

Output Measurement for the Nursing and Residential Care Facilities Industry

Processes in Classifying and Measuring Output

By

Mathieu Thomassin

Retail and Service Industries Division

Statistics Canada

Voorburg Group on Service Statistics
Virtual touch base 2024-10-29

Table of contents

1. Introduction	3
2. Description and characteristics of the industry	3
2.1 <i>Definition of the industry</i>	3
2.2 <i>Market conditions</i>	5
2.3 <i>Specific characteristics of the industry</i>	12
3. Turnover or output measurement	13
3.1 <i>General framework</i>	13
3.3 <i>Measurement issues</i>	14
3.4 <i>Evaluation of comparability of price data with output data</i>	15
4. Evaluation of measurement	18
5. Conclusion	19
Appendix A	20

1. Introduction

This paper provides a brief overview of the measurement framework for the nursing and residential care facilities (NRCF) industry and aims to highlight some of the challenges in classifying and measuring the output of this industry.

2. Description and characteristics of the industry

2.1 Definition of the industry

This paper focuses on establishments primarily engaged in providing residential care combined with either nursing, supervisory or other types of care as required by the residents. In this subsector, the facilities are a significant part of the production process and the care provided is a mix of health and social services, with the health component being largely nursing services. These establishments are classified to the code 623 - Nursing and residential care facilities according to the North American Industry Classification System (NAICS) 2022 (or to Division 87 in the International Standard Industrial Classification of all Economic Activities Revision 4).

The concordances between the NAICS Canada 2022 Version 1.0, the International Standard Industrial Classification of all Economic Activities Revision 4 (ISIC Rev. 4) and the Statistical Classification of Economic Activities in the European Community (NACE Rev. 2) are shown in **Table 1**. An asterisk attached to the ISIC or NACE alphanumeric code indicates that a NAICS class is equal to a portion of an ISIC/NACE class.

It is important to note that the relationships between these two classifications are not always direct. As shown in **Table 1**, each of NAICS 623210, 623221 and 623222 is a subset of ISIC Q8720; and each of NAICS 623991, 623992, 623993 and 623999 is a subset of ISIC Q8790.

Intermediation service activities

The fifth revision of ISIC¹ improves the classification's relevance by more accurately reflecting the current global economic structure. It acknowledges new industries and activities that have emerged over the past 15 years and facilitates international comparisons by aligning more closely with existing regional classifications.

To reflect the increasing importance of intermediation service activities, the following new class has been created in the ISIC Rev.5 structure, in addition to the existing categories.

R8791 Intermediation service activities for residential care activities²

¹ [International Standard Industrial Classification of All Economic Activities \(ISIC\), Rev 5, UNSD, Revision Information](#)

² This class includes the intermediation of residential care activities, by bringing clients and service providers together for a fee or commission, without the intermediary providing the residential care services that are intermediated. These intermediation activities can be carried out on digital platforms or through non[1]digital channels (face-to-face including door-to-door, phone, mail etc.). The fee or commission can be received from either the client or the provider of the residential care service. Revenue for the intermediation activities can include other sources of income, such as revenues from advertising. This class excludes: intermediation service activities for medical, dental and other human health services, see 8691.

It will be interesting to see whether future revisions of NAICS will include a similar new class for intermediate service activities.

Table 1
Concordances between the NAICS Canada 2022 Version 1.0, ISIC Revision 4 and NACE Revision 2.1³ for Nursing and residential care facilities

NAICS Canada 2022 Version 1.0 code	NAICS Canada 2022 Version 1.0 title*	ISIC Rev. 4 code	ISIC Rev. 4 title	NACE Rev. 2.1 code	NACE Rev. 2.1 title
623110	Nursing care facilities	Q8710	Residential nursing care facilities	R87.10	Residential nursing care activities
623210	Residential facilities for persons with a developmental disability	Q8720*	Residential care activities for mental retardation, mental health and substance abuse	R87.20*	Residential care activities for persons living with or having a diagnosis of a mental illness or substance abuse
623221	Residential facilities for persons with a mental health or substance use condition	Q8720*	Residential care activities for mental retardation, mental health and substance abuse	R87.20*	Residential care activities for persons living with or having a diagnosis of a mental illness or substance abuse
623222	Homes for persons with a psychiatric disability	Q8720*	Residential care activities for mental retardation, mental health and substance abuse	R87.20*	Residential care activities for persons living with or having a diagnosis of a mental illness or substance abuse
623310	Community care facilities for the elderly	Q8730	Residential care activities for the elderly and disabled	R87.30	Residential care activities for older persons or persons with physical disabilities
623991	Transition homes for victims and survivors of abuse and domestic violence	Q8790*	Other residential care facilities	R87.99*	Other residential care facilities
623992	Home for children with a mental health condition or disability	Q8790*	Other residential care facilities	R87.99*	Other residential care facilities
623993	Homes for persons with a physical disability	Q8790*	Other residential care facilities	R87.99*	Other residential care facilities
623999	All other residential care facilities	Q8790*	Other residential care activities	R87.99*	Other residential care facilities
?	?	R8791	Intermediation service activities for residential care activities	R87.91	Intermediation service activities for residential care activities

Source: [Statistics Canada](#). [Eurostat](#)

* A more detailed description is provided in Appendix A.

³ The newest version is [NACE revision 2 update 1 \(NACE rev. 2.1\)](#), which is to be used for European statistics from 2025 onwards. This was adopted by the European Commission in October 2022.

