RESEARCH PAPER

Impacts of Homecare Investments in Alberta: Ecological and Economic Trend Analysis

Impacts de l'investissement dans les soins à domicile en Alberta : analyse des tendances écologiques et économiques

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Abstract

No standardized cost-based homecare-specific indicators are used provincially or nationally in Canada. We trended and portrayed Alberta's homecare costs and health system usage between 2015–16 and 2019–20. In addition, we conducted a cost-effectiveness ratio analysis. Total avoided acute care utilization was estimated at 346.2 thousand in-patient days. With $240.3 million in homecare investments above general growth, our cost-effectiveness ratio is 694:1. Application of these cost-based indicators reveals that homecare programs improve system cost-effectiveness. These indicators can assist health-system policy makers in understanding how systems are structured, specifically in achieving the goal of sustaining the publicly funded health system.

Résumé

Au Canada, aucun indicateur normalisé fondé sur les coûts n'est utilisé à l'échelle provinciale ou nationale. Nous avons établi une tendance et brossé un portrait des coûts des soins à domicile et de l'utilisation du système de santé en Alberta entre 2015–2016 et 2019–2020. De plus, nous avons effectué une analyse du rapport coût-efficacité. L'utilisation totale des soins de courte durée évités est estimée à 346,2 milliers de jours d'hospitalisation. Avec 240,3 millions de dollars en investissements pour les soins à domicile au-dessus de la croissance générale, notre rapport coût-efficacité est de 694:1. L'application de ces indicateurs fondés sur les coûts révèle que les programmes de soins à domicile améliorent le rapport coût-efficacité du système. Ces indicateurs peuvent aider les décideurs à comprendre la façon dont les systèmes de santé sont structurés, plus particulièrement pour atteindre l'objectif du soutien du système de santé financé par des fonds publics.

Introduction

To date, publicly funded health system-provided homecare and community care costs comprise 4.2% of Canada's publicly funded healthcare costs (CIHI 2023a). It is estimated that nationally, a lack of publicly funded and available homecare services accounts for 2,000 people daily in hospitals waiting for homecare services (CIHI 2024a). This shortfall of homecare availability represents $15.6 million in potentially avoidable daily costs (CIHI 2024a).

Canada's healthcare system's Commonwealth Fund quality ranking has dropped from 9th to 10th (out of 11 Organisation for Economic Co-operation and Development [OECD] high-income countries), only besting the US system (Commonwealth Fund 2021). Acute care in Canada makes up 25.6% of overall costs (CIHI 2023a, 2023b; Commonwealth Fund 2021). In 2022, hospital care cost Canadians about $81 billion nationally, with the standard cost per hospital stay in Canada at $7,803 (CIHI 2023a). Furthermore, the standard cost per hospital stay per province and territory varies drastically based on local policy decisions, with Alberta having the highest cost among the provinces at $9,341 (CIHI 2023a).

Homecare services are a fundamental lever in supporting the sustainability of Canada's publicly funded health system (Romanow 2002). People in Canada receive homecare through a variety of means. Homecare services can be provided by informal caregivers, through private homecare providers (paid out of pocket or through private insurance) or as publicly funded services from local healthcare systems. It is estimated that caregivers provide an economic value of over $97 billion per year, much of this supporting individuals at home (Research on Aging, Policies and Practice 2022). Across Canada, publicly funded services are provided based on individual assessed unmet needs to support people and often their caregivers at home as they recover from illness and injury and/or to support aging in place. As per national expenditure data (CIHI 2024b), the majority of homecare and community care services (which includes homecare expenditures) not provided by caregivers are those services that are publicly funded and provided through local publicly operated health systems.

It is estimated that if investments in publicly funded home care do not keep pace with the increasing demand due to the growing and aging population, it could lead to a decrease in the quality and quantity of services each client receives (Health Canada 2023; Romanow 2002). Without adequate publicly funded and accessible home care, more seniors might require hospitalization or admission to long-term care facilities, which are more costly than home care (Government of Canada 2017; Health Canada 2023; Romanow 2002; Statistics Canada 2023).

Recognizing the need for increased homecare services, in 2017, the federal government created a new provincial and territorial health transfer payment structure. Specifically, in partnership with provinces and territories, the federal government distributed $11 billion for community-based programs, with the majority of transfers ($6 billion) being allocated to support publicly funded and provided homecare services (Government of Canada 2017, 2022a, 2022b). Each province and territory invested their allocation of homecare-specific transfers to meet the unique needs they identified.

In Alberta, these federal investments resulted from policy makers announcing provincial homecare service investments totalling $200 million (Alberta Health 2018; Government of Alberta 2017; Government of Canada 2022a). Alberta Health Services (AHS) is the service provider/allocator of publicly funded homecare programming in Alberta. Based on AHS annual financial reporting, homecare costs increased less than 3% over the five previous fiscal years (AHS 2016, 2017, 2018, 2019, 2020, 2024a) for the five years before 2015–16. Examining the five years leading up to the COVID-19 pandemic, the 2015–16 fiscal year homecare cost was approximately $585 million, which rose to $716 million for the fiscal year 2019–2020 as part of these new investments (AHS 2016, 2017, 2018, 2019, 2020; Alberta Health 2018). For policy makers and health system leaders, the question remained: How can we examine if these investments made an impact when viewing shifts in health system utilization?

Through a multi-phased research project (international scoping review and a modified Delphi approach), financial indicators were explicitly identified for application within

a balanced scorecard approach to health system quality and performance measurement (Jajszczok et al. 2023, 2024). Building on that research, this paper provides a health system ecological and economic trend observational study of homecare clients in Alberta, including those in acute care spaces/beds. The study aims to assess the impact of increased homecare funding on acute care utilization and overall health system costs in Alberta from the health system and policy maker perspective.

