the number of patients they cared for was satisfactory, they also stressed that having the ability, time and resources to care for patients was very important (>85.0%). Close to three-quarters of respondents felt that the health care system should allow nurses to have a better balance between personal and professional life. Thirty-three percent of respondents reported being satisfied or very satisfied with their salaries, while the majority felt they should have higher salaries in view of their responsibilities and working conditions. Sixty-five percent of respondents were willing to offer at least four extra weekday hours of work per month, over and above actual hours worked in public sector establishments. Similarly, percentages of respondents willing to offer at least four extra hours per month on weeknights, weekends and holidays were 53.3%, 40.9% and 47.1%, respectively. The reserve supply of nurses' working time is evaluated as being the equivalent to adding an extra 3,730 full-time equivalent nurses for days shifts on weekdays, 2,210 for evening shifts on weekdays, 1,350 on weekends and 290 on statutory holidays. Over a third of respondents (34.8%) reported that they would delay their retirement dates should a progressive reduction in workload be offered. An additional 41.6% indicated that they would consider delaying retirement with a progressive workload reduction under certain conditions. Eighty-nine percent indicated that choice of work shift was an important condition for postponing retirement. More than half of respondents reported that not having to work on weekends, as well as financial advantages, fewer hours of work, reduced work responsibilities and fewer work weeks were key conditions favouring a delayed retirement.

Conclusions: The reserve supply of nurses working hours is modest, but far from negligible. These findings suggest that the shortage of nurses may not be as substantial as is generally believed. According to our survey, given the appropriate incentives and working environment, nurses would work more. If

the public system, where a majority of these nurses work, continues to fail to provide that environment, a growing number of them will be looking for an environment that does provide it.

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3 CHALLENGE

In 2007, Canadian health care spending was \$160 billion, up 6.6% from 2006. In comparison with other members of the Organization for Economic Cooperation and Development (OECD), Canada ranks third out of 27 countries in percentage of GDP spent on health care. Unfortunately, this high spending is not reflected in high-quality, accessible care. Canada produces inferior age-adjusted access to physicians and technology, imposes longer waiting times, is less successful in avoiding deaths from preventable causes, and has higher health care costs per capita than almost all other OECD health care systems that have comparable objectives (Esmail and Walker 2007).

Provincial health care systems still largely operate within the framework of the Canada Health Act, which imposes constraints on provincial health plans, precludes policy reforms that could improve access (and thus patients' overall health), and eases the strain on the public purse (MEI 2003).

Exploration of options that improve, and ultimately optimize, the use of resources spent on health care is merited.

In our current health care system, we have isolated three areas that have marked potential to improve delivery of care and outcomes in the short term:

- **Optimized utilization of key medical resources, technology and equipment** (e.g., operating rooms).
- **Availability of a reserve supply of clinical staff time** (e.g., nurses).
- **Availability of a reserve supply of doctors' time** (this third element will be examined in a later study).

3.1 OPTIMIZED UTILIZATION OF KEY MEDICAL RESOURCES

In Canada, it is well known that waiting times for medical services such as surgical procedures are long and are not decreasing. It is less well known that operating rooms and other medical service venues remain idle for extended periods of time due to budget restraints and logistical errors. Unfortunately, they also remain idle due to overly restrictive government-controlled budgeting formulae (Frappier and Laberge 2008). Frappier and Laberge (2008) showed that a shortage of facilities is not a significant factor in explaining waiting times for medical services in Quebec.

Use of business models to maximize utilization of medical resources and minimize patient waiting times has been suggested (Patrick and Puterman 2007). A relationship between idle capacity and waiting times has been shown to exist, although the model assumes that idle capacity can actually be used to offset waiting times. Allowing utilization of idle capacity could lead to more efficient use of existing medical resources.

The study of Frappier and Laberge (2008) indicated that the rate of use of hospital operating rooms was 46% on weekdays and 9% on weekends. Both rates are well below a goal of 75% to 80% that represents full utilization. The rate of use is defined as the percentage of hours used as a proportion of the potential number of opening hours.

One possibility for increasing the supply of health care services and treatments would be to allow hospitals to rent out their operating rooms, outside publicly funded operating hours, to medical teams (including physicians, anaesthetists, nurses, etc.) practising privately outside the public system. This type of arrangement has already been tried in Quebec in some hospitals, but it was terminated when it became known publicly.

3.2 AVAILABILITY OF A RESERVE SUPPLY OF CLINICAL NURSE STAFF TIME

The reserve supply of time refers to the additional quantity of time that nurses do not work but would agree to work if the context and conditions were different. Estimating this reserve time is an important element in characterizing the shortage of nurses or nursing time in any jurisdiction.

According to the US Joint Commission on Accreditation of Healthcare Organizations (JCAHO), "Nearly every person's every health care experience involves the contribution of a registered nurse. Birth and death, and all the various forms of care in between, are attended by the knowledge, support and comforting of nurses. Few professions offer such a special opportunity for meaningful work as nursing. Yet, this country [USA] is facing a growing shortage of registered nurses." (JCAHO 2002, p.5)

The situation in Quebec is very similar. “Two-thirds of Quebec's nurses over age 50 are expected to take early retirement within the next three years, a recent CROP survey indicated.” (Fidelman 2008, p.1). This represents 25,000 nurses in both the public and private sectors.

Consequences of a shortage of nursing hours

According to data from the JCAHO, health care staffing levels have been factors in 24% of 1,609 “sentinel” events. These are unanticipated events that result in death, injury or permanent loss of function. Studies have also shown that optimal nursing staff levels are related to fewer complications, fewer adverse events, shorter lengths of stay and lower mortality (JCAHO 2002).

“In addition to its impacts on patient safety and health care quality, the nursing shortage is diminishing hospitals’ capacity to treat patients.”

JCAHO 2002, p. 6

In a recent study conducted for the American Hospital Association, respondents reported that the nursing shortage has led to:

- Emergency department overcrowding in their hospitals (38%)
- Diversion of emergency patients (25 %)
- Reduced number of staffed beds (23%)
- Discontinuation of programs and services (17%)
- Cancellation of elective surgeries (10%).

