

Caring for the Caregivers of “Alternate Level Care” (ALC) Patients: The Impact of Healthcare Organizational Factors in Nurse Health, Well Being, Recruitment and Retention in the South Fraser Health Region of British Columbia

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MAIN MESSAGES

Risk of Injury

- The way in which Alternate Level Care (ALC) is organized impacts the risk of injury to healthcare staff. Specifically, “dedicated ALC” wards carry lower risk of injury than wards in which there is a “high mix” of ALC-patients within a general medical and/or surgical patient population. The risk of time-loss patient-handling and violence-related injuries is particularly high on “high mixed” wards and low on “dedicated ALC” wards. **“Dedicated ALC wards” thus seem to be a better way of caring for ALC-patients with respect to reducing the risk of injuries to staff as compared to the utilization of beds for ALC-patients wherever they are available.**
- Geriatric Assessment Units (GAUs) pose a high risk of injury, despite the fact that these units are under the supervision of highly trained staff, and had strong management support, good resource allocation, and were perceived as having a high level of professionalism. In addition, there was a high level of satisfaction among the employees of these wards and a low burnout rate compared with employees of units within other ALC models of care. Nonetheless, the risk of injury remained quite high, particularly for patient-handling time-loss injuries and for violence-related injuries (which were five times higher than the risk of violence-related injuries in non-ALC wards). **Greater attention still needs to be paid to improving prevention of injury on GAUs, especially for violence-related injuries.** Apparently, the type of patients in these wards – behaviourally unstable patients, not yet assessed nor well-known to staff with respect to their risks - pose the highest risk situation for staff.

- With respect to other individual or unit variables that are associated with the risk of injury, licensed practical nurses (LPNs) and care aides (CAs) hold a higher risk of injury than registered nurses (RNs), whereas rehabilitation staff (occupational therapists, physiotherapists, etc.) have a lower risk of injury than RNs. Indeed, the LPN/CAs were three times more likely to be injured than RNs. **Training, work assignments and other factors to prevent injuries to LPN/CAs should be reviewed.** In addition, we substantiated reports in the literature that previous injury confers a higher risk of re-injury. Neither age, nor seniority, nor hospital conferred a significantly elevated risk of re-injury. **Thus the ALC model of care, occupation, and whether an individual had a previous injury stood out as the more important determinants of injury.**

Recruitment and Retention

- The ALC model of care was not a significant influence on termination and recruitment, most likely because it was dwarfed by other factors. The only significant finding with respect to termination, as it relates to the ALC models, was that the “low mix” wards had the lowest rate of termination, and the highest rate of recruitment, despite the fact that satisfaction was low and burnout was high on these wards. Possibly workers on these wards are highly specialized and may be less likely to be recruited away to less specialized units.
- With respect to other determinants of termination, **casual workers** are at higher risk of termination than individuals with permanent employment (as would be expected).
- **Younger nurses** are much more likely to terminate their employment than older nurses.

Burnout, Satisfaction, or Self-Rated Health

- Staff not told that they would be working with ALC-patients when hired, and who spend more than 50 percent of their time with ALC-patients, are at greater risk of burnout, dissatisfaction, and lower self-rated health. Similarly, employees who do not like working with ALC-patients and spend more than 50 percent of their time with ALC-patients are at high risk of burnout, low satisfaction, and low self-rated health. **It is therefore important to inform staff, upon recruitment, whether they will be working with ALC-patients, and efforts should be made to not place staff that do not like working with ALC-patients on wards that have high ALC loads.**
- Management is perceived to be more supportive when: 1) resources are perceived to be adequate; 2) there is greater worker participation in governance; 3) more opportunity for promotion; and 4) management is perceived to be more concerned about health and safety issues. **Thus increased worker participation and management attention to health and safety could: improve perceived management supportiveness, increase satisfaction with the hospital, and decrease burnout.**

Correlations

- Some of the factors that predicted injury were the same as those that predicted burnout, satisfaction and self-rated health (e.g., adequacy of staffing predicted time-loss injuries for LPN/CAs as well as their scores for burnout, satisfaction and self-rated health) but this was not the case for many other variables. Thus, distinct strategies are needed to decrease injuries, promote recruitment and retention and enhance satisfaction.

EXECUTIVE SUMMARY

Context

Pressures within the healthcare system are likely to escalate as the demands for care continue to exceed the resources available. In BC, a freeze in the construction of extended care beds (and a recent announcement of the closure of some), as well as increases in the numbers of elderly needing care, result in a growing population of Alternate Level Care (ALC) patients¹ in many hospitals - frail elderly patients not needing acute care are increasing their share of utilization of acute care beds. This burden is particularly evident in what was the South Fraser Health Region (SFHR, now subsumed as part of the larger Fraser Health Authority) of British Columbia, which has the fastest growing elderly population in Canada. The SFHR therefore developed a dual strategy of building more community beds and, as an interim solution, improving ALC within the acute-care system.

It has been suggested that registered nurses often regard care for stable, elderly patients as “low status” (the territory of LPNs and care aides), as unchallenging and not what they were trained or employed to provide (Kuhn 1990; Stevens & Crouch, 1998). Increased pressure to care for ALC-patients may therefore affect the morale and sense of control of RNs, particularly if organized and administered in a non-participatory fashion. In addition, the management of ALC-patients requires extensive lifting and transferring of patients sometimes in less than ideal circumstances. Patient lifting and transfers are a main cause of injuries in nurses: the more frequently patients have to be moved the greater the injury risk (Yassi et al., 2002). This risk is likely to be magnified on wards where the staff do not have proper patient lifting equipment and/or are not properly trained for these tasks. The shift to increased numbers of ALC-patients was hypothesized, then, to not only adversely influence nurse recruitment and retention, but increase risk of injury as well.

The South Fraser Health Region was chosen to investigate the impact of different ALC models on injury, recruitment, and termination among patient-handling staff because a “natural experiment” was underway in the region’s four acute-care facilities: different models were evolving in the organization of nursing care for ALC-patients. These “interim” organizational models ranged from, at one extreme, assessments by relatively unspecialized staff followed by placement of patients on mixed medical-surgical/ALC wards and, at the other extreme, assessments by highly specialized staff followed by care

¹ The following Canadian Institute of Health Information (CIHI) definition is used to designate patients as ALC – “A patient who is considered a non-acute treatment patient but occupies an acute care bed. This patient is awaiting placement in a chronic unit, home for the aged, nursing home, rehabilitation facility, other continuing care institution or home care program, etc. The patient is classified as an ALC when the patient's physician gives an order to change the level of care from acute care and requests a transfer to another facility.”

on wards specially designed and equipped to handle ALC-patients and often under the supervision of a geriatrician.

Methods

A total of 2,854 patient-handling staff, including all RNs, licensed practical nurses (LPNs), care aides (CAs), and rehabilitation staff (consisting mainly of physiotherapists, occupational therapists, and social workers) working at one of the four acute care facilities in the SFHR on June 10th, 2001 (called “baseline”) were identified from personnel records.

Information on their socio-demographic variables including age, seniority and job title were determined at baseline and all injury incident reports were obtained for the year preceding baseline from the computerized regional occupational health and safety database. As well, all RN cohort members recruited during the year preceding baseline were identified from personnel files and all their injuries were obtained for the six-month follow-up period (June 10th, 2001 through December 10th, 2001). All RN terminations were identified from personnel files for this six-month study period as well. Later, to increase the size of the cohort of terminated workers, records of termination for the year preceding baseline were also obtained.

Interviews and focus groups were conducted with senior managers and nursing staff at each facility, and with the managers responsible for the region-wide seniors’ program, to identify all ALC wards and to characterize the philosophy and structure of ALC across the four study facilities.

Eighty-four wards were identified across the four study sites. Forty-four wards (52.5%) handled ALC-patients, and each was classified into the five ALC models.

A questionnaire survey was developed, based largely from validated instruments in the literature, and was mailed to all cohort members on September 10th, 2001 - the halfway point of the six-month follow-up period². Respondents were asked to identify on which unit they were working on September 10th, and to answer all questions in relation to that unit. Respondents who worked on more than one unit were asked to identify the unit they worked on most often during that day and answer all questions in relation to that unit. After one month, non-respondents were contacted and interviewed by telephone.

Factor analysis was undertaken with questions from the survey of cohort members to derive variables of the work environment in relation to ALC and, more generally, the nurse work practice environment.

Of the 319 injuries that occurred in the 6-month follow-up period, 296 were successfully followed up by telephone interviews, largely to deepen our understanding of the relationship between ALC and the injury that occurred, from the perspective of the

² It was originally planned to conduct this survey for the “baseline” date rather than midpoint, but delays in finalizing the survey instrument precluded this possibility.

injured worker. Two hundred sixty-one different people incurred these injuries: 31 had sustained two injuries; 4 had sustained three injuries. Of the 261 people interviewed, 81.6% were RNs and 18.4% were LPN/CAs. All the workers who were injured in the 6-month follow-up period were also followed up in a telephone survey. The purpose of this survey was to deepen our understanding of the injury process and potential recommendations to prevent future injuries. Specifically, our purpose was to deepen our understanding of the relationship between ALC and risk of injury from the perspective of the injured worker.

Results

Five hundred thirty-three cohort members had sustained an injury in the year preceding baseline (18.7% of all patient care staff). Three hundred nineteen (11.2%) cohort members sustained an injury during the six-month follow-up period of these 125 (3.9% of cohort members) experienced time-loss injury.

We found that 1,654 cohort members (58% of all patient-care staff) were working on a unit with ALC-patients. The percentage of workers sustaining an injury in the six-month follow-up period ranged from a low of 8.0% on Dedicated ALC wards through to 11.2% on low-mix units, 14.3% on ECU/ALC units, 20.3% on high-mix units, up to a high of 20.7% on GAU units. The percentage of workers sustaining an injury during follow-up was 2.5 times higher for workers on high mix and GAUs compared to workers on non-ALC wards.

This pattern was similar for patient-handling and violence-related injuries, except that the proportion of workers sustaining an injury during patient-handling was 3.5 to 4 times higher for those on high mix and GAUs respectively relative to non-ALC wards and approximately 5 times higher for violence-related injuries on high-mix units compared to non-ALC units. Relative to non-ALC wards, the proportion of workers with a time-loss injury during follow-up was: 2.79 times higher for staff on ALC/ECU wards, 3.47 times higher for staff on high-mix ALC wards, and approximately 8.0 times higher for staff on GAUs.

In the bivariate analyses, age, seniority, and hospital variables did not show any statistically significant association with risk of injury, therefore, these variables were not included in the final logistic regression model. In the final model, individuals who had incurred an injury in the previous year were 3.23 times more likely to incur an injury in the follow-up period. After controlling for previous injury, LPN/CAs were 1.58 times more likely to be injured than RNs whereas rehabilitation staff were 0.11 less likely than RNs to sustain injury. Relative to non-ALC wards, increased odds of time-loss injury were found for: ALC/ECU wards (OR=2.46; 95% CI=1.46-4.16), high-mix ALC wards (2.62; 95% CI=1.18-5.79) and GAUs (OR=4.65; 95% CI=1.84-11.73).

With respect to the questionnaire results, a total of 1,029 surveys were returned for a 36.1% response rate. The proportion of respondents and non-respondents was similar



with respect to hospital, occupation and ALC models, but differed with respect to injury rate as we specifically targeted injured workers in the follow-up of non-respondents.

There were statistically significant differences in mean levels of satisfaction with profession, hospital, and unit as well as burnout scores for those respondents who intended to continue working with ALC-patients compared to those who did not want to continue working with ALC-patients. Similarly, for those respondents who did not enjoy working with ALC-patients, satisfaction in all three categories was lower, and burnout higher compared to staff that did enjoy working with ALC-patients.

Satisfaction scores were lowest on low- and high-mix wards and highest on ECU/ALC, GAU, and dedicated ALC wards.

Based on the 13 questions measuring ALC for these respondents, we identified three conceptually meaningful factors we labelled as “perceived unit-level ALC centeredness”, “employee level ALC centeredness”, and “discharge planning for ALC-patients.”

One-way analysis of variance revealed significant differences between the ALC models in regard to “perceived unit-level ALC centeredness” and “employee-level ALC centeredness”. There was no statistically significant difference between ALC models with regard to “discharge planning.”

Factor analysis with the Nurse Work Index (NWI-R) questions resulted in factors we labelled “perceived support for nursing professionalism”, “supportive management”, “satisfactory resource allocation”, and “working relationships”. “Perceived support for nursing professionalism”, “support from management”, and “perceptions about the adequacy of resource allocation” also varied significantly by ALC model. There were no statistically significant differences in “perceived working relationships” across the ALC models, and these factors were dwarfed by history of injury, occupation and ALC model as predictors of injury.

Interviews with injured workers strongly supported the association between the ALC model and risk of injury. “Having dedicated ALC-wards” was seen as second only to staffing as a way of reducing injuries, and the characteristics of ALC-patients were certainly seen as high-risk by those workers who actually sustained injuries.

Of the 1,528 RN cohort members, 58 (3.8%) terminated employment during the six-month follow-up period; whereas 216 RNs (14.1% of RN cohort members) were recruited during the one-year pre-baseline period. Three variables were associated with termination: age, hospital, and ALC model. Occupational status however, was most highly associated with termination: RN floats/casuals were 3.2 times (95% CI: 1.4-7.3) more likely to terminate than RNs who had permanent part-time or full-time placements. Although RNs on low-mix ALC units were 76% (OR=0.24; 95% CI: 0.07-0.86) less likely to terminate than RNs working on non-ALC units, no association was found between high-injury ALC models (high-mix and GAUs) and RN terminations.



In telephone follow-up of 40 RNs who had terminated, the most frequently cited reasons for termination were heavy workload and lack of support from management. The heavy workload led to fears that patients were not being properly cared for and that working conditions were unsafe. Heavy workload in conjunction with understaffing meant that respondents were working under constantly high and unacceptable levels of stress. Inflexibility of shift schedules was another major reasons cited for leaving employment in the region. The concerns were of three types. First, inflexible and long shifts were felt to be leading to health and chronic sleeping problems. Second, because many of these workers had jobs in other facilities, either within the region or in other regions, inflexible shift schedules for casual and part-time workers made it impossible to hold down multiple jobs. Third, many felt that the payment system for casuals was unfair because it reflected casual job status rather than experience. This perception about pay in conjunction with high levels of stress often appeared to have tipped the balance to decisions to terminate employment in the region.

Conclusions

The way in which care is organized for ALC-patients is an important determinant of injury risk. The results suggest that Dedicated-ALC wards are a superior method of providing ALC, rather than mixing ALC-patients into the general acute medical / surgical patient population. However, the care delivery model is only a significant determinant of retention for the subgroup of nurses who did not enjoy working with ALC-patients and who nonetheless were required to work extensively with them. Retention was impacted much more by 'casual' job status.

Characteristics of management style as well as the work environment were powerful determinants of satisfaction, burnout and self-rated health and thus deserve considerable attention to improve the health and well being of staff. However these factors were dwarfed by variables such as occupation and ALC models when it came to predicting injuries. Thus the variables that determined recruitment and retention were highly correlated; the variables that determined injuries were highly correlated; and the variables that determined satisfaction, burnout and self-rated health were highly correlated, but these sets of outcomes had relatively distinct determinants. Thus, to achieve and retain a healthy, satisfied, injury-free workforce, management style, work environment, job status *and* the care model must be taken into consideration.

1. INTRODUCTION

Organizations with a "people oriented culture" (defined by worker participation in decision-making, positive morale, non-adversarial labour relations, and an atmosphere of open communication) have lower injury claim-rates than organizations without these features (Amick et al., 2000a, 2000b; Habeck et al., 1991; Hunt et al., 1993; Shannon et al., 1996, 2000). Numerous investigations within health-care work settings have also shown that psychosocial and physical work conditions, measured at the task-level, affect injury outcomes for patient-handling staff (Koehoorn et al., 1999; Lagerstrom et al., 1998).

At the same time as these organizational and task-level factors are becoming recognized as important determinants of injury, patient-handling staff, in many settings, face rapidly increasing job demands (Houtman et al., 1994; Sullivan et al., 1999) and considerable exposure to occupational hazards (Yassi, 1998), including violence (Hurlebaus, 1994; Yassi, 2000; Yassi and McLeod, 2001).

Pressures within the healthcare system are likely to escalate as the demands for care continue to exceed the resources available. In BC, a freeze in the construction of extended care beds (and a recent announcement of the closure of some), increases in the frail elderly population, and continuing reductions in the size of the acute-care sector have led to frail elderly patients rapidly increasing their share of acute care hospital days and acute care beds resulting in a growing population of Alternate Level Care (ALC)



patients¹ in many hospitals (Barer et al., 1987; McGrail et al., 2001).

This burden was particularly evident in the South Fraser Health Region (SFHR; now subsumed as part of the larger Fraser Health Authority) of British Columbia, which has the fastest growing elderly population in Canada (ALC Task Force Report, 1998). Consequently, the SFHR had the greatest shortage of extended care beds compared to every other region in the province (ALC Task Force Report, 1998). The ALC population in the region's four acute-care hospitals accounted for approximately 25% of inpatient days. Because of the projected explosive growth in the region's elderly population over the next decade, the SFHR developed a dual strategy of building more community beds and, as an interim solution, the development and improvement of ALC within the acute-care system (ALC Task Force Report, 1998).

Patient lifts and transfers are a main cause of injuries in nurses (Daynard et al., 2001; Yassi et al., 1995); the more frequently patients have to be moved the greater the injury risk. This risk is likely to be magnified on badly designed wards where staff do not have proper patient-lifting equipment and/or are not properly trained for these tasks. Violence, from patients with dementia is also a major cause of injury (Yassi and McLeod, 2001).

¹ The following CIHI definition is used to designate patients as ALC – “A patient who is considered a non-acute treatment patient but occupies an acute care bed. This patient is awaiting placement in a chronic unit, home for the aged, nursing home, rehabilitation facility, other continuing care institution or home care program etc. The patient is classified as ALC when the patient's physician gives an order to change the level of care from acute care and requests a transfer to another facility.”