Methods

We conducted an ecological aggregate observational study that examines trends over time for homecare clients in Alberta, including those in acute care beds/spaces. We assessed the increased funding made available as announced in 2015–16 over the following years ending in 2019–2020 and applied new financial quality and performance indicators. We conducted a cost-effectiveness analysis (CEA) of acute care utilization changes against increased publicly funded homecare costs in Alberta. We studied publicly funded homecare costs and population trends in health system utilization in Alberta, applying the new financial indicators against other system measures. We compared and observed the ecological trends in health system utilization and costs before and after the increased funding. Trends in publicly funded homecare costs, population health system utilization and the impact of investments in home care on acute care utilization. We were careful not to infer causality in our approach to avoid the facility this creates in examining complex populations and correlating changes in trends through tests for significance (Freedman 1999; Levin 2006; Schwartz 1994; Smith 2020). Applying scientific trend testing to ecological trend data can create the assumption among those interpreting the data of causality in the observation (Freedman 1999; Levin 2006; Schwartz 1994; Smith 2020).

Costs are measured in Canadian dollars and adjusted for inflation where applicable. These expenditures do not include private, out-of-pocket costs borne by homecare clients or Albertans receiving private services outside of the services provided by AHS. There is no tracking or repository of those who purchase private home care. Private homecare expenditure data development is underway but not yet available nationally or by province through Canadian Institute for Healthcare Information (CIHI 2025).

Analytic methods: CEA and ecological trend analysis

We applied a CEA to calculate the unit ratio change over time and the total over the five years (CDA 2017). A CEA is a way to compare costs and system outcomes. CEA provides a framework for comparing multiple interventions' relative costs and outcomes (CDA 2017). We analyzed the impact of homecare investment-based interventions by comparing them to the baseline year of 2015–16 and estimating how much it costs to gain a unit of a health outcome, such as reduced acute care utilization (CDC 2021). We compared utilization changes specifically for homecare clients in three main areas: the number of days people were in a hospital waiting for a continuing care living option (CCLO) (long-term care space or a

designated supportive living space) (Y1); average acute care days in the last 30 days of life for homecare clients (Y2); and hospital acute care days (excluding those waiting in acute care for CCLO or within their last 30 days of life) (Y3).

Cost-effectiveness ratios (CERs) are calculated by taking the total net new costs calculated for each year and the five-year study period and dividing this by the utilization changes in the three main areas and as a total (CDC 2021). The CER is beneficial for policy makers as it helps in resource allocation decisions by comparing the cost-effectiveness of various health interventions, and the CER can be applied to a wide range of health outcomes and interventions, making it a versatile tool for health economic evaluations. We chose the CER over other methods, such as an incremental cost-effectiveness ratio (ICER), due to several factors, including the nature of the study as our study is an observational ecological trend analysis rather than a direct comparison of two interventions. ICERs are typically used in comparative studies to evaluate the additional cost per unit of health benefit between two specific interventions. The CER analysis provides a holistic view of the intervention's impact on health system utilization and costs, which aligns with the goals of our study. The CER method provides a precise measure of the cost per unit of health benefit for the increased funding in home care. This can be more useful for policy makers interested in understanding the overall value of the intervention in isolation rather than comparing it to another intervention.

A primary limitation of the information available is that we cannot delineate the amount of homecare investment applied explicitly to specific clients. Data does not exist that ties cost to the client specifically, costs do not follow the clients and cost per client type, such as those who require short-term home care (post-illness, injury, surgery), long-term home care (medically complex, frailty), those palliative and/or at the end of life or those waiting at home for CCLO versus overall homecare funding growth.

Due to the nature of the data, and similar to other trend analyses, we chose not to conduct scientific, statistical analyses or a scientific trend analysis on the trend findings due to the understanding that at a system/population level, there are too many variables in a complex health system to appropriately assign causality or even assumed causality (Chao et al. 2018; Schwartz 1994; Shahzad et al. 2019; Twells et al. 2014). For example, within our data, within our trends, we witness a 15% increase in the number of homecare clients who died year over year, a decrease in the average days in acute care in the last 30 days of life and an overall increase in the cost per day per home care client. We cannot identify the causality of the mortality increase for homecare clients as the factors are endless. These investments promise that as more funding is applied to homecare, more enhanced palliative homecare services become available, leading to more individuals feeling safer receiving palliative homecare services versus through other means, such as within a hospital setting. These are concepts and assumptions that policy makers and healthcare operational leaders need to weigh based on their expertise, experiences and the trends portrayed through this research.

Data sources

We used publicly available deidentified homecare cost data for Alberta and AHS' linked to health system utilization data provided to the research team via Tableau Software© (2022) (Tableau Server Version: 2023.1.7 [20231.23.1011.0410]) visualized analytics. Tableau-based visualizations were constructed by AHS analytics teams from admission, discharge and transfer (ADT), discharge abstract data (DAD), Alberta continuing care information systems (ACCIS) and national ambulatory care reporting system (NACRS) data between April 1, 2015, and March 31, 2020. We used the Canadian Institute for Healthcare Information's (CIHI 2024a) cost data to estimate acute care utilization costs (Canadian currency, unadjusted) by location and year, and this is unadjusted costing (CIHI 2024c). From the previous Delphi study, we inserted the two identified indicators for measurement: homecare costs as a percentage of overall health costs, cost per client over time and annual homecare costs per client comparing years utilizing (Jajszczok et al. 2024). These indicators are "home care funding as a percent of overall health care budgets" and "average cost-per-day per home care client."

We created visualizations comparing key system indicators to these two identified homecare financial indicators using Microsoft Office 365 Software© such as Excel© and Powerpoint© (Version 3202 [Build 16130.20846]). We used Stata/IC 14.0© (StataCorp. 2015) statistical software for Windows (Version 15) to conduct the Mann–Kendall trend test for the demographic data in Table 1.

We compared utilization patterns over the five years to a conceptual model assuming funding growth remained the same as the initial year (2015–16). We compared actual outcomes to the conceptual model built on standardized estimates for each activity. A comparison of the actual and conceptual models was used to portray the estimated system utilization differences.