The same study indicated that nearly 60% of nurses feel it is more difficult to provide quality care today because of workforce shortages (JCAHO 2002).

In addition, nurses leave their profession. Why?

A study by Peter D. Hart Research Associates quoted in JCAHO 2002 finds that the top reason nurses leave patient care, besides retirement, is to find a job that is less stressful and less physically demanding. Burnout is common in the nursing profession.

Nurses clearly identify that the most enjoyable aspect of being a nurse is helping patients and their families (JCAHO 2002).

The majority of nurses (74%) state that they would stay in their jobs if changes such as increased staffing, less paperwork, and fewer administrative duties were made (JCAHO 2002).

In a survey of nurses describing their last shifts, 40% declared not being able to comfort their patients or talk with them. In the same group, nearly 70% reported

having to perform “non-nursing” tasks such as ordering, coordinating or performing ancillary services.

An American Nurses Association study reported that 55% of nurses, disheartened by their experience in the profession, would not recommend a nursing career to their children or friends (JCAHO 2002).

What will keep nurses on the job in Quebec?

Despite shortages, there is also evidence that nurses are willing to work more in situations with high job satisfaction, desired hours and good family/life balance (JCAHO 2002, CROP 2008).

The observed movement of nurses, leaving the traditional publicly funded health care system completely or partially and working for private agencies, illustrates that they have incentives to do so (Fidelman 2008). Although nursing agencies are by definition privately run, they frequently place nurses in publically funded health care institutions. The private agencies are more likely to respect nurses’ requirements for working hours and working conditions.

Furthermore, a CROP (2008) survey for the Quebec Nurses Organization (OIIQ) shows that the main reasons nurses switch from direct public sector employment to private agency employers are: choice of schedule (81%), work/family balance (68%), workplace conditions (66%) and better hourly rate (57%). For nurses working in private agencies, 59% work only for private agencies; 33% work both for private agencies and for the public system, and the remaining 8% work elsewhere. The same study showed that 50% of nurses have been working with agencies for three years or more.

In light of these elements and of the expected shortage of nurses in Quebec, it is of value to explore and evaluate any reserve working time among nurses.

4 RATIONALE

- The shortage of nurses in Quebec is expected to increase with the retirement of 25,000 older nurses.
- Studies have shown that suboptimal levels of nurse staffing lead to poorer patient health outcomes (JCAHO 2002).
- US studies have shown that nursing shortages have caused emergency department overcrowding in their hospitals, diversion of emergency patients, reduced numbers of staffed beds, discontinuation of programs and services, and cancellation of elective surgeries (JCAHO 2002).
- Among nurses, burnout is common and job satisfaction is low. Studies have shown that the main reason nurses leave patient care, for reasons

other than retirement, is to seek a job that is less stressful and less physically demanding.

- Studies have also shown that a majority of nurses would postpone their retirement if changes such as increased income, time re-management, and better pension plan conditions were made (MSSSQ 2003).
- Nurses in Quebec have shown their frustration with the public health care system by signing on with private placement agencies.

5 HYPOTHESIS

Quebec's reserve supply of clinical staff time among nurses was evaluated taking account of attitudes and desired working conditions.

Currently, most Canadians appear to believe that nurses in the Canadian health care system have no available extra working time and that they are generally overworked.

We assume that the current context of the public health care system reduces nurses' motivation, thus reducing their propensity to offer extra working time in the public health care system. Since the private sector must adapt business models to optimize revenues, especially in a context of competing firms, attracting and retaining the appropriate team represents a key to success.

It is expected that, should the government enable specialists to offer working time in the private sector over and above their present hours in the public sector, a proportion of nurses would also be interested in offering some time in the private sector, over and above their present hours in the public sector. These additional hours could potentially offset some of the impact of the current nursing shortage.

5.1 STUDY HYPOTHESES

1. There is reserve supply of nursing time in the health care sector.
2. The work organization of the public sector in health care services represents a significant hindrance to motivate nurses.
3. Nurses would be willing to offer more clinical staff hours, over and above their current time in the public health care system.

6 OBJECTIVES

- To qualify and quantify the reserve supply of nursing time to the private sector, over and above their current time in the public sector.

- To identify factors affecting the availability of clinical reserve time.

7 METHODS

An electronic, multiple-choice questionnaire was developed and delivered to a subset of Quebec nurses.

The questionnaire was developed based on the following:

- A search of Internet-based literature
- Interviews with Quebec and Ontario physicians and nurses
- Interviews with teachers working in the public and private sectors

The questionnaire was validated by three doctors and five nurses. An expert in questionnaire methodology (Robert Gagnon) also validated the questionnaire. Once the results were analyzed, a panel of nurses was interviewed on an individual basis for validation of findings and interpretation of results.

The electronic questionnaire was completed by the respondents between October 29, 2007, and February 3, 2008. The questionnaire was self-administered, and nurses were invited to complete it on a voluntary basis. The respondents were informed of the study through an advertising insert in the November-December 2007 issue of the Quebec Nurses Organization (OIIQ) journal, *Perspectives Infirmières*. The insert told them about the organization responsible for the research, explained the purpose of the study and invited nurses to complete the questionnaire by going to the www.santemixte.qc.ca website. The questionnaire was provided in English and French; no open questions were included.

Standard descriptive statistics and odds ratio techniques were used to analyze the results.

8 RESULTS

8.1 SOCIOECONOMIC

The final sample consisted of 1,420 respondents, representing 2% of the members of the Quebec Nurses Organization (OIIQ) as of March 31, 2007. The results from this section appear in Tables 1.

Ninety percent of the study participants were women. In terms of age, 95% of all respondents were under 55 years old and half were under 40 . A majority of respondents (73.7%) were married, and more than half had children. Seventy-four percent of respondents worked in urban or suburban areas.

With respect to salary, 63.9% had incomes of \$30,000 to \$60,000 annually, with only 27.9% exceeding \$60,000.