2.2 Market conditions

A few words about Canada’s health care system

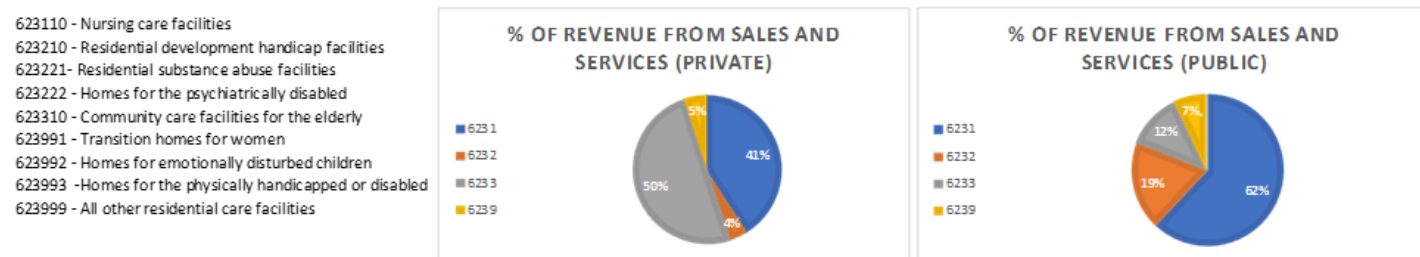
In Canada, the roles and responsibilities for health care services are shared between the provincial and territorial governments and the federal government. The provincial and territorial governments are primarily responsible for managing, organizing, and delivering health care services to their residents. Meanwhile, the federal government is mainly tasked with setting and administering national standards for the health care system, which include public administration, comprehensiveness, universality, portability, and accessibility. Additionally, the federal government provides funding through the Canada Health Transfer to support funding for provincial and territorial health care services and to support the delivery of health care services to specific groups.

Public versus private sector

In Canada, a key characteristic of the NRCF industry is that services are provided by both the public and private sectors. Public facilities are non-profit organizations. The portion of the market that is profit-oriented varies between provinces and can fluctuate from year to year. For example, in 2022, 62% of the total operating revenue in Ontario came from the private sector, significantly higher than the 17% in Saskatchewan.

Within the for-profit component of the NRCF industry, the majority (91%) of revenue from sales and services comes from businesses in NAICS 623310 (Community Care Facilities for the Elderly) and NAICS 623110 (Nursing Care Facilities). By contrast, public sector facilities have a more diversified revenue stream, with a much larger share of revenues stemming from NAICS categories that require specialized, high-intensity care, resulting in higher operating costs (see **Figure 1**).

Figure 1
Percentage of revenue from sales and services by industry (nursing and residential care facilities (623)), private and public sectors, 2022



Importance of the industry

Canada, along with many other countries, is dealing with an aging population. Over the next 10 years the proportion of seniors — those age 65 and older — is expected to rise from 18.9% of the population to 23.3%.⁴ And, as the Canadian population gets older, the demand pressures on the health and long-term care systems will increase.

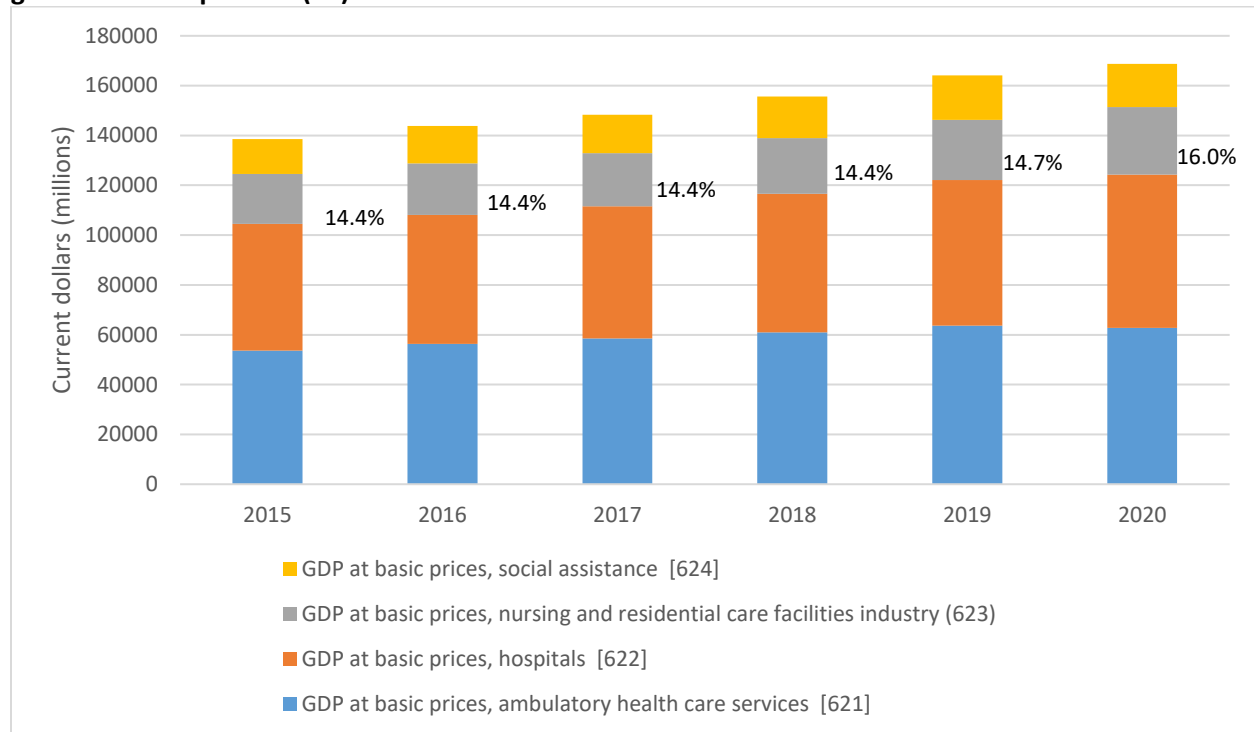
Nursing and residential care facilities are essential in supporting the health, well-being, and independence of older adults and those with disabilities, making them a vital part of the healthcare system. As for the contribution of this sub-sector to the Canadian economy, it represents a small and steady share of

⁴ Source: Statistics Canada, Table 17-10-0057-01. Projection scenario FA: fast-aging.

Canada’s total economic activity. The most recent available data shows that economic activity in this industry totaled approximately \$27.0 billion in 2020 (the SUT for 2021 will be released in November), representing 1.2% of Canada’s GDP.⁵ The industry also accounted for 1.6% of the total output impact⁶ and approximately 2.9% of the total number of employees in Canada.⁷

The following chart (**Figure 2**) highlights the contribution of the 623 NAICS group, to the Canadian health care and social assistance sector (NAICS 62). Based on the data published, the size of this industry has been fairly stable, averaging around 14.7% of health care and social assistance gross domestic product between 2015 and 2020.

Figure 2
Nursing and residential care facilities (623) as a percentage of the health care and social assistance gross domestic product (62)



Source: Statistics Canada, [Table 36-10-0402-01 Gross domestic product \(GDP\) at basic prices, by industry, provinces and territories \(x 1,000,000\)](#).