Registered nurses often regard care for stable, elderly patients as “low status” (the territory of LPNs and care aides), unchallenging and not what they were trained or employed to provide (Kuhn, 1990; Stevens & Crouch, 1995). Increased pressure to care for ALC-patients may therefore affect the morale and sense of control of nursing staff, particularly if organized and administered in a non-participatory fashion. This also has the potential to increase adverse psychosocial exposures as well as physical demands resulting in higher risk of injury.

The shift to increasing care of ALC-patients is hypothesized to not only adversely impact injury rates but also to influence nurse recruitment and retention (Blegen, 1993; Buchan, 1994; Cavanaugh and Coffin, 1992; Irvine and Evans, 1995; Landeweerd and Boumans, 1995; Song et al., 1997). For example, it is possible that older nurses are less likely to want to care for elderly patients in stressful, inadequately designed and relatively high-injury work situations, such that when nurse supply is stretched, turnover rates will be high as dissatisfied nurses move to better work situations (Kuhn, 1990).

Nurse shortages in developed nations are a widespread problem (Tovey and Adams, 1998; Aiken et al, 2001). Nursing appears to be a less attractive career than in the past because of cutbacks to the healthcare system, which have increased workloads for many nurses (Khuder et al., 1999). In addition, this occupation has a very high risk for injuries and disability (Yassi, 1998; Yassi et al., 1995; 2002).



The South Fraser Health Region was chosen to investigate the impact of different models of ALC on injury, recruitment, and termination among patient-handling staff because a “natural experiment” was underway in the region’s four acute-care facilities as different models have evolved in the organization of nursing care for ALC-patients. These “interim” organizational models range from, at one extreme, assessments by relatively unspecialized staff followed by placement of patients on mixed medical-surgical/ALC wards and, at the other extreme, assessment, by highly specialized staff followed by care, often under the supervision of a geriatrician, on wards specially designed and equipped to handle ALC-patients.



2. SPECIFIC QUESTIONS ADDRESSED

- i) Is one care model for ALC-patients superior to others with respect to reducing injuries and improving recruitment and/or retention of staff?
- ii) Which aspects of work organization and/or work culture are most important in reducing injuries and improving recruitment and/or retention of staff?
- iii) Is a healthful work environment, with fewer injuries, less time-loss due to injury, and other measures of staff well being, related to higher retention and easier recruitment of staff?
- iv) Do facilities with better retention and staffing levels have lower workplace injury, lower time-loss injury, better self-reported health status, better job satisfaction, and lower rates of burnout?

3. METHODS

During the first month of the study a steering committee was formed consisting of representatives from the health region, the regional occupational health and safety personnel, BC Nurses' Union, Hospital Employees' Union, Health Sciences Association, and the project's principal investigators. In the second month of the study, labour disputes began throughout BC's healthcare sector. Notwithstanding this difficult and the prolonged state of affairs (which began in month three of the project and continued until month eight) the project was completed but required some modification of the original design, as discussed below. Additionally, reorganization of healthcare in BC delayed the ability to discuss results and interpretations, thus delaying the synthesis and reporting.

3.1 Modification of Original Study Design and Methods

Complete details of modifications made to the original study are described in Appendix A. In summary, the original design was modified by: 1) reducing the follow-up period from one year to six months, 2) conducting the questionnaire of cohort members at the mid-point of the follow-up period instead of at the beginning of follow-up, 3) conducting logistic regression analyses using proportions rather than conducting Poisson and Cox regression as we were unable to obtain denominator information for the six-month follow-up period (however, we did obtain denominator data for the one-year pre-baseline period and calculated injury rates for this time period [See Appendix B], 4) interviewing approximately 20% of the RN recruits and 15% of the terminated RNs during the follow-up period instead of all.

3.2 Study Population

A total of 2,854 patient-handling staff who were working at one of the four acute care facilities in the SFHR on June 10th, 2001 were identified from personnel records. Patient-handling staff was identified on the basis of job codes in the payroll files. All RNs, Licensed Practical Nurses (LPNs), care aides (CAs), and rehabilitation staff (consisting mainly of physiotherapists, occupational therapists, and social workers) were included. Management and unionized non-patient-handling staff, such as kitchen workers, clerks, and laundry workers were excluded from the cohort.

3.3 Definition and Measurement of Baseline Variables

Information on the socio-demographic variables including age, seniority and job title determined at baseline. All injury incident reports, including minor injury reports with no subsequent treatment or Workers' Compensation Board (WCB) claims, injuries requiring an emergency room or family doctor visit only, and WCB time-loss injury claims, accepted and applied for, were also obtained from the computerized regional occupational health and safety database for the year preceding baseline. As well, all RN cohort members recruited during the year preceding baseline were identified from personnel files.

3.4 Definition and Measurement of Outcomes

All injuries and time-loss injuries occurring to cohort members were obtained from the computerized regional occupational health and safety database for the six-month follow-up period (June 10th, 2001 through December 10th, 2001). Based on injury description information in the occupational database, all injuries and time-loss injuries were re-coded to identify patient-handling and violence-related injuries as well as time-loss claims. Finally, all RN terminations were obtained from personnel files for the six-month study period.

3.5 Measurement of Unit-level Work Conditions

Work conditions were measured in two ways. First, in-depth interviews and focus groups were conducted with SFHR staff to identify and characterize ALC models across the four study institutions. Second, a survey of cohort members was conducted primarily to obtain self-reports of work environment and conditions of nursing practice.

3.5.1 Characterization of ALC Models

A medical sociologist conducted focus groups and interviews with senior managers and nursing staff at each facility as well as the managers responsible for the region-wide seniors' program to identify all ALC-wards and to characterize the philosophy and structure of ALC models across the four study facilities.

Once all ALC-wards were identified, further interviews were conducted with senior nursing managers, and staff involved in ALC-patient assessment, care, rehabilitation, and

discharge-planning (such as physiotherapists, social workers, and geriatricians) at each of the identified wards.

A semi-structured interview was administered to ascertain: 1) the philosophy of care on the ward, 2) the type of ALC-patient typically found on each ward (elderly, convalescent, palliative, etc.), 3) the typical number (and range), type, and acuity of the ALC-patients, 4) availability and state of repair of equipment used in lifting, transfer, and rehabilitation, 5) typical staffing numbers and staff mix, 6) the availability of specialized staff to assess and care for ALC-patients, and 7) the extent to which the built environment is suited for ALC. Once the ALC models were characterized and a typology created, all ALC-patient wards across the four study facilities were classified as one of the identified care models.

3.5.2 Questionnaire Survey of Cohort Members

A questionnaire survey was developed based on a comprehensive literature review of the healthcare work organizational literature (See Appendix C for the RN version of the questionnaire and the LPN/CA/rehabilitation staff version).

The questionnaire was mailed to all cohort members on September 10th, 2001 (the halfway point of the six-month follow-up period). Respondents were asked to identify the unit where they were working on September 10th and to answer all questions in relation to that unit. Respondents who worked on more than one unit were asked to identify the unit they worked on most often during that day and answer all questions in relation to that unit. After one month, non-respondents were contacted for a telephone interview.



The questionnaire was designed to assess: 1) socio-demographic information (such as education) not available in personnel files, 2) the physical and psychosocial conditions of work on the unit (12 questions), 3) the unit-level quality of the nursing (RN) practice environment based on 26 questions from the Revised Nursing Work Index (NWI-R) (Aiken and Patrician, 2000)¹, 4) for respondents working with ALC-patients, the quality of both working conditions and the practice environment in relation to the handling of ALC-patients (15 questions), 5) health outcomes such as self-reported health status, emotional exhaustion from the Maslach Burnout Inventory (Maslach and Jackson, 2000), and pain levels, and 6) job satisfaction scores.

3.6 Interviews with Terminated RNs during Follow-up

The SFHR Human Resources Department developed a Nursing Exit Survey in the year 2000, to interview terminated RNs. This interviewing process had been underway for approximately 18 months when we commenced the study. These interviews were conducted by telephone with a convenience sample of terminated RNs (usually within three months of termination). We applied qualitative analysis of 40 interviews with terminated RNs conducted during the one-year period pre-baseline and the six-month follow-up period. (See Appendix D for termination interview instrument and summary of qualitative results.)

¹ There has been some debate about using the NWI-R in Canada. Estabrooks et al. (2002) studied the psychometric properties of the tool in a sample of almost 18,000 nurses in three Canadian provinces. They concluded that the tool measured a one-dimensional aspect of the practice environment, based on exploratory factor analysis. We consequently selected the 26 strongest indicators of that factor, from their analysis, based on the reported factor loadings (i.e., all items with factor loadings > 0.50) to minimize the length of our survey.

The Nursing Exit Survey is comprised of questions related to experiences on the hospital ward last worked on. Respondents were questioned about workload, morale, specific problems on their unit, and the main factors leading to termination. Responses were analysed by first reading all questions to obtain an overall sense of the nurses' experiences, feelings and motives for leaving. Responses were then categorised according to reasons for termination.

3.7 Interviews With Staff Who Had Sustained Injuries During the Follow-up Period

Of the 319 injuries that occurred in the 6-month follow-up period, 296 were successfully followed-up by telephone interviews, largely to deepen our understanding of the injured worker's perspective of ALC and the injury that occurred. Two hundred sixty-one different people incurred these 296 injuries: 31 people had sustained two injuries; and 4 people had sustained three injuries. Of the 261 people interviewed, 81.6% were RNs and 18.4% were LPNs or CAs.

4. ANALYSES

4.1 Determining the Relationship between ALC Model, Injury and Time-loss Injury among Patient-handling Staff

Injury status for each employee was first dichotomized into three variables: any injury, patient-handling injury, and violence-related injury. Time-loss injury status for each employee was dichotomized into two variables: any time-loss injury and patient-handling

time-loss injuries. Next, logistic regression models were developed for these five injury outcomes. Models were developed in a step-wise fashion by adding conceptually relevant variables to the models. In the final step the ALC model variable was added to the logistic regression models.

4.2 Analysis of Survey Questionnaire for RNs

Basic descriptive analyses were undertaken to better understand attitudes toward ALC-patient care, survey respondents estimated: 1) the proportion of their time spent working with ALC-patients “during the past month”, 2) if they “had been told on hiring that they would be working with ALC-patients”, 3) if they “intended to stay working on a ward with ALC-patients”, and 4) whether they “enjoyed working with ALC-patients”.

As well, a subset of workers was identified who had *not* been told, when hired, that ALC-patients would be on their unit and who had worked with ALC-patients over the past month. Another subset of workers was identified consisting of all respondents who had worked with ALC-patients during the past month and who also answered that they “strongly disagreed” or “somewhat disagreed” with the statement that “you enjoy working with ALC-patients”.

After controlling for age, the individual variables, and two sub-groups, were tested for their association with the following self-reported outcomes: 1) “poor” or “fair” health status, 2) “very stressful life”, 3) “any pain in the past month”, 4) burnout, and 5)

satisfaction with profession, hospital, and unit, as well as injury (patient-handling and violence-related), time-loss (all and patient-handling).

4.3 Identification of Unit-level Indicators of Work Environment

Factor analyses were undertaken to group together similar concepts to reduce the number of variables. Specifically factor analysis was undertaken with questions assessing the work environment in relation to ALC and, more generally, the nurse work practice environment. The first factor analysis examined individuals' perceptions of ALC by examining the thirteen survey questions (C5-C17) showing the emphasis placed on ALC at the unit-level and hospital-wide. The ALC centeredness factors were determined from responses of employees who reported having worked with ALC-patients in the past three months.

The second factor analysis identified factors descriptive of the nurse practice environment by utilizing the 26 practice environment items from the NWI-R and four additional items related to staff relations to identify factors. For both factor analyses maximum likelihood extraction and varimax rotation were used.

4.4 Determining the Relationship between Unit-level Indicators of Work

Environment and ALC Models of Care

Predictor variables for each RN were calculated by standardizing the respondent's factor scores on each relevant item, weighting those scores with regression-like coefficients computed in the factor analysis, and then summing the weighted standardized scores. Next, One-way Analysis of Variance (ANOVA) was conducted to identify differences

across ALC models using these predictor variables. The nursing practice environment variables were analyzed with data from all RN respondents.

4.5 Determining the Relationship between ALC Model of Care and Termination for RNs

Logistic regression models were developed for RN-termination during the six-month follow-up period. Models were developed in a step-wise fashion. In the final step the ALC model variable was added to the logistic regression model.

4.6 Determining the Relationship between Injuries and Termination for RNs

A logistic regression model was developed for RN-termination during the six-month follow-up period. After controlling for age, “any previous injury sustained in the year pre-baseline” was added to the model.

4.7 Deepening Understanding of the Relationship between ALC Injured and other Causative Factors from the Perspective of Workers who Sustained Injuries

The interviews were open-ended and quantitative in nature, probing the injured worker’s perspective of the causative factors of injury relative to ALC models and potential remediation.

5. RESULTS

5.1 Cohort Description at Baseline

As shown in Table 1, the average age and seniority of the cohort members was 42.3 and 7.4 years, respectively. One thousand five hundred twenty-eight (53.5%) cohort members were RNs; 1,063 (37.2%) were LPN/CAs, and 263 (9.2%) were rehabilitation staff (social workers, physiotherapists, occupational therapists, etc.).

At baseline, 1,654 cohort members (58%) were working on a unit with ALC-patients while 765 (27%) were working on non-ALC units. Specific work locations could not be assigned to 435 cohort members (15%). This latter group consisted of casual nurses and rehabilitation staff whose exact job location was not recorded in the personnel files usually because they worked on many different units.

Table 2 shows that 533 (18.7%) of cohort members had sustained an injury in the year before our baseline assessment. During the six-month follow-up period, 319 (11.2%) of cohort members sustained an injury and 125 (3.9%) experienced a time-loss injury. The percentage of injuries due to patient-handling was 72.4% whereas 17.0% was due to violence. Furthermore, 76% of workers incurred patient-handling time-loss injuries while 12% experienced time-loss from violence-related injuries.

5.2 Identification and Characterization of ALC Models of Care

Eighty-four wards were identified across the four study sites. (Appendix E summarizes relevant qualitative interviews for each hospital.) Forty-four wards (52.5%) handled ALC-patients. Based on qualitative interviews, each of these 44 wards was classified into one of five ALC models. Table 3 describes the characteristics of each ALC model whereas Table 4 presents the number of wards and the number of employees associated with each ALC model at each study facility.

The interviewees identified 22 Extended Care Units (ECUs) (one-half of the ALC patient-handling wards). The ECUs were present in all four study-facilities and employed 981 (34.4%) cohort members. These units were located in buildings originally designed to handle elderly patients and utilized staffing mixes which consisted of lower RN/patient ratios and higher LPN/CA to patient ratios than typically found in the other ALC models (see Table 5). These units operated within a long-term philosophy of care (i.e. the staff was psychologically prepared and trained to handle elderly, medically stable patients) in contrast to an acute-care philosophy of care that focuses on treating patients with acute medical problems.

The second most common ALC model (also prevalent in all four facilities) comprised of random placement of ALC-patients on existing medical (and in a few cases) surgical wards. Seventeen wards (38.6% of the ALC wards) and 540 (18.9%) of the cohort members worked on these mixed units: low-mix ALC wards (defined as wards typically

with 15% or fewer ALC-patients) and high-mix ALC wards (with generally more than 15% of the patients being ALC-patients).

The low-mix wards included the Emergency Departments at each of the four facilities because most ALC-patients were admitted through these departments and frequently stayed overnight because of bed shortages. Three hundred ninety-two cohort members (13.8%) worked on low-mix ALC wards and 148 (5.2%) worked on high-mix ALC wards.

Three of the four hospitals had Dedicated ALC units. Seventy-five (2.6%) cohort members worked on these wards (exclusively for ALC-patients) that provided access to specialized assessment, treatment, and in some cases rehabilitation staff. These wards usually had access to more and better lifting equipment than the mixed wards.

Unlike the ALC/ECU wards, the Dedicated ALC wards operated within an acute-care philosophy. Although these units operated largely with an acute-care staffing-mix, the ratio of LPN/CAs to patients was higher on these wards than in low- and high-mix ALC wards or non-ALC wards.

Two of the hospitals had dedicated geriatric assessment and treatment units (GAUs). Fifty-eight (2.0%) of the cohort members worked on these units which were specially built and equipped to handle ALC-patients, with staff operating as a specialized team supervised by a geriatrician. Patients who could return home relatively quickly were

stabilized on these units and then returned to their homes. Patients who required further stabilization were usually sent to other ALC units (Dedicated-ALC or ALC/ECU units) within their hospital, whenever possible, or ALC stabilizing units in other hospitals.

It is important to note that the two GAUs in this study were built serve two purposes. First, they were designed to appropriately identify, assess, and quickly discharge patients to the appropriate support once they were medically fit to leave the hospital. Second, these units were used for the placement of the most unstable and difficult to handle ALC-patients.

Table 5 shows that approximately ECUs operated with a staff consisted 73.7% of LPN/CAs and 25.9% RNs whereas low-mix ALC wards were staff 13.7% by LPN/CAs and 86.7% RNs. The high-mix ALC wards had a larger proportion of LPN/CAs (29.1%) than low-mix units whereas the Dedicated-ALC (44.0%) and GAUs (32.8%) operated with still higher percentages of LPN/CAs.

5.3 Injury and Time-loss Injury and ALC Model of Care

As shown in Table 6a, the percentage of workers sustaining an injury in the six-month follow-up period ranged from a low of 8.0% on Dedicated ALC wards to 11.2% on low-mix units, 14.3% on ECU/ALC units, 20.3% on high-mix units, to a high of 20.7% on GAU units. The percentage of workers sustaining an injury during follow-up was 2.5 times higher for those on high mix and GAUs compared to workers on non-ALC wards.

This pattern was similar for patient-handling and violence-related injuries except that the proportion of workers sustaining an injury during patient-handling was 3.5 to 4 times higher for those on high mix and GAUs relative to non-ALC wards and approximately 5 times higher in the case of violence-related injuries on these types of units.