We excluded homecare clients who were assessed and waiting for facility-based care in acute settings to estimate homecare clients' acute care utilization to ensure that we are not double counting. For the estimated utilization of those CCLO in acute care, we calculated two scenarios, a 2015–16 baseline data (unadjusted) and a second adjusted model that includes a modification to accept 2017–18 peak levels of individuals waiting for CCLO in acute settings and applying those for 2018–19 and 2019–20 fiscal years. The adjusted model provides a more accurate estimate of acute care utilization, allowing for the average peak levels of 787 people waiting for CCLO in acute care settings to be maintained versus using the much lower 2015–16 baseline rate of 686 daily people on the annual average for the conceptual model.

We calculated the cost per homecare client by counting the number of unique home-living clients (not in a CCLO) per year per the criteria set by AHS divided by the annual homecare costs reported for each year in AHS's financial statement. In addition, we calculated the percentage of homecare costs compared with global AHS costs from the same annual financial statements.

Data assumptions

We assume that the health system structures, access to primary care physicians or other community-based services outside of home care has remained stable throughout the study period for conducting the demographic-based (age and sex) trend statistical analysis. Due to the nature of the data, we cannot test the distribution and assume that it is not standard. Each trend used data from the AHS analytics program, and it is assumed that the data is generally factual and that errors (missing values, incorrect entries and other artifacts) within the raw data have been addressed. Lastly, it is assumed that the financial data is accurate as reported by AHS for each year without significant changes in the financial data coding methodology or assignment of expenditures during this period.

Results

Table 1 describes the demographic profile of home living homecare clients, outlining clients by age, sex and rural living location for each year within the study period.

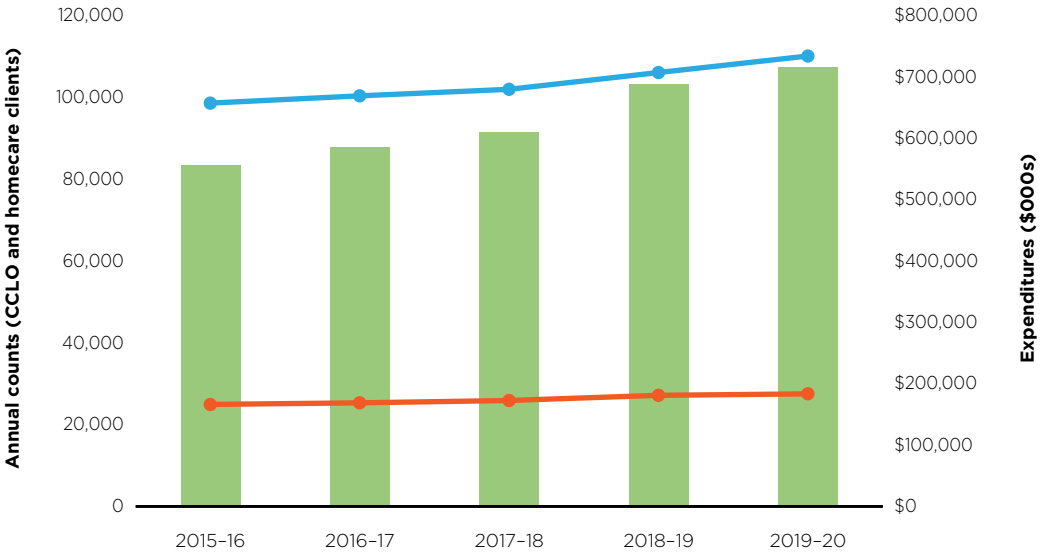
TABLE 1. Homecare client demographic profile by age, sex and rurality, comparing year over year

Homecare client demographics	2015–16 *n* = 98,618	2016–17 *n* = 100,398	2017–18 *n* = 101,998	2018–19 *n* = 106,099	2019–20 *n* = 110,135	**p*-value
Mean age all	68.3	68.6	68.9	68.9	68.8	0.3122
Mean age, male	65.9	66.1	66.5	66.5	66.6	**0.043**
Mean age, female	70.2	70.6	70.9	70.8	70.6	0.6134
	Frequency (thousands)/ per cent	**Frequency (thousands)/ per cent**	**Frequency (thousands)/ per cent**	**Frequency (thousands)/ per cent**	**Frequency (thousands)/ per cent**	
Males, age 20–64 years	14.8 (15.1%)	15.0 (14.9%)	15.1 (4.8%)	15.8 (14.9%)	16.5 (15%)	0.651
Females, age 20–64 years	15.7 (15.9%)	15.7 (15.5%)	15.3 (15%)	15.6 (14.7%)	16.4 (14.9%)	0.086
Males, age 65–74 years	9.1 (9.2%)	9.4 (9.3%)	9.7 (9.5%)	10.7 (10.1%)	11.1 (10.1%)	**0.042**
Females, age 65–74 years	10.2 (10.3%)	10.4 (10.4%)	10.7 (10.5%)	11.2 (10.6%)	11.5 (10.5%)	0.13
Males, age 75–84 years	10.4 (10.5%)	10.4 (10.4%)	10.9 (10.7%)	11.2 (10.6%)	11.6 (10.6%)	0.613
Females, age 75–84 years	14.8 (15%)	15.0 (14.9%)	15.0 (14.7%)	15.3 (14.4%)	16.1 (14.6%)	0.084
Males, age 85+ years	6.9 (7%)	7.2 (7.2%)	7.7 (7.5%)	8.0 (7.5%)	8.3 (7.5%)	0.096
Females, age 85+ years	13.7 (13.9%)	14.3 (14.2%)	14.6 (14.3%)	14.9 (14%)	15.1 (13.7%)	0.81
Per cent, rural	28.6 (29%)	29.0 (28.9%)	29.5 (28.9%)	30.7 (28.9%)	31.6 (28.7%)	0.096
Per cent, rural, female	15.5 (28.5%)	15.7 (28.5%)	15.7 (28.3%)	16.1 (28.2%)	16.6 (28%)	**0.043**
Per cent, rural, male	12.1 (29.5%)	12.4 (29.4%)	12.8 (29.6%)	13.6 (29.7%)	14.1 (29.6%)	0.312

Note: AHS analytics define rural as client home postal code upon last assessment from within communities/geographies smaller than 25,000 population (as available via CIHI). *Mann–Kendall trend as a test, alpha level is set at 0.05, meaning a *p*-value less than 0.05 is considered statistically significant (as bolded).
AHS = Alberta Health Services; CIHI = Canadian Institute for Healthcare Information.