In Tables 2, we note that almost half of respondents had between five and 25 years of experience. Thirty percent had over 25 years of experience, while just under a quarter (22.1%) had less than five years of experience. Almost half of respondents (46%) had a university degree in nursing, while the remainder generally had a college diploma or university certificate. Sixty percent of respondents worked 35 hours per week, which is comparable to the proportion of nurses working full time in 2006 (55%) (OIIQ 2006). Two-thirds (66%) worked mainly day shifts, 18% evening shifts, and 15% night shifts.

8.2 PRACTICE CHARACTERISTICS

The results presented in this section appear in Tables 2.

The majority of respondents (61.1%) cared for 10 or fewer patients per day. Almost half of respondents (47.4%) reported that they had “just enough” patients per day. Only 16.5% reported that they cared for too many patients per day.

About a third of respondents were employed in community health. Other respondents were distributed among a wide range of health care categories or specializations, with a slight concentration in geriatrics and emergency medicine (10%).

Seventy-seven percent of respondents worked between 25 and 40 hours per week. A quarter of respondents never worked on weekends. More than half of respondents preferred not to work on weekends. A majority of respondents did under eight hours per week of overtime work, while only 16% did eight or more hours of overtime work.

Close to 80% of respondents had between three and six weeks of vacation time per year. A minority (9.2%) had over seven weeks of vacation time annually.

8.3 ATTITUDES

The results presented in this section (Tables 3) are based on an opinion scale ranging from 1 to 5, with 1 representing complete agreement and 5 complete disagreement.

Close to 85% of respondents felt that, should a public-private mix be introduced, physicians should be legislated to work at least 20 hours per week in the public sector.

Over 50% of respondents strongly agreed with all but two of the survey requirements to accept working in the private sectors. Only “not being part of a trade union” and “working with the physicians you usually work with” did not reach 50%. The four requirements with which over 85% of respondents strongly agreed were “sufficient time for patient follow-up”, “sufficient time to care for my patients adequately”, “possibility for contacts that the patient deserves” and “having the appropriate resources to do the job”.

8.4 RESERVE HOURS

Three scenarios (conservative, realistic and optimistic) have been developed to calculate the average number of hours offered to the private sector over and above their current time in the public sector. These scenarios have been generated to assess the sensitivity of nurses’ reactions regarding the reserve supply of time. In the conservative scenario, the number of hours constituting the average time was the minimum interval indicated by the respondents. In the realistic scenario, the average time was used, and in the optimistic scenario the upper interval was used. Various weights were also attributed to the answers based on the level of interest in offering time over and above their current time worked in the public sector (see Appendix 1).

The average number of extra hours varies accordingly to work shifts. It is also influenced by the hypotheses that were considered in the various scenarios, where the weighting would illustrate speed or slowness in managing changes to work and leisure schedules.

The largest reserve of clinical time is on day shift on weekdays. Nurses indicated that they were willing to offer on average five to 11 hours per month to the private sector over and above their current time in the public sector. This number fell slightly for evening shifts and weekends. Respondents would have considered offering, respectively, three to six extra hours per month and two to four extra hours per month. The reserve of clinical time is almost nil for statutory holidays (0.40 to 0.87 extra hours per month) (Table 7).

Nurses’ clinical time reserve
(hours per month)

Shift	Realistic
Weekdays	7.8
Evenings	4.6
Weekends	2.8
Holidays	0.6

Source: Appendix, Table 7

Based on results for the realist scenario, respondents would have considered working on average up to 15 extra hours per month for the private sector over and above their current time in the public sector. This represents an average of two full days of work per month per nurse. To illustrate what this represents, the additional availability of nurses for the private sector corresponds to hiring an extra 3,730 full-time equivalent nurses for day shift on weekdays, 2,210 for evening shift on weekdays, 1,350 on weekends and 290 on statutory holidays.^a

Nurses' clinical time reserve
(full-time equivalent)

Shift	
Weekdays	3,730
Evenings	2,210
Weekends	1,350
Holidays	290

8.5 RETIREMENT

The results presented in this section (Tables 9) are based on an opinion scale ranging from 1 to 5, with 1 representing complete agreement and 5 complete disagreement.

Close to half of respondents reported they will retire within the next 15 years, while 40% will retire in more than 20 years. The vast majority (86%) reported that they would prefer a progressive reduction in workload as retirement approaches rather than working full time and then retiring. Over a third (34.8%) stated that they would delay their retirement date should this reduction take place. An additional 41.6% indicated that they would consider delaying retirement with a progressive workload reduction, depending on conditions.

In terms of factors favouring a willingness to accept a progressive reduction in workload leading up to a delayed retirement, 89% indicated that choice of work shift was very important. More than half of respondents also indicated that not having to work weekends, as well as financial advantages, fewer work hours, reduced work responsibility and fewer work weeks, were very important factors.

Close to three-quarters of nurses were worried about the number of nurse retirements. More than half of respondents were also worried about retirements of general practitioners and specialists.

^a Based on the average of hours worked annually that would be supplied by all OIIQ members working in Quebec (69,404), at 1,740 hours per year in full-time employment. If we use the Health Department's calculation unit, which is the average hours worked by a nurse, to evaluate the employee shortage, we find the equivalent of 5,410 nurses for day shift on weekdays, 3,200 for evening shift on weekdays, 1,960 on weekends and 420 on statutory holidays.

8.6 SATISFACTION

The results presented in this section (Tables 4) are based on an opinion scale ranging from 1 to 5, with 1 representing complete agreement and 5 complete disagreement.

The main factor influencing the professional satisfaction, “a job well done”, ranked first (74% said they were somewhat satisfied; of these, 42% agreed completely). The relationship with patients ranked second (68% said they were somewhat satisfied; of these, 36% agreed completely). Interestingly, results indicated a significant “non-satisfaction” or dissatisfaction of among management nurses (administrators, directors, professional service directors, clinic directors / nursing services directors) in their main workplace. Twenty to thirty percent of nurses agreed they were somewhat satisfied with management; of these, 7% agreed completely. In addition, nurses reported neutral satisfaction with respect to their relationship with superiors in their workplace. Thirty-three percent of respondents reported being satisfied or very satisfied with their salaries, while the majority felt that they should have higher salaries in light of their responsibilities and working conditions.