Business counts

For reference year 2023, there were 23,940 active establishments in the NRCF industry on Statistics Canada Business Register. This represents 0.33% of the total number of establishments in Canada on the Business Register. However, a significant portion of these businesses are very small. To reduce volatility in business counts and better reflect changes in the business population, the numbers shown in Table 2

⁵ Source: Statistics Canada, Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces and territories (x 1,000,000).

⁶ Statistics Canada, Table 36-10-0594-01 Input-output multipliers, detail level

⁷ Statistics Canada, Table 14-10-0201-01 Employment by industry, monthly, unadjusted for seasonality

and Table 3 exclude unincorporated businesses that are non-employer and have annual revenues below \$30,000.

Therefore, in 2023, of the 16,857 facilities considered, 4,647 were nursing care facilities; 4,404 were residential developmental handicap, mental health and substance abuse facilities; 4,526 were community care facilities for the elderly; and 3,280 were other residential care facilities. The table below shows the breakdown between businesses with employees and without employees at the national level. In 2023, 71.3% of businesses had employees.

Table 2 Canadian business counts in the NRCF industry, by employment type, Canada, 2019 to 2023

Year	NAICS	Businesses with employees	Businesses without employees	Total
2023	6231	2,423	2,224	4,647
	6232	4,091	313	4,404
	6233	3,493	1,033	4,526
	6239	2,028	1,252	3,280
	Total	12,035	4,822	16,857
2022	6231	2,329	1,278	3,607
	6232	3,707	243	3,950
	6233	3,532	909	4,441
	6239	1,891	1,008	2,899
	Total	11,459	3,438	14,897
2021	6231	2,352	844	3,196
	6232	3,569	242	3,811
	6233	3,588	922	4,510
	6239	1,877	943	2,820
	Total	11,386	2,951	14,337
2020	6231	2,401	786	3,187
	6232	3,661	245	3,906
	6233	3,742	983	4,725
	6239	1,975	965	2,940
	Total	11,779	2,979	14,758
2019	6231	2,165	764	2,929
	6232	3,672	285	3,957
	6233	2,790	1,029	3,819
	6239	2,079	1,027	3,106
	Total	10,706	3,105	13,811

Source: Statistics Canada, special tabulation, unpublished data, unclassified excluded, 2023; Table 33-10-0304-01 Canadian Business Counts, December 2023, [Table 33-10-0806-01 Canadian Business Counts, with employees, December 2023](#)

And as shown in **Table 3**, slightly more than three-quarters (76.2%) of these businesses were classified as small establishments. Large employers, those with more than 500 employees, made up only 0.4% of total establishments.

**Table 3
Businesses with employees in the NRCF industry by employment size category, Canada, 2023**

	Micro (1-4)	Small (5-99)	Medium (100-499)	Large (500+)
Number of businesses with employees	1,480	9,153	1,331	44
Percent distribution %	12.3	76.2	11.1	0.4

Source: [Statistics Canada, special tabulation, unpublished data, unclassified excluded, 2023.](#)

Degree of concentration within the industry

The Nursing and Residential Care Facilities (NRCF) industry has a moderate level of market concentration. As illustrated in **Table 4**, the top 10 firms (private sector only) accounted for 28.5% of total operating revenue in 2022, while the top 50 firms accounted for 35.1%. The remainder of the industry is characterized by small companies that operate in only one province or a specific geographical region and specialize in a limited segment of the industry.

Table 4

Level of market concentration for the private nursing and residential care facilities industry, 2022

NAICS 623 / ISIC Q87	Number of establishments	Total operating revenue (\$)	Revenue of largest firms as percent of total revenue (%)
All firms	13,606	17.5 billion	100.0
10 largest firms	361	5.0 billion	28.5
50 largest firms	681	6.2 billion	35.1

Source: Statistics Canada. [Table 13-10-0102-01 Private nursing and residential care facilities, summary statistics](#); Statistics Canada, Retail and Service Industries Division, special tabulation.

There are several barriers to entry in the Nursing and Residential Care Facilities (NRCF) industry that contribute to its moderate level of market concentration. For example,

- **Market Competition:** As demonstrated in the previous table, the industry is moderately dominated by established players who possess significant resources and a strong market presence. This dominance can pose challenges for new businesses attempting to establish themselves.
- **High Initial Investment:** Establishing a facility requires substantial capital investment for construction, equipment, and staffing. This financial challenge could dissuade future newcomers from entering the industry.
- **Operational Complexity:** Running a nursing or residential care facility involves complex operations, including managing healthcare services, complying with health and safety standards, and maintaining high levels of care. For example, the COVID-19 pandemic has brought unprecedented challenges to day-to-day operations, highlighting vulnerabilities within care homes.
- **Regulatory Requirements:** The industry is subject to stringent regulations to ensure patient safety and high-quality care. Acquiring the necessary licenses, certifications, and regulatory approvals can be both time-consuming and expensive.
- **Staffing Challenges:** There is a significant demand for skilled healthcare professionals, and staffing shortages can be a major hurdle. Recruiting and retaining qualified staff is essential but challenging.

Almost half of the businesses (49.0%) in the NRCF industry are considered small, generating less than \$30,000 a year in sales. Many of these small businesses are new entrants to the NRCF Industry. To overcome barriers to entry and increase their chance of success, these businesses have adopted various strategies, such as focusing on niche markets or differentiating their service offerings to stand out from

the competition. Nonetheless, studies show that only 55.8% of businesses with employees in the services-producing sector were still operating after five years.⁸

Summary statistics and trends

The combined operating revenues of private and public nursing and residential care facilities grew by 4.2% to reach \$39.1 billion in 2022. As shown in **Figure 3**, despite the aging population, and an increase in the number of Canadians requiring care, the nursing and residential care facilities subsector experienced slower revenue growth in 2022 compared to 2020 and 2021.⁹ This can be attributed to many facilities experiencing lower occupancy rates, partly due to the ongoing impact of the COVID-19 pandemic. With fewer residents, there is less potential to increase revenue. In 2020, on the last day of the fiscal period, the number of residents in this subsector fell 4.3% year over year, primarily due to fewer residents in nursing care facilities and community care facilities for the elderly. This decrease was largely driven by fewer admissions to those facilities and a higher number of deaths.¹⁰ Moreover, a significant portion of revenue for these facilities are from government programs. Revenue from sales and services usually accounts for approximately half of the total operating revenue in nursing and residential care facilities, while government grants or subsidies comprise 39.9% of the total operating revenue.¹¹