As per Table 1, we applied the Mann–Kendall trend test for this population-based data as it does not assume a specific data distribution. We observed that while most of the trends and changes in the mean age for homecare clients over the years of the study period, and the distribution among age and sex has not significantly shifted, the mean age of male homecare clients has grown substantially year over year from a baseline of 65.9 in 2015–16 to 66.6 in 2019–20. Of this growth in mean age for males, the proportion of homecare clients that are males between the ages of 65 and 74 is the only age grouping to show a significant growth in mean age from 9.2% or approximately 9,100 unique homecare clients to 10.1% or approximately 11,100 unique homecare clients. The percentage of overall rural homecare clients has remained stable at 29–28.7%. More males live in rural areas than females, and this difference increases from 1% for fiscal year 2015–16 to 1.6% in fiscal year 2019–20. However, even though the number of unique rural female homecare clients increased from approximately 15,100 in 2015–16 to 16,600 in 2019–20, the trend of the proportion of female homecare clients decreased at a significant rate from 28.5% in 2015–16 to 28% in 2019–20.

FIGURE 1. Annual clients/bedded community-based capacity compared with homecare costs



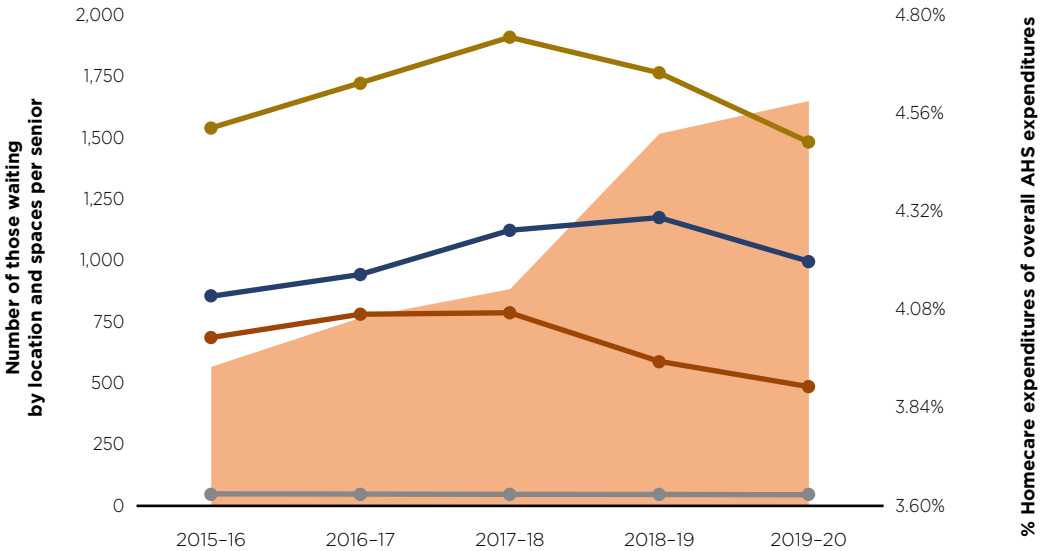
	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020
Homecare Expenditures (AHS) ($000s)	$555,831	$585,313	$609,579	$688,295	$716,561
Facility-Based Continuing Care Living Option (CCLO) Bedded Capacity (End of Fiscal Year Count)	24,938	25,324	25,896	27,163	27,518
Unique Home Living Homecare Clients (Fiscal Year Annual)	98,618	100,398	101,998	106,099	110,135

AHS = Alberta Health Services; CCLO = continuing care living option.

Over the five years, homecare clients increased year over year from 98,618 clients in 2015–16 to 110,135 clients in 2019–20, an 11.9% increase from baseline. Homecare costs

increased from $555.8 million to $716.5 million, a 28.91% increase from baseline. CCLO capacity increased from 24,938 spaces to 27,518 spaces (10.35%). The fiscal year 2018–19 had the largest gains in homecare costs.

FIGURE 2. Assessed and waiting for facility-based care compared with homecare costs as a percentage of overall AHS costs



	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020
Homecare Expenditures as a Per Cent of Overall Provincial Health Authority Healthcare Expenditures	3.94%	4.06%	4.13%	4.51%	4.59%
Waiting for CCLO in Acute Care – Annual Fiscal Quarter Snapshop Average	686	781	787	589	486
Waiting for CCLO Total – Annual Fiscal Quarter Snapshop Average	1,540	1,724	1,910	1,765	1,483
Waiting for CCLO at Home in community – Annual Fiscal Quarter Snapshop Average	854	943	1,123	1,175	997
CCLO (LTC+DSL) spaces per 1000 Seniors	48.90	48.02	46.86	46.55	45.30