As shown in Table 6b, a similar pattern was observed for time-loss injuries (although the proportion of staff with these more serious injuries was obviously lower) as 2.2% of staff on non-ALC wards had a time-loss injury during follow-up compared to 10.3% of staff on GAUs. The proportion of workers with a time-loss injury during follow-up was approximately 2.5 times higher for staff on ALC/ECU wards, relative to non-ALC wards, 3 times higher for staff on high mix ALC wards relative to non-ALC wards, and approximately 4.5 times higher for staff on GAUs.

This pattern was similar for patient-handling time-loss injuries except that the proportion of workers sustaining an injury during patient-handling was 4.5 times higher for those on ALC/ECU and high-mix wards and 7 times higher for those on GAUs relative to non-ALC wards. Because there were only 15 violence-related time-loss injuries, comparisons across ALC models were not informative.

Table 7a shows the logistic regression analysis results with any injury vs. no injury as the outcome. Age, seniority, and hospital were not statistically significant in the bivariate analyses and were therefore not included in the final logistic regression model. In the final model, the workers sustaining an injury in the year prior to baseline were 3.23 times

more likely to be injured during the follow up period compared to workers without previous injury. After controlling for previous injury, compared to RNs, the risk of injury was 1.58 higher for LPN/CAs and 0.11 lower for rehabilitation staff.

The risk for any injury on high-mix ALC wards was approximately double that of non-ALC wards (OR=2.08; 95% CI=1.27-3.41). Furthermore, the risk of injury for GAUs was also approximately double that of non-ALC wards (OR=1.97; 95% CI=0.98-4.00) but with a *p* value of 0.06 this was not statistically significant. For all other ALC models there was no significant differences in risk of injury relative to non-ALC wards.

Logistic regression models for patient-handling (Table 7b) and violence-related (Table 7c) injuries showed similar patterns but with higher injury risk for high-mix wards and GAUs. For patient-handling injuries, high-mix wards and GAUs produced 2.71 and 3.47 greater risk respectively whereas for violence-related injuries the high-mix wards and GAUs generated 5.36 and 4.95 increased risk respectively.

Table 8a shows the logistic regression analysis results for time-loss injuries vs. all other injuries plus no injuries. Age, seniority, hospital, and occupation were not significantly associated with time-loss claims in the bivariate analyses and were therefore not entered into the final multiple logistic regression model. In the final model, workers with previous injury sustained in the year prior to baseline were 3.15 more likely to be injured than workers with no previous injury. The increased risk of time-loss injury relative to

non-ALC ward was 2.46 for ALC/ECU wards (95% CI=1.46-4.16), 2.62 for high-mix ALC wards (95% CI=1.18-5.79) and 4.65 for GAUs (95% CI=1.84-11.73).

Logistic regression models for patient-handling time-loss injuries showed similar patterns but with higher risk of injury for ALC/ECU, high-mix wards and GAUs (Table 8b). For patient-handling time-loss injuries the increased risk of injury was 2.79 for ALC/ECU, 3.47 for high-mix wards and 8.08 for GAUs. Because there were only 15 violence-related time-loss injuries logistic regression models were not run for this outcome.

5.4 Results from Questionnaire Survey

A total of 1,029 surveys were returned for a 36.1% response rate; 827 (80.4%) returned by mail and 202 (19.6%) telephone interviews conducted between September 10th (the mid-point of follow-up) and December 10th (the end of follow up). Table 9 compares survey respondents and non-respondents across hospital, occupation, injuries, time-loss injuries, and ALC Models. The proportion of respondents and non-respondents is similar in all cases except for injury outcomes as we specifically targeted injured workers in the follow-up of non-respondents.

Table 10a shows that 16% of RN respondents on low-mix wards had worked with ALC-patients more than half the time in the past month. This proportion increased to 76.7% for RNs on Dedicated-ALC wards. RNs on low-and high-mix wards were least likely to have been told, when hired, that they would be working with ALC-patients and respondents from these wards were most likely to want to discontinue working



with ALC-patients, and in addition these workers obtained the least enjoyment from working with these patients. In contrast, RNs on ALC/ECU, GAUs, and Dedicated-ALC wards, reported the highest proportions gaining satisfaction from working with ALC-patients (over 90% of the respondents from these wards reported enjoying working with ALC-patients).

5.4.1 Satisfaction, Burnout and Self-Reported Health

Table 11a shows that there were statistically significant differences in mean levels of satisfaction with profession, hospital, and unit as well as burnout scores for those respondents who intended to continue working with ALC-patients compared to those who did not want to continue working with ALC-patients. Satisfaction in all three categories was lower, and burnout higher, for those who did not intend to continue working with ALC-patients. Similarly for those respondents who did not enjoy working with ALC-patients, satisfaction in all three categories was lower, and burnout was higher compared to staff that enjoyed working with ALC-patients. Tables 10b and 11b illustrate scores for satisfaction in all three categories, and burnout and indicate similar results to those obtained in Tables 10a and 11a for the combination variables (working with ALC-patients more than 50% of the time and not enjoying working with ALC-patients; not having been told, at hire, of work with ALC-patients and working with ALC-patients).

When analyzing satisfaction with unit by ALC models, scores (on a one to ten scale) ranged from a low of 5.8 on high-mix units to a high of 7.1 on ECU/ALC units

($F=4.27$; $p=0.01$). Satisfaction scores were least on low- and high-mix wards and highest on ECU/ALC, GAU, and Dedicated-ALC wards.

Logistic regression models indicated that self-reported health status, injury, time-loss, and termination were *not* associated with working more than 50% of the time with ALC-patients “during the past month”, with lack of “enjoyment” from working with ALC-patients, or from the two combination variables (working with ALC-patients more than 50% of the time and not enjoying working with ALC-patients; not having been told, at hire, of work with ALC-patients and working with ALC-patients).

5.4.2 The Identification of Unit-level Work Environment Factors

Three hundred and thirty-three of 1,085 questionnaire respondents (31.6%) reported working with ALC patients in the previous three months. Based on the 13 questions measuring ALC-care for these respondents, we identified three conceptually meaningful factors we labelled as “perceived unit-level ALC-centeredness”, “employees’ ALC-centeredness” and “discharge planning for ALC-patients”.

The factor analyses involving the 26 NWI-R questions were limited to the 351 RN survey respondents (23% of RN cohort members) who provided complete data in the survey. We identified four factors, although like in Estabrooks et al. (2002), we found that one very strong factor could reasonably account for the covariances among 25 of the items. The factors all had eigenvalues greater than 2.5 and collectively accounted for 41% of the variance. We labelled these factors “perceived support for nursing professionalism”,

“supportive management”, “satisfactory resource allocation”, and “working relationships”. Thus, seven factors measuring unit-level work environment conditions were identified.

5.4.3 Relationship between Unit-level Work Environment Factors and ALC models of Care

A one-way analysis of variance revealed significant differences between the ALC models in regard to “perceived unit-level ALC-centeredness” [$F(6, 516) = 32.03, p < .001$] and “employees’ ALC-centeredness” [$F(6, 505) = 34.06, p < .001$] among patient-handling staff who worked on wards with ALC-patients. There was no statistically significant difference between ALC models with regard to “discharge planning” [$F(6, 495) = 1.38, p > .05$].

In the second factor analysis with the NWI-R questions (for RNs only), “perceived support for nursing professionalism” [$F(6, 504) = 3.13, p < .01$], “support from management” [$F(6, 504) = 4.33, p < .001$], and “perceptions about the adequacy of resource allocation” also varied significantly by ALC model [$F(6, 575) = 7.68, p < .001$]. There were no statistically significant differences in “perceived working relationships” across the ALC models [$F(6, 442) = 1.30, p > .05$]. Table 12 summarizes these results by ALC model.

5.4.4 Relationship between Unit-level Work Environment Factors and Injury Among RNs

Finally, we contrasted the respondents' ratings of ALC-centeredness and the RN respondents' ratings of the practice environment by their injury record. No differences were noted with respect to the ALC-related variables but there were differences noted among the "nursing practice environment" variables. Those RNs who had been injured produced lower ratings compared with those who had not been injured for: "perceived support for nursing professionalism" [$M = -.33$ (s.d. = .90) vs. $M = .05$ (s.d. = .92); $t(509 \text{ df}) = 3.11$, $p < .01$]; "perceived support from management" [$M = -.29$ (s.d. = .92) vs. $M = .04$ (s.d. = .91); $t(509 \text{ df}) = 2.74$, $p < .01$]; and "perceived adequacy of resource allocation" [$M = -.23$ (s.d. = .74) vs. $M = .03$ (s.d. = .96); $t(580 \text{ df}) = 2.21$, $p < .05$]. When the analysis was restricted to time-loss injury claims the differences did not persist.

5.5 RN Termination and Recruitment

Of the 1,528 RN cohort members, 58 (3.8%) terminated employment during the six-month follow-up period (Table 13). During the one-year pre-baseline period, 216 RNs (14.1% of RN cohort members) were recruited at the four study-facilities. Recruitment at the four study hospitals was generally in proportion to the number of RNs working at these facilities. However, terminations during the six-month follow-up were not distributed in this manner across hospitals. Approximately one half of all recruitments in the one-year period pre-baseline occurred at Hospital D, which had approximately one third of the terminations during the six-month follow-up period. In contrast,

approximately one fifth of the recruitments were at Hospital B, which had 50 percent of the RN terminations during follow-up.

5.5.1 Predictors of RN Termination

Hospital files show that 31.0% of all terminations during the six-month follow-up period were from non-ALC wards compared to 27.6% among RN float/casual staff and 41.4% of terminations from wards handling ALC-patients. For the 24 terminations from wards handling ALC-patients, 16 (66.7%) were from ALC/ECU units, 4 (16.7%) were from high-mix wards, 3 (12.5%) were from low-mix wards and 1 (4.2%) was from a GAU. No terminations occurred from Dedicated-ALC wards.

The final multivariate logistic regression model identified three variables associated with termination: age, hospital, and ALC model delivery. Relatively younger RNs were more likely to terminate their employment (adjusted OR = 0.96; 95% CI=0.94 – 0.99). For every 5-year reduction in age, there was a 10% greater likelihood of termination. One hospital (hospital B) had a poorer retention record than the referent hospital (hospital D); RNs were 3.1 times (95% CI= 1.5 – 6.4) more likely to terminate their employment from this site (Table 14). Employment status also was associated with termination; RN floats/casuals were 3.2 times (95% CI= 1.4 – 7.3) more likely to terminate than RNs who had permanent part-time or full-time positions. Examining ALC model with respect to termination showed that RNs on low-mix ALC units were 76% (OR=0.24; 95% CI=0.07-0.86) less likely to terminate than RNs working on non-ALC units. No association was found between ALC models with high injury (high-mix and GAUs) and RN terminations.

5.5.2 The Inter-relationship between Injuries and Termination for RNs

Logistic regression models were developed for termination during the six-month follow-up period for RNs. After controlling for age, no association was found between injury sustained during the one-year pre-baseline period and termination during the six-month follow-up period.

5.6 Interviews with Terminated RNs

These interviews are summarized in Appendix D. In telephone follow-up of 40 RNs who had terminated, the most frequently cited reasons for termination were heavy workload and lack of management support. The heavy workload led to fears that patients were not being properly cared for and that working conditions were unsafe. Heavy workload in conjunction with understaffing meant that respondents were working under constantly high and unacceptable levels of stress. Inflexibility of shift schedules was another major reasons cited for leaving employment in the region. The concerns were of three types. First, inflexibility in scheduling and long shifts were perceived to be leading to health problems and chronic sleeping difficulties. Second, because many of these workers had jobs in other facilities, either within the region or in other regions, inflexible shift schedules for casual and part-time workers made it extremely difficult to hold down multiple jobs. Third, many RNs felt that the payment system for casuals was unfair because it focused on casual job status rather than on experience. This perception about pay in conjunction with high levels of stress often appeared to have influenced RNs in decisions to terminate employment in the region.



5.7 Interviews with Injured Workers

As noted, in the methodology, 261 nurses, collectively having sustained 296 injuries, were interviewed with open-ended questions. The results were qualitative in nature and later quoted to summarize the views of the interviewees. When asking about the causes of injuries, “Dealing with uncooperative/aggressive patients” was listed as the prevalent primary cause of injury by interviewees (30.4%). Close second (23.7%) was “lifting/transferring/re-positioning in bed”. The full list of causes of injuries reported by the interviewees is listed according to how they were ranked by the interviewees. These are shown in Table 15a. When asked how the injured worker felt that work conditions could be improved to reduce injuries, 173 of the 261 injured workers listed ‘staffing’ in their response. The second most frequently cited reason (82) was “more teamwork/support from co-workers”. The third most frequently cited reason (72) was “less overtime/no 12-hour shifts/no 6-days /regular breaks”, with the fourth most common reason (66) cited being “more equipment”. The full list of suggestions is listed in Table 15b.

Table 15c demonstrates workers perceptions of the factors contributing to injury by ALC model. While workload was mentioned as a contributory factor by 40% of the injured workers on high- mixed wards, only 21.4% of the injured workers on GAUs did so, and none of the workers injured on dedicated ALC units cited this factor. Instead, 75% of the injuries on dedicated ALC-wards attributed injury to “patient characteristics,” as did 64.3% of those on GAUs, whereas only 28% of injured worker on high-mixed wards cited this factor. Nonetheless, 75% of those injured on high-mix wards attributed their

injury to having to work with ALC-patients; 66.7% of those injured on low-mix wards did so; 55.6% working in GAUs and 42.9% of those working on dedicated ALC wards. This suggests that having ALC-patients mixed in with the general medical and surgical population is indeed perceived as posing a high risk of injury to staff. When this was probed more specifically, 33% of injured workers cited the “unpredictable behaviour/aggressive and confused nature of the patients” as the principle risk factor associated with ALC, compared to 29.5% citing “heavy lifting and transferring”, and 23.8% citing the “heavier work loads” associated with ALC-patients.

When asked how the injury risk associated with ALC could be reduced, the most frequently cited intervention was “improving staffing” followed very closely by “having dedicated ALC wards”. Table 15d shows that these two recommendations were listed far more frequently than any other factors. Improving the physical environment and training were seen as far less important.

6. DISCUSSION

Multiple logistic regression analysis showed that age, seniority, and hospital had no association with injuries or time-loss injuries during the follow-up period. ALC models were strongly associated with these injury outcomes, even after controlling for age, previous injury, hospital, and occupational status.

In answer to the question, “Is one ALC model superior to others with respect to reducing injuries?” we found that the risk of injury and, specifically patient-handling and violence-related injuries, was least (though not statistically significant) on dedicated-ALC units. For time-loss injuries due to patient-handling, we found the lowest risks (although not statistically significant) amongst both the dedicated-ALC and low-mix wards.

While these results did not unequivocally determine, the “best” ALC model, they do indicate that high-mix and GAUs have significantly elevated risk for injuries, specifically patient-handling and violence-related injuries, relative to non-ALC wards. In addition, ALC/ECU, high-mix wards, and GAUs had significantly elevated risk for time-loss injury and patient-handling time-loss injuries.

In answer to the second part of the first question, “Is one model of ALC superior to others with respect to RN recruitment?” we found that the percentage of RNs recruited during the one-year period pre-baseline ranged from a low of 10.0%, on low-mix wards, to a high of 22.9% on high-mix wards.

For RN termination, logistic regression models indicated a strong hospital-level effect. Hospital B had approximately three times the rate of RN termination than Hospital D. After controlling for this hospital-level effect, RN termination in the six-month follow-up period was least on low-mix wards and highest among RN floats.

It is not clear why termination rates were the lowest on low-mix wards. In the case of RN floats, the qualitative results from interviews (with RNs who left employment) showed that float RNs were unhappy with both the lack of flexible scheduling as well as the payment scale that overlooked their experience and focused on their “casual” employment status. Many of these workers were in fact older more experienced RNs. These twin issues of scheduling and compensation may be key factors in understanding the higher termination rates among RN floats.

Which aspects of work organization/culture were most important? Results of the analyses identified two factors for patient-handling staff that worked with ALC-patients that were statistically significant across the ALC models: unit-level ALC-centeredness and employee-level ALC centeredness. We would expect these factors to be more important on wards such as GAUs that deal mainly with ALC-patients compared to low-mix wards that only handle ALC-patients occasionally. The results bear this out.

A more informative comparison is one between wards that are largely focused on ALC. This comparison shows that ECU/ALC and GAU wards have the highest mean values for

ALC unit-centeredness, indicating that these units are most “geared” to handling ALC-patients. Interestingly, Dedicated-ALC unit-centeredness is considerably less than for GAUs and ALC/ECU units possibly because the former operates within an acute-care physical environment, staffing complement, and philosophy of care compared to the long-term philosophy of care prevalent in the latter two models. Finally, of all unit types handling ALC-patients in a fairly intensive manner, high-mix wards have the least ALC-unit centeredness.

For RNs only, three factors showed statistically significant differences across ALC models: support for nursing professionalism, support from management, and perceptions of resource allocation. Among units handling ALC-patients, the highest scores were generally found in GAUs and ECU/ALC units whereas the lowest scores were on low-mix units, high-mix units, and Dedicated-ALC units.

Thus, although the highest injury and time-loss rates were observed for GAUs and high-mix units, the work environment variables varied across these units. On GAUs, perceived support for nurse professionalism, management support, and resource allocation, as well as the ALC-centeredness at the unit- and individual-levels were highest of all units whereas scores for these factors were among the lowest for the high-mix units.

We used the questionnaire survey data to explore relationships between attitudes towards ALC-patients and injury, time-loss, termination, and self-reported outcomes of interest. The only findings that were statistically significant indicated that, in general, staff on

low- and high-mix wards, although they worked with ALC-patients the least, held the most negative attitudes towards these patients.

This result is interesting, especially in relation to staff on low-mix wards, as RNs on these wards had the lowest termination rates as well as among the lowest injury rates. These results may indicate that negative attitudes towards ALC-patients may be more likely on wards where staff expect to provide medical or surgical nursing care to acutely ill patients. The lower termination and injury rates may be due to the lower ALC patient loads on these types of wards.