8.7 HEALTH CARE CONTEXT

The results presented in this section (Table 5) are based on an opinion scale ranging from 1 to 5, with 1 representing complete agreement and 5 complete disagreement.

A majority of respondents agreed with statements that included: “the health care system should enable nurses to have a better balance between their professional and personal lives” (94.1%), “health care facilities should be allowed to keep budget surpluses” (85.4%), and “patients should have the possibility of opting for the private sector” (70.7%). Furthermore, only 19.3% of respondents disagreed with the statement “health care should be depoliticized and run according to a business model”, and 19,9% disagreed with the statement “the health care system should be publicly funded but managed like the private sector”.

9 DISCUSSION

This study revealed some willingness on the part of many nurses in Quebec to work longer hours, to delay their retirement if given proper incentives and to work within the private sector. Results confirm that there exists a reserve supply of clinical time by nurses. Indeed, on average, they would agree to offer an average of 7.83 extra weekday working hours per month

At the same time, nurses reported that having the ability, time and resources to care properly for their patients were extremely important factors related to their job satisfaction. A clear majority of respondents also reported that the health system should facilitate a better balance between work and personal life.

The situation for nurses in Quebec in 2008 is, on the surface, relatively comfortable: 80% of respondents work between 25 and 40 hours per week and have three to six weeks of vacation per year, with salaries generally ranging from \$30,000 to \$60,000 per annum. In light of increasing numbers of nurses leaving the profession or switching from direct employment in public establishments to private agencies, it appears that the incentives provided by the private agencies are attractive.

The study suggested that job satisfaction was likely a more important factor affecting nurses' openness to stay on the job and work longer hours. Although nurses generally reported that they had "just enough" patients to care for on a daily basis, they also strongly indicated that having the ability, time and resources to care properly for these patients was essential to their job satisfaction. Work hours were also considered very important, with a majority of respondents clearly reporting that they did not want to work on weekends.

American data also support the importance of job satisfaction. According to a US study, 41% of nurses currently working reported being dissatisfied with their jobs; 43% scored high in a range of burnout measures; and 22% were planning to leave their jobs within a year. Of the last group, 33% were under the age of 30 (JCAHO 2002).

It seems to us that the general belief in a shortage of nurses can be explained mostly by poor organization of nurses' workload. According to the panel of nurses interviewed,^b current organization entails nurses spending almost half of their time on administrative tasks.

Study results indicate clearly that nurses want enough time to offer quality care to their patients. Furthermore, results indicate that nurses would strongly consider offering extra working time if their workload organization enabled them to refocus on patient care as their core clinical activity; this does not appear to be the case, accordingly to the study results and the panel interviews of nurses. It then becomes critical to perform an analysis to assess how we could implement a reorganization of the nurses' workload.

Retirement

The present study showed that close to half of respondents will retire within the next 15 years. These findings are more optimistic than results from a recent report, indicating that two-thirds of Quebec nurses are over the age of 50 and

^b The panel that was interviewed to validate the findings and interpretation of the results.

are expected to take early retirement within the next three years (Fidelman 2008). Either way, nurses' retirement trends are very relevant to the quality of Quebec health care.

Not only did the vast majority (86%) of respondents report that they would prefer a progressive reduction in workload as retirement approaches, but they would also be willing to delay retirement provided a desirable progressive approach was taken. Choice of work shift was a key condition, along with not having to work weekends, financial advantages, reduced number of work hours, reduced work responsibility, and reduction in the number of work weeks.

9.1 STUDY LIMITATIONS

A limitation of this study was the anonymous nature of the electronic questionnaire. Since nurses were not obliged to reveal their identity or enter proof of profession, one nurse could technically have completed more than one questionnaire. A barrier to this happening was the duration of the questionnaire; it took at least 30 minutes to fill out. Furthermore, although the sample is generally representative of the nursing population in terms of characteristics as represented by the CIHI profile, our proportion of young nurses was higher than the CIHI numbers.

9.2 CONCLUSIONS

To conclude, results indicate that there exists a reserve of clinical time by nurses and that this time could be offered to the private sector if it provided the proper initiatives. Although modest, this reserve reaches up to two extra days of work per month per nurse. This extra time could decrease the combined impact of the expected mass nurse retirement and of the aging of the population.

One could ask why nurses are not currently supplying more labour to the private sector since they do not face the same prohibition that doctors do in dual practice. The answer may be that there are not a sufficient number of private health care providers to use that reserve supply. Another answer could be that the health care system simply does not encourage dual practice. For example, even though equipment is greatly underused in public hospitals, it is not current practice to rent this equipment.

Requirements that would motivate respondents to offer extra time to the private sector, over and above their current time in the public sector, were related directly to their employers' ability to provide quality care to patients. Quality care is defined here as offering the right amount of time for patient care, patient follow-up and patient contact. Also important, but less so than the quality of patient care, is a more flexible approach to human resources management,

particularly the balance between family and work, along with work schedules. Salary motivations were mentioned by 75% of the nurses (only 62% considered it a very important factor). However, it should be noted that this was one of the least important factors for offering more time (21st out of 23).

Subsequent studies could be performed to refine conclusions pertaining to the reserve time of nurses and their motivations to work extra time in the private sector. However, study results indicate that there is room for short-term means to address the high volume of patients. These include encouraging public-private mixed practice for nurses. Furthermore, work organization could be reconsidered to enable nurses to concentrate more on the personalized patient care aspect of their jobs.

Our hypotheses have been verified:

1. There is an underuse of the supply of nurses in the health care sector.
2. Nurses would be willing to offer more clinical staff hours, over and above their current time in the public health care system.

The reserve supply of nurses' working hours is substantial. These findings suggest that the shortage of nurses may not be as sizable as it is generally believed. According to our survey, given the appropriate incentives and working environment, nurses would work more. If the public system, in which the majority of these nurses work, continues to fail to provide a suitable environment, an increasing number of them will be looking elsewhere. Given these conditions, an overwhelming majority of respondents would be willing to work for the private sector.

"Nurses choose to work in health care organizations where quality of care is prioritized and where nurses' work is valued."