Operating expenses grew by 5.3% in 2022, reaching \$38.5 billion. Over the past few years, more money has been spent on COVID-19 infection prevention and control measures, such as personal protective equipment, testing, and other screening procedures. The costs associated with providing care have risen significantly. This includes higher expenses for medical supplies, utilities, and general maintenance. Furthermore, the industry faces stringent regulatory requirements, often requiring additional spending on compliance and administrative tasks.¹² Additionally, there has been a notable shortage of skilled healthcare workers, leading to increased wages and salaries to attract and retain staff. This has added financial pressure on facilities. Salaries, wages, commissions, and benefits, which represent two-thirds (66.2%) of operating expenses, rose by 5.1% to \$25.5 billion in 2022.¹³

Due to the factors mentioned above, the profit margin for private sector facilities has significantly declined since the pandemic. In fact, profit margins have been steadily decreasing since 2018. Profit margins stood at 7.8% in 2022, the lowest level observed since comparable estimates became available in 2014. On the public side, facilities have been operating at a deficit since 2015, with 2020 recording the largest deficit since data was first published in 2014.

⁸ Source: Statistics Canada, [Economic Analysis Division, National Accounts Longitudinal Microdata File; and ISED calculations.](#)

⁹ Estimates for reference 2023 will be available in March 2025.

¹⁰ Source: [The Daily, Nursing and residential care facilities in 2020](#)

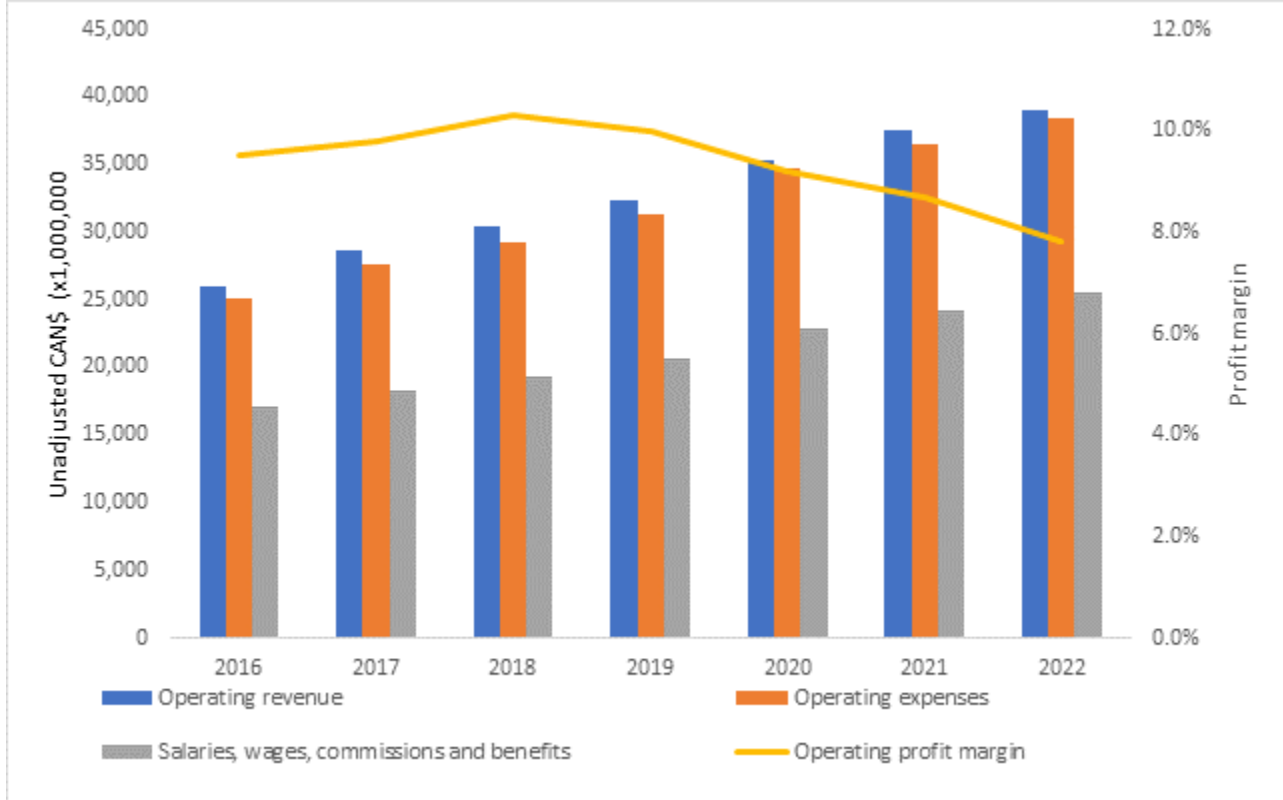
¹¹ Source: Statistics Canada, Table [13-10-0859-01.](#)

¹² E.g. Following a serious fire that caused the death of 32 people in a seniors' residence on Île Verte, the Government of Quebec adopted a regulation amending the Safety Code under the Building Act. This regulation mandates the installation of sprinkler systems in all existing private seniors' residences in Quebec, along with smoke and carbon monoxide alarms, among other safety measures. In Quebec, more than a quarter of private seniors' residences (RPA) still lack sprinklers. Homeowners have until December 2027 to install these devices.

¹³ The average weekly earnings for workers in the nursing and residential care facilities industry were also up by 5.6% in 2022. Source: Statistics Canada. [Table 14-10-0203-01 Average weekly earnings by industry, monthly, unadjusted for seasonality](#)

Figure 3

Summary statistics, nursing and residential care facilities industry (623), Canada, 2016 to 2022



Sources: Statistics Canada. [Table 13-10-0102-01 Private nursing and residential care facilities, summary statistics](#); [Table 13-10-0101-01 Public nursing and residential care facilities, summary statistics \(x 1,000,000\)](#).

