Regional variation in Alternate Level of Care (ALC) service use in British Columbia hospitals: An opportunity for intervention?

A report prepared for the Institute for Health System Transformation & Sustainability

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KEY MESSAGES

ALTERNATE LEVEL OF CARE (ALC) HOSPITAL SERVICE USE USE IN BC

- Overall, 12.6% of hospital days in 2013/14 received the ALC classification. This signals potentially inappropriate use of hospital resources, though BC performs well compared to other provinces.

- Changes in ALC service use in BC have been modest since 2001/2002, despite an aging population.

- There is regional variation in ALC service use, with the percent of hospital days classified as ALC ranging from 5% to 25% among Local Health Areas (LHAs).

FACTORS SHAPING REGIONAL VARIATION

- Hospitals with high ALC use tend to be smaller, to see less complex cases, and to be located in rural and remote communities. Because of their low volume, targeting such hospitals for intervention may have only modest impact on total use of hospital services.

- More than half of ALC days are used by patients hospitalized for two Major Clinical Categories: “Mental diseases and disorders” (including dementia), and “Other reasons for hospitalization” (including rehabilitation, convalescence, and palliative care), and by patients ages 80 and older.

- Most ALC days arise as part of unplanned hospitalizations, with 84% of ALC days following an urgent/emergent admission.

APPROACHES TO ADDRESSING ALC USE

- The most promising interventions with evidence of reduced ALC service use involve integration of service providers and organizations across primary, home and community, and acute care.
EXECUTIVE SUMMARY

CONTEXT

There is increasing attention to the importance of addressing inappropriate use of hospital resources, both across the country and within British Columbia (BC) (1–5). The transition from hospital to other care settings may offer an opportunity for targeted intervention.

In Canada, patients who have been approved for discharge by their physician, but are awaiting placement in a more appropriate setting, receive the designation Alternate Level of Care (ALC). Keeping patients in hospital when their needs would be better met elsewhere represents poor quality care (3). When hospital beds are in short supply, ALC service use may also have downstream consequences for emergency room admissions, facility transfers, and even elective surgeries, undermining efficiency of the health care system (6,7).

OBJECTIVES

The objectives of this project are to describe the current state of ALC service use in BC, understand what factors shape variation across hospitals and regions, and explore the potential for interventions targeting regions with high ALC service use to improve system quality and efficiency.

APPROACH

DATA ANALYSIS

Administrative data capturing hospital service use were gathered from two sources. The BC Ministry of Health (MOH) maintains the Health ideas portal with information on hospital service use across BC and over time. The Canadian Institute for Health Information (CIHI) provides data reports as part of the “Your Health System” resource with the percent of hospital days classified as ALC for all hospitals, and allows BC to be compared to other provinces.

LITERATURE REVIEW

Searches of Medline (Ovid SP) and CINAHL, combined with a Google search of grey literature, and forward and backward tracing of sources, were used to identify relevant academic literature and provincial and national reports. This literature was used to provide context to BC findings, and to identify potential approaches for addressing ALC service use.

FINDINGS

Alternate Level of Care (ALC) hospital service use in BC

Rates of ALC cases and days have been largely constant since 2001/2002 in BC, despite an aging population. There is regional variation in ALC service use, with the percent of hospital days classified
as ALC ranging from 5% to 25% among Local Health Areas (LHAs). Though BC appears to perform well compared to other provinces (only Saskatchewan and Alberta reporting lower percentages of ALC days), the fact that over 12% of hospital days receive the ALC classification still signals potentially inappropriate use of hospital resources.

Factors shaping regional variation

Variation in ALC service use is at least partially explained by differences in hospital types, and the contexts in which they operate. Facilities with the highest percent ALC days were small and medium community hospitals operating in rural and remote settings. 92% of ALC days occur within patients’ Health Service Delivery Area (HSDA) of residence, compared to 79.0% of non-ALC days. This helps explain lower ALC use in teaching and large community hospitals. Patients who receive specialized services in tertiary facilities outside their HSDA of residence may be repatriated to smaller hospitals closer to home for the later portion of a hospitalization, during which time any ALC days would occur. An implication of this finding is that since hospitals with higher percent ALC days tend to be smaller facilities, targeting facilities that are outliers with respect to ALC service use would lead to only modest reductions in hospital service use overall.

Over half of ALC days are used by patients hospitalized for just two Major Clinical Categories: “Mental diseases and disorders” (including dementia), and “Other reasons for hospitalization” (including rehabilitation, convalescence, and palliative care). Patients ages 80 and older also used more than half of ALC days. The vast majority of ALC days arise from unplanned hospitalizations, with 84% of ALC days following an urgent/emergent admission.

Approaches to addressing ALC use

Any strategy to address ALC service use must include plans to meet patient needs in the most appropriate setting. These include services for dementia, mental health care, and supports for the frail or dying. The primary care, home and community care, and acute care sectors all play a role.