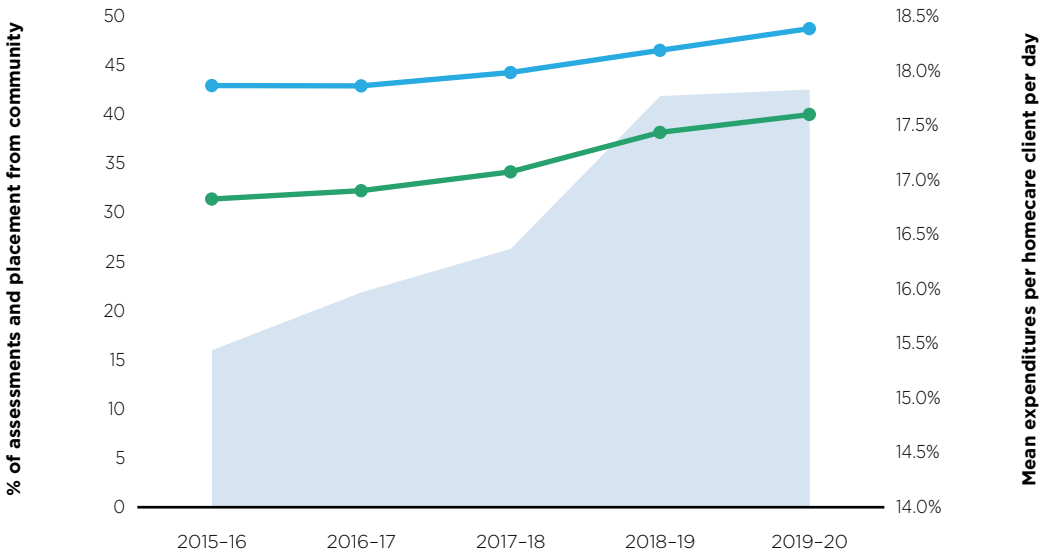
AHS = Alberta Health Services; CCLO = continuing care living option.

In Figure 2, we compare the overall homecare costs as a percentage of global health system costs against indicators that measure the number of people waiting for access to CCLO by their location. We observed that homecare costs as a percentage of AHS global costs increased from under 3.94% to 4.59% over the five years.

From 2015 to 2018, we observed an increase in the annual average daily number of individuals waiting for a CCLO, peaking at 1,910 in 2017–18 and decreasing to 1,483 in

2019–20, when most growth in homecare costs, as a percentage of overall health system costs, was observed. Furthermore, we observed that the annual average daily number of people waiting for a CCLO in hospitals follows the same trend, with a peak of 787 in 2017–18 and a reduction to 486 in 2019–20, with accelerated increases in homecare expenditures. This decrease equates to an average of 301 fewer people daily waiting in hospital settings for facility-based care. Lastly, we observed that the number of CCLO spaces per senior in Alberta during these five years decreased yearly from a high of 48.9 spaces in the fiscal year 2015–16 to 45.3 in the fiscal year 2019–20.

FIGURE 3. Fiscal year annual percentage of assessments/placement from community compared with mean costs per homecare client per day per fiscal year



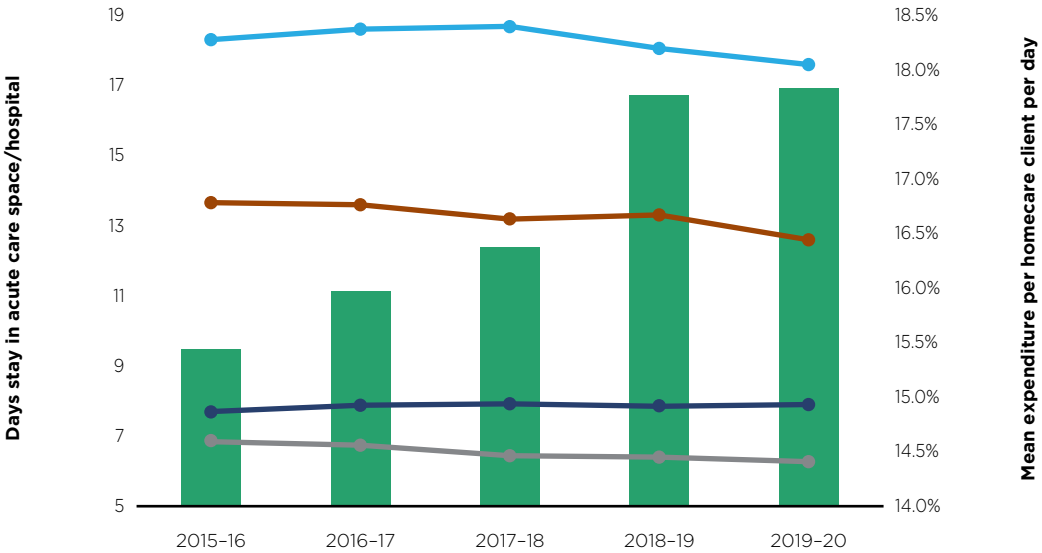
	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020
Mean Fiscal Year Expenditures Per Day Per Homecare Client (AHS)	$15.44	$15.97	$16.37	$17.77	$17.83
% of Individuals Placed into CCLO from Community	31.40%	32.25%	34.17%	38.19%	40.00%
% CCLO RAI Assessment in Community (the Latest Assessment Prior to Placement)	42.96%	42.93%	44.29%	46.55%	48.76%

AHS = Alberta Health Services; CCLO = continuing care living option.

Costs per homecare client per day increased from $15.44 in fiscal year 2015–16 to $17.83 in fiscal year 2019–20, an increase of 15.48%, with the sharpest increase between fiscal years 2017–18 and 2018–19. As the costs per homecare client increased, the percentage of individuals assessed for a CCLO and waiting at home/community (not acute/hospital) increased from 42.93 to 48.88%. Furthermore, individuals placed into a CCLO from community settings (instead of being placed in a hospital setting) increased from 31.4 to 40.0%

between fiscal years 2015–16 and 2019–20. The sharpest increase occurred between fiscal years 2017–18 and 2018–19, with the increasing momentum nearly equal between 2018–19 and 2019–20 fiscal years, even with the trend in homecare costs per day for homecare clients plateauing between these fiscal years.