Lynne McVey, Director of Nursing at the Jewish General Hospital and co-director of the Segal Cancer Centre, 2008

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11 APPENDICES

11.1 SCENARIOS ASSUMPTIONS

The number of hours per month offered by nurses is based on three parameters:

- The number of hours per week that they are willing to offer.
- The monthly frequency at which they are willing to offer the weekly hours.
- The probability that they will offer these hours.

In the choice of responses, the number of hours per week was divided into four-hour blocks. The frequency per week was spread over a scale running from zero to four weeks per month. The probability that they will offer these hours was stratified based on their willingness/ability/interest to act on their offers.

In the **realistic scenario**, we made the following hypotheses:

- Number of hours: We chose the midpoint of the interval ticked by each nurse.
- Monthly frequency: With no hypothesis needed for this parameter, we used the frequency ticked by each nurse.
- Probability that they will offer these hours:
 - “Absolutely”: A weight of 1 (100%) was assigned, because this wording stated a willingness to offer time.
 - “I could not, because I am already working on that shift; if not, I would do it”: This checkbox informed us they would do it (interest) but that a logistical constraint (schedule) limited nurses’ offer of time on that shift. Since work schedules can be adjusted (as mentioned by the members of the Delphi panel), we assigned a probability of 0.75 (75%) as an indicator of the propensity to act.
 - “I would think about it”: We made the hypothesis that half would offer time and the other half would not. This is why we set a weight of 0.5 (50%) as an indicator of the propensity to act.
 - “I don’t think so” (2): Some nurses said they would not do it but that, if they did, they would offer a certain number of hours at a certain frequency. We thus hypothesized that a small proportion of these nurses would offer time if mixed care was encouraged. This is why we set a low weight of 0.25 (25%) as an indicator of the propensity to act.
 - “I don’t think so” (1): For nurses who said they did not think they would offer time and indicated they would offer under 4 hours at a frequency equal to or less than one week per month, we assigned a weight of 0.

In the **conservative scenario**, we made the following hypotheses:

- Number of hours: We chose the minimum number in the interval ticked by the nurse.
- Monthly frequency: With no hypothesis needed for this parameter, we used the frequency ticked by the nurse.
- Probability that they will offer these hours:

- “Absolutely”: A weight of 1 (100%) was assigned, because this wording stated a willingness to offer time.
- “I could not, because I am already working on that shift; if not, I would do it”: This checkbox informed us they would do it (interest) but that a logistical constraint (schedule) limited nurses’ offer of time on that shift. We made the supposition in this scenario that the work schedule could be hard to adjust, and we set a probability of 0.25 (25%) as an indicator of the propensity to act.
- “I would think about it”: We made the hypothesis that half would offer time and the other half would not. This is why we set a weight of 0.5 (50%) as an indicator of the propensity to act.
- “I don’t think so”: We made the hypothesis that all nurses with this wording would not do it, and we assigned them a weight of 0.

In the **optimistic scenario**, we made the following hypotheses:

- Number of hours: We chose the maximum number in the interval the nurse ticked.
- Monthly frequency: With no hypothesis needed for this parameter, we used the frequency the nurse ticked.
- Probability that they will offer these hours:
 - “Absolutely”: A weight of 1 (100%) was assigned, because this wording stated a willingness to offer time.
 - “I could not, because I am already working on that shift; if not, I would do it”: This checkbox informed us they would do it (interest) but that a logistical constraint (schedule) limited nurses’ offer of time on that shift. Since work schedules can be adjusted (as mentioned by the members of the Delphi panel), and since these nurses were interested in offering time, we assigned a probability of 1 (100%) as an indicator of the propensity to act.
 - “I would think about it”: We made the hypothesis that half would offer time and the other half would not. This is why we set a weight of 0.5 (50%) as an indicator of the propensity to act.
 - “I don’t think so” (2): Some nurses said they would not do it but that, if they did, they would offer a certain number of hours at a certain frequency. We thus hypothesized that these nurses had a profile similar to those who replied “I would think about it” if mixed care was encouraged. This is why we set a weight of 0.5 (50%) as an indicator of the propensity to act.
 - “I don’t think so” (1): For nurses who said they did not think they would offer time and indicated they would offer under 4 hours at a frequency equal to or less than one week per month, we assigned a weight of 0.

Weights assigned	Conservative	Realistic	Optimistic
"Absolutely"	1	1	1
"I could not, because I am already working on that shift; if not, I would do it"	0.25	0.75	1
"I would think about it"	0.5	0.5	0.5
"I don't think so" (2)	0	0.25	0.5
"I don't think so" (1)	0	0	0

Number of hours offered per week	Conservative	Realistic	Optimistic
< 4 hours	0	2	4
4-8 hours	4	6	8
9-16 hours	9	12.5	16
17-20 hours	17	18.5	20
21-25 hours	21	23	25
25-30 hours	25	27.5	30
> 30 hours	31	35	40

Monthly frequency	Conservative	Realistic	Optimistic
Never	0	0	0
1 week on 4	1	1	1
2 weeks on 4	2	2	2
3 weeks on 4	3	3	3
4 weeks on 4	4	4	4

11.2 TABLES

Tables 1 Socio demographic profile.

Table 1.A Sex and age.

Sex (male)		10.5%
Age (years)	< 30	26.7%
	30-35	15.7%
	36-40	8.1%
	41-45	12.4%
	46-50	12.9%
	51-55	18.3%
	56-60	4.7%
	> 60	0.1%

Table 1.B Marital status.

Marital status		
Single		18.1%
Married/Cohabiting		73.7%
Separated/Divorced		7.7%
Widowed		0.5%

Table 1.C Number of children.

Number of children		
0		39.8%
1		23.1%
2		23.5%
3		9.6%
4		3.5%
> 4		0.5%

Table 1.D Children's age groups.

Children's age (years)		
< 5		14.3%
5 -10		12.5%
11-15		11.9%
> 15		61.3%

Table 1.E Location of main residence and workplace.

	Downtown	Urban or suburban	Small town	Rural	Isolated or geographically remote	Other
Workplace	28.0%	45.9%	15.0%	4.5%	6.1%	0.5%
Residence	11.6%	61.4%	11.2%	11.5%	4.2%	0.1%

Table 1.F Annual income, including overtime.