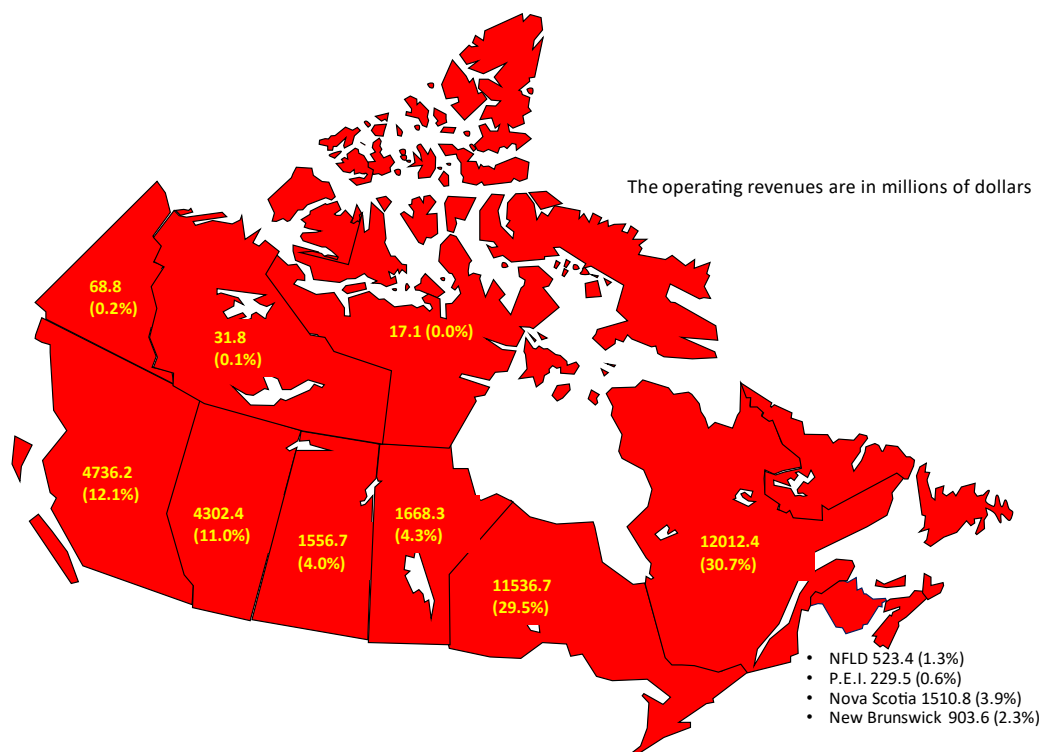
Provincial distribution

Figure 4 shows the provincial breakdown of the nursing and residential care facilities industry by operating revenue in 2022. Although the majority of establishments in this industry are concentrated in Ontario, a higher proportion of the operating revenue comes from Quebec. This is partly due to Quebec having a higher proportion of residents aged 65 and older.¹⁴¹⁵ Apart from demographic differences, several other factors impact the size of the NRCF industry at the provincial level. These include the number and type of available facilities, which can vary significantly; provincial healthcare policies and funding levels, which influence the availability and quality of care facilities; cultural preferences; and other economic factors. Notably, Ontario is the only province where the private sector is more predominant than the public sector.

In general, the provincial distribution of operating revenues closely aligns with the population count. Consequently, after Quebec, the provinces with the highest operating revenues are Ontario, British Columbia, and Alberta.

Figure 4

Operating revenue distribution by province or territory, 2022



Source: Statistics Canada, Statistics Canada. [Table 13-10-0101-01 Public nursing and residential care facilities, summary statistics \(x 1,000,000\)](#); Statistics Canada. [Table 13-10-0102-01 Private nursing and residential care facilities, summary statistics](#).

¹⁴ Source: Statistics Canada. [Table 17-10-0005-01 Population estimates on July 1, by age and gender](#).

¹⁵ In Canada, the Atlantic provinces and Quebec have a higher proportion of people aged over 65.

2.3 Specific characteristics of the industry

The establishments in the NRCF industry are primarily engaged in providing residential care combined with either nursing, supervisory or other types of care as required by the residents. In this subsector, the facilities are a significant part of the production process and the care provided is a mix of health and social services, with the health component being largely nursing services. The industry includes nursing care facilities, residential developmental handicap, mental health and substance abuse facilities, community care facilities for the elderly, and other residential care facilities like transition homes for women.

Resident demographics

Facilities provide care for a large number of residents, many of whom are elderly. Canada is facing an aging population, with the proportion of seniors (those aged 65 and older) expected to rise from 18.9% to 23.3% over the next decade. As the population ages, the demand on health and long-term care systems will increase.

Public versus private sector

As mentioned earlier, a key characteristic of the Canadian NRCF industry is that services are provided by both the public and private sectors. Public facilities are non-profit organizations. The portion of the market that is profit-oriented varies between provinces and can fluctuate from year to year. Overall in Canada, 55.2% of the operating revenue in 2022 came from public sector facilities.

Degree of concentration within the industry

Despite a continuous increase in the number of establishments in the NRCF population over the past decade, Canada has experienced industry consolidation due to various mergers, acquisitions, and divestitures. In 2022, the top 10 private sector firms accounted for 28.5% of total private operating revenue. It will be interesting to see if this percentage continues to rise in the coming years.

Employment

The industry employs a significant number of staff. As of July 2024, nursing and residential care facilities employed approximately 530,000 people.¹⁶ However, the industry faces challenges with staff shortages and high turnover, necessitating the development of effective solutions to address these issues.

Geographic/provincial distribution

As mentioned above, although the majority of establishments in this industry are concentrated in Ontario, a higher proportion of the operating revenue comes from Quebec. This is likely due to Quebec's older population and the higher proportion of residents aged 65 and older. In 2020, the total number of beds in nursing care facilities and community care facilities for the elderly increased by 2.5%, reaching 455,480. Quebec accounted for 34.7% of these beds, while Ontario accounted for 30.9%.

In general, the distribution of operating revenue or sales closely aligns with the population count. Consequently, after Quebec, the provinces with the highest operating revenue/sales are Ontario, British Columbia, and Alberta.

¹⁶ Statistics Canada, Table 14-10-0201-01 Employment by industry, monthly, unadjusted for seasonality

3. Turnover or output measurement

3.1 General framework

These statistics are used by businesses, governments, investors, associations and the public to monitor industry growth, measure performance and make comparisons with other data sources. Data may be used to develop national and regional economic policies and programs. The Canadian System of Macroeconomic Accounts (CSMA) uses the data in the Canadian Government Finance Statistics program and in the annual Supply and Use Tables program to measure the industry's contribution to GDP in the Canadian economy

3.2 Measurement methods

Statistics Canada produces estimates of key variables for the nursing and residential care facilities industry using administrative data and sometimes survey data.