Primary care providers can identify frail seniors and other patients who require more proactive management in the community, and initiate planning for home and community care. More accessible primary care may also reduce the likelihood of a crisis situation resulting in an unplanned hospitalization (20). Strengthened coordination and capacity in home and community care is critical (6,20,35), and “Home First” philosophies show promise in guiding reforms (7,20). Acute care hospitals may take steps to better manage discharge and ensure that the hospital environment addresses needs of patients who remain in ALC beds. ALC use in some small, rural hospitals may reflect flexible bed use in the absence of alternate care settings available locally. Policy and funding changes could be considered to support the role such hospitals play in meeting community needs.

However, the most promising interventions involve integration across sectors. Examples of programs designed to integrate primary, home and community, and acute care exist within the Canadian context, and have shown success in reducing ALC service use.
1. BACKGROUND AND CONTEXT

BACKGROUND

Given the high cost of hospital services, efficient and appropriate use of acute care is critical to a sustainable health system. There is increasing attention to the importance of targeting inappropriate use of hospital resources, especially at the transition from hospital to other care settings (1–5).

In Canada, patients who no longer require hospital services, but are awaiting placement in a more appropriate community setting, receive the designation Alternate Level of Care (ALC). The term “ALC” was introduced in 1989 by the CIHI Discharge Abstract Database (DAD) (8). Such patients may be waiting for long-term care, personal care homes, rehabilitation, respite, convalescence, home support services, or various other services. When hospital beds are in short supply, ALC service use may have downstream consequences for emergency room admissions, facility transfers, and even elective surgeries, undermining efficiency of the health care system (6,7).

Keeping patients in hospital when their needs would be more appropriately met elsewhere represents poor quality care (3). Patients awaiting placement may experience declines in their health and wellbeing (9,10). Moreover, the experience of waiting for placement, and associated uncertainty, is distressing (11), and hospitals are not designed to meet the rehabilitation and social needs of patients over these extended periods of waiting (12).

REGIONAL VARIATION IN ALC SERVICE USE

A recent CIHI study examining system efficiency among Canada’s health regions documented marked regional variation in both health system spending and population health outcomes, with some health regions (notably Richmond) having both low spending and excellent outcomes (13). Analysis revealed that shorter ALC length of stay was an operational factor associated with higher efficiency. Important research from the United States has also found that post-acute care, including home, hospice, rehabilitation, and long-term care, is critical to understanding marked regional variation in Medicare costs (14).

Closer examination of British Columbia (BC) health regions reveals huge variation in average ALC length of stay, ranging from 11.7 and 13.8 days for Vancouver and Richmond to 61.4 for North Shore/Coast Garibaldi. However, up to this point, there is only limited information about factors that may help understand these patterns, and determine whether opportunities for targeted intervention exist (3,15).

INFORMATION FROM OTHER PROVINCES

National reports have provided some insight into the characteristics of ALC patients (1) and potential policy solutions (3), and other provinces have been active in researching and targeting this issue, notably Manitoba (16,17) and Ontario (18–20). ALC patients tend to be older, more predominantly female, and are more likely to be admitted through the emergency department (1,2,17,20–22). Psychiatric comorbidities may increase likelihood of being an ALC case (23) and of longer length of
ALC stays (22). The extent to which observations from other provinces generalize to BC is unknown. No existing studies have directly examined regional variation.

**TIMELINESS**

Provinces have been concerned about ALC and other potentially inappropriate use of hospital resources for many years (17,21,24–27). However, the issue is particularly timely in BC, as the policy context for hospital funding is changing, with implications for ALC service use. Some hospitals are moving to activity-based funding (ABF) where they are paid a set amount per patient, rather than receiving a global budget (15). This creates financial incentive to reduce ALC service use and free space for newly admitted patients (15).

However, failure to address the issue of ALC service use in the context of a move to activity-based funding could exacerbate pressures on existing bottlenecks in home and community care services (6). If patients are released without appropriate supports in the community, poor outcomes and avoidable readmissions could undermine goals of improved quality and efficiency. A more complete understanding of the issue, including factors shaping regional differences, is necessary to craft suitable interventions.
2. OBJECTIVES AND APPROACH

OBJECTIVES AND RESEARCH QUESTIONS

The objectives of this project are to describe the current state of ALC service use in BC, understand what factors shape regional variation, and explore the potential for interventions targeting regions with high ALC service use to improve system quality and efficiency.

Objective 1: Describe the current state of ALC service use in BC
- What proportion of patients hospitalized in BC experience ALC days and what proportion of total patient days are classified as ALC?
- How does this vary over time, across facilities, and across health regions?
- How does this compare to other provinces?

Objective 2: Understand what factors may contribute to regional variation in ALC service use. Explore relevant facility, geographic, and patient characteristics.
- What hospital and geographic characteristics are associated with higher percent ALC days?
- What do we know about the characteristics of ALC patients and their service needs? Do ALC patient characteristics vary across regions?

Objective 3: Explore the potential for interventions targeting regions with high ALC service use to improve system efficiency.
- Do other jurisdictions offer potential approaches to targeting ALC service use?
- How might potential approaches translate to the BC context?

APPROACH

Two sources of information were used to meet the objectives and answer research questions:
- A literature review of relevant academic and grey literature, focusing on Canadian sources accessible in print and online.
- Descriptive analysis of administrative health data capturing hospital services use.