Income	
< 20 000 \$	2.6%
20 000 \$ - 30 000 \$	5.5%
30 000 \$ - 40 000 \$	17.3%
40 000 \$ - 50 000 \$	19.9%
50 000 \$ - 60 000 \$	26.7%
60 000 \$ - 70 000 \$	14.0%
70 000 \$ - 80 000 \$	4.1%
> 80 000 \$	9.8%

Table 1.G Satisfaction with annual income.

Satisfaction	
Very satisfied	4.4%
Satisfied	28.9%
I should be making a bit more, considering my responsibilities and work conditions	38.8%
I should be making much more, considering my responsibilities and work conditions	28.0%

Tables 2.

Table 2.A Number of patients seen per day, on average.

Patients	
< 5	22.3%
5-10	38.8%
10-15	19.1%
>15	19.8%

Table 2.B Satisfaction with the number of patients seen per day.

Opinion	
Too many patients	16.5%
Slightly fewer	32.5%
Just right	47.4%
Slightly more	3.6%

Table 2.C Work experience.

Years	
< 5	22.1%
5-10	13.8%
10-15	19.6%
15-25	14.0%
> 25	29.9%

Table 2.D Training.

Degree completed	
Professional high school diploma	0.2%
CEGEP diploma	34.6%
Undergraduate certificate	12.6%
Bachelor's degree	46.2%
Graduate degree (master's or doctorate)	6.5%

Table 2.E Specialization (non exclusive)

Sector	
Allergy & clinical immunology	0.5%
Cardiology	1.1%
Cardiac Surgery	0.4%
General Surgery	3.0%
Gastro-enterology	0.8%
Medical Genetics	0.5%
Geriatrics	9.7%
Haematology	1.2%
Emergency Medicine	10.8%
Internal Medicine	6.1%
Microbiology & infectious Diseases	0.1%
Neurology	1.1%
Neurosurgery	0.5%
Nephrology	1.5%
Obstetrics-gynaecology	2.0%
Oncology	2.5%
Ophthalmology	0.5%
Orthopaedic Surgery	2.3%
Oto-rhino-laryngology	0.7%
Paediatrics	5.5%
Physiatry	0.6%
Respiratory Diseases	4.3%
Psychiatry	6.7%
Diagnostic radiology	0.2%
Radio-oncology	0.2%
Rheumatology	0.1%
Community health	32.0%
Urology	5.2%

Table 2.F Present and preferred work schedule.

Work period	Present			Preferred		
	Never	Sometimes	Often	Less	Same	More
Week	1.3%	5.9%	92.8%	16.9%	58.7%	24.4%
Weekend	26.4%	28.6%	45.0%	61.6%	36.5%	1.9%

Table 2.G Present and preferred shifts.

	Present	Preferred
Day	66.4%	81.0%
Evening	18.2%	13.7%
Night	15.4%	5.3%

Table 2.H Hours worked per week (on average).

Hours	
< 25	11.7%
25-30	17.5%
30-35	11.1%
35-40	48.4%
> 40	11.3%

Table 2.I Overtime worked per week (on average).

Hours	
< 8	85%
8-16	14%
16-24	1%
> 24	1%

Table 2.J Number of holiday weeks per year.

Weeks	
< 1	2.9%
1-2	9.3%
3-4	59.1%
5-6	19.5%
7-8	7.0%
> 8	2.2%

Table 2.K Work experience in the private sector (affiliated with the RAMQ).

“Do you work in a private office (affiliated with the RAMQ)?”		
Yes		5.5%
No		94.5%

Table 2.L Work experience in the private sector (non affiliated with the RAMQ).

“Have you ever worked in the private sector (not affiliated with the RAMQ) as a nurse?”	
Never	69.7%
In the past	19.5%
Currently (part time)	6.1%
Currently (full time)	4.7%

Table 2.M Previous work experience (1 = Strongly agree; 5 = Strongly disagree)

Location	Experience	Appreciation of work experience				
		1	2	3	4	5
Other province	9%	52.40%	20.90%	8.00%	7.0%	18.1%
U.S.A.	7%	57.7%	13.6%	5.4%	0.0%	23.3%
Western Europe	14%	32.0%	45.3%	11.4%	0.0%	11.4%
Nordic countries	6%	39.7%	13.1%	(n(%))	(n(%))	47.2%
Elsewhere	13%	53.3%	23.9%	6.7%	1.9%	14.2%
Recruitment agency	24%	39.0%	22.5%	7.0%	18.2%	13.3%

Tables 3

Table 3.A Opinion on physician’s private practice.

“If the law were modified to allow physicians to work simultaneously in the public and private sectors, what minimum number of hours ought the government to require in the public system as a condition for working in the private sector?”	
At least 30-35 hours	30.9%
At least 20-25 hours	51.7%
At least 10 hours	5.7%
No minimum number of hours	11.8%

Table 3.B Requirements to accept work in the private sector
(1 = Strongly agree; 5 = Strongly disagree)

Requirements	1	2	3	4	5
Sufficient time for patient follow-up	88.6%	4.6%	1.2%	0.2%	5.5%
Sufficient time to care for my patients adequately	88.3%	4.5%	1.6%	0.2%	5.5%
Possibility for contacts that the patient deserves	86.7%	4.3%	2.2%	1.1%	5.8%
Having the appropriate resources to do the job	86.1%	6.9%	1.3%	0.2%	5.4%
Assurance that use of time is optimized	84.5%	6.3%	3.4%	0.9%	4.9%
An attractive setting	81.6%	10.3%	2.4%	0.5%	5.1%
A dynamic team	81.4%	10.3%	2.1%	1.7%	4.5%
A carefully planned workload / schedule	80.2%	11.7%	2.4%	0.4%	5.2%
Having the staff to do all non-medical tasks	80.2%	8.3%	5.0%	1.7%	4.9%
Assurance of having a complete team	80.1%	10.1%	3.7%	0.8%	5.4%
Achievable work-life balance	79.7%	8.0%	6.0%	1.3%	5.0%
Possibility to offer my patients a variety of clinical alternatives	78.9%	9.8%	5.0%	4.0%	2.3%
An employer that promotes a sense of belonging to the group	78.6%	10.0%	5.7%	1.2%	4.5%
Stability	78.5%	9.8%	5.0%	1.0%	5.8%
Transparency from management	77.5%	13.2%	3.5%	0.9%	4.8%
Rapid turnaround time for non-medical decision-making	73.0%	14.5%	6.7%	0.9%	4.9%
Parking space	69.6%	17.1%	5.8%	1.4%	6.1%
Workplace near your home	66.6%	15.1%	11.0%	2.4%	5.0%
Assurance that cases handled in the private sector cause no detriment to severe cases (e.g. cancer)	64.8%	13.5%	10.2%	3.1%	8.4%
Challenges	64.1%	21.9%	8.6%	0.6%	4.7%
Being paid more than in the public sector	62.0%	13.9%	11.8%	1.8%	10.5%
Working with the physicians you usually work with	35.3%	18.4%	29.4%	6.7%	10.2%
Not being part of a trade union	23.7%	10.2%	31.3%	10.8%	24.0%