Although attitudes towards ALC-patients were not associated with injury, time-loss, or RN termination, nevertheless mean values (levels of satisfaction with one's profession, hospital, and unit, as well as mean burnout scores) varied statistically depending on whether staff "enjoyed working with ALC-patients" and whether they "intended to continue working with ALC-patients". In these cases, satisfaction and burnout scores were worse for those who did not enjoy working with, or intend to continue working with, ALC-patients.

For the subset of staff who work with ALC-patients more than 50% of the time but who do not enjoy working with such patients, burnout scores were higher and satisfaction scores lower than for those who simply did not enjoy working with ALC-patients. This indicates that this sub-group of staff may be particularly vulnerable to injury and/or termination of employment in the future.



Considering that GAUs have the highest injury and time-loss experience, it is important remember that GAUs serve two purposes: 1) to appropriately identify, assess, and quickly discharge patients to appropriate care and 2) as a placement for the most unstable and difficult to handle ALC-patients. Thus, one might expect that staff on these GAU units might sustain more injuries than on other ALC models because they are handling the most difficult to handle patients, and because the patients are still being assessed so staff are less familiar with what to expect from each patient..



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TABLES

Table 1: Baseline description of cohort by hospital

PREDICTORS	HOSP. A MEAN (S.D.)	HOSP. B MEAN (S.D.)	HOSP. C MEAN (S.D.)	HOSP. D MEAN (S.D.)	TOTAL
No. of Workers	237	634	776	1207	2854
<u>Demography</u>					
Age (years)*	44.2 (10.9)	41.8 (10.6)	41.4 (10.1)	41.5 (10.0)	42.3
Seniority (years)	8.3 (7.2)	7.3 (6.5)	6.6 (5.7)	7.5 (6.5)	7.4
<u>Occupation</u>					
(%) RN	101 (42.6)	306 (48.3)	367 (47.3)	754 (62.4)	1528
Care – aide/LPN	122 (51.5)	280 (44.2)	356 (45.9)	305 (25.3)	1063
Rehab. Staff	14 (5.9)	48 (7.5)	53 (6.8)	148 (12.3)	263
<u>Location</u>					
(%) ALC ward	152 (64.1)	404 (63.7)	574 (74.0)	524 (43.4)	1654
Non-ALC Ward	7 (3.0)	108 (17.0)	90 (11.6)	560 (46.4)	765
No Location	78 (32.9)	122 (19.3)	112 (14.4)	123 (10.2)	435

Table 2: Number of cohort members, injuries during one-year pre-baseline period, and injuries and time-loss during six month follow-up by hospital

	HOSP. A	HOSP. B	HOSP.C	HOSP. D	TOTAL
No. of Workers	237	634	776	1207	2854
<u>Injury</u> Any injury during 1-year pre-baseline	52 (21.9)	129 (20.3)	155 (20.0)	197 (16.3)	533
<u>Injury</u> Any injury during follow-up	21 (8.9)	80 (12.6)	93 (12.0)	125 (10.4)	319
Any patient-handling injury	12 (5.1)	55 (8.7)	76 (9.8)	88 (7.3)	231
Any violent injury	4 (1.7)	12 (1.9)	18 (2.3)	20 (1.7)	54
<u>Time-loss injury</u> Time-loss injury during follow-up	10 (4.2)	29 (4.6)	41 (5.3)	45 (3.7)	125
Pt. handling time-loss injury	6 (2.5)	20 (3.2)	37 (4.8)	32 (2.7)	95
Violence-related time-loss injury	1 (0.4)	2 (0.3)	7 (0.9)	5 (0.4)	15

Table 3: Characteristics of ALC Models (as determined through qualitative interviews)

	DED-ALC	NON-ALC	LOW-MIX	ALC/ECU	High Mix	GAU
Philosophy of care	Acute	Acute	Acute	Long Term	Acute	Long Term
Staff mix RN to LPN/CA	1.3: 1	12: 1	6.5 :1	0.35: 1	2.5: 1	2.1:1
Access to rehab staff	good	limited	limited	limited	limited	good
Access to lifts	average	poor	poor	good	poor	best
Percentage of workers with previous injury	17.3	15.2	19.9	23.2	21.6	27.6
Percentage of workers with injuries during follow-up	8.0	8.7	11.2	14.3	20.3	20.7
Percentage of workers with time-loss injury during follow-up	2.7	2.2	3.8	5.7	6.1	10.3
Ratio of time-loss to all injuries during follow-up	0.33	0.29	0.34	0.40	0.30	0.50

Models sorted left to right in ascending percentage of injuries during follow-up period.

Long Term philosophy of care means that staff are trained and psychologically prepared to handle elderly non-medical patients.

Low mix units typically have 15% or fewer ALC patients.

High mix units typically have 15 to 50% ALC patients.

Table 4: Number of cohort members and wards by hospital and ALC model*

ALC MODEL	HOSP. A	HOSP. B	HOSP. C	HOSP. D	TOTAL # OF WORKERS
Low Mix	34 (2)	95 (4)	122 (3)	141 (3)	392 (12)
High Mix	0	29 (1)	27 (1)	92 (3)	148 (5)
Dedicated ALC	23 (1)	21 (1)	31 (1)	0	75 (3)
ALC/ECU	95 (2)	259 (6)	371 (9)	256 (5)	981 (22)
GAU	0	0	23 (1)	35 (1)	58 (2)
Non-ALC ward	7 (1)	108 (10)	90 (6)	560 (23)	765 (40)
Non-assignable workers	78 (0)	122 (0)	112 (0)	123 (0)	435
Total	237 (6)	634 (22)	776 (21)	1207 (35)	2854 (84)

* Number in parentheses is number of wards.



Table 5: Staffing mix of RNs, care-aides and LPNs, and rehabilitation staff by ALC model*

ALC CARE MODEL	JOB CATEGORY			
	RN	CARE AIDE/LPN	REHAB STAFF	TOTAL
No ALC	639 (83.5)	53 (6.9)	73 (9.5)	765
Staff not assigned to a ward	109 (25.1)	140 (32.2)	186 (42.8)	435
ALC/ECU	254 (25.9)	723 (73.7)	4 (0.4)	981
Dedicated ALC	42 (56.0)	33 (44.0)	0	75
GAU	39 (67.2)	19 (32.8)	0	58
High Mix	105 (70.9)	43 (29.1)	0	148
Low Mix	340 (86.7)	52 (13.7)	0	392
Total	1528 (53.5)	1063 (37.2)	263 (9.2)	2854

*The number in parentheses is the row percentage of the staff-mix.

Table 6a: Distribution of any injuries during one-year pre-baseline period, and any injuries, patient-handling and violence-related injuries during six-month follow up by ALC Model*

ALC MODEL	ANY INJURY DURING 1-YEAR PRE-BASELINE PERIOD	ANY INJURY DURING FU	PATIENT-HANDLING INJURY DURING FU	VIOLENCE-RELATED INJURY DURING FU	NUMBER OF WORKERS
Not assigned	50 (11.4)	21 (4.8)	12 (2.8)	2 (0.5)	435
Dedicated ALC	13 (17.3)	6 (8.0)	6 (8.0)	1 (1.3)	75
Non-ALC	116 (15.2)	66 (8.7)	37 (4.8)	5 (0.7)	765
Low Mix	78 (19.9)	44 (11.2)	31 (7.9)	8 (2.0)	392
ALC/ECU	228 (23.2)	140 (14.3)	109 (11.1)	27 (2.8)	981
High Mix	32 (21.6)	30 (20.3)	24 (16.2)	8 (5.4)	148
GAU	16 (27.6)	12 (20.7)	12 (20.7)	3 (5.2)	58
Total	533 (18.7)	320 (11.2)	231 (8.1)	54 (1.9)	2854

* Number in parentheses is percent of workers within ALC category.

Table 6b: Distribution of time-loss injuries and patient-handling and violence-related time-loss injuries during six-month follow up by ALC model*

ALC MODEL	ALL TIME LOSS INJURY	PATIENT-HANDLING TIME-LOSS INJURY	VIOLENCE-RELATED TIME-LOSS INJURY	NUMBER OF WORKERS
Not assigned	6 (1.4)	3 (0.7)	0	435
Dedicated ALC	2 (2.7)	3 (4.0)	0	75
Non-ALC	19 (2.2)	9 (1.2)	0	765
Low Mix	15 (3.8)	10 (2.6)	1 (0.3)	392
ECU ALC/ECU	56 (5.7)	55 (5.6)	11 (1.1)	981
High Mix	9 (6.1)	8 (5.4)	1 (0.7)	148
GAU	6 (10.3)	5 (8.6)	2 (3.4)	58
Total	111 (3.9)	95(3.3)	15 (0.5)	2854

* Number in parentheses is percent of workers within ALC category.

Table 7a: Logistic regression for any injuries vs. no injuries for RNs, care-aides, LPNs, and rehabilitation staff (N=2854)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Previous injury	3.23	2.51-4.16	0.01
Occupation			
RN	1	referent	0.001
LPN/Care aide	1.58	1.16-2.14	0.003
Rehabilitation staff	0.11	0.03-0.45	0.002
ALC Model			
Non-ALC	1	referent	0.006
Staff not assigned to a ward	0.68	0.39-1.17	0.16
ALC/ECU	1.07	0.73-1.56	0.74
Low Mix	1.10	0.73-1.67	0.64
High Mix	2.08	1.27-3.41	0.004
Dedicated ALC	0.67	0.27-1.64	0.38
GAU	1.97	0.98-4.00	0.06

Table 7b: Logistic regression for patient-handling injuries vs. any other injuries and no injuries for RNs, care-aides, and LPNs (N=2591*)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Previous injury	3.07	2.30 - 4.10	0.001
Occupation			0.001
RN	1	referent	
LPN/Care aide	2.08	1.46 – 2.96	0.001
ALC Model			0.001
Non-ALC	1	referent	
Staff not assigned to a ward	0.63	0.31 – 1.27	.198
ALC/ECU	1.22	0.77 – 1.94	.393
Low Mix	1.35	0.82 – 2.23	.243
High Mix	2.71	1.53 – 4.80	.001
Dedicated ALC	1.10	0.44 – 2.80	.835
GAU	3.47	1.66 – 7.26	.001

* Note. Rehabilitation staff were excluded in this analysis because none of them was injured while handling patients.

Table 7c: Logistic regression for violence-related injuries vs. any other injuries and no injuries for RNs, care-aides, and LPNs (N=2591*)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Previous injury	2.32	1.32 - 4.07	.003
Occupation			0.002
RN	1	referent	
LPN/Care aide	3.09	1.53 – 6.24	.002
ALC Model			0.14
Non-ALC	1	referent	
Staff not assigned to a ward	0.62	0.11 – 3.37	.577
ALC/ECU	1.65	0.56 – 4.82	.361
Low Mix	2.44	0.79 – 7.56	.123
High Mix	5.36	1.67 – 17.17	.005
Dedicated ALC	1.09	0.12 – 9.76	.942
GAU	4.95	1.12 – 21.83	.035

* Note. Rehabilitation staff was excluded in this analysis because none of them was injured while handling patients.

Table 8a: Multiple logistic regression model for time-loss injuries vs. all other injuries and no injuries (N=2854)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Previous injury	3.15	2.17-4.57	0.001
ALC Model			0.000
Non-ALC	1	referent	
Staff not assigned to a ward	0.58	0.23-1.47	0.25
ALC/ECU	2.46	1.46-4.16	0.001
Low Mix	1.56	0.79-3.08	0.20
High Mix	2.62	1.18-5.79	0.01
Dedicated ALC	1.59	0.46-5.54	0.47
GAU	4.65	1.84-11.73	0.001

Table 8b: Logistic regression for patient-handling time-loss injuries vs. all other injuries and no injuries for RNs, care-aides and LPNs (N=2591*)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Previous injury	2.78	1.81 – 4.26	0.001
Occupation			
RN	1	referent	
LPN/Care aid	1.78	1.05 – 3.01	.031
ALC Model			0.01
Non-ALC	1	referent	
Staff not assigned to a ward	0.71	0.18 – 2.73	.616
ALC/ECU	2.79	1.25 – 6.22	.012
Low Mix	1.79	0.72 – 4.46	.214
High Mix	3.47	1.29 – 9.34	.014
Dedicated ALC	2.43	.63 – 9.48	.200
GAU	8.08	2.84 – 23.01	.001

* Note. Rehabilitation staff were excluded in this analysis because none of them was injured while handling patients.

Table 9: Comparison of survey respondents and non-respondents

	SURVEY NON-RESPONDENT	SURVEY RESPONDENT	TOTAL
Hospital A	144 (60.8)	93 (39.2)	237
Hospital B	413 (65.1)	221 (34.9)	634
Hospital C	495 (63.8)	281 (36.2)	776
Hospital D	773 (64.0)	434 (36.0)	1207
Occupation	934 (61.1)	594 (38.9)	1528
RN	717 (67.5)	346 (32.5)	1063
LPN/Care-aide	174 (66.2)	89 (33.8)	263
Rehabilitation staff	1658 (65.4)	877 (34.6)	2535
Injuries	167 (52.4)	152 (47.6)	319
No injuries	1758 (64.4)	971 (35.6)	2729
Any injuries	67 (53.6)	58 (46.4)	125
Time-loss Injuries	479 (62.6)	286 (37.4)	765
No time-loss injuries	299 (68.7)	136 (31.3)	435
Any time-loss injury	665 (67.8)	316 (32.2)	981
ALC Model	214 (54.6)	178 (32.2)	392
No ALC	87 (58.8)	61 (41.2)	148
Staff not assigned to a ward	44 (58.7)	31 (41.3)	75
ALC/ECU	37 (63.8)	21 (36.2)	58
Low Mix			
High Mix			
Dedicated ALC			
GAU			

Table 10a: Amount of time spent with ALC-patients and attitudes towards ALC-patients by ALC models

	WORK WITH ALC-PATIENTS >50% OF THE TIME	WHEN HIRED WERE NOT TOLD THEY WOULD WORK WITH ALC-PATIENTS	DO NOT INTEND TO CONTINUE WORKING WITH ALC-PATIENTS	DO NOT ENJOY WORKING WITH ALC-PATIENTS
ALC Model				
Staff not assigned to a ward	35 (35.4)*	26 (27.7)	18 (22.1)	21 (21.9)
ALC/ ECU	70 (46.4)	49 (33.1)	22 (16.5)	7 (4.9)
Low Mix	25 (16.0)	94 (62.7)	74 (56.9)	69 (47.3)
High Mix	12 (21.1)	29 (52.7)	18 (36.7)	10 (18.9)
Dedicated ALC	23 (76.7)	9(29.0)	5 (17.8)	2 (7.1)
GAU	11 (55.0)	5 (23.8)	4 (20.5)	2 (10.0)

* Number in parentheses is percentage within row category.

Table 10b: Attitudes towards ALC-patients by ALC model

	CURRENTLY WORK WITH ALC-PATIENTS BUT, WHEN HIRED, WERE NOT TOLD THEY WOULD WORK WITH ALC-PATIENTS	WORK WITH ALC-PATIENTS >50% OF TIME BUT DO NOT ENJOY WORKING WITH SUCH PATIENTS
ALC Model		
Staff not assigned to a ward	22 (23.2)*	5 (5.3)
ALC/ ECU	36 (24.7)	1 (0.7)
Low Mix	80 (53.0)	12 (8.2)
High Mix	24 (43.6)	1 (1.9)
Dedicated ALC	8 (25.7)	2 (7.4)
GAU	5 (25.0)	1 (5.0)

* Number in parentheses is percentage within row category.

Table 11a: Attitudes towards ALC-patients by means levels of satisfaction with profession, hospital and unit and burnout score

	WORK WITH MORE ALC-PATIENTS >50% OF THE TIME		INTEND TO CONTINUE WORKING WITH ALC		ENJOY WORKING WITH ALC	
	yes	no	No	yes	no	yes
Mean level of satisfaction with						
1. Profession	6.60	6.61	5.88*	7.11	5.73*	6.91
2. Hospital	6.33	6.26	5.82*	6.64	5.63*	6.51
3. Unit	6.64	6.48	5.92*	6.92	5.83*	6.73
Burnout Score*	0.12	0.04	0.38*	-0.15	0.49*	-0.09

- Two tailed T-test for equality of means statistically significant.

Table 11b: Attitudes towards ALC-patients by means levels of satisfaction with profession, hospital, and unit and burnout score

	CURRENTLY WORK WITH ALC-PATIENTS AND, WHEN HIRED, WERE TOLD THEY WOULD WORK WITH ALC-PATIENTS		WORK WITH ALC-PATIENTS >50% OF TIME AND ENJOY WORKING WITH SUCH PATIENTS	
	no	yes	No	yes
Mean level of satisfaction with				
1. Profession	6.18*	6.86	4.95*	6.67
2. Hospital	5.82*	6.56	4.48*	6.36
3. Unit	6.17*	6.71	5.13*	6.56
Burnout Score*	0.21*	-0.12	0.94*	0.03

- Two tailed T-test for equality of means statistically significant.

Table 12: Summary table of factor score means by ALC model for unit-ALC centeredness, employee-ALC centeredness, support for nursing professionalism, managerial support, and perceived adequacy of resource allocation by ALC model (N = 523)

ALC MODEL (NO. OF RESPONDENTS)	ALC CENTER	EMPLOYEE-ALC CENTREDNESS	SUPPORT FOR NURSING PROFESSIONALISM	PERCEIVED MANAGERIAL SUPPORT	PERCEIVED ADEQUACY OF RESOURCE ALLOCATION
1. No ALC (115)	-.21	-.27	.08	.12	.23
2. Rehab / Float Staff (65)	.08	.19	-.19	-.36	-.44
3. ECU/ALC (117)	.74	.74	.25	.26	.07
4. Low Mix (133)	-.55	-.75	-.25	-.26	-.29
5. High Mix (47)	-.25	-.01	-.00	-.14	-.27
6. Dedicated ALC (28)	.06	.44	-.12	-.12	-.39
7. GAU (18)	.84	.39	.09	.14	.40

Table 13: RN recruitment during the one year pre-baseline and RN terminations during six-month follow up by hospital (N=1528)

OUTCOMES	HOSP. A	HOSP. B	HOSP. C	HOSP. D	TOTAL
No. of RNs	101 (6.6)	306 (20.0)	367 (24.0)	754 (49.4)	1528
Recruitment	8 (3.7)	43 (19.9)	54 (25.0)	111 (51.4)	216
Termination	3 (5.2)	27 (46.6)	11 (19.0)	17 (29.2)	58

* Number in parentheses is the percentage within each hospital.