LITERATURE REVIEW

A search of Medline (Ovid SP) with the term “alternat* level of care” conducted on March 2, 2015 produced 39 results. Of these 28 were retained and reviewed based on title and abstract. A search of CINAHL revealed no additional relevant articles. It was not necessary to limit the searches to focus on Canadian literature, as ALC is a term used only in Canadian health services literature.

A Google search combined with forward and backward tracing of previously-identified sources revealed an additional 10 pertinent reports in the grey literature, and confirmed that the Medline search offered complete coverage of relevant journal articles. Information from the identified sources was used to provide background and context for BC data analysis, and to identify potential interventions for targeting ALC service use.
ANALYSIS OF ADMINISTRATIVE HEALTH DATA

Descriptive analysis was completed at the level of individual hospital facilities and among the administrative regions within BC health system. Data were gathered from two sources (complete information is in the References section under “Data Sources”):

- The BC Ministry of Health (MOH) maintains the Healthideas portal with information on health services use in the province. This was used to obtain BC hospitalization data, including ALC cases and number of days classified as ALC, over the period from 2001/2 to 2013/14, across administrative health regions.
- CIHI provides data reports as part of the “Your Health System” resource. These include cross-sectional information on the percent of hospital days classified as ALC for all hospitals in BC (in 2012), and allow percent ALC days in BC to be compared to other provinces.

DEFINITIONS

ALC DAYS AND CASES

ALC information is summarized in two ways: “days” and “cases” (1). Days of hospitalization are classified as either inpatient or ALC. An ALC patient has finished the acute-care phase of treatment, but remains in an acute care bed. A “case” is one hospital admission and discharge event. ALC cases are those where at least one ALC day was recorded over the course of the admission. Individual patients may have experienced multiple ALC cases in a given year, but for simplicity the terms “ALC patients” and “ALC cases” are used interchangeably.

UNITS OF ANALYSIS

BC has three nested levels of administrative health regions (mapped in Appendix 1). There are 89 Local Health Areas (LHAs) with populations ranging from 3,480 (Kettle Valley) to 336,369 (Surrey). LHAs are nested within 16 Health Service Delivery Areas (HSDAs), and five geographically based Health Authorities (HAs). Depending on the objective, each of these units is used in descriptive analysis.

REASONS FOR HOSPITALIZATION

Hospitalizations were grouped according to Case Mix Groups (CMGs) and major clinical categories (MCCs). These classification systems identify the clinical issue determined to have been responsible for the greatest portion of the patient’s length of stay. A full description of CMG/MCC methodology is available from www.cihi.ca.
3. THE CURRENT STATE OF ALC SERVICE USE IN BRITISH COLUMBIA

In 2013/2014, BC residents experienced 397,416 hospitalizations (cases) in total. Of these, 18,074 (4.5%) had at least one day classified as ALC. Average total length of stay was 7.8 days, meaning a 3,107,097 days were spent in hospital. Of these, 390,756 days (12.6%) were classified as ALC.

TRENDS OVER TIME

There have been only modest changes in patterns of ALC service use since 2001/2002 (Figure 1). The number of cases with at least one day classified as ALC rose very slightly from 3.3 to 3.9 per 1,000 population. However, the average number of hospital days classified as ALC fell from 95 to 85 per 1,000 population. This reflects the fact that the average number of ALC days per ALC case (ALC length of stay) fell from 28.8 to 21.6. These values do not take into account the fact that the BC population has aged over this time period. The percent of the BC population aged 65 and older rose from 13.2 to 16.4 between 2001/2002 and 2013/2014.

Figure 1 ALC and non-ALC hospital cases and days in BC, 2001/2002-2013/2014
Source: BC MOH.

ALC cases and days expressed as percentages of total hospitalizations have also been largely constant (Figure 2). The percent ALC days fell from a high of 14.8% in 2001/2002 to 10.3% in 2005/2006, but has rebounded somewhat in years since, with 12.6% of days classified as ALC in 2013/2014.
Variation in the percent ALC cases and days among Health Authorities is evident (Figure 3), but it is also apparent that patterns fluctuate over time. In recent years the Interior Health Authority has had the highest percent ALC cases. However, the average length of ALC stays is much longer in the Northern Health Authority, and so percent ALC days is highest there.
VARIATION ACROSS HOSPITAL FACILITIES AND REGIONS WITHIN BC

CIHI data permit the examination of percent ALC days across individual hospital facilities. Figure 4 shows the percent ALC days for each BC hospital, arranged by peer group. This suggests dramatic variation across hospitals, from less than 1% ALC to over 50%. However, this information should be interpreted with a high degree of caution, as values for small hospitals are based on very few cases, and likely fluctuate dramatically from year to year. In the absence of individual-level data the distribution of ALC length of stay within hospitals or regions could not be examined. However, evidence from other jurisdictions shows that a small number of patients with very long ALC stays account for a substantial proportion of total ALC days (21,22), and so one or two such cases could dramatically influence the annual average for a small facility.