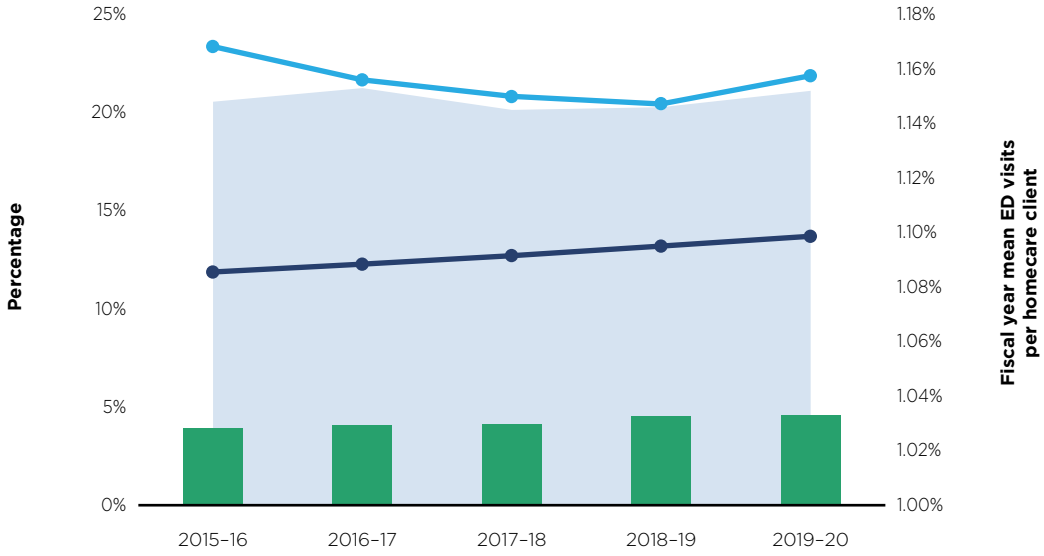
FIGURE 4. Annual percentage of assessments/placement from community compared with mean costs per homecare client per day per fiscal year



	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020
Mean Fiscal Year Expenditures Per Day Per Homecare Client (AHS)	$15.44	$15.97	$16.37	$17.77	$17.83
AHS All Patients Mean Hospital Fiscal Year, Length of Stay	7.70	7.88	7.92	7.85	7.90
All Home Living Homecare Clients Mean Hospital Fiscal Year, Length of Stay	18.31	18.61	18.69	18.06	17.60
Mean Acute Care Days in Acute Care for Homecare Clients in the Last 30 Days of Life	13.66	13.60	13.19	13.31	12.60
Acute Care Inpatient Days Per Homecare Client (Not Including Those Assessed and Waiting for CCLO)	6.84	6.74	6.44	6.40	6.27
Total Unique Homecare Clients Who Died	8,656	9,025	9,277	9,462	9,989

AHS = Alberta Health Services; CCLO = continuing care living option. As the daily cost per homecare client increased, the average acute care length of stay in the last 30 days of life for homecare clients decreased from 13.8 (8,656 clients total) to 12.6 (9,989 clients total) days. The mean annual length of stay per hospital visit for homecare clients decreased from 18.69 to 17.60 days between 2017–18 and 2019–20, while the average acute care length of stay per hospital patient for all those served in Alberta remained relatively the same between 7.92 and 7.90 days.

FIGURE 5. ED visits per homecare client compared with the senior population, FPSCs, and percentage of homecare costs compared with global expenses



	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020
ED Visits Per Client Per Year – Home Living Homecare Clients	1.148	1.153	1.145	1.146	1.152
Homecare Expenditures as a Per Cent of Overall Provincial Health Authority Healthcare Expenditures	3.94%	4.06%	4.13%	4.51%	4.59%
% FPSC – Family Practice Sensitive Conditions (ED) – Home Living Homecare Clients	23.37%	21.67%	20.83%	20.44%	21.88%
% Seniors in Population (Alberta)	11.88%	12.28%	12.71%	13.20%	13.70%

AHS = Alberta Health Services; CCLO = continuing care living option; ED = emergency department; FPSC = family practice sensitive condition.

As the percentage of overall expenditures in home care increased year over year, the mean emergency visits per homecare client remained relatively constant over the five years, with a slight decrease between years 2016–17 and 2018–19. Furthermore, the percentage of family practice sensitive condition (FPSC) also decreased from 23.37 to 20.44% in 2018–19 and then increased to 21.88%. Lastly, during these five years, the proportion of seniors in the province continued to grow yearly (11.9–13.7%), following a similar growth pattern specific to the proportion of homecare costs of overall global health authority costs.

Cost-effectiveness analysis

Using the same cost per client day and actual annual homecare client growth, we estimate that the total net new costs over the period amount to estimated additional costs above a yearly increase of $240.3 million, with $95.8 million accounting for the 2019–20 fiscal year. In Table 2, we report that the investments of $240.3 million resulted in a

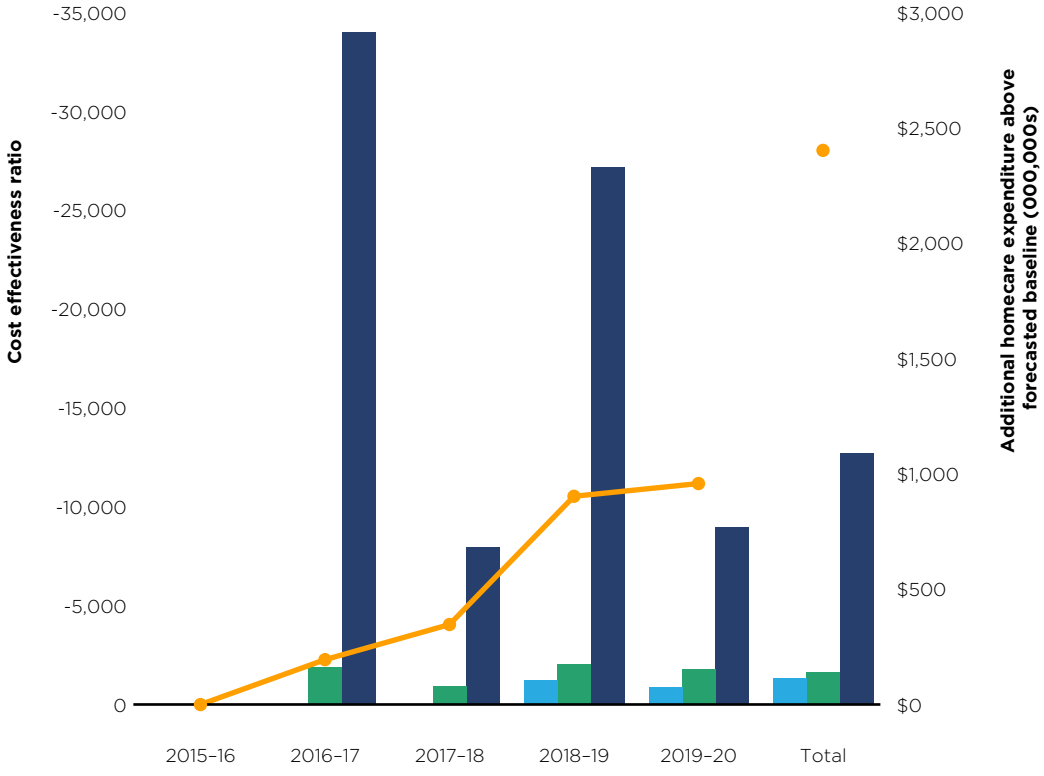
TABLE 2. Financial homecare system quality and performance measures