Table 14: Logistic regression for RN terminations (N=1525)

VARIABLE	ADJUSTED ODDS RATIO	95% CONFIDENCE INTERVAL	P VALUE
Age	0.96	0.94-0.99	0.004
Hospital			0.005
HOSPITAL D	1		
HOSPITAL A	0.97	0.25-3.81	0.97
HOSPITAL B	3.12	1.53-6.38	0.002
HOSPITAL C	1.34	0.58-3.09	0.49
ALC Model			0.004
Non-ALC	1		
Staff not assigned to a ward	3.15	1.37-7.26	0.007
ALC/ECU	2.06	0.97-4.36	0.059
Low Mix	0.24	0.07-0.86	0.028
High Mix	1.13	0.37-3.48	0.83
Dedicated ALC	0.01	Excluded because zero termination	0.59
GAU	1.17	0.15-9.45	0.88

Table 15a. Cause of Injury Reported by Injured Workers

Question	Frequency			
	#1	#2	#3	Total of Top three Causes (% of 257 responders)
Dealing with uncooperative/aggressive /demented patient	43	29	6	78 (30.4%)
Lifting/transferring/repositioning in bed	55	6	0	61 (23.7)
Tripped/slipped/bumped	30	1	0	31(12.1)
Unpredictable patient	7	21	3	31 (12.1)
Lifting/transferring patient- wheelchair, shower chair	22	6	0	28 (10.9)
Reaching/twisting	17	9	1	27 (10.5)
Preventing a patient's fall	9	7	9	25 (9.7)
Equipment faulty/breakdown	10	11	2	23 (8.9)
Repetitive/cumulative tasks	15	3	3	21 (8.2)
Lifting/transferring patient- toilet, commode	18	1	1	20 (7.8)
Contact with BBF/ human bite	2	4	2	8 (3.1)
Needle stick injury	12	2	0	14 (5.4)
Reaction to chemical exposure	6	0	0	6 (2.3)
Other	11	16	3	30 (11.7)
Missing	4	145	231	
Total	261	261	261	

Table 15b. Improvements in Work Conditions to Reduce Injury

Question	Frequency					Total
	#1	#2	#3	#4	#5+	
Staffing	97	41	25	8	2	173
More teamwork/support from co-workers	24	25	17	11	5	82
Less overtime/ no 12 hr shifts/ no 6 days/regular breaks	27	21	15	8	1	72
More equipment	20	22	13	6	5	66
Less work load	8	30	14	4	2	58
More space	13	14	10	4	2	43
More management awareness/ involvement in safety issues	6	13	6	8	2	35
Better training lift/transfer/ MSIP/ body mechanics	7	10	6	2	1	26
Better assessment of patient	5	2	4	4	3	18
More family involvement/ monitoring of visitors	1	3	5	5	1	15
Dedicated ALC ward	3	7	5			15
Non nursing staff should work weekends/evenings	4	1	4		1	10
Redesigned workstations	3	2	2	3	2	12
More activities/physio or patients to relieve boredom	2	3	2	1		8
Policy change re: patient timetable	2	3	1	2		8
Return of orderlies/ porters	2	2	2	1	1	8
Exercise/stretching program/back for staff	3	2	2	1		8
Doctors need to medicate aggressive patients	5	1		1		7
More staff information regarding biological risk	1	1	2	1		5
Improved unit layout/security issues	3	1	2	1		7
Other	5	8	13	15	10	51
Missing	23	51	111	175		
Total	261	261	261	261		

Table 15c. Factors contributing to injury by ALC Model

	No ALC	ALC/ECU	Low Mix	High Mix	DED ALC	GAU	Total
Workload/Staffing	16 32.7%	35 28.7%	12 28.6%	11 44.0%		3 21.4%	77 28.5%
Patient Characteristics	17 34.7%	48 39.3%	21 50.0%	7 28.0%	6 75.0%	9 64.3%	108 41.6%
Physical Environment/ Equipment	14 28.6%	28 23.0%	6 14.3%	6 24.0%	2 25.0%	2 14.3%	58 12.7%
Lack of Training		2 1.6%	1 2.4%				3 1.2%
Past Injuries/ Other	2 4.1%	9 7.4%	2 4.8%	1 4.0%			14 1.2%
TOTAL:	49 100%	122 100%	42 100%	25 100%	8 100%	14 100%	260

Table 15d. Improvements to ALC Patient Care to Reduce Injury

Question	Frequency					Total
	#1	#2	#3	#4	#5	
Staffing	36	25	5	1		67
Dedicated ALC ward	37	17	5	1		60
Less work load	5	9	7	1	1	23
More equipment	10	3	4	1		18
More activities /physio for patients to relieve boredom	3	7	5	1	1	17
More teamwork/support from co-workers	6	4	2	1		13
More space	3	4	4	1		12
Better assessment of patient	2	3	3	3	1	12
Other	20	25	12	3	0	60
Missing	145	168	216	249	258	
Total	261	261	261	261	261	

APPENDIX A

Table A1: Modification of Original Study Design and Methods

	WHAT WE PROPOSED	WHAT WE DID
Build a baseline cohort of patient-handling staff	Yes	Yes
Obtain data on potential confounders for the cohort (age, previous injury etc.)	Yes	Yes
Length of follow-up	One year	Six months
Conduct survey questionnaire with cohort members	Yes. At baseline.	Yes
Use Cross-National Patient Outcomes Study	Yes	No
Identify and characterize ALC models of care	Yes	Yes
Obtain complete individual, ward, and facility level injury incidence data	Yes	Yes
Obtain complete individual, ward, and facility level injury duration data	Yes	In process
Obtain complete termination data for f.u. period	Yes	Yes
Conduct interviews with all terminated RNs during the follow-up period	Yes	Partial
Conduct interviews with all recruited RNs during the follow-up period	Yes	Partial
Develop injury, recruitment and retention rates for follow-up period and develop Poisson and Cox and HLM regression models	Yes	No

1. We identified a cohort of patient-handling staff but, due to delays caused by the labour dispute, the follow-up period was reduced from one-year to six-months.

2. We had planned to conduct a questionnaire survey of cohort members at baseline, but because of the labour dispute and our delayed access to personnel and data we conducted our survey halfway through our follow-up period. (The survey was mailed out on September 10th, 2001.)
3. We had planned to model injury, retention, and recruitment rates during the follow-up period using Poisson and Cox Regression methods. Extreme time demands, however, were imposed on management staff by the labour dispute, although we did obtain denominator data for the one-year pre-baseline period, we were unable to obtain denominator data for the six-month follow-up period. We expect to obtain these data some time in the next few months but, in the meantime, because we obtained complete numerator for all injury and time-loss injury incidents, we have conducted logistic regression analysis on proportions injured, any time-loss injury, and, for RNs, terminated workers.
4. We had planned to interview all recruited and terminated RN during the follow-up period by “piggy-backing” onto the existing regional interview process. Again, the labour dispute interrupted this process so that we were able to obtain interviews with approximately 30 percent of RN recruits and 15% of terminated RNs during follow-up.
5. We had planned to obtain information on injury duration. This data will be forthcoming in the next few months but is not available for this report.

APPENDIX B

Injury Rates Calculated for the One-year Period Pre-baseline

Methods:

Information on the socio-demographic variables including age and seniority were obtained from personnel records. Denominator information (i.e. total hours worked) was available for 2091 cohort members (73.3%) in the year preceding baseline. All injury incidence reports, including minor injury reports with no subsequent treatment or Workers' Compensation Board (WCB) claim, injuries requiring an emergency room or family doctor visit only, and accepted WCB time-loss claims were also obtained for the year preceding baseline from the computerized regional occupational health and safety database.

Injury status for each employee was first dichotomized as any injury and no injury. Second, to analyze the effects of employment on specific types of ALC wards on more serious injuries, injury status was also dichotomized into time-loss injuries only vs. all other injuries plus no injuries.

Analyses:

Injury and time-loss injury rates were calculated for the pre-baseline time period by occupation and ALC model.

Results:

Table B1 shows the injury and time-loss injury rates for 2091 cohort members during the year prior to baseline by occupation and ALC model. Injury rates were 38.3 per 100 person years for RNs and 71.5 for LPN/CAs. Time-loss rates were 9.0 per 100 person years for RNs and 29.1 for LPN/CAs. Injury rates for LPN/CAs were approximately twice those for RNs and time-loss injury rates were over three times higher for LPN/CAs vs. RNs.

Injury rates increased from 32.6 injuries per 100 person years on dedicated-ALC wards to 43.0 on low-mix units, and to an average of 62.6 injuries per 100 person years on ECU/ALC, GAU, and high-mix units. The injury rate in the year preceding baseline for these latter three ALC models was approximately twice the rate observed on dedicated-ALC units and 1.5 times the rate on low-mix units.

Time-loss injury rates during the year preceding baseline increased from 11.3 per 100 person years on low-mix wards to 14.0 on dedicated-ALC units, 20.1 on high-mix units, and an average of 24.3 per 100 person years on ECU/ALC and GAU units. The time-loss injury rate in the year preceding baseline for ECU/ALC and GAU units was approximately twice the rate observed on low-mix units and 1.7 times the rate on dedicated-ALC units.

Table B1: All Injury and Time-loss Injury Rates by Occupation and ALC Model during the One Year Period (June 2000 – June 2001) Preceding Baseline

VARIABLE	N	NUMBER OF INJURIES	ALL INJURY RATE (PER 100 PERSON YEARS)	NUMBER OF TIME LOSS INJURIES	TIME-LOSS INJURY RATE (PER 100 PERSON YEARS)
Occupation¹					
RN	1254	272	38.3	64	9.0
LPN- CA	837	327	71.5	133	29.1
<u>ALC Model</u>					
No ALC	611	139	41.3	30	8.9
ALC/ECU	870	286	61.7	114	24.6
Low Mix	352	95	43.0	25	11.3
High Mix	131	44	63.3	14	20.1
Dedicated ALC	73	14	32.6	6	14.0
GAU	54	21	62.9	8	24.0
Total	2091	589	50.4	197	16.9

¹RN=registered nurse; LPN = Licensed practical nurse; CA = care aide

APPENDIX C – Survey Forms.

C - Questionnaire common to all occupations: Sections A to E, and H to J

C1 – Questionnaire specific to RN/RPN: Section F

C2 – Questionnaire specific to LPN/CA/Rehab: Section G

OHSAH Archive



Caring for the Caregivers of ALC Patients – Study Questionnaire

Section A Employment History (All Occupations)

A1. On September 10, 2001, which unit did you work on, or, if you worked on more than one unit that day, on which unit did you spend most of your time?

OR

If you worked as a ‘float’ on September 10, 2001, but have been hired to work part-time on a specific unit, please identify the unit where you usually work part-time.

OR

If you were not working on September 10, 2001, please identify the unit where you worked your most recent shift. Unit name: _____

A2. In which hospital is this unit? _____

[Please answer all the questions in the survey by thinking about the unit that you have named in A1.]

A3. When did you start employment at this unit? Month/ Year _____

A4. On September 10, 2001 (or on your most recent shift) you were working as: (Check one)

Activity Aide ___ LPN ___ Nurse Aide ___ Recreation Therapist ___
Social Worker ___ RN ___ Care Aide ___ Rehabilitation Aide ___
PT ___ OT ___ RPN ___ Other ___ Other job title _____

A5. How many years have you worked in the position you identified in A4? Number of years _____

A6. On September 10, 2001 (or on your most recent shift) your job status was:

Full-time ___ Part-time ___ Casual ___

A7. On September 10, 2001 (or on your most recent shift) you were working:

Day shift ___ Evening shift ___ Night shift ___

A8. On September 10, 2001 (or on your most recent shift) how many hours was this shift?

8 hours ___ 12 hours ___ Other ___ Length in hours of other shift ___

A9. How many patients you were assigned on the shift you identified in A7? Number of patients _____

A10. On the shift you identified in A7, was your patient assignment: (Check one)

Lighter than normal ___ Heavier than normal ___ About average ___

A11. On September 10, 2001 (or on your most recent shift) were you working a regularly scheduled shift? If Yes → go to **A12** If No → go to **A13**

A12. On September 10, 2001 (or on your most recent shift) your unscheduled shift was: (Check all that apply)

A double shift ___ An extra shift with overtime rates ___ Overtime work at the end of a shift ___

A casual call-in shift ___ Other ___ Other shift details _____



To help us understand the importance of overtime work for staff, please check the extent to which you agree or disagree with the following:

A13. You like having the opportunity to work overtime shifts:

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Not applicable ___

A14. You feel pressure from your manager to work overtime shifts more often than you want to:

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Not applicable ___

Section B - Education, Credentials & Socio-demographic Information (All Occupations)

B1. Indicate all of the healthcare and non-healthcare related education that you have obtained: (Check all that apply)

High School ___ Certificate ___ Diploma ___ Bachelors Degree ___
Masters Degree ___ Ph.D. ___ Health & Safety Training ___ Other ___
Education ___ Details of other education _____

B2. Are you interested in pursuing education or training in an area unrelated to healthcare?

Yes ___ No ___

B3. Are you interested in obtaining additional healthcare education through a certificate, diploma, or degree?

Yes ___ No ___

B4. Are there barriers stopping you from taking more training/ education in healthcare? (Check all the barriers that apply)

There are no barriers ___ I can't afford it ___ My time is limited by family obligations ___
Other personal barriers ___ I can't get time off work ___ The hospital will not fund the training I want ___
Training is not held at a convenient location ___ Other barriers ___

Details of other barriers from B4 _____

B5. In the past year, were you the primary caregiver for: (Check all that apply)

Young child(ren) not yet in school? ___
Child(ren) in elementary or high school? ___
Relatives or elderly parents living in your own home? ___
Relatives or elderly parents not living in your own home? ___
Not applicable ___ Other ___ Details of other caregiving _____

B6. If you identified yourself as a primary caregiver in B5, did you share this responsibility with another person?

Yes ___ No ___ Not applicable ___



Section C – Alternate Level Patient Care

Definition of an ALC Patient: An ALC patient is a patient who is considered to be a non-acute treatment patient, but who occupies an acute care bed or a bed on a dedicated ALC unit. In the SFHR, some sub-acute patients are currently considered ALC patients. (ALC patients would include Convalescent ALC, Rehabilitation ALC, Long-Term Care ALC, Palliative ALC, and Psychiatric ALC patients.

C1. Thinking about the unit you identified in A1: Did you work with ALC patients on this unit during the past 3 months?

If Yes → Go to **C2**

If No → Go to **section D** of this questionnaire

C2. When you were hired, were you told that ALC patients would be on this unit?

Yes__ No__

C3. On September 10, 2001 (or on your most recent shift), what percentage of your patient assignment were ALC patients?

Between 1-25%__ Between 26-50%__ Between 51-75%__ Between 76% 100%__
None at all__

C4. On average over the past month, what percentage of time did you spend working with ALC patients?

Between 1-25%__ Between 26-50%__ Between 51-75%__ Between 76% 100%__
None at all__ Too hard to estimate__

C5-16. Please check the most appropriate answer for each of the following.

C5. On this unit, policies and procedures are designed for ALC patient care.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__

C6. On this unit, care plans for ALC patients are well developed.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__

C7. This unit provides in-service training for ALC patient care.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__

C8. You are interested in receiving in-service training for ALC patient care.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__

C9. In your opinion, ALC patients receive quality care on this unit.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__

C10. You are involved in discharge planning for ALC patients.

Strongly agree__ Somewhat agree__ Somewhat disagree__ Strongly disagree__
Don't know__



C11. On this unit, care plans are fully implemented before transfer or discharge.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

C12. Your tasks include dealing with the families of ALC patients who are waiting for discharge to a community facility.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

C13. There is good cooperation between units when ALC patients are being transferred.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

C14. There is good cooperation between unit staff and Continuing Care staff during discharge planning.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

C15. Working on a unit with geriatric ALC patients is highly valued by healthcare staff on other units.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

C16. You intend to stay working on a ward with ALC patients.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

Reasons for continuing/ not continuing work with ALC patients _____

C17. You enjoy working with ALC patients.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___
Don't know ___

Comment _____

C18. In your opinion, what is the best thing about working with ALC patients on the unit identified in A1?

Best thing about working with ALC patients _____

C19. In your opinion, what is the most difficult thing about working with ALC patients on the unit identified in A1?

Most difficult thing about working with ALC patients _____



Section D – Work Environment (All Occupations)

Please answer the following questions by thinking about your normal work experience and conditions on the unit that you identified in A1.

D1. On this unit, there are quiet places to discuss patient care.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D2. Hallways and patient rooms are uncluttered.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D3. The physical environment is properly equipped for patient handling (i.e. has hand rails, lifts, areas for patient mobilization, etc.)

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D4. The nursing station is in a convenient location.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D5. Your job involves a lot of physical work (e.g. lifting and transferring).

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D6. Management is actively involved in employee injury prevention.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D7. You are provided training in safe work practices for the job hazards you face.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D8. Your employer has implemented measures to prevent violence in the workplace (e.g. zero tolerance policy, education, conflict management programs, etc.)

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D9. Unsafe working conditions are identified and improved promptly.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D10. Jobs are designed to reduce heavy lifting.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D11. Equipment is well maintained.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D12. You feel you are at risk for emotional abuse on this unit (e.g. insults, gestures, humiliation in front of the work team, coercion etc).

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

Comment on risk of emotional abuse _____



D13. You feel you are at risk for physical abuse on this unit (e.g. being spit on, bitten, hit, pushed etc).

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

D14. What kinds of things put you at risk for injury on the unit you identified in A1?

Injury risks on your unit _____

D15. Are you interested in pursuing further education or training in safe work practices?

Yes ___ No ___

Section E – Current Self-reported Health Status (All Occupations)

E1. Your life is best described as:

Very stressful ___ Somewhat stressful ___ Not very stressful ___ Not stressful at all ___

E2. Compared to other people your age, your health is generally:

Excellent ___ Very good ___ Good ___ Fair ___ Poor ___

E3. Have you had any back, neck, or upper-limb pain of moderate to unbearable intensity in the last year?