Further analysis focuses on administrative health regions (both LHAs and HSDAs), where data from multiple years can be pooled for more stable estimates of ALC service use. Examining percent ALC days at the level of Local Health Area (LHAs), with data pooled across five years, reveals considerably less variation. Figure 5 shows percent ALC days averaged over 2009/10 to 2013/14 for all BC LHAs, grouped by the average percent ALC days in the HSDA in which they nest. Examined in this way, there are nine LHAs where ALC days exceed 20% of hospital days, and 26 LHAs with less than 10% ALC days. Percent ALC days tends to be similar within HSDAs, though there are a handful of high outliers, which tend to be more remote LHAs.

In Figure 5, rates are based on the ALC usage of residents of each area, regardless of where they accessed care, not simply the region where the hospitalization took place. In fact, not all LHAs contain hospital facilities. However, data confirm that the vast majority of ALC day use occurs within patients’ HSDAs of residence, and there is typically only one hospital per HSDA. Because of this, HSDA-level findings also inform facility-level patterns.
Figure 4 Percent ALC days by hospital, grouped by CIHI peer group, 2012. Source: CIHI.
Figure 5 Percent ALC days by Local Health Area (LHA), grouped by HSDA, in order of HDSA average, 2009/10-2013/14. Source: BC MOH.
Figure 5. (continued) Percent ALC days by Local Health Area (LHA), grouped by HSDA, in order of HSDA average, 2009/10-2013/14. Source: BC MOH.
COMPARISON WITH OTHER PROVINCES

Among Canadian provinces with available data, only Saskatchewan and Alberta have lower percent ALC days than BC (Table 1).

Table 1 Comparison of percent ALC days by province, 2012

<table>
<thead>
<tr>
<th>Province</th>
<th>% ALC days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saskatchewan</td>
<td>8.3</td>
</tr>
<tr>
<td>Alberta</td>
<td>10.1</td>
</tr>
<tr>
<td>British Columbia</td>
<td>12.5</td>
</tr>
<tr>
<td>Ontario</td>
<td>13.4</td>
</tr>
<tr>
<td>Newfoundland and Labrador</td>
<td>14.6</td>
</tr>
<tr>
<td>Prince Edward Island</td>
<td>18.4</td>
</tr>
<tr>
<td>Manitoba</td>
<td>19.0</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>19.4</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>22.4</td>
</tr>
</tbody>
</table>

Source: CIHI 2012
Note: Data are not available for Quebec.

SUMMARY OF FINDINGS

Rates of ALC cases and days have changed little since 2001/2002, despite an aging population. There is regional variation in ALC service use, with the percent of hospital days classified as ALC ranging from 5% to 25% among LHAs, but annual hospital-level values overstate the true degree of variation. BC performs relatively well compared to other provinces with respect to the percent of hospital days classified as ALC, with only Saskatchewan and Alberta reporting lower percentages.
4. FACTORS SHAPING VARIATION IN ALC USE WITHIN BRITISH COLUMBIA

National reports have observed that the reasons for variation in the number of ALC cases and days are not well understood (1,21). This section examines hospital and patient characteristics that may explain observed regional variation.

HOSPITAL CHARACTERISTICS

In general, small and medium community hospitals had much higher percent ALC days (Table 2). These hospitals also have fewer beds, lower service volume, and lower average resource intensity. They also tend to be located in rural and remote communities. Though percent ALC days was lowest in teaching hospitals, their total length of stay was highest, likely reflecting much greater patient complexity (measured here by Resource Intensity Weight).

The fact that hospitals with high percent ALC days tend to be smaller and less resource intensive has the implication that targeting such hospitals for intervention would have only modest impact on total use of hospital services. For example, if the quartile of hospitals with the highest percent ALC days reduced ALC use to match the next quartile, this would lead to only a 0.7% reduction in hospital days overall.

Table 2 Characteristics of BC hospitals by CIHI peer group, 2012

<table>
<thead>
<tr>
<th></th>
<th>Teaching Large Community</th>
<th>Medium Community</th>
<th>Small Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hospitals</td>
<td>8</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Average number of acute care beds</td>
<td>406</td>
<td>181</td>
<td>59</td>
</tr>
<tr>
<td>Average total days in acute care</td>
<td>189,841</td>
<td>87,683</td>
<td>26,452</td>
</tr>
<tr>
<td>Average Resource Intensity Weight (RIW)</td>
<td>1.66</td>
<td>1.27</td>
<td>1.19</td>
</tr>
<tr>
<td>Average length of stay</td>
<td>7.6</td>
<td>6.9</td>
<td>7.1</td>
</tr>
<tr>
<td>Average percent ALC Days</td>
<td>7.5</td>
<td>14.5</td>
<td>18.4</td>
</tr>
</tbody>
</table>

Source: CIHI 2012
Note: Two small community hospitals (Bella Coola and R.W. Large Memorial) were missing data on ALC days and were excluded from analysis

Differences in ALC use among hospitals may also be partially explained by the different roles they play over the course of care. Patients who receive specialized services in teaching hospitals and large community hospitals (often outside their HSDA of residence) may be repatriated to medium and small community hospitals, closer to their residence, once they are stable. If a patient is admitted to one hospital, and then transferred to another, this will be recorded as two separate cases. It is not possible to identify transfers in available data, but CIHI has found that 4.5% of hospitalizations in Canada involved an apparent transfer (1).