Every year, official estimates for the NRCF industry's key financial variables are released at the national and provincial levels.¹⁷ These estimates are obtained from administrative data sources and are released twelve to fifteen months after the end of a given reference year.

More specifically, data are extracted from administrative files supplied by Canada Revenue Agency and aggregated to the estimated domains. For the public facilities, additional administrative data are also obtained directly from provincial governments or from publicly available sources such as provincial public accounts, budgets, main estimates and general ledgers.¹⁸ Where data gaps exist in these sources, alternative methods, including manual financial statement collection may be used. Various provincial departments may be contacted directly to assist in the verification of the frame of facilities. Reporting of detailed data may vary across jurisdictions. Where detailed data are unavailable, data may be imputed using donor information from jurisdictions of similar size and characteristics. Data from previous years are revised based on updated information.

The target population consists of all public and private sector establishments in Statistics Canada's Business Register¹⁹ classified to the code 623 - Nursing and residential care facilities according to the North American Industry Classification System (NAICS) 2022 during the reference year. Therefore, no sampling is done. For reference year 2023, there were 23,940 active establishments in the NRCF industry on Statistics Canada Business Register.

Occasionally, Statistics Canada conducts a survey of the NRCF industry to gather information on various characteristics that are not usually published. This includes detailed revenues and expenses, personnel and hours worked, types of services offered on-site, the number of beds, and the number of residents

¹⁷ Key financial variables include operating revenue; operating expenses; profit margin; surplus (deficit); and salaries, wages, commissions and benefits.

¹⁸ Databases from the Canadian Institute for Health Information, including the Canadian MIS Database and National Health Expenditure Trends Database are transferred to Statistics Canada, and are used for data confrontation and validation.

¹⁹ The Business Register (BR) is Statistics Canada's continuously-maintained central repository of baseline information on businesses and institutions operating in Canada. As a statistical register, it provides listings of units and related attributes required for survey sampling frames, data integration, stratification and business demographic statistics.

categorized by age and gender.²⁰ During the pandemic, additional questions were included in the survey to address infection prevention and control measures, changes made to the facility, the number of confirmed COVID-19 cases, and the proportion of residents and employees fully vaccinated against COVID-19.

Surveys are conducted at the establishment level, primarily through electronic questionnaires. In 2022, the last time Statistics Canada conducted surveys for the industry, the sample size was approximately 8,000 establishments, with a response rate of 60.8%. The low response rate can be attributed to respondents still dealing with the challenges of the COVID-19 pandemic.

Before sample selection, units on the Business Register are stratified into homogenous, categorical groups by North American Industry Classification System code, province, size and same ownership structure. After this step, samples of a predetermined size are allocated into the strata based on these categories. In line with other Integrated Business Statistics Program (IBSP) surveys, samples of establishments above established size thresholds are drawn by methodologists. Businesses below the established size thresholds are ineligible for sampling. Estimates for this industry are based on a combination of data collected directly from survey respondents, administrative files and tax data.

As part of the IBSP, Statistics Canada uses tax data from the Canada Revenue Agency to reduce respondent burden, decrease overall survey costs and improve data quality. Administrative data are used as part of a data replacement strategy for a large number of financial variables for most small and medium enterprises and for a selected group of large enterprises. Administrative data are also used as an auxiliary source of data for editing and imputation when respondent data are not available. Data are imported, validated and then transformed into the necessary formats, structures and levels required for IBSP processing.

Prior to the release, Statistics Canada must ensure that the confidentiality of respondents is protected. Therefore, it may suppress the publication of key financial variables in provinces and territories where the industry is highly concentrated, as this could potentially reveal the characteristics of specific businesses. Data may be revised based on updated information.

3.3 Measurement issues

Allocation

On the industry level, several challenges arise when measuring the key financial variables, the first being the allocation of operating revenues, operating expenses, salaries, wages, commissions and benefits of a business that operates in more than one province. Many data files were received from organizations, associations, etc., which reported their financial data as an aggregate of all their locations, regardless of provincial boundaries. As a result, preliminary provincial data can be greatly overestimated or underestimated. Tax returns are filed by legal entities based on their registered business number, which can also cover more than one jurisdiction. As an example, a business that operates in both Ontario and Alberta may report the financial variables for both provinces as an aggregate, after which the data are broken down based on the company structure in the Business Register. However, a company's structure in the Business Register may not always be up to date. Therefore, the provincial business breakdown may

²⁰ This survey data can be used to standardize national, provincial, and regional statistics on nursing and residential care facilities in Canada. This will allow governments and researchers to examine the correlation between facility operations and personnel, health outcomes of residents, and system-level performance during pandemics or other emergencies.

be inaccurately reflected and applied. In effect, one province may be allocated a disproportionately high percentage of operating revenue, and this misallocation would consequently lead to an overestimation of one province's values and an underestimation of another's. Similarly, overestimation sometimes occurs when the business in the sample is part of a larger entity whose primary activity differs from that of the former. For example, a respondent may mistakenly report all its business activities within a company as a whole, instead of just nursing and residential care facilities activities, and this can drastically inflate their data. To mitigate and resolve these issues of misallocation, subject-matter officers and analysts conduct research on the company in question, contact respondents for clarification, and reference historical data and trends of the company. As well, respondents operating in more than one province may opt to report their key financial variables using multiple questionnaires or use a different questionnaire for each provincial location. This way, provincial data can be separated. Afterwards, the necessary changes are implemented and documented in the respective data tools (e.g., Business Register, Review and Adjustment Facility).

Integration of administrative data

The second challenge arises from the integration of multiple sources of administrative data to derive coherent statistics. Primarily on the public side, the program must contend with inconsistent data file formats, complicating standardization. Ensuring the accuracy of data from various sources (provinces, territories, organizations) is also problematic, particularly since the data were not necessarily collected for statistical purposes. Furthermore, the files received are sometimes incomplete, necessitating substantial imputation to avoid gaps in the integrated dataset. Where data gaps may exist in these sources, alternative methods, including manual financial statement collection may be used. Various provincial departments may be contacted directly to assist in the verification of the frame of facilities. Reporting detailed data may vary across jurisdictions. Where detailed data are unavailable, data may be imputed using donor information from jurisdictions of similar size and characteristics. In addition, data from previous years are revised based on updated information.