Tables 4

Table 4.A Professional satisfaction (1 = Strongly agree; 5 = Strongly disagree).

	1	2	3	4	5
Your current professional life	12.5%	31.4%	38.1%	11.8%	6.2%
A job well done	42.9%	31.5%	15.1%	6.8%	3.7%
Your relationship with your patients	36.1%	32.4%	17.2%	10.8%	3.5%
Your work schedule	29.9%	30.0%	17.2%	14.8%	8.2%
Mentoring young nurses	23.0%	25.7%	26.2%	13.4%	11.8%
Intellectual challenges	20.6%	34.7%	27.1%	13.2%	4.4%
Social recognition	20.0%	26.5%	37.0%	8.8%	7.6%
Your role in the health care system	15.5%	28.3%	31.5%	20.0%	4.7%
Resources your patients need for optimal clinical outcomes	15.1%	22.4%	34.0%	20.5%	7.9%
Your balance between professional and personal life	12.8%	33.5%	31.7%	14.6%	7.4%
The possibility of doing research and teaching	12.0%	20.5%	27.1%	17.3%	23.0%
Pleasure in being a “rescuer”	8.4%	22.2%	32.4%	18.8%	18.2%
Ease in finding colleagues to replace you:					
long leave of absence	14.9%	5.9%	13.4%	24.2%	41.6%
short leave of absence	13.0%	14.8%	17.4%	22.1%	32.6%
Your relationship with your main healthcare settings:					
Administrators	7.7%	16.1%	30.2%	20.9%	25.1%
Clinic director / nursing services director	7.6%	21.8%	40.0%	15.7%	14.9%
Directors	6.9%	14.8%	29.7%	22.6%	26.0%

Table 4.B Present and preferred collaboration with other professionals.

Collaboration with:	Present			Preferred		
	Never	Sometimes	Often	Less	Same	More
Specialists	15.80%	40.70%	43.50%	0.80%	70.70%	28.60%
Residents	36.40%	24.70%	38.90%	4.00%	72.80%	23.20%
General and family practitioners	20.10%	36.00%	43.90%	0.80%	65.40%	33.80%
Nurses	0.90%	13.40%	85.60%	0.90%	79.90%	19.20%
Paramedical staff	12.00%	44.10%	43.90%	0.40%	66.20%	33.40%
Nurse's aide	22.10%	30.50%	47.40%	3.10%	61.50%	35.40%
Secretaries	14.5%	26.60%	58.90%	1.20%	70.70%	28.10%

Table 5.A Opinion on the present health care context.
(1 = Strongly agree; 5 = Strongly disagree).

Statements	1	2	3	4	5
Every citizen has a fundamental right to receive quality care	95.3%	2.9%	0.0%	1.0%	0.8%
The health care system should enable nurses to have a better balance between their professional and personal lives	72.3%	21.8%	4.5%	0.2%	1.2%
There should be much higher premium payments to health care professionals who work in difficult conditions.	59.5%	26.0%	9.9%	1.1%	2.8%
Health care facilities should be allowed to keep budget surpluses	58.2%	27.2%	9.8%	2.8%	2.0%
The current system sets priorities accordingly to political lobbying	54.3%	27.8%	14.0%	2.4%	1.5%
Strategies on health care issues should be driven bottom to top (from health care providers to the ministry of health)	45.7%	37.4%	13.4%	2.1%	1.5%
Patients should have the possibility of opting for the private sector	43.4%	27.3%	13.4%	7.5%	8.3%
When I treat a patient, I always do so using the best alternatives, regardless of the cost to the system.	42.0%	35.0%	12.6%	7.6%	2.8%
When I treat a patient, I always keep in mind providing the best alternative at a reasonable cost.	37.7%	30.1%	14.4%	9.4%	8.4%
There should be performance evaluation reports to pay more to those who exceed expectations	36.0%	16.3%	23.8%	10.2%	13.7%
Public-private partnership represent an avenue worth exploring	30.5%	31.0%	20.9%	10.0%	7.6%
It is taboo to talk about the cost of an episode in the health care sector	23.2%	21.7%	32.1%	12.1%	10.8%
Health care should be depoliticized and run according to a business model	20.2%	34.2%	26.4%	11.2%	8.1%
The health care system should be publicly funded but managed like the private sector	19.5%	32.0%	28.6%	10.6%	9.3%
Overall, hospitals are not well funded.	17.9%	25.6%	35.8%	15.0%	5.6%
Health care providers are like “free electrons”	17.0%	26.8%	33.0%	11.3%	12.0%
Overall, Quebec hospitals have enough money, but the money is not well distributed among them.	15.0%	26.4%	31.8%	16.3%	10.5%
The health care system should be entirely public	14.9%	24.0%	33.9%	13.1%	14.1%
Strategies to healthcare issues should be driven top to bottom (from the ministry of health to health care providers)	4.5%	4.3%	14.0%	32.8%	44.5%

The department of health has a clear long-term vision	0.7%	6.2%	24.7%	21.4%	47.0%
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Tables 6

Table 6.A Opinion on surgery waiting lists.