Since ALC days typically occur at the end of a hospitalized period, transfers may help explain higher rates of ALC use in small and medium community hospitals. Data on place of care across HSDAs support this idea. Across the province, 79.0% of non-ALC days occur within patients’ HSDA of residence, whereas 92% of ALC days occur locally. In HSDAs without a large hospital (e.g. the Northeast and Northwest) or in urban settings with large teaching hospitals closely accessible in
adjacent HSDAs (e.g. Richmond), the difference in between non-ALC and ALC days occurring within the HSDA of residence is particularly large.

Table 3 Percent of hospital days occurring within region of residence, 2013/2014

<table>
<thead>
<tr>
<th>Region of residence</th>
<th>Percent of hospital days within HSDA of residence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-ALC days</td>
</tr>
<tr>
<td>11 East Kootenay</td>
<td>70.4</td>
</tr>
<tr>
<td>12 Kootenay Boundary</td>
<td>71.9</td>
</tr>
<tr>
<td>13 Okanagan</td>
<td>92.0</td>
</tr>
<tr>
<td>14 Thompson Cariboo Shuswap</td>
<td>78.9</td>
</tr>
<tr>
<td>21 Fraser East</td>
<td>78.9</td>
</tr>
<tr>
<td>22 Fraser North</td>
<td>79.6</td>
</tr>
<tr>
<td>23 Fraser South</td>
<td>71.6</td>
</tr>
<tr>
<td>31 Richmond</td>
<td>65.9</td>
</tr>
<tr>
<td>32 Vancouver</td>
<td>82.2</td>
</tr>
<tr>
<td>33 North Shore/Coast Garibaldi</td>
<td>74.1</td>
</tr>
<tr>
<td>41 South Vancouver Island</td>
<td>95.6</td>
</tr>
<tr>
<td>42 Central Vancouver Island</td>
<td>78.3</td>
</tr>
<tr>
<td>43 North Vancouver Island</td>
<td>72.3</td>
</tr>
<tr>
<td>51 Northwest</td>
<td>66.0</td>
</tr>
<tr>
<td>52 Northern Interior</td>
<td>83.1</td>
</tr>
<tr>
<td>53 Northeast</td>
<td>63.1</td>
</tr>
</tbody>
</table>

Source: BC MOH

PATIENT CHARACTERISTICS

CLINICAL CHARACTERISTICS

Examining hospital service use by Case Mix Group sheds light on the characteristics of patients occupying ALC beds (Table 4). Two Major Clinical Categories (MCCs), “Mental Diseases and Disorders” and “Other Reasons for Hospitalization,” account for 50.5% of all ALC days, but only 26.9% of total hospital days. These MCCs include Case Mix Groups for Dementia, Organic Mental Disorders, and Schizophrenia/Schizoaffective Disorders, and for rehabilitation, convalescence, and palliative care, respectively.

Examining individual CMGs in addition to CMGs grouped within the above MCCs (data not shown) reveals that Ischemic Events of the Central Nervous System, Fixation/Repair of Hip/Femur, Heart Failure, and Chronic Obstructive Pulmonary disease also explain large proportions of ALC days.

The percent of ALC days accounted for by MCC also varies somewhat among HSDAs, and may help understand regional variation in ALC use (Figure 6). HSDAs with the highest rates of ALC days tend to have a higher proportion of days explained by “other reasons for hospitalization,” suggesting beds are being used for convalescence, rehabilitation, or palliative care. These HSDAs are in the more sparsely populated Northern Health Authority and this may point to the absence of other local resources available to provide these services.
<table>
<thead>
<tr>
<th>MCC Description</th>
<th>Total cases</th>
<th>Total days</th>
<th>ALC days</th>
<th>Average total days/case</th>
<th>Average ALC days/case</th>
<th>Average % ALC days</th>
<th>% of total hospital days</th>
<th>% of total ALC days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Diseases &amp; Disorders</td>
<td>34,181</td>
<td>391,515</td>
<td>102,584</td>
<td>11.5</td>
<td>3.0</td>
<td>26.2</td>
<td>14.6</td>
<td>26.3</td>
</tr>
<tr>
<td>Other Reasons for Hospitalization (including convalescence, rehabilitation, and</td>
<td>22,252</td>
<td>332,211</td>
<td>94,330</td>
<td>14.9</td>
<td>4.2</td>
<td>28.4</td>
<td>12.4</td>
<td>24.2</td>
</tr>
<tr>
<td>palliative care)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant Trauma, Injury, Poisoning &amp; Toxic Effects of Drugs</td>
<td>30,452</td>
<td>223,091</td>
<td>39,426</td>
<td>7.3</td>
<td>1.3</td>
<td>17.7</td>
<td>8.3</td>
<td>10.1</td>
</tr>
<tr>
<td>Diseases &amp; Disorders of the Nervous System</td>
<td>17,821</td>
<td>159,973</td>
<td>37,907</td>
<td>9.0</td>
<td>2.1</td>
<td>23.7</td>
<td>5.9</td>
<td>9.7</td>
</tr>
<tr>
<td>Diseases &amp; Disorders of the Circulatory System</td>
<td>50,000</td>
<td>307,451</td>
<td>23,037</td>
<td>6.1</td>
<td>0.5</td>
<td>7.5</td>
<td>11.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Diseases &amp; Disorders of the Respiratory System</td>
<td>30,400</td>
<td>239,425</td>
<td>22,897</td>
<td>7.9</td>
<td>0.8</td>
<td>9.6</td>
<td>8.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Diseases &amp; Disorders of the Musculoskeletal System &amp; Connective Tissue</td>
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<td>11.7</td>
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<td>Total cases</td>
<td>Total days</td>
<td>ALC days</td>
<td>Average total days/case</td>
<td>Average ALC days/case</td>
<td>Average % ALC days</td>
<td>% of total hospital days</td>
<td>% of total ALC days</td>
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<td>Pancreas</td>
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<tr>
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<td>295</td>
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</table>