Yes ___ No ___

If Yes → Go to **E4** If No → Go to the next section of the questionnaire

E4. How often have you felt this pain in the last year?

Constantly ___ Once a day ___ Once a week ___ Once a month ___
Every 2 to 3 months ___ Every 6 months ___

Comment on pain frequency _____

E5. How long does your pain usually last for?

Less than 1 hour ___ 1 hour to 1 day ___ Between 1 day and 1 week ___
Between 1 week and 1 month ___ Between 1 month and 6 months ___ Longer than 6 months ___

Comment on pain duration: _____



Section F – Practice Environment For Registered Nurses (RN/RPN)

Thinking about your normal work experience and conditions on the unit you identified in A1, please indicate the extent to which you agree or disagree with the following statements:

F1. Adequate support services allow me to spend time with my patients.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F2. There is a good orientation program for newly employed nurses.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F3. Managerial staff are supportive of nurses.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F4. My profession controls its own practice.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F5. There are active staff development or continuing education programs for nurses.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F6. There are career development/clinical ladder opportunities.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F7. There is opportunity for staff nurses to participate in policy decisions.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F8. There is enough time and opportunity to discuss patient care problems with other nurses.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F9. There are enough registered nurses on staff to provide quality patient care.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F10. There is a senior nursing administrator who is highly visible and accessible to staff.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F11. There is enough staff to get work done.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F12. There is freedom to make important patient care and work decisions.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F13. There is praise and recognition for a job well done.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F14. I am not being placed in a position of having to do things that are against my nursing judgement.

Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___



F15. There is a lot of teamwork between nurses and physicians.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F16. There are opportunities for advancement.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F17. Nursing staff are supported in pursuing degrees in nursing.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F18. A clear philosophy of nursing pervades the patient care environment
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F19. There is a manager who backs up the nursing staff in decision-making even if the conflict is with a physician.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F20. Administration listens and responds to employee concerns,
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F21. There is an active quality improvement program.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F22. Staff nurses are involved in the internal governance of the hospital (e.g. practice and policy committees).
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F23. There is collaboration between nurses and physicians.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F24. Nursing care is based on a nursing rather than a medical model.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F25. The contributions that nurses make to patient care are publicly acknowledged.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F26. There is support for new and innovative ideas about patient care.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F27. Nurses and LPNs have good working relationships.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F28. Nurses, nursing assistants, and care aides have good working relationships.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F29. Nurses and social workers, PTs, OTs, and other non-nursing professionals have good working relationships.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

F30. Nurses have good relationships with each other.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___



Section G – Practice Environment For Healthcare Staff (LPN/CA/Rehab/Social Worker/PT/OT)

Thinking about your normal work experience and conditions on the unit you identified in A1, please indicate the degree to which you agree or disagree with the following statements:

G1. Adequate support services allow me to spend time with my patients.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G2. There is a good orientation program for newly employed staff.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G3. Supervisory or managerial staff are supportive of staff in my occupation.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G4. My profession controls its own practice.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G5. There are active staff development or continuing education programs.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G6. There are career development/clinical ladder opportunities.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G7. There are opportunities for staff in my occupation to participate in policy decisions.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G8. On this unit there are enough staff in my occupation to provide quality patient care.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G9. There is a manager or supervisor who is highly visible and accessible to staff.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G10. There are enough staff to get work done.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G11. I have the freedom to make important patient care and work decisions.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G12. There is praise and recognition for a job well done.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G13. I am not being placed in a position of having to do things that are against my judgement.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G14. Doctors respect staff in my occupation.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G15. There are opportunities for advancement.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___



G16. There is a clear philosophy of care that pervades the patient care environment.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G17. There is a manager or supervisor who backs up the staff in decision-making even if the conflict is with a physician.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G18. Administration listens and responds to employee concerns.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G19. There is an active quality improvement program.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G20. Staff in my occupation are involved in the internal governance of the hospital (e.g. practice and policy committees).
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G21. There is collaboration between staff and physicians.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G22. The contributions that staff in my occupation make to patient care are publicly acknowledged.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G23. There is support for new and innovative ideas about patient care.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G24. Staff members in my occupation have good relationships with nurses.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G25. Staff members in my occupation have good relationships with LPNs.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G26. Staff members in my occupation have good relationships with care aides and nursing assistants.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___

G27. Staff members in my occupation have good relationships with social workers, PTs, OTs, and other non-nursing staff.
Strongly agree ___ Somewhat agree ___ Somewhat disagree ___ Strongly disagree ___



Section H – Attitudes About Work (All Occupations)

H1. On a scale of 1 (lowest) to 10 (highest), please rate your satisfaction with your current profession?

1 (not satisfied) 2 3 4 5 6 7 8 9 10 (very satisfied)

Comment on satisfaction with profession _____

H2. On a scale of 1 (lowest) to 10 (highest), please rate your satisfaction with your hospital?

1 (not satisfied) 2 3 4 5 6 7 8 9 10 (very satisfied)

Comment on satisfaction with hospital _____

H3. On a scale of 1 (lowest) to 10 (highest), please rate your satisfaction with the unit you identified in question A1?

1 (not satisfied) 2 3 4 5 6 7 8 9 10 (very satisfied)

Comment on satisfaction with unit _____

Section I – Burnout Inventory (All Occupations)

This section contains statements of job-related feelings.

If you have never had a particular feeling, check the “never” after each statement. Otherwise, indicate how often you feel like this by checking the one that best describes how frequently you feel that way.

I1. I feel emotionally drained from my work.

Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

I2. I feel used up at the end of the workday.

Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

I3. I feel fatigued when I get up in the morning and have to face another day on the job.

Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

I4. Working with people all day is a strain for me.

Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___



15. I feel burned out from my work.
 Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

16. I feel frustrated by my job.
 Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

17. I feel I'm working too hard on my job.
 Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

18. Working with patients directly puts too much stress on me.
 Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

19. I feel like I am at the end of my rope
 Never ___ A few times a year or less ___ Once a month or less ___
 A few times a month ___ Once a week ___ A few times a week ___ Every day ___

Section J – Caregiver Input, Feedback and Comment

J1. Please provide any additional comments or recommendations to improve your workplace environment, job satisfaction, well being, or work conditions on your unit?

Thank you for taking the time to complete this survey!

Thank you for returning your completed questionnaire. To ensure that your responses get included in the **Caring for the Caregivers of ALC Patients** study, please use the enclosed, self-addressed, stamped envelope to return your survey to us by September 28, 2001.

All participants who return their questionnaire by September 28, 2001 will be automatically entered in the restaurant gift certificate draw.



APPENDIX D
Questionnaire survey instruments

NURSING EXIT INTERVIEW SURVEY INSTRUMENT and QUALITATIVE RESULTS OF INTERVIEWS WITH 40 TERMINATED RNs

NURSING EXIT INTERVIEW SURVEY INSTRUMENT

NAME:	
SITE:	UNIT:
EMPLOYMENT - From:	To:
DATE OF EMPLOYMENT AT CURRENT SITE:	
IMMEDIATE SUPERVISOR AT UNIT:	
REASON FOR TERMINATION:	

QUESTIONS:

What did you like most about your experience on the hospital unit?

What did you like least about your experience on the hospital unit?

What was your workload like?

too heavy about right too light varied

Would you say that morale among health staff on your unit was:

excellent good fair poor

Do you feel that your immediate supervisor:

	Always	Usually	Some-times	Never
Communicated policies and practices?				
Followed policies and practices?				
Demonstrated fair treatment?				
Provided recognition for a job well done?				
Encouraged cooperation?				
Resolved complaints and problems promptly?				
Understood the problems on your unit?				



Qualitative Report on 40 Interviews With Terminated RNs Conducted Between June 2000 and October 2001

In 2000 and 2001, the SFHR Human Resources Department administered a telephone survey to 40 nurses who terminated employment at one of the four study facilities. Most respondents quit their jobs, however several were early retirees. Only one respondent retired at age 65.

The Nursing Exit Survey is comprised of questions related to experiences on the hospital ward last worked on. Respondents were questioned about workload, morale, specific problems on their unit, and the main factors leading to termination. Responses were analysed by first reading all questions to obtain an overall sense of the nurses' experiences, feelings and motives for leaving. Responses were then re-read and the reasons for termination categorised.

While responses were varied and at times complex and overlapping, two main categories of reasons for leaving emerged. These were 'personal or family reasons' and work-related reasons. Five main work-related reasons were identified: heavy workload, lack of support from management, health concerns, and inflexibility in scheduling shifts. As well, a major theme which informed most of these interviews was that terminees felt a persistent lack of respect from managers.

For those nurses who cited 'personal or family' reasons for termination, spouses' transfer, a personal decision to travel, relocation to another community, and problems with the



length of their commute to work were the main issue. As well, several nurses with part-time or casual jobs outside the region said that they quit their SFHR job because of inflexibility in obtaining casual or part-time hours. The 65 year old retiree stated that she “did not want to leave, but was forced to, due to the Region’s retirement policy”. She felt competent and wanted to work but could not. Early retirement was taken by some of the respondents mainly because they felt discouraged and frustrated with the working conditions.

An intertwined theme of lack of respect in general, and lack of support from managers emerged from this analysis, conditions which led to low morale and conflict. As one nurse stated, “I left because I was tired of being treated unkindly and not being supported in my struggles with other staff by my manager.” Problematic relations with physicians emerged as a concern only infrequently in these interviews.

Heavy workload and understaffing were the most often cited reasons for work dissatisfaction and frustration. Because of heavy workload, respondents felt they could not properly nor safely meet the care needs of their patients. Several nurses wrote that they were concerned over patients’ safety due to lack of time to spend with patients, or, as one nurse put it, “do patient teaching properly.” The following quotes capture this sentiment:

“It felt like we were flying by the seat of our pants, bordering on unsafe.”

“Too little staff – feeling overwhelmed at times.”



“Not enough nurses (RNs or LPNs) to deal with the acuity of patients on the unit.”

“Workload is heavy – older patients presented with multiple complicated problems; too little support staff (clerks, porters, care aides).”

“I have no time to take breaks.”

As well as feeling that heavy workload contributed to their inability to service their patients properly, many respondent nurses said they quit because they were worried that the heavy workload and associated stress was harming their own health. The perceived inflexibility of the region to allow more flexible shifts was the issue that most often emerged for those who quit citing personal health concerns.

Several nurses reported chronic sleeping problems that meant they began most of their shifts in a state of semi-exhaustion. As one nurse stated: “I have poor sleeping habits due to rotating shifts.” Many felt that this could have been remedied if more flexible shift schedules were available. Most said that ‘not everyone wants to work 12-hour shifts’, and another respondent stated that she “could not get the shifts she wanted far enough in advance.” Another nurse said that she could not move from full-time to part-time hours because “a part-time job was not available.”

A number of nurses were frustrated with the lack of support they receive from the head nurse or unit manager. “Lack of support from managers” was a common refrain throughout the Exit Surveys. As one nurse said, “I had a feeling of a ship without a



rudder.” One unit was reported to have been without a coordinator for a number of months.

Another staff member stated that: “Effective, supportive management would be very beneficial. Many excellent staff have left because of this lack of support and, according to many respondents, lack of support and conflict produced a lot of sick leave”.

Several nurses were very angry with the issue of lack of support. One nurse said,

“I have never worked in a facility where the leadership/direction is so immature, confrontational, argumentative, inconsiderate, inconsistent, autocratic, ignorant, stale, pathetic, and untrustworthy, who I have had the pleasure of working for. SFHR has no progressive management skills to keep staff.”

Another nurse stated that she was very upset in her dealings with her supervisor:

“my immediate supervisor as I felt constantly criticized by my supervisor both behind my back to colleagues and/or other management. I received harassing phone calls at home from the supervisor. And none of these concerns were addressed by upper management.”

Both quotes illustrate that respondents felt that the lack of support was a problem with both immediate and upper levels of management. At times, conflict between management and staff were quite severe, as the following demonstrates:

“When I quit, my manager did not wish me well, or thank me for my time. Instead I was told off, in front of other nurses! I had considered coming back

casual but after that send off, I will never consider it. I would not recommend my fellow colleagues to apply at [this facility].”

For others, the rapport between management and staff would have to improve in order for staff to feel valued and heard, and to give a sense of hope for positive change. The following quotes illustrate the necessity of having a voice in the workplace:

“Healthy functional communication between management and staff is needed. Upon my resignation I was refused the opportunity to partake in the Nursing Exit Interview Survey, but I am submitting this one anyway. Being refused a chance to voice or share my experience is another example of management not really wanting to listen to staff and also wanting to protect other managers.”

“You [should] have asked me how to keep staff rather than asking me why I left. This is just another indication that you have no clue and no changes are in the future. My experience at the facility only encouraged me to seek employment elsewhere.”

Some of the responded said they would continue working in the SFHR as casuals if they were paid according to experience rather than job status. One nurse explained that as a casual she received 3rd level pay, but has been paid at the 6th level for over 20 years at her primary position. As a result, she quit, deciding casual work was not worth her time. A

retiree, aged 57, said she would work casual shifts if the pay were better (although she quit due to job stress).

Some nurses stated that they would choose not to work on the same unit, with the same manager, or the same hospital. A number of nurses said that the region “is close to home;” several mentioned that the “staff were great,” and they made a lot of friends. Admiring her colleagues, one nurse writes: “there are capable, effective staff throughout the SFHR who have good working ethics and genuinely care about the patients and quality of care they provide.”

The majority of respondents were working elsewhere at time of interview. For some a better job was to be found in the community, another unit/ hospital or in teaching. A few nurses did not wish to leave at all, but were forced to retire. Others would have stayed if the rate of pay for casuals were based on experience, not status. For the most part, those who left their jobs due to ‘staff morale, staffing and job stress’ issues continue or are likely to continue working in the former SFHR. However, most of those who quit due to problems with management maintain that they will not work in the region again.

In summary, most of the interviewees quit for work-related reasons. The most frequently cited were heavy workload, lack of respect and support from management. The heavy workload led to fears that patients were not being properly cared for and that working conditions were unsafe. As well, heavy workload in conjunction with understaffing

meant that respondents were working under constantly high and unacceptable levels of stress.

Inflexibility of shift schedules was a major reasons cited for leaving employment in the region. The concerns were of three types. First, inflexible and long shifts were leading to health and chronic sleeping problems. Second, because many of these workers had jobs in other facilities, either within the region or in other regions, inflexible shift schedules for casual and part-time workers made it impossible to hold down multiple jobs. And, third, many felt that the payment system for casuals, because it reflected casual job status rather than experience, was unfair. This perception about pay in conjunction with high levels of stress often appears to have tipped the balance in decisions to terminate employment in the region.



APPENDIX E

Qualitative Description of the Patient Care Units Used in the Study at the Four Study Facilities. This description is based on the units as found on September 10, 2001

Methods:

Extensive qualitative interviews were undertaken with workers and managers at each facility to identify all patient care units that handled ALC-patients and to characterize the type of ALC model used. A medical sociologist conducted interviews with senior managers and nursing staff at each facility as well as the managers responsible for the region-wide seniors' program to identify all ALC units and to better characterize the philosophy and structure of ALC across the four study facilities.

Once the ALC units were identified, further interviews were conducted with nursing managers, and staff involved in ALC patient assessment, care, rehabilitation, and discharge planning (such as physiotherapists, social workers, and geriatricians) on each of the identified units.

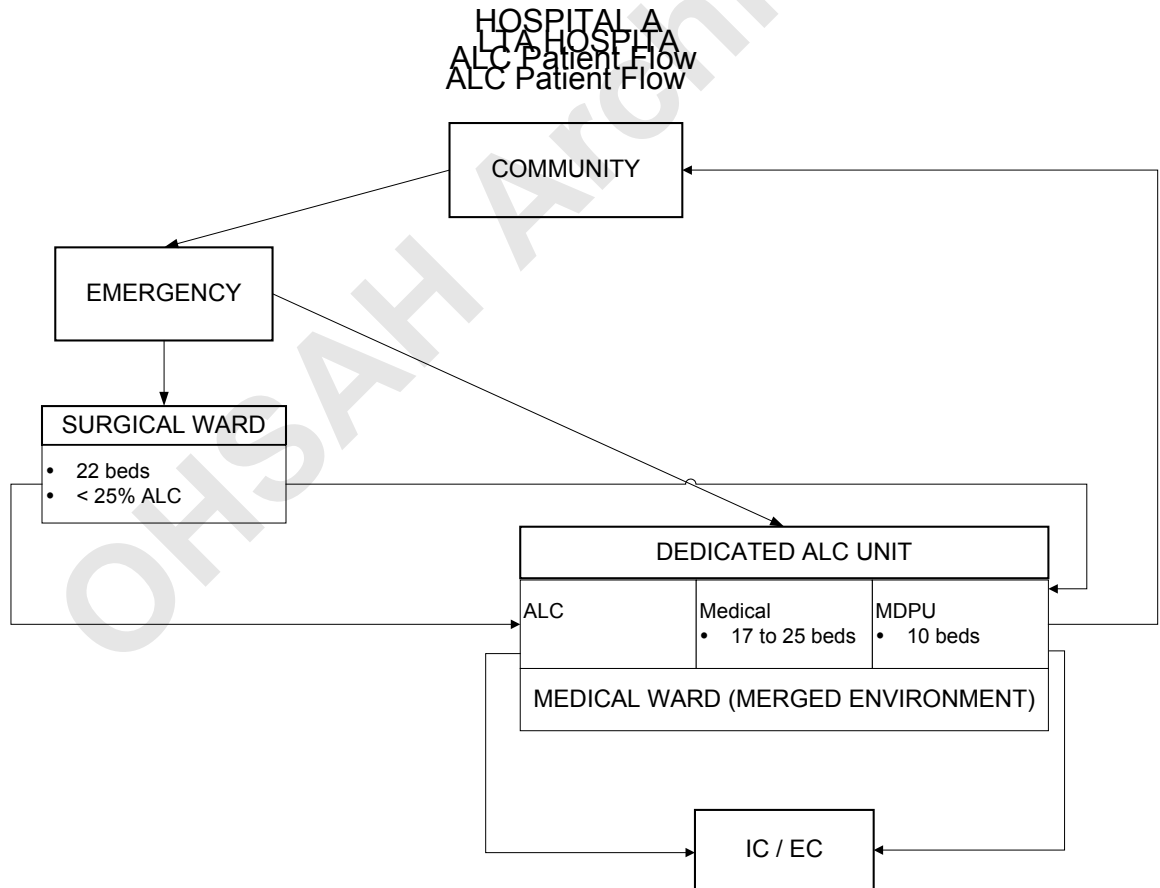
A semi-structured interview was administered to ascertain: 1) the philosophy of care on the unit, 2) the type of ALC patient typically found on each unit (elderly, convalescent, palliative, etc.), 3) the typical number (and range), type, and acuity of the ALC-patients, 4) availability and state of repair of equipment used in lifting, transfer, and rehabilitation, 5) typical staffing numbers and staff mix, 6) the availability of specialized staff to assess and care for ALC-patients, and 7) the extent to which the built environment suited ALC.