	2019–20 Differences (actual minus projected)	2019–20 CER	Total (all years) Differences (actual minus projected)	Total (all years) CER
Homecare costs differences (actual cost minus projected)	$95,817,858		$240,264,642	
Y1. Days averted CCLO clients waiting in hospital	52,992	870/1	144,882	1,317/1
Y2. Days averted acute care utilization	110,078	1,808/1	182,439	1,658/1
Y3. Days averted acute care days in last 30 days of life	10,655	8,993/1	18,891	12,719/1
Total results	173,725	552/1	346,212	694/1

CCLO = continuing care living option; CER = cost-effectiveness ratio.

346.2-thousand-unit reduction in the overall utilization of acute care services for the three groups of homecare clients combined. CER calculations using the total net new investments per type of acute care reduction are calculated at 1,317 for those waiting for CCLO, 12,719 for those in their last 30 days of life, and 658 for all homecare clients (excluding CCLO and the previous 30 days of life cohort). The total CER for all three main areas combined (Y1, Y2 and Y3) compared with the costs over the five years was 694 per unit gained.

FIGURE 6. CER by acute care reduction type per year and cumulative



Difference in utlization	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Additional Investment in Homecare (Above Forecasted General Growth)	–	19,449,560	34,697,636	90,299,570	95,817,858	240,264,624
CER: Total Investment Difference in Homecare / CCLO Acute Care Days Difference From Baseline				-1,248	-870	-1,317
CER: Total Investment Difference in Homecare / Total Acute Care Days (No CCLO, No Palliative) From Baseline		-1,890	-930	-2,040	-1,808	-1,658
CER: Total Investment Difference in Homecare / Total Acute Care Days Last 30 Days of Life Difference From Baseline		-33,995	-7,986	-27,210	-8,993	-12,719

CCLO = continuing care living option; CER = cost-effectiveness ratio.

In Figure 6, acute care reductions specific to those waiting in hospitals for a CCLO do not decrease over baseline until 2018–19, at which point, based on the 2017–18 baseline, we observe a positive CER for each year and positive cumulative CER. We observed that the CER ratio for the last 30 days of life ranged from 33,995 per unit to 7,986 over the four years. Lastly, we observe that the CER per year for all homecare clients ranges from 930 in 2016–17 to 2,040 in 2018–19.

Interpretation, Findings, Generalizability and Current Knowledge

The study provides insights into the impact of increased homecare funding on health system utilization and costs, with implications for policy makers and health system leaders. The evolution of the federal transfer program targeting homecare investment growth combined with the provincial $200 million investment announcement enabled cost shifts for AHS in the following fiscal years. When applied to health system data, we show that the core cost-based indicators can portray compelling cost and utilization information. As a result, these new indicators could effectively guide policy makers and health system administrators in their decision making for future shifts and changes to the overall structures of the publicly funded health system.

Many health systems globally face similar challenges regarding the allocation of resources between acute care and home care. The trends observed in Alberta can provide valuable insights for other regions with comparable healthcare structures and funding mechanisms. The study's findings on the impact of increased homecare funding on acute care

utilization can inform policy makers in other jurisdictions. By demonstrating the cost-effectiveness of investing in home care, the study supports the argument for reallocating resources to enhance homecare services.

This analysis of how funding affects outcomes in home care reveals that funding homecare programs can improve health system cost-effectiveness. For each year, the increased homecare costs above the projected 2015–16 annual homecare investments show a decrease in acute care utilization and acute costs for these clients. In this study, for Alberta, the reduction in homecare-specific acute costs equates to approximately 346.2 thousand acute care bed days over the study period. In addition, for 2019–20, we calculated the most impactful CER of 552 per unit gained. As such, we estimated a reduced utilization of 173.7 thousand bed days annually, equivalent to a 476-bed hospital at 100% occupancy. It is estimated that today (2024–25), a hospital this size would cost over $2.5 billion and 10 years to construct from planning to completion (AHS 2024b).

These trend observations and their potential impacts on Alberta's overall healthcare system are a critical component that should inform policy makers across Canada on further considering funding the system as the system requires a focus on efficiency. System sustainability is at risk in Canada. We understand that as a percentage of gross domestic product, Canada spent 12.3% on healthcare in 2021, which is significantly more than the OECD 9.7% average (including the US's 17.8% figure within), and Canada has almost half (2.6 per 1,000 population) the number of hospital spaces per population of the OECD average (4.3 per 1,000 population) yet has a higher-than-average length of stay at 8.2 days per hospital admission, with approximately one extra day more than the OECD average (Commonwealth Fund 2021). CIHI (2022) informs that, due to the lack of available homecare services, one in 10 admissions to CCLO are inappropriate and that these individuals could have been managed at home with homecare programming.