Business register

Lastly, although units on the Business Register in this industry are stratified into homogenous, categorical groups by NAICS code, province and size, a lag exists between the time at which a business's structure changes and when it is updated in the Business Register. This is because the structure of companies can change over time and for a variety of different reasons (e.g., change in province of operation, main business activity). Not only are these changes difficult to follow, as they require businesses' due diligence to report them, but it also takes time to verify the information and update the system. As a result, some businesses could have been misclassified, and thus, incorrectly included in the industry. In effect, delays in the Business Register structure affect the accuracy of provincial allocation and industry estimates. New operations in different provinces can be added or newly classified at any time on the Business Register, but these changes may not be reflected until the following processing year. However, once the Business Register is correctly updated, the impact of change could be wide-ranging, especially when corrections involve historical data. Statistics Canada revises the estimates on a yearly basis as a way to minimize the possible impact of these issues. In the case of the NRCF industry, revisions can be significant, especially for facilities in the public sector.

3.4 Evaluation of comparability of price data with output data

In general, output and price measures for the nursing and residential care facilities industry are comparable. The Canadian System of Macroeconomic Accounts (CSMA) works closely with the Retail and

Service Industries Division and the Public Sector Statistics Division to ensure consistency and representability.

The following is a summary of methodology to derive volume of output for industry 623 in the Supply and Use Tables (SUT). There are two parts, a nonbusiness portion and a business portion.

Nonbusiness component of NAICS 623 – GS623000

Government sector industry *GS623000 – Nursing and residential care facilities* produce both market produced and nonmarket produced service commodities. The market produced services are deflated using price indices. This method is possible as the market produced services have observable prices that can be tracked over time. The main output of the industry, NGS623000 Residential care facility services provided by governments, is a nonmarket produced service. As there is generally no observable price, no price index can be estimated. In order to estimate the volume of these nonmarket services, an indirect approach must be used.

To estimate the output volume of nonmarket service commodities indirectly, it is necessary to deflate all other market produced output commodities, input commodities. Input commodities include intermediate use of goods and services as well as primary inputs, which consist of labour, taxes and gross operating surplus. **Table 5** outlines the deflation methods for these commodities in the annual SUT.

Table 5: Deflation methods for input and output commodities of GS623000

Variable	Deflator Type	Deflation Method
Market-produced output of goods and services	Output price indices	Directly deflate nominal commodity estimates with output price indices.
Intermediate use of market-produced goods and services	Supply price indices	Directly deflate nominal intermediate input commodity estimates with supply price indices.
Taxes on production	Nominal ratios	Apply base year ratios to estimate volumes of tax expenditure
Wages, salaries and employers' social contributions (COE)	Volume projection	Use volume growth of hours worked to project volume of employment expenses
Gross operating surplus (GOS)	Implicit price index	Directly deflate nominal surplus with an implicit price index of the cost of consumption of fixed capital
Nonmarket-produced services	Indirect volume estimation	Rearrange the IO identity to solve for volume as a residual. Requires volume estimates for all other input and output commodities.

Once all the input and market produced output commodities have been deflated, the Input-Output (IO) identity can be used to estimate the volume of the nonmarket commodities as a residual. The IO identity states that:

$$\text{volume of gross output} = \text{volume of total inputs}$$

Where:

$$\text{volume of gross output} = \text{volume of nonmarket-produced services} + \text{volume of market-produced output of goods and services}$$

$$\text{volume of total inputs} = \text{volume of Intermediate use of market-produced goods and services} + \text{volume of Gross value added}$$

$$\text{volume of gross value added} = \text{volume of COE} + \text{volume of GOS (only CFC for government industries)} + \text{volume of taxes on production}$$

Substituting these equations into the IO identity, we have:

$$\text{volume of nonmarket-produced services} = \text{volume of total inputs} - \text{volume of market-produced output of goods and services}$$

Business component of NAICS 623 - BS623000

For business sector industry *BS623000 – Nursing and residential care facilities*, the main output is *MPS623000 Nursing and residential care services*. To estimate the volume of the service, a deflator is calculated based on a purchaser price adjusted for tax margin.

The purchaser price is an implicit price index calculated using the current and constant price Household final consumption expenditure (HFCE) on Other social services. The data come from quarterly GDP program from National Economic Accounts Division (NEAD).

NEAD projects the current price estimates using population growth. Deflator is derived from SEPH average weekly earnings for the nursing and residential care facilities industries. Supplementary information such as reports from CIHI (Canadian institution of health information) and financial reports of big retirement homes are also used when available.

4. Evaluation of measurement

Statistics Canada estimates the value of output in current prices of the nursing and residential care facilities industry primarily using estimates of operating revenues in the supply and use tables. The establishment-level operating statistics are supplemented with other sources to measure own-account capital formation to derive the total industry output and value added. The annual statistical programs in the Retail and Service Industries Division (responsible for producing estimates for private sector facilities) and the Public Service Statistics Division (responsible for producing estimates for public sector facilities) enable the measurement of industry structure and evolution over time in the annual supply and use tables. These tables, in turn, serve as benchmarks for more frequent industry gross domestic product (GDP) measures, such as the monthly GDP and provincial GDP programs.

Due to the nature of this industry, where leading companies are often part of larger, complex, multi-province, and multi-activity business structures, the challenges described in the previous section frequently arise and require significant time to address. Maintaining an accurate Business Register and survey frame, while minimizing coverage errors such as omissions, erroneous inclusions, duplications, and misclassifications, is both time-consuming and costly. Consequently, compromises are inevitable, and a decision must be made regarding when to cease the frame-cleaning process.

The Nursing and Residential Care Facilities program is a census, meaning no sampling is done; all units in the population from the Business Register are selected. Since the top ten firms account for nearly 30% of total operating revenue, a consideration could be to collect the information from these large firms via a survey. However, the high fixed costs associated with data collection present a significant obstacle.

Currently, without a revision to NAICS 2022, the program lacks data to reflect the growing importance of intermediation service activities in the nursing and residential care facilities industry. If a new industry is eventually added to NAICS, similarly to the addition in ISIC Rev.5 (Q8791 Intermediation service activities for residential care activities), new methods will need to be developed to produce estimates for this new industry. Further research is required, and it remains uncertain whether NAICS will adopt the same approach as ISIC.