Figure 6 Percent of all ALC days by Major Clinical Category (MCC)
Across BC, patients ages 80 and older account for the majority (55%) of ALC days (Figure 7). Only 12% of ALC days are used by patients 59 and under. Though the age distribution of patients using ALC days differs across the province, areas with higher ALC use tend to have higher use across multiple age categories.
Across BC, 84% of ALC days followed an urgent/emergent admission (compared to 80% of non-ALC days). The three HSDAs within the Northern Health authority (Northwest, Northern Interior, and Northeast) had relatively high percentages of ALC days following elective admissions, and were also among the four HSDAs with highest rates of ALC days. This may reflect transfers from other facilities, or elective admissions for rehabilitation, convalescence, and palliative care.

Figure 8 Proportion of ALC days for urgent/emergent vs. elective/other admission categories.
DATA LIMITATIONS

Regional variation in ALC service use is clearly related to differences in patient needs and system capacity. However, differences in documentation and classification of ALC days across facilities and regions may also play a role (21). CIHI believes wide variation among hospitals on the percent of ALC days may be partly attributed to variation in data recording (1). Healthcare providers report difficulty knowing when a patient should be officially designated ALC (28). This has prompted CIHI to report ALC findings at region rather than facility level (1), which is consistent with the choice to focus on regional rather than hospital-level rates in this report.

Regional variation in ALC use is clearly related to availability of resources for long-term care, home support services, and programs to support patients and informal caregivers in the community, which are not captured in hospital data. Future analysis could examine data on home and community care service delivery to better understand the relationship between supply of such resources and ALC use.

It was not possible to examine the support of family and friends, but this also plays an important role in shaping patterns of ALC days, as patients with a strong support system are less likely to experience ALC days (2,25,29). Availability of family support likely varies both within and between regions.

SUMMARY OF FINDINGS

Hospitals with high ALC use are smaller, see less complex cases, and are located in rural and remote communities. This has the implication that targeting such hospitals for intervention would have only modest impact on total use of hospital services.

This analysis is consistent with information from other sources that identifies patients ages 80+ and those with dementia or related behavioural symptoms as sub-groups of patients more likely to experience ALC days. In order to address ALC service use, these populations need to be priorities in finding ways to deliver high-quality, integrated care across the system.

The finding that 84% of days follow an urgent/emergent admission highlights the need for proactive planning for long-term care needs initiated in the community, rather than over the course of an unplanned hospitalization.
5. APPROACHES TO ADDRESSING ALC USE

Despite longstanding recognition nationally, and among provincial health systems, of the importance of addressing ALC use (17, 21, 24–27), there are few documented policy examples that have successfully reduced ALC use (7, 27). Nevertheless, pilot programs and recommendations from other jurisdictions offer ideas for targeting ALC service use in BC.

Interventions based within three sectors of the healthcare system (primary care, home and community care, and acute care hospitals) are discussed. However, the most promising approaches, with documented evidence of reductions in ALC use, involve broader integration across all of these sectors (7, 27).

APPROACHES WITHIN PRIMARY, HOME AND COMMUNITY, AND ACUTE CARE

PRIMARY CARE

This analysis reveals that the vast majority (84%) of ALC days were preceded by an urgent/emergent hospital admission, a finding not unique to BC (1, 30). In a high-performing system, hospital Emergency Departments (EDs) should not be the de-facto point of entry into a course of care that moves from the community, via acute care, directly to placement in Long-Term Care (which may even be premature or unnecessary) (20). Primary care providers are in a position to identify frail seniors and other patients who may require more proactive management of complex conditions in the community, and initiate planning for home and community care. Accessible primary care may also reduce the likelihood of a crisis situation requiring an ED visit and/or urgent hospital admission to begin with (20).

Newer models of primary care, including team-based practices, nurse practitioner-led clinics, and community health centres, may lend themselves well to the comprehensive care required to manage patients at risk of ALC service use in the community (20). They may also be better positioned to collaborate with home and community service agencies to improve coordination, and plan long-term service needs before a crisis situation develops, than individual primary care providers practicing in isolation.