Opinion	
Acceptable	1.8%
Long	15.0%
Too long	43.9%
Unacceptably long	39.3%

Table 6.B Opinion on surgery waiting lists for different patients' categories.

	I feel comfortable with a significantly long waiting list	I feel worried about a significantly long waiting list	I feel compelled to find an alternative for my patient
For patients with surgery that is not related to a life-threatening condition			
and where the waiting list does not have an impact on their activities of daily living	18.5%	59.4%	22.2%
and where the waiting list does have an impact on their activities of daily living	1.4%	45.8%	52.8%
For patients with surgery that could involve a low-to-moderate risk of a life-threatening condition			
and where the waiting list does not have an impact on their activities of daily living	4.9%	50.5%	44.6%
and where the waiting list does have an impact on their activities of daily living	0.4%	41.0%	58.6%
For patients with surgery that involves a life-threatening condition but where the waiting list does not have an impact on their activities of daily living	1.6%	43.1%	55.3%

Table 6.C Average direct care time spent on patients in surgery room (including overtime).

Proportion	
< 10 %	4.3%
10% - 25%	0.0%
25% - 50%	0.7%
50% - 75%	3.6%
75% - 90%	79.7%
90% - 100%	10.9%

Table 6.D Hours per week worked in the operating block (including overtime).

Hours	
< 10	4.3%
10 - 15	0.0%
15 - 20	0.7%
20 - 30	3.6%
30 - 40	79.7%
40 - 50	10.9%
> 50	0.7%

Table 6.E Average number of surgeries per week.

Surgeries	
< 5	5.7%
5-10	3.6%
10-15	1.4%
15-20	0.7%
20-25	0.0%
25-30	78.6%
30-40	5.0%
40-50	0.0%
> 50	5.0%

Table 6.F Opinion on surgery.

Opinion	
I love surgery	92.6%
I like surgery	0.0%
If I had the choice, I would do something else	7.4%

Table 6.G Reasons for working in the surgery room (1 = Strongly agree; 5 = Strongly disagree).

Reasons	1	2	3	4	5
Passion	75.2%	9.8%	7.8%	0.0%	7.2%
My belief that I am a good nurse in that context	85.6%	7.8%	0.7%	0.0%	5.9%
The challenge	68.0%	17.0%	9.2%	0.0%	5.9%
Excitement	71.9%	17.0%	3.9%	0.7%	6.5%
Prestige	1.3%	5.2%	26.1%	12.4%	54.9%
Workload control	62.7%	1.3%	7.8%	1.3%	11.8%
Teamwork	24.8%	16.3%	49.0%	3.3%	6.5%
I work well with surgeons	38.6%	49.0%	4.6%	1.3%	6.5%

Table 7 Estimation of the extra hours per month respondents would offer the private sector.

	Conservative	Realist	Optimistic
Weekdays	4.9	7.8	11.0
Evenings	3.1	4.6	6.3
Weekends	1.7	2.8	4.2
Holidays	0.4	0.6	0.9

Table 8

Table 8.A Interest in offering extra hours in the private sector, over and above hours in the public sector.

	Weekdays	Evenings	Weekends	Holiday
Interest				
I do not think so	45.5%	50.1%	66.0%	63.1%
I would consider it	31.6%	33.6%	24.2%	31.7%
I could not since I already work in that shift.				
Otherwise, I would	14.9%	9.7%	4.8%	n/a
Absolutely	7.9%	6.6%	5.0%	5.2%
Number of hours				
< 4	34.7%	46.7%	59.1%	52.9%
4-8	41.7%	38.1%	26.6%	39.0%
9-16	19.3%	13.3%	12.9%	6.8%
17-20	2.5%	0.8%	0.4%	0.0%
25-30	0.8%	0.5%	0.4%	0.8%
> 30	1.1%	0.5%	0.7%	0.5%
Frequency (except holidays)				
never	28.3%	36.0%	1.1%	
1 week per month	13.9%	27.9%	69.9%	
2 week per month	31.1%	19.0%	12.4%	
3 week per month	5.0%	3.5%	3.5%	
4 week per month	21.6%	13.7%	13.3%	
Frequency (holidays)				
Never				45.8%
Rarely				22.0%
1 out of 2				20.3%
Most of the time				8.0%
Always				3.9%

Tables 9

Table 9.A Number of anticipated years before retirement.

Years	
1-2	5.5%
3-5	9.4%
6-10	17.1%
11-15	14.9%
16-20	13.5%
> 20	39.6%

Table 9.B Preference of retirement process.

Work full-time until retirement	14%
Step-down approach to retirement with fewer obligations	86%

Table 9.C Step-down approach to retirement.

“If you could choose your retirement process, would you delay your retirement?”	
Absolutely	16.9%
I would seriously consider it	17.9%
It would depend on the conditions	41.6%
I don't think so	12.3%
Absolutely not	11.3%

Table 9.D Preference factors for a step-down approach to retirement (1 = Strongly agree; 5 = Strongly disagree).

Factors	1	2	3	4	5
Choosing your work shift	89.0%	5.0%	2.5%	0.9%	2.5%
Never working on weekends or holidays	71.5%	12.2%	6.7%	5.3%	4.3%
Financial advantages	68.5%	19.1%	8.8%	1.0%	2.6%
Reduced number of hours	67.4%	21.7%	7.0%	2.1%	1.8%
Reduced workload	66.6%	19.8%	7.8%	3.2%	2.7%
Choosing the number of weeks worked	56.8%	20.1%	16.4%	4.3%	2.5%
Reduced responsibilities	49.7%	24.0%	13.8%	5.8%	6.6%
Working on special projects	45.5%	17.9%	18.3%	4.4%	13.8%
Doing mainly teaching or mentoring	36.1%	18.4%	22.6%	5.3%	17.5%

Table 9.E Worries about approaching retirements (1 = Strongly agree; 5 = Strongly disagree).

“I am worried about the number of approaching retirements.”	1	2	3	4	5
Nurses	72.5%	18.7%	4.2%	3.1%	1.6%
General practitioners	54.7%	28.9%	10.8%	2.6%	3.0%
Specialists	58.8%	22.3%	13.2%	2.5%	3.2%