Once the ALC models of care were characterized and a typology created, all ALC patient care units were classified to one of the identified care models.

HOSPITAL A

A) ALC Patient Flow:

Patients typically enter the hospital through emergency. ALC-patients end up either on the surgical or the medical unit. Patients classified as ALC tend to go to the medical unit. Patients requiring classification are assigned to the medical unit.



B) ALC Unit Descriptions

1. Surgical Unit:

Twelve of the 22 beds on this unit are designated for medical patients so this is really a mixed surgical/medical unit with the occasional ALC patient. Nurses usually try to transfer rehabilitative, post-op ALC-patients to the medical unit but this depends on bed availability. They prefer this because more consistent rehabilitative support can be provided on the medical unit.

2. Medical Unit:

The medical unit consists of 41 beds on one floor. Although this is a single environment, beds are grouped into a medical unit (31 beds), and a Discharge Planning Unit (DPU) (10 beds). The DPU generally takes the highest functioning ALC-patients destined for placement in long-term care facilities in the community or returning to their homes. The lower functioning convalescent or facility ALC-patients are placed on one nursing team on the unit in an effort to group similar patients.

Social work and rehab staff are shared across all the 66 beds. Professional support staff feel frustrated, since they must attend to the acute needs before the ALC needs and therefore may not be able to meet all the needs, given their workload.

The DPU and the medical unit staff are separate staff. There are dedicated RN and LPN staff that only work on the DPU. In contrast, staff on the medical unit rotate between

ALC and medical patients. Thus, the DPU has a staffing arrangement that allows for more continuity of care compared to the medical unit.

Palliative ALC-patients are interspersed amongst medical, convalescent ALC, and rehabilitative ALC-patients on the medical unit. Palliative patients need dedicated time by staff for attending to their special needs and for supporting grieving families. The different nursing modes required for all these various patient types pose challenges for staff.

The physical environment of the medical unit is not suitably equipped to provide the kind of support or rehabilitation required for ALC-patients. Although there is a small dining room for the DPU patients to support rehabilitation in preparation for release to the home, or facility, hallways are crowded and the physical layout does not provide enough variation to facilitate clear negotiation of the unit.

HOSPITAL B

A) ALC Patient Flows:

The majority of ALC-patients enter Hospital B through Emergency Services, and are subsequently channelled into appropriate medical units. Patients are rarely classified in emergency as ALC; this only occurs if it is immediately evident that they will not be able to return home.

On medical units, once patients no longer require acute level care, they are assessed by an interdisciplinary team who determine the patient's level of functioning and care needs



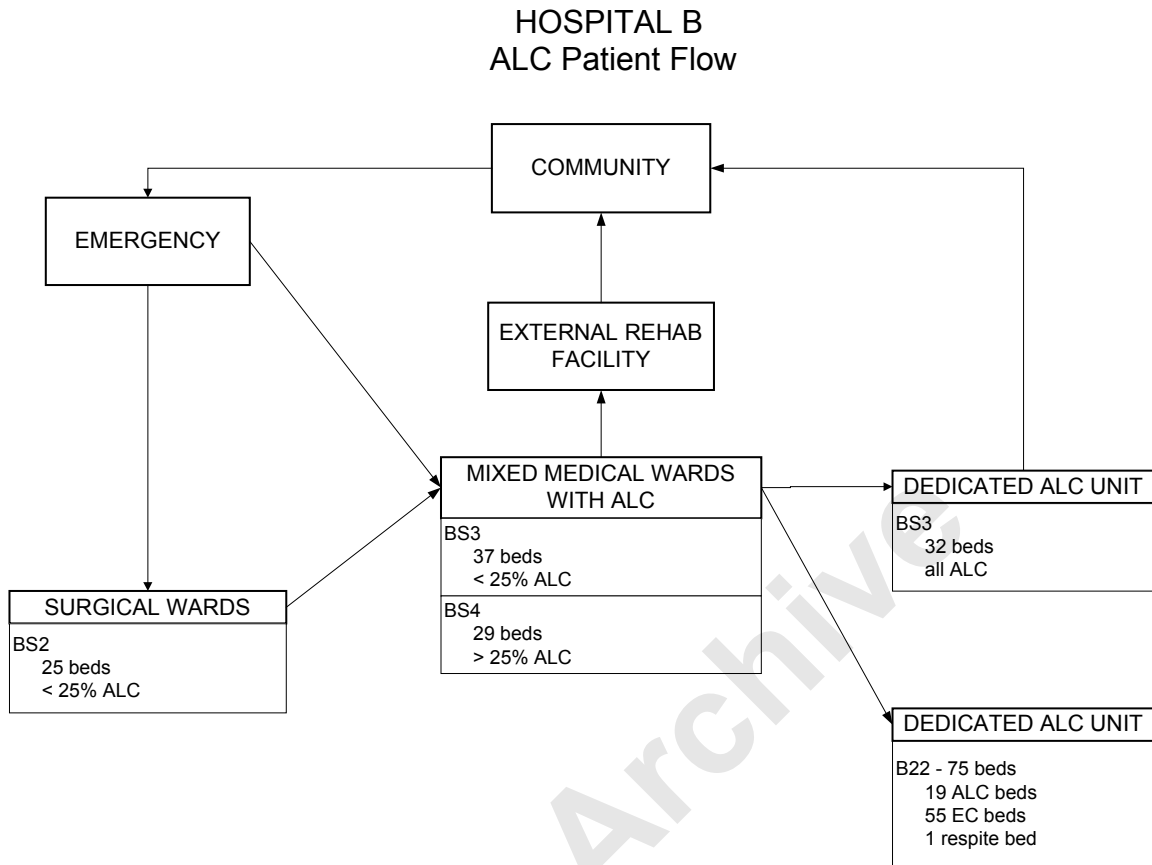
(acute, palliative, or convalescent), and if appropriate, reclassify them as ALC and assign them to the ALC waitlist. This reclassification usually occurs on Discharge Rounds (Wednesdays at Hospital B), but may occur during the week as well. Reclassified ALC-patients stay on the medical unit as convalescents until space is available either on the dedicated ALC Unit (BS3) or in B22, which accommodates both extended care and ALC-patients. Assignment to either of these units is loosely based on workload level, with an attempt to balance out ALC work demand between the two units.

The social worker is a key staff member in this process of within-hospital assignment to units. During Discharge Rounds, the manager (or designate) of the ALC and B22 units may also attend to ensure patients are stable enough to be transferred to ALC units.

The nurse manager of BS3 and B22 units is in control of the waitlist; this works extremely well to ensure that appropriate support and staffing is in place, and that an appropriate workload balance between the two units is confirmed before ALC-patients are transferred to these units. The social worker is instrumental to this process by developing extensive action plans, and by ensuring that patients and family are kept well informed about procedures and pending changes. The active contributions of an interdisciplinary assessment team, including the social worker, PT, OT, and dietician, further optimize the process.

What may act as an impediment to the smooth functioning of ALC transfers between units is the fact that doctors may be ill informed and inadvertently provide faulty information to patients and family about such things as availability of rehabilitation services or availability of beds on BS3 and B22 units. Ongoing pressures to effect quick transfers between units to expedite the availability of beds in acute units can also generate extreme stresses for staff and patients alike.

While waiting for bed availability in either BS3 or B22, ALC-patients are considered convalescent. Hospital B has no dedicated rehabilitation unit. ALC-patients requiring substantive rehabilitation remain on the medical units (where there is somewhat more rehabilitation service provision than on ALC units), and are waitlisted for an external rehabilitative facility, such as Hospital D or Unit X (a unit which is external to the 4 facilities examined here). Alternately, convalescing ALC-patients may be waitlisted for an Intermediate or Long Term Care Facility in the community. Although BS3 and B22 provide no active rehabilitation services, they do offer a more home-like care setting than acute-care medical units.



B) ALC Unit Descriptions

1. Medical Units (BS2 and BS4)

Because ALC-patients originally come in as medical patients, they are grouped on the unit by their medical condition. This means that ALC-patients tend to be interspersed with medical patients and no one nurse is assigned to all the ALC-patients on the unit. (i.e. once reclassification (to ALC) occurs, they are not necessarily moved or regrouped.) Although attempts are occasionally made to group palliative patients together, these patients are usually provided with private rooms. Occasionally, patients who are noisy may be shifted to adjacent beds/rooms in order to minimize disruption.

Although both BS2- and BS4 are medical units that care for ALC-patients, there is a perception that staff on BS4 tend to be less satisfied than on BS2, despite the fact that BS2 has undergone significant changes in the past year, with 40% of the staff as new grads. On BS4, healthcare staff often feel overworked in part because patients on this unit tend to be less mobile than on BS2. Staff on BS4 tend to have heavier physical workloads. BS2 is more clearly an acute level unit since it deals with cardiac patients (involving telemetry).

Overall, BS2 and BS4 have some flexibility in terms of being able to increase staffing levels when workloads increase (e.g. to add a 4 hour shift for 10 days). These two medical units are staffed by RNs and LPNs whereas BS3 ALC and B22 are staffed by CAs and RNs.

Physical supports on these two units are insufficient to properly care for ALC-patients. As well, these supports are not well utilized. The 2 medical units each have a SARA lift (for partial lifts) and an Arjo lift (for total lift). Given the mix of patient populations on these medical units, nurses find it difficult to establish a viable process for consistently using existing supports.

2.Dedicated ALC Unit: (BS3)

The BS3 dedicated ALC Unit was opened in 1999. This unit has 37 beds; 22 of these are allocated as “regional” beds (due to Regional shortages), and 15 are considered Hospital B beds. ALC-patients assigned to these beds may come from other acute-care facilities in

the region, or through the community via Continuing Care. Due to renovations in the South Wing beginning April of 2001, 10 medical beds from BS2 were moved to the BS3 so that 37 ALC beds were reduced to 27 and BS3 will have both ALC and Medical patients. This reduction will be of the designated 15 Hospital B beds, dropping the number of ALC hospital B beds on BS3 from 15 to 5.

Although the future impact of this reduction is still not totally clear, it is anticipated that ALC-patients will be forced to remain longer on medical units before placement, since BS3 will have decreased numbers of available ALC beds. Lack of available ALC beds may result in medical units receiving more ALC-patients, and for longer periods of time during the study period. It is anticipated that there will be an accelerated demand to move patients quickly from one unit to another, which will place additional stresses on both patients and healthcare staff.

Both BS3 and B22 units have a wider range of physical supports than the medical units and nurses consistently use them properly, with little incidence of injury on these units. Injuries that do occur tend to befall the older population of care aides are likely to be a result of repetitive and cumulative overload.

ALC Units in Hospital B are staffed by RNs and care aides. To alleviate staff workload, Hospital B has begun to hire “Acute Service Aides” [either RN student nurses or care aides given a specific training oriented to acute care] to help with tasks such as portering,



stocking, and delivering meal trays. (In Hospital B, RNs and LPNs deliver patient food trays, with the help of Service Aides).

3. Mixed ALC/ECU Unit: (B22)

B22 combines care for both ECU and ALC-patients. RNs are rotated through the unit at three month intervals. During each 9-month period, therefore, they will have worked for 6 months with ECU patients, and 3 months with ALC-patients. Many nurses find their ALC rotation excessively long, and experience some frustration at having to move back and forth between patient populations that require different philosophies of care. ECU patients, for example, tend to be more stable in their health status and capacities, thereby enabling a more routine pattern of care provision. ALC-patients, on the other hand, are subject to more frequent unit transfers and often fluctuate in their cognitive capacities, medical health status, mobility, and general ability to undertake ADL (Activities of Daily Living). Patients have to be in stable condition or able to perform certain tasks to be eligible for an ALC Unit. The different nursing roles and tasks required in each classification make it difficult to move back and forth between care for ALC and ECU patients.

The BS3 Unit's location within the hospital is preferred by nurses as it confers more of a conventional nursing status than the B22 Units, which are separate from the hospital building. B22 staff often feel alienated from other staff because of their separate location. This alienation is exacerbated by the fact that doctors often do not respond to requests for support in a timely fashion; indeed, it can take up to 2 or 3 days for requests for acute



care support to be responded to, despite the reality that the B22 site is within close walking distance down the road. Consequently, nurses are often forced to resort to calling the doctor who is ‘on call’ on weekends, and to receive the “run around” from these as well, since they are encouraged to use doctors available during the week. This causes “hurt feelings” by nurses, and contributes to their feeling disregarded and devalued by peers and Doctors alike.

Staffing levels for changing ALC patient care-needs are not adequate at the present time. Both BS3 and B22 are in need of more PTs and OTs. RNs no longer have time to do hands-on patient care: all these tasks at B22 are now accomplished by the Care aides who bear some resentment over the additional workloads brought on by the RNs’ inability to provide this support. RNs are now responsible mostly for the development of care plans, medications, pain management, assessments, and family issues, but not the other conventional RN activities.

At B22, the RN-patient ratio is 1:25. RNs and managers are left “constantly putting out the flames” of tension between RNs and care aides, the latter whose resentment has grown significantly over the past while. Although care aides have been trained to deal with geriatric patients, they do not feel equipped to deal with downloaded RN tasks. Care aides often feel resentment when they see nurses at the computer while they are left with physically demanding tasks such as transferring, lifting, or turning. This level of job dissatisfaction is less acute in BS3, where the relationship between RNs and care aides is

not conflicted. This may be due, in part, to the fact that BS3 patients may be more mobile and cognitively intact and therefore less difficult to care for.

The low staffing level of PTs and OTs is a major concern. One PT serves 150 residents, and the OT is shared with the Extended Care Centre. One speech /language pathologist works for 8 hours monthly to serve all the extended care and ALC-patients at the hospital. (ALC-patients get this service for free; Extended care patients have to pay a fee for this). Hospital B has conventionally had a very “bare bones” healthcare budget in comparison to other regional facilities. Hospital B administration has, in the past, been more concerned than other regional facilities to keep the hospital “out of the red”, thereby contributing to longstanding minimal levels of staff resources. With more regional “pots to dip into”, this trend is currently changing.

HOSPITAL C

A) ALC Patient Flows:

Most ALC-patients enter the hospital through the Emergency department. ALC-patients may be sent directly from Emergency to the 5th Floor Geriatric Assessment Unit (GAU) for stabilization and further assessment by an inter-disciplinary team including a full-time geriatrician. Or, patients may be admitted to Emergency, sent to a medical unit where they are assessed, and then admitted to GAU.

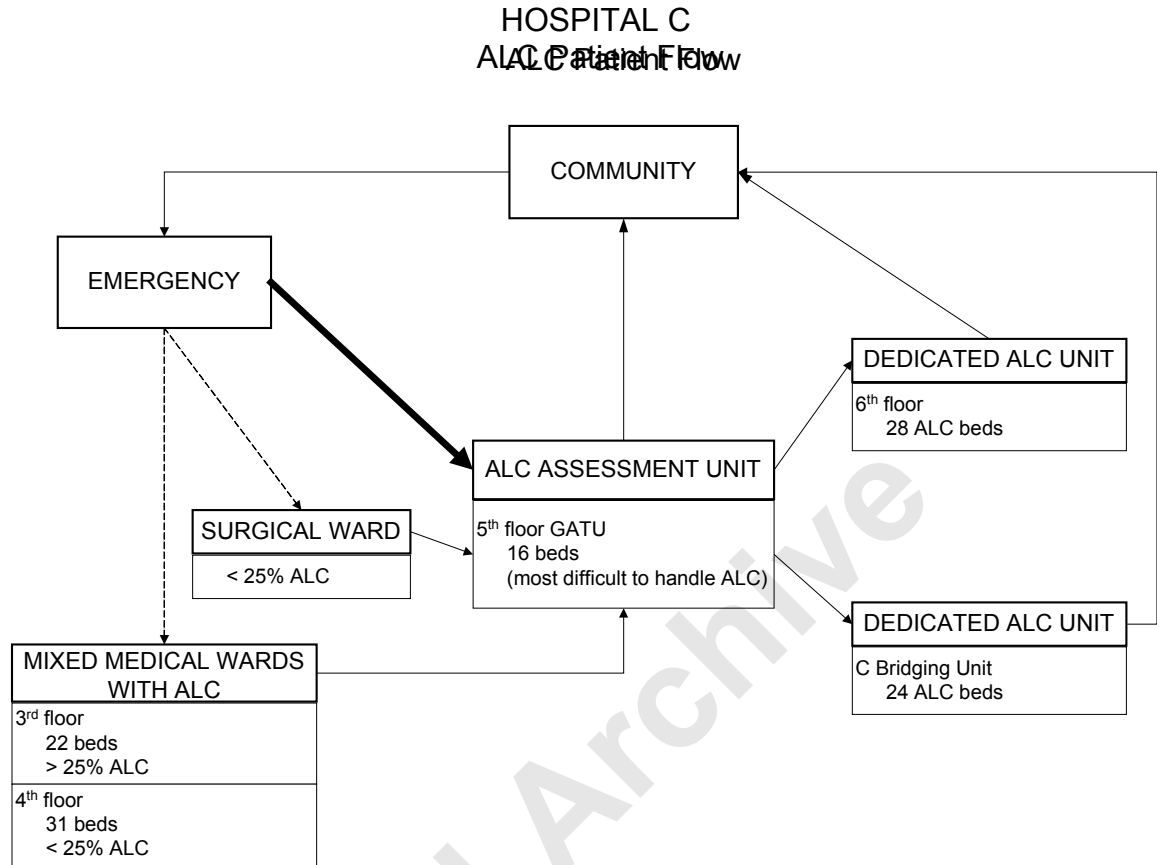
Up to 75% of patients admitted onto the 5th floor GAU are stabilized, treated, and successfully returned to their homes within 10 days. Most of the patients who do not



return home are classified as convalescent ALC. There are several possible routes they may take within the hospital.