Some Ontario regions have achieved success by implementing inter-professional teams that provide house calls to seniors (20). In the absence of this service, patients were often unable to obtain primary care and instead relied on 911 and ED services. Further examination of what supports can be implemented prior to a hospitalization event in order to proactively plan for care needs, and reduce the likelihood of unplanned hospitalization and ALC days is needed. It has also been observed that primary care providers may require additional training to equip them with an understanding of home and community care system required to facilitate advanced care planning (19).

BC’s primary care reform has focused on incentive payments. Preliminary analysis suggests that it has not improved access, continuity, or coordination population-wide (31), functions of primary care critical to preventing unnecessary hospitalizations and ALC service use. The impacts of incentive payments targeting patients with complex care needs (32) and patient conferencing incentives

20
require additional scrutiny (33). Other than incentives for doctors, no new provincial funding has been provided to support the integration of primary care with community care (34).

HOME AND COMMUNITY CARE

In BC the system that provides a range of health care and support services for people who have acute, chronic, palliative or rehabilitative health needs is called “Home and Community Care.” This constellation of services is also sometimes called “continuing care” (3). Services are available from both publicly subsidized and private pay providers, and include home support, adult day services, and long-term care (LTC) (also referred to as nursing home care or residential care). In this report, the term LTC is used as shorthand for facility-based care, in contrast to other supports offered through community-based care.

The environment for Home and Community Care in BC and other provinces involves multiple silos of providers, often divided by care setting rather than patient need, and with little continuity between care settings. This has led to a lack of coordination between health and social services, misalignment between care needs and intensity of available care, and ultimately poorer patient outcomes (3). Strengthened coordination, capacity, and to some extent, flexibility, in home and community care is central to addressing ALC service use (6,20,35).

A review of ALC challenges in Ontario observed that the culture emphasizes “permanent” placement of seniors in long term care homes, without adequate consideration of potential to offer care at home with support, or of the patient’s potential to improve or recover, thereby changing the level of care required (20). While ALC patients may be optimally cared for in a variety of settings, if high intensity facility-based LTC is all that’s available, that is where patients end up. LTC services may be modified to include cyclical, restorative, and respite care programs, playing short-term, transitional roles. Supportive housing or assisted living options providing intermediary levels of care offer necessary alternatives to traditional LTC. Of course, availability of LTC remains important for seniors with needs that cannot be adequately met elsewhere (20).

The “Home First” philosophy aims to support patients in their home, and sometimes to enable a return home from hospital while awaiting placement elsewhere whenever practical (5,7,20). Under this model, transfers from ALC directly to LTC should be considered only as a last resort (7). Home First programs in Ontario have shown early signs of success (7,20), encouraging a collaborative relationship across the continuum of care. The goal is to put in place adequate supports to enable a person’s transition home from acute care, thereby reducing ALC days and transfers to residential care. Where possible, individuals and families are offered support to allow them to make advanced decisions about future health care outside of a hospital setting (7,20).

A “Home First” model is also being piloted in BC under Vancouver Coastal Health’s Integrated Primary and Community Care’s Home First Program. Its impact on ALC service use remains unknown. More definitive evaluation of such programs are needed to understand their full potential to address ALC days, and better understand which patients should be targeted.
FINANCIAL INCENTIVES AND PAY-FOR-PERFORMANCE

The introduction of Activity Based Funding initiatives in acute care hospitals is designed to create financial incentives to increase volume of hospital care. This will place increased pressure on hospital administrators to discharge ALC patients and admit new patients for whose care the hospital will be compensated. Recognizing this issue, a parallel set of incentives for home and community care has been suggested as a policy solution for ALC service use (3,6). These could include capitated managed care, shared savings, bundled payments, and pay-for-performance. However, there is no evidence from other health systems informing the potential effectiveness of such initiatives (especially in the absence of mechanisms to better integrate home and community care with acute care services), nor is there guidance about how such funding policies should be structured (3).

ACUTE CARE HOSPITALS

Though many of the underlying causes of ALC service use appear related to community resources, there are measures acute care hospitals may take to better manage the discharge process and ensure that the hospital environment optimally addresses needs of patients in ALC beds.

Early involvement of home and community care case managers, beginning at time of admission, may help ensure timely discharge to an appropriate destination. The use of predictive models to estimate day and time of discharge, timed decision making, and removal of delaying obstacles may also help streamline the discharge process (20).

Hospital settings are not well designed to meet the needs of ALC patients, and may inadvertently contribute to physical deconditioning and mental deterioration (9,10). However, despite widespread acknowledgement of the importance of addressing ALC use, there is very limited research informing the management of ALC patients in hospital (36). There is also some evidence of greater risk of staff injury when caring for ALC patients in units not designed for that purpose (26,36). Programs based on an “assess and restore” model, either implemented in hospital or in other settings (such as short-term beds in LTC), as alternatives to ALC stays, may help regain previous levels of functioning to allow a return home, rather than permanent LTC placement (20).

Activity Based Funding (ABF) is designed to increase productivity of hospitals, and is intended to reduce wait times for hospital procedures. Its introduction may also disincentivize ALC service use (3,6,15). However, it does not in itself promote system integration with primary, home, and community care (34), and without simultaneous attention to home and community care, use of ABF may simply shift the burden of patient care onto already stretched community resources (6).