5. Conclusion

This paper discusses the framework for producing statistics in the nursing and residential care facilities industry, as well as the challenges and the process involved in using these statistics to estimate industry output. Additionally, it describes the efforts and strategies adopted by Statistics Canada to ensure that the published data are accurate, timely, and relevant.

The Nursing and Residential Care Facilities Annual Program exclusively relies on administrative data sources to produce official estimates for key financial variables. Continued efforts are necessary to review and update methods to publish more timely data without compromising quality and accuracy. Occasionally, Statistics Canada conducts surveys to collect more elaborate information on various characteristics.

The main challenges of the program are maintaining an up to date 'clean' Business Register/survey frame while minimizing coverage errors, such as omissions, erroneous inclusions, duplications, and misclassifications of units in the survey frame. Additionally, integrating multiple sources of administrative data to derive coherent statistics is challenging and time-consuming.

Appendix A

Nursing Care Facilities – NAICS 623110

This Canadian industry comprises establishments primarily engaged in providing in-patient nursing and rehabilitative services, and continuous personal care services. Individuals requiring nursing care usually require an extended stay in the care facility.

Illustrative example(s)

- convalescent homes with health care
- intermediate care facilities
- personal care homes with health care
- convalescent homes with continuous nursing care
- infirmary, providing personal nursing care
- in-patient palliative or hospice care
- nursing homes
- extended care facilities
- convalescent homes for psychiatric patients, with health care
- related care institutes (related to hospitals)

Exclusion(s)

- services of psychiatric convalescent homes (See 62322 Residential facilities for persons with a mental health or substance use condition)

Residential facilities for persons with a developmental disability – NAICS 623210

This Canadian industry comprises establishments primarily engaged in providing residential care services for persons diagnosed with developmental disabilities.

Illustrative example(s)

- homes for persons with developmental disabilities
- provision of care in a group home or institutional setting
- hospitals for persons with developmental disabilities
- provision of some health care, although the focus is protective supervision, room, board and counselling

Exclusion(s)

- in-patient treatment of mental health and substance abuse illnesses with an emphasis on medical treatment and monitoring (See 622210 Psychiatric and substance use hospitals)
- in-patient treatment of mental health and substance use illnesses with an emphasis on counselling rather than medical treatment (See 62322 Residential facilities for persons with a mental health or substance use condition)
- treatment of mental health and substance use illnesses on an exclusively out-patient basis (See 621420 Out-patient mental health and substance use centres)

Residential facilities for persons with a mental health or substance use condition – NAICS 623221

This Canadian industry comprises establishments primarily engaged in providing residential care and treatment for patients with substance use conditions. These establishments provide room, board, supervision, counselling and other social services. These establishments generally provide a wide range of social services in addition to counselling.

Illustrative example(s)

- *alcoholism and drug rehabilitation centres, residential*
- *provision of medical services incidental to counselling, mental rehabilitation and support services for patients with substance use illnesses*
- *residential substance use facilities*

Inclusion(s)

- provision of medical services incidental to counselling, mental rehabilitation and support services for patients with substance use illnesses

Homes for persons with a psychiatric disability – NAICS 623222

This Canadian industry comprises establishments primarily engaged in providing residential care and treatment for persons with a mental health condition. These establishments provide room, board, supervision, counselling and other social services. These establishments generally provide a wide range of social services in addition to counselling.

Illustrative example(s)

- homes for persons with a psychiatric disability
- homes for persons with mental health related disabilities
- provision of medical services incidental to counselling, mental rehabilitation and support services for patients with a mental health condition

Inclusion(s)

- provision of medical services incidental to counselling, mental rehabilitation and support services for patients with a mental health condition

Community care facilities for the elderly – NAICS 623310

This Canadian industry comprises establishments primarily engaged in providing residential and personal care services for the elderly and persons who are unable to fully care for themselves or who do not desire to live independently. In some instances these establishments provide skilled nursing care for residents in separate on-site facilities.

Illustrative example(s)

- assisted living facilities with on-site nursing care
- old folks home
- provision of room, board, supervision and assistance in daily living services such as housekeeping
- retirement home with services, independent living, operators of
- nursing homes for the aged
- old soldiers' homes
- rest homes, with health care incidental
- veteran's homes

Inclusion(s)

- provision of room, board, supervision and assistance in daily living services such as housekeeping

Exclusion(s)

- in-patient nursing and rehabilitative services (See 623110 Nursing care facilities)
- retirement home, independent living, operators of (See 531111 Lessors of residential buildings and dwellings (except social housing projects))

Transition homes for victims and survivors of abuse and domestic violence – NAICS 623991

This Canadian industry comprises establishments primarily engaged in providing extended residential care to people who have been victims of violence. These establishments provide room, board, protective supervision, counselling services and other social services.

Illustrative example(s)

- homes for battered women
- transition homes for victims and survivors of abuse or domestic violence
- transition homes for victims and survivors of intimate partner violence
- second stage housing for victims of abuse
- transition homes for victims and survivors of family violence
- transition homes for women

Exclusion(s)

- in providing emergency shelter of a short duration and without other services (See 624220 Community housing services)

Homes for children with mental health conditions or disability– NAICS 623992

This Canadian industry comprises establishments primarily engaged in providing residential care to children with a mental health condition or disability. These establishments provide room, board and parental-type supervision, as well as additional specialized supervision and services required by these children.

Illustrative example(s)

- homes for children with a mental health condition or disability

Exclusion(s)

- i room and board services with supervision of a parental nature only (See 623999 All other residential care facilities)

Homes for persons with physical disability– NAICS 623993

This Canadian industry comprises establishments primarily engaged in providing residential care and the appropriate supervision and services to ambulatory residents with physical disabilities, such as visual impairments.

Illustrative example(s)

- homes for the hearing impaired
- homes for the visually impaired

All other residential care facilities– NAICS 623999

This Canadian industry comprises establishments, not classified to any other Canadian industry, primarily engaged in providing residential care.

Illustrative example(s)

- boys' towns
- children's villages
- group foster homes
- halfway group homes for persons with social or personal problems
- homes for children in need of protection
- juvenile correctional homes
- self-help group homes for persons with social or personal problems
- children's boarding homes
- foster homes
- halfway homes for delinquents and offenders
- home for terminally ill patient, with no treatment provided
- homes for single mothers
- orphanages