1. ALC convalescent patients with complex medical conditions and rehabilitation needs may be transferred to the 6th floor dedicated ALC Unit.
2. Patients with straightforward medical problems may be directed to the 3rd floor medical unit.
3. ALC convalescent patients with no medical condition but requiring rehabilitation in order to return home or go to a long-term care facility may be routed to the C Bridging Unit (CBU).
4. Depending on fluctuating needs, flexible inter-transfer of patients occurs between the medical units, GAU, 6th floor ALC Unit and CBU.

At Hospital C, patients coming to Emergency are never first directed to either the 6th floor ALC unit or the C Bridging Unit (CBU).



B) ALC Unit Descriptions:

1. Geriatric Assessment Unit (GAU):

Opened in 1999 replacing the existing 5th floor discharge-planning unit. The GAU was designed specifically as a specialized geriatric assessment and short term treatment unit. Although not all medical conditions can be treated on this Unit (the Unit will not accept cardiac/telemetry patients), patients on this unit receive focused medical treatment aimed at stabilizing their conditions. The GAU is an acute medical unit, which is staffed at a higher level than the 6th floor ALC unit.

The GAU deals with 3 types of ALC patient. Those requiring minimal stabilization and/or medical treatment for quick return to their homes. Patients who are stabilized are sent to other ALC units in the hospital for further medical treatment or rehabilitation. And, finally, for patients needing a locked secured environment, GAU has the equipment and staff to handle severely demented patients and those with aggressive or behavioural problems. At GAU the facilities and staffing allow for some basic rehabilitative efforts among such patients, as they need to be able to walk and do basic activities of daily living in a locked and secure environment.

The GATU 5th floor is staffed with an interdisciplinary team including a geriatrician and has a large component of therapy staff (OT, PT, RT, Social Workers) compared to other units in the hospital.

The GAU is unique in that its built environment has been designed to optimize patient safety, enhance aesthetic quality, and provide rehabilitative settings that mimic environmental conditions in the home; this increases patients' chances for restoring their functional capacities to the level and type required for home living. Traditional hospital units are designed in the pattern of an "H", with shiny floor tiles that create hazardous mobility conditions and dull white walls that diminish sensory stimulation and contribute to patient confusion. The GAU has wide hallways. This fact is significant because hallways clogged with equipment such as commodes, lifts, walkers, wheelchairs, etc.

diminish the odds of staff actually using the proper equipment for lifting and transferring patients.

GAU walls are painted different colours along the various wings to assist in patient orientation to their surroundings. Floor tiles are skid proof to ensure safety, and the unit is equipped with home quality and style showers and bathrooms (even with similar types of shower curtains) to provide opportunities for patients to learn safe self-care practices that are transferable to the home setting. A kitchen/ dining room is available for patients to practice food preparation and socialization skills that may have been compromised by strokes or other illnesses.

2. Sixth Floor Dedicated ALC Unit:

The 6th floor was converted to an ALC unit in 1999. This conversion generated strong staff resistance. The Sixth Floor ALC unit keeps in close affiliation with the GAU. In contrast with the GAU which is overseen by a geriatrician, the 6th floor ALC-unit works primarily with GPs. The Sixth Floor ALC unit is staffed to residential facility (Extended Care) levels, and therefore is equipped to properly handle convalescing ALC-patients. Care requirements for convalescent patients enable older nursing staff to keep skills up to date and give new nursing graduates opportunities to solidify the skill sets they trained for.

Patients on the 6th floor ALC Unit typically are in a major transitional period of their lives, with both patients and family being forced to deal with and accept life-altering



changes in health status, lifestyle, and potentially, in housing arrangements. This transition requires intensive support for patient and family, and Social Workers are key facilitators of this process. Accordingly, this unit in need of significantly increased levels of support staff (OTs, PTs, and Social Workers) in order to adequately deal with these people- intensive issues. Support staff rotations, however, only include day shifts, which means that the times when their support is most needed-- during evenings and weekends when family have time to visit-- they are not available, leaving RNs and other healthcare staff to deal with this additional workload.

3. Mixed ALC/ECU Unit: C Bridging Unit (CBU):

The CBU was established in May 1997. Before this time, the wing had been part of a 75 bed extended care unit. In March 1999, approximately two years after the CBU was opened in this old ECU, the existing 5th floor DPU was closed and staff and patients were moved to the CBU.

This move generated anger in staff, many of whom left against their will and felt they had no say in the decision to move to, what was perceived of, as an older, less attractive nursing site. Additionally, transplanted staff were displeased with the move from an acute level of care facility to what was perceived as an extended care environment with its concomitant reduction in nursing status.

The CBU is modeled on the Extended Care environment, which means there are adequate mechanical lifts and a strong interdisciplinary team including Social Worker, Nurse



Clinician, OT, PT, Rehabilitation Aide, Recreational Therapist, Pharmacist, and Dietician. Developing this team and having adequate mechanical support was facilitated by the fact that the CBU building originally served as an Extended Care Facility.

The CBU is heavily focused on rehabilitative care but has to deal with very high patient turnover rates. It is exceedingly difficult for staff to properly get to know the needs of each new patient and thus develop effective relationships and nursing action plans. For example, during the week prior to interviews with CBU managers, seven new patients were admitted. Although patients often initially resist placement at CBU because the building is old, they often later seek placement in the adjacent C Extended Care Unit, because of their experience of good care in the CBU.

There are currently eight RN positions. Three of the RNs came with the initial move. There are ten LPN positions. The part-time LPN positions have high turnover rates. The workload for RNs has been excessive due to high turnover of patients and intense medical, psychiatric, palliative, and patient family issues. In general, RN staff are oriented to holistic healthcare provision and enjoy working with both patient and family. Care aides are also typically equipped to provide that sort of dual role. On the other hand, LPNs appear trained to be focused on performing tasks rather than dealing with patients in a more integrated and holistic fashion. This variance in approach can frustrate the provision of smoothly delivered and team-based healthcare services on the CBU.

Although the building is very old, the CBU tries to offer a home-like environment; it also has active assessment and rehabilitation programs, and an excellent recreational department. The unit consists of 12 semi-private rooms with shared bathrooms. CBU has the disadvantage of being old, cold in winter, hot in summer and very crowded. There is no piped-in oxygen or built-in suction. Being situated at ground level allows patients to have easy access to the outdoors during the summer, but simultaneously invites easy access for outsiders, which is occasionally cause for security concerns. Some patients come into the unit at the extended or intermediate care level, and leave with their health status upgraded by one level.

One of the biggest safety problems at CBU is overcrowding of units and hallways. The floor is marble and slippery, creating dangerous conditions for staff and patients alike. (Patients have suffered fractures on this floor). Bathrooms are too small for staff to support patients. New electric beds are replacing all existing crank beds. The large numbers of exits in the building can cause safety concerns due to their proximity to the streets. The surrounding garden grounds are wonderful in summer, although the uneven ground can cause mobility problems for patients. The unit has excellent mechanical resources including one Arjo and one SARA for 24 residents, many of whom do not require these lifts.

The CBU also serves as a Discharge-Planning Unit, with patients destined either for return to their homes, or for transfer to an intermediate or extended care facility. The interdisciplinary team works extensively with continuing care (the “keepers of the wait



list”) for community beds. Indeed, continuing care has been forced to “buy” temporary beds in private facilities to stave off the ‘bed crunch’. The lack of available beds in both community and hospital settings can generate chaos, with patients flowing back and forth between different units, or being sent home before their rehabilitation or convalescence is complete. Support staff such as OTs and PTs find it particularly difficult to work in an environment where their efforts are prematurely cut off, knowing that these patients will likely be forced back into the healthcare system at a later date.

The 6th floor ALC unit is physically larger than and better staffed with RNs and LPNs than the CBU allowing the more acute ALC-patients from the acute hospital units and GAU to transfer to the 6th floor. ALC convalescing patients often fluctuate between being medical and ALC. CBU likes to take a more stable ALC convalescent patient due to their environment and staffing levels.)

Emergency is often overflowing, with (medical, later ALC) patients sometimes assigned initially to temporary beds in daycare. They can then be admitted to acute units, then to GATU (or 3-6), and finally to CBU. They are, therefore, often submitted to multiple moves before arriving at CBU. This not only contributes to confusion and stress, but also means that restoration of capacities will occur at a much more prolonged pace than really necessary. Once in the CBU, staff try to normalize their daily activities of living and improve functional capacities. The CBU has had good successes in improving patients’ level of care status. The recreational program may offer activities that the residents have never engaged in, thereby offering something new and interesting in their lives.



Because of the acute hospital and long-term bed crisis in the SFHR, numerous temporary beds have been purchased in private facilities (e.g., Westminster House, Windermere Lodge, Bear Creek). Patients shifted to these facilities to make room for new patients often leave CBU before their rehabilitation goals are completed. They may also thereby be forced to move to geographical locations distant from their elderly spouses or family members, causing additional disruption and stress in the family's life. Because private facilities are not cheap, many patients are again transferred once an available bed in a public long-term care facility has been located. The tally of transfers through this process can be excessively high.

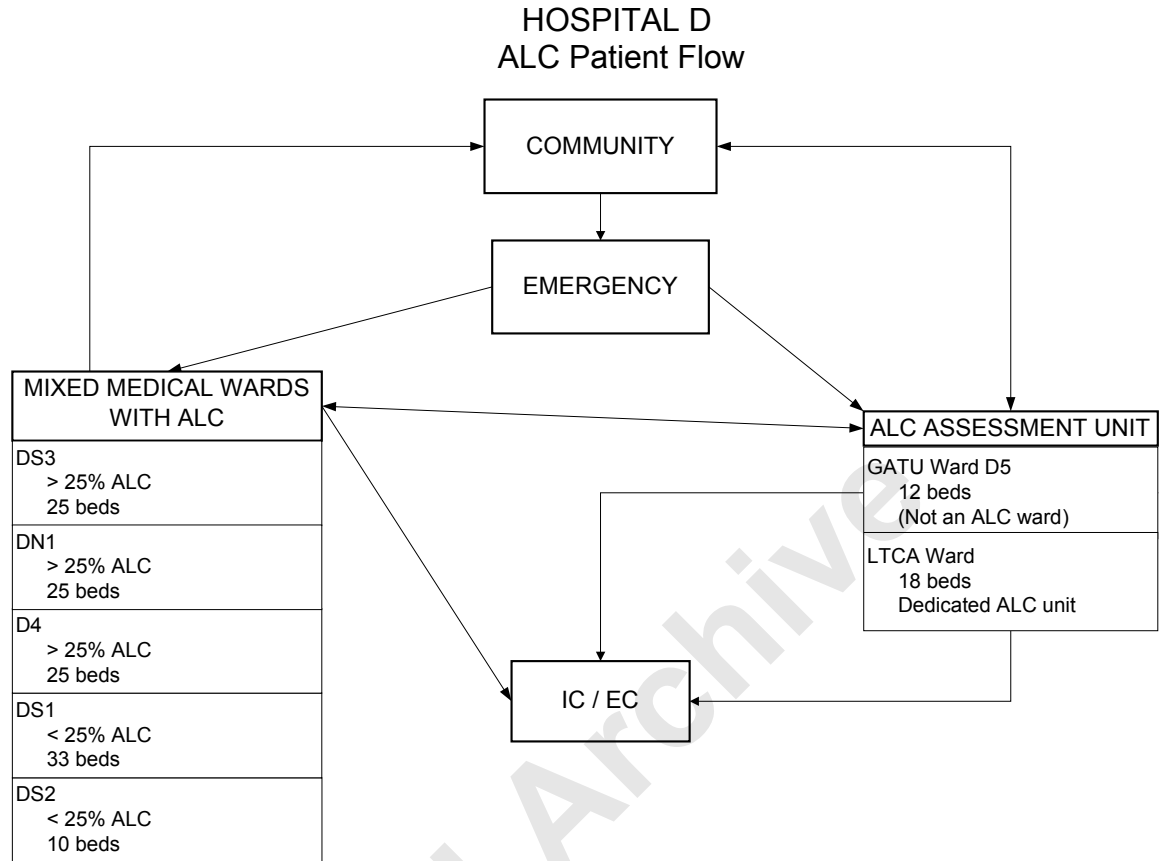
HOSPITAL D

A) ALC Patient Flows:

Most ALC-patients enter Hospital D through the Emergency Department where they present with an acute illness, and are subsequently sent to a medical unit. ALC-patients are usually assessed on the medical units by the geriatrician and the Geriatric Assessment Unit (GAU) team based at the 5th floor GAU.

Some ALC-patients who are initially transferred from Emergency to Surgical units (usually D4) tend to be relatively quickly transferred again to a Medical bed.





B) ALC Unit Descriptions:

1. Medical Units: (DN1, DS1, DS2, DS3, D3)

Medical Units DS3 and DN1 are the most common recipients of ALC-patients, with the former often accommodating up to 50% ALC-patients, and the latter, up to 30%. ALC-patients are rarely sent to DS1, a unit that serves oncology patients, even though 13 of their beds are reserved for medical patients.

Unit DS2 is a 10-bed palliative unit that rarely accommodates ALC-patients unless they are classified as Palliative ALC, and require only supportive care such as pain control

rather than more intensive acute level care. Palliative ALC-patients are occasionally kept on this Unit until placement can be found in a hospice.

Hospital D has no hospice unit, so these patients are forced to attempt placement in a hospice unit, often outside the SFHR, usually in Vancouver. Palliative ALC-patients are usually not put on a Long Term Care facility waitlist, given that these waitlists tend to be long and placement is unlikely to occur prior to the patient's decease.

When ALC-patients are cared for on medical Units, they may receive slightly higher RN coverage. What ALC-patients actually require, however, are higher levels of support staff such as OTs, PTs, social workers, etc. The quality of life for ALC-patients can be compromised by lack of organized activities or rehabilitation. ALC-patients typically remain in their beds or chairs, in what can only be described as "custodial" care. The health status of these ALC-patients can even plummet: many come in to the unit ambulatory, and may turn into non-ambulatory patients. In part, this is because medical unit staff conventionally deal with acute patients who may need support with ambulation and other activities. Because of the frenetic pace on units, staff may not have the time to assess ambulatory levels of ALC-patients, and therefore make assumptions about the kind of support needed, assisting these patients when they do not really require it. To compound this tendency, ALC-patients may not see any reason to get up; a patient's depression may consequently feed into perceptions of ALC-patients as non-ambulatory and requiring lots of physical assistance.

On the oncology Unit (DS2), RN/patient ratios are lower than other medical Units (1:1 or 1:2) given patient needs for more regular and intensive treatments.

All units have access to 'blue boards' (otherwise known as "smooth movers"), which is essentially a transfer board. Transfer belts offer only minimal support. All units have access to mechanical lifts. These lifts require the use of slings, which are in short supply.

With the Maxi lift, slings are designed to be more easily removed from the patient. The Medi-lift sling is situated over the buttocks of the patient, which makes it more difficult to remove, and, more pertinently, makes it hard to use for more than one patient, particularly if it becomes soiled. This potentially limits the availability of these supports for a wide number of patients. These slings are also very costly (up to \$300-\$400 each). A special laundry unit cleans these slings, which can take 2-3 days. Consequently, units have to do without these supports while they are being laundered.

2. Fifth floor Geriatric Assessment Unit (GAU)

The 5-East Unit takes care of two different types of patients. The Acute Geriatric Assessment and Treatment Unit (AGATU), part of this unit, has 12 beds and predominantly serves medically based, acute onset of dementia patients. These patients typically come from their own homes, and may display acute onset of dementia following acute medical episodes such as bladder infections. The AGATU is designed to quickly assess and stabilize these patients for return home.

In contrast, the 18 bed long-term Care Activation (LTCA) section of this unit works with ALC-patients who are classified as IC or EC level of care. As well as having to be classified as ALC, patients on this unit must meet other admitting criteria, since their population is primarily designed for 'frail elderly'. Younger ALC-patients with head injuries, ALS, or addiction problems, for example, are not admitted here since they often act unpredictably, and may be viewed as 'threats' to frail elderly.

As a non-medical Unit, D5 does not provide acute level care for its residents, although it does provide activation programs. ALC-patients on any of the medical units that care for ALC-patients (DN1, DS1, DS2, DS3, D3) can be waitlisted for placement in external intermediate or extended care facilities. The D5 GAU tends to have strict criteria for admittance, and will not accept any aggressive patients, or younger adults who are not headed for eventual placement in extended care.

Staff/patient ratio is dictated by the specific care needs of patients. The GAU has a much higher number of LPNs and support staff, including OTs, PTs, and social workers than the medical units with ALC-patients. In Hospital D, LPNs only work on acute care medical, surgical, and geriatric (D5) units. The only health care staff at hospital D working shifts are RNs, LPNs, care aides, and respiratory therapists; all other support staff, including clinical resource nurses (CRNs), work Monday through Fridays.

ABOUT THIS DOCUMENT

The Occupational Health and Safety Agency for Healthcare (OHSAH), which operated from 1998-2010, was a precursor to SWITCH BC. Conceived through the Public Sector Accord on Occupational Health and Safety as a response to high rates of workplace injury, illness, and time loss in the health sector, OHSAH was built on the values of bipartite collaboration, evidence-based decision making, and integrated approaches.

This archival research material was created by OHSAH, shared here as archival reference materials, to support ongoing research and development of best practices, and as a thanks to the organization's members who completed the work.

If you have any questions about the materials, please email hello@switchbc.ca or visit www.switchbc.ca