RURAL AND REMOTE HOSPITALS

ALC service use is often framed as a marker of inefficient use of hospital resources, in that patients are occupying beds, staff time, and equipment that could in theory be better used by patients waiting for care (5,6).
An Ontario Ministry of Health and Long-Term Care report observed that very significant bed capacity in rural hospitals is occupied by patients identified as ALC (20). However, for many of these patients there exists no alternate care setting locally that could more appropriately meet their needs. In such contexts, hospitals may have adapted their resources to meet the rehabilitation, behavioural, and palliative needs of this population. At the same time, the fiscal sustainability of small hospitals may be challenged if ALC patients were moved elsewhere (20). In such cases, flexible use of bed capacity to respond to community needs may in fact represent efficient service delivery, when viewed across the continuum of care.

The Ontario report recommended that the Ministry develop and apply criteria to identify small, rural hospitals that appropriately meet the needs of patients classified as “ALC,” as this designation would be inaccurate in such situations (20). Policy and funding changes should be considered to support the role such hospitals play in meeting the full range of community needs. Such an approach may be well suited to the BC context, where remote hospitals appear to face similar challenges and play similar roles.

**SYSTEM INTEGRATION**

Systems for primary, home and community, and acute care are fragmented and accountability for patients is weak as they move between settings. Examples of high-performing integrated care models exist in the US, but are not immediately applicable to the Canadian context where regional authorities are unable to exert influence over key providers, as physicians are remunerated by the province, and post-acute care may be privately provided (6,37). Integrating care across providers was one of the motivations behind regionalization of many provincial healthcare systems (38), however, regionalization has largely fallen short of this goal, in large part because regions lack control over key providers (37). A study of the effects of regionalization in Newfoundland observed restructuring efforts did not fully integrate responsibility for acute and long-term care sectors, which may explain lack of progress in addressing ALC days (24).

However, examples of programs designed to integrate care within the Canadian context do exist, and have shown success in addressing ALC service use. A program of integrated care for the elderly, which consisted of a community-based multidisciplinary team with full clinical responsibility for primary service provision and coordination of hospital and long-term care was evaluated in Montreal (27). Evidence from a randomized controlled trial found the intervention led to a 50% reduction in ALC stays (though no significant difference in other hospital or long-term care utilization). Community costs were higher in the intervention group, but savings on institutional care more than covered these. Satisfaction was higher among caregivers in the intervention group, with no increase in caregiver burden or out-of-pocket costs. The Mississauga Halton Local Health Integration Network concentrated not only on inter-professional collaboration, but on inter-organizational collaboration, as part of their Home First initiative, and similarly achieved more than 50% reductions in ALC use (7).

These examples show that more integrated approaches to care can be implemented within existing Canadian systems, and that they may address ALC use without increasing total costs. More widespread implementation and evaluation of such programs is warranted, and opportunities to adapt programs to service environments outside of large urban centres should be explored.
6. CONCLUSIONS

This report confirms that ALC service use is an ongoing problem in BC, as it is across Canada. Regional variation in ALC service use exists, though the data assembled provide reassurance that annual facility-level statistics overstate the true magnitude of differences across places.

Results make clear that hospitals in different parts of the province play very different roles in service delivery, depending on the constellation of other health system resources available locally. This helps explain observed differences in ALC service use, and highlights the fact that areas with low ALC use don’t necessarily offer lessons generalizable to hospitals or health regions elsewhere in the province. To more fully understand the issue of ALC service use, and craft policies appropriate to diverse care settings, a more comprehensive assessment of regional capacity for home and community care is required.

Across the province, steps may be taken to address the issue of ALC service use within multiple sectors. Primary care providers can be positioned to identify patients who require more proactive management, and initiate planning for home and community care before a hospitalization occurs. “Home First” philosophies show promise in guiding reforms to strengthen coordination, capacity, and flexibility in home and community care services. Acute care hospitals can introduce programs to better manage discharge and ensure that the hospital environment addresses the needs of patients who remain in ALC beds.

Still, the persistence of ALC use as an issue within Canadian health care systems, including BC, reflects its complexity as a problem. The most promising solutions lie at the intersection of siloed service providers. More integrated service provision, especially for seniors and patients with complex health needs, must be the overarching priority.
REFERENCES

1. Canadian Institute for Health Information. Analysis in Brief. Alternate Level of Care in Canada. CIHI; 2009.

2. Canadian Institute for Health Information. Seniors and Alternate Level of Care: Building on Our Knowledge. CIHI; 2012.

3. Sutherland JM, Crump RT. Exploring Alternative Level of Care (ALC) and the role of funding policies: An evolving evidence based for Canada. Ottawa: Canadian Health Services Research Foundation; 2011.


Data Sources

BC Ministry of Health (MOH). Health ideas.  

BC Stats. Socioeconomic Profiles (Health Service Delivery Areas).  

CIHI. Your Health System: In Depth-All Data Export Report. Hospital Contextual Measures.  
APPENDIX I Administrative health boundaries in BC: Health Authorities (HAs), Health Service Delivery Areas (HSDAs), and Local Health Areas (LHAs)