The newly identified homecare financial quality and performance indicators used in this study can be adapted and applied in other health systems. These indicators provide a framework for assessing the financial performance and quality of homecare services, which can be useful for health system leaders and policy makers worldwide. As mentioned, it is estimated that there are 2,000 people daily in hospitals across Canada waiting for homecare services. If we reduced this by half through investing in publicly funded homecare services nationwide, we could allow more people to receive care in their homes and free up scarce and expensive hospital capacity. This would come with the promise of reducing congestion and improving upon efficiencies for hospital-based care.

The ecological trends observed in this study, such as changes in health system utilization and costs, can serve as a reference for other regions. Understanding these trends can help health system leaders anticipate the potential impacts of similar funding changes in their own contexts. This trend observation aligns with similar models and research from other provinces such as Ontario (Kralj and Sweetman 2024) and countries such as Singapore (Low et al. 2015) and China (Yi et al. 2023) that conclude that with a focus on home care,

a significant number of services could shift from expensive traditional in-patient facilities to the home without a reduction in quality or access. Based on international comparisons, and the current performance of the Canadian health system, there is a need for further application of cost-based indicators to achieve the promise of timely access and safe services.

Future Direction

The Canadian healthcare system is becoming increasingly unsustainable; we cannot build hospital-based services or residential long-term care (LTC) spaces quick enough to meet the needs of the aging and growing senior population. Policy makers need to do more than announce funding; there is a need to understand how scarce public funds are being spent under the promise of sustaining services for Canadians. We recommend that policy makers and healthcare executives implement these indicators to better understand the impacts of homecare investments on the overall health system structures and utilization of those served. Applying these indicators at provincial and national levels can assist health system policy makers to understand how their programs/systems/provinces are structured compared with others and where they are leading or are deficient in their approaches to sustaining the publicly funded health system. Furthermore, there is a need to view the results out of Alberta at a national level; when policy makers support constant homecare funding and expenditure growth, the most significant impacts on health system sustainability are in the latter years. There is a need to consider the development and protection of targeted multi-year (5+) strategic funding plans that are protected and could outlast government election cycles, allowing for less disruption based on political mandates. Lastly, as a consideration for the future, a publicly accessible dashboard that visualizes homecare expenditure data is an essential step toward knowledge translation. When citizens can easily access information on how governments allocate funds for homecare services and related outcomes, it fosters accountability for policy makers and health system operational leaders. As there are trade-offs with increased homecare funding, this transparency empowers citizens to become informed interest holders who can advocate for evidence-based decisions. Publicly funded home care costs a fraction of the cost to build and operate hospitals and LTC facilities. Public discourse is often focused on facility-based growth, such as hospitals and residential care; this results in election cycle campaigns focusing on announcements specific to these high-cost resources. Part of this is because little is known or shared with the public about strategic funding and expenditures tied to homecare programs.

Furthermore, there is a need to understand the impacts of increased public costs in homecare and the impacts on caregiver support and private healthcare expenditures, including private home care. CIHI is undertaking future work to develop home and community care spending data. The concept and definition of homecare and community care have been expanded to include home support and community-based services as part of ongoing quality improvement at CIHI (2025). Once this data is available and refined, we can better examine shifts in private expenditures.

Limitations

While the study provides valuable insights, it is essential to consider contextual factors such as demographic differences, healthcare policies, and economic conditions that may influence the generalizability of the findings. The challenge in this study as a population-based ecological trend assessment is that we cannot quantify and adjust for the complexity of the population served as homecare clients within the overall healthcare system. There is an endless number of factors that contribute to the way individuals interact with the publicly funded health system, such as changes to the demographic profiles (comorbidities), provider availability (providers per population, funding models affecting access) and practitioner policy/practice shifts, to name just a few. Due to this, there is a need to hold the assumption that as the healthcare system and the population continued to shift in a variety of ways and factors, beyond our ability to quantify these shifts, the overall increase in the funding per homecare client was significant enough that this changed the way individuals interacted with the system as witnessed in the identified trend analysis.

The CEA of this study provides insights into the impact of increased homecare funding on health system utilization and costs, with implications for policymakers and health system leaders. Limitations include the study's observational nature and potential contextual factors affecting generalizability. These trend observations and the CEAs used internal and external dispersed data sources with many indicators created for operational purposes and not scientifically validated or rigorously defined. The methods selected are intentional to support a discussion at the policy and health system operational leadership level on the quality and performance indicators through various visualizations portraying the conceptual impacts of homecare investments on system utilization shifts. The analysis is grounded in knowledge and conducted by measuring the differences between the annual fiscal reporting periods matched to annual AHS homecare client data.

Conclusion

The trend observations portray that adequate funding for home care is essential for ensuring high-quality patient care, improving health outcomes and maintaining cost efficiency. Generally, it is crucial to understand that investments in home care are not wasted even if outcomes do not dramatically shift as a substantial amount of care currently being delivered in higher levels of care could shift to patients' homes, freeing up needed resources (Bestsennyy et al. 2022). Canada's population is aging and growing (Statistics Canada 2022). By 2051, the number of seniors will have more than doubled to 1.4 million (Statistics Canada 2022). As such, for policy makers, measuring homecare investments and outcomes regarding population growth and demand is crucial to sustaining the publicly funded health system.

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Erratum

The journal, *Healthcare Policy*, publishes corrections when an error is made by the author, editor or staff which affects the interpretation of data or information presented but is not significant enough to impact the conclusions. Errata appears as a note on the corrected article and as a separate piece in *Healthcare Policy* 21.1.

In the article *Jajszczok, M., C.A. Eastwood, M. Lu, C. Cunningham and H. Quan. 2025. Impacts of Home Care Investments in Alberta: Ecological and Economic Trend Analysis. Healthcare Policy 20(3):58–77. doi:10.12927/hcpol.2025.27616* there was an error on page 59 in the sentence that originally read "In 2022, hospital care cost Canadians about $81 billion nationally, with the standard cost per hospital day in Canada at $7,803 (CIHI 2023a). Furthermore, the standard cost per hospital day per province and territory varies drastically based on local policy decisions, with Alberta having the highest cost among the provinces at $9,341 (CIHI 2023a)." The word "day" has been corrected to the word "stay" in both places.