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March 10th, 2011

To: Editors of Open Medicine

Re: Manuscript entitled "Complaints in For-Profit, Non-Profit and Public Nursing Homes in Two Canadian Provinces"

This article describes the results of a study that compares rates of complaints in nursing homes by facility ownership status in Ontario and one large health region in British Columbia. There are relatively few Canadian studies looking at facility ownership and quality, and no published Canadian research on complaints. Furthermore, health policy in many but not all jurisdictions appears to be moving in a direction of increasing contracting of residential care by health ministries to for-profit facilities.

Ethical approval for this study was obtained from the University of British Columbia Behavioural Research Ethics Board. All authors have actively contributed to the original work and approved the final version of this manuscript. The manuscript is 3,585 words long excluding the abstract (313 words) and tables (7 tables).

Sincerely,

Margaret J. McGregor, MD, MHSc

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Complaints in For-Profit, Non-Profit and Public Nursing Homes in Two Canadian Provinces

Abstract

Background

Nursing homes provide long-term housing, support and nursing care to frail elders no longer able to function independently. In Canada most nursing homes are *funded* publicly while services are *delivered* through a mix of private (for-profit), non-profit (religious or community non-profit society), and public (government) facilities. While U.S. studies have demonstrated an association between for-profit ownership and inferior quality, there are relatively few Canadian studies comparing performance by ownership. Complaints are one proxy measure of performance in the nursing home setting. Our study goal was to ask, 'What types of complaints get lodged in nursing homes, what is their distribution by facility ownership, size and other regulatory measures, and what is the association of facility ownership with complaints?'

Methods

Data on complaints, other regulatory measures, facility ownership and size were extracted from publicly available sources in Ontario and one large health region in British Columbia (Fraser Health). All analyses were carried out at the facility level. Negative binomial regression analysis was used to assess the association of facility ownership with complaints.

Results

There were 0.45 (1.10) and 0.78 (1.63) mean (SD) verified/substantiated complaints per 100 beds per year in Ontario and Fraser Health respectively. Most complaints related to facility care. Complaints were more frequent in facilities with more citations (Ontario) and inspection violations (Fraser Health). Compared to Ontario's for-profit chain facilities, adjusted incident rate ratios and 95% confidence intervals of verified complaints were 0.56 (0.27 - 1.16), 0.58 (0.34 - 1.00), 0.43 (0.21 - 0.88), and 0.50 (0.30 - 0.84) for for-profit single site, non-profit, charitable and public facilities respectively. In Fraser Health, the adjusted incident rate ratio of substantiated complaints in non-profit facilities was 0.18 (0.07 – 0.45) compared to for-profit facilities.

Interpretation

The higher rate of complaints seen in for-profit chain facilities in Ontario and in for-profit facilities in British Columbia's Fraser Health Region is consistent with research from the U.S.

Introduction

Nursing homes (referred to as 'residential care facilities' in British Columbia and 'long-term care facilities' in Ontario) are licensed and regulated institutions that provide long-term housing, 24 hour support and nursing care to mainly frail elders no longer able to function independently. Many nursing home residents have dementia and a majority are women on low incomes (1). Moreover, nursing home residents have increasingly greater disability and higher care needs over time (2). The nursing home population is therefore highly vulnerable and has relatively little voice. Decision-makers (3;4), the public (5), and academics (6;7) have all expressed concerns about care quality in nursing homes. Indeed, the provincial Ombudsmen in Ontario and British Columbia have both recently released extensive reports on this sector based on such concerns (8;9).

Previous work describes two options for consumers of healthcare to exercise some control over perceived poor care (10). The first is 'exit'– in this case the ability to move to another facility. Although residents do transfer out of facilities and prior research has found a positive association between various indicators of poor nursing home quality and transfer rates, the ability to 'exit' is limited for these individuals (11). Many are cognitively impaired, have no family members to advocate on their behalf, insufficient resources to make a move, and/or no alternate facility. There is also some evidence that moving frail elders results in an accelerated decline in health and function. Moreover, facility length of stay is decreasing over time and individuals are now entering residential care closer to their end of life (2;12). With short expected stays, and the concern about 'transfer trauma' (13), families and residents may be reluctant to consider further moves despite an experience of poor care quality. The actual transfer rate was found to be as low as 3.3% in one U.S. study of four states (11).

A resident's second option is 'voice' – the ability to lodge a complaint with the expectation that a perceived shortcoming will be remedied (14). 'Voice' is also challenging for nursing home residents who may fear retaliation from facility staff providing them with day to day care. In addition, the process of how to lodge a complaint may not be well known or may be too complicated. On the other hand, the option to lodge a formal complaint with regulators is available in most jurisdictions and can be made at any time. Therefore, some researchers have argued that complaints potentially represent an additional indicator of quality (15).

Stevenson and colleagues examined national data on complaints in the U.S. and found that the frequency of complaints varied in a manner consistent with some but not all other quality measures. The authors demonstrated that a higher frequency of complaints in one yearly quarter predicted a greater likelihood of survey deficiencies on subsequent inspections (14) .This study also found a higher rate of complaints in for-profit versus non-profit facilities (14).

In Canada and many other Western countries, most nursing homes are *funded* publicly while services are *delivered* through a mix of private (for-profit), non-profit (owned by a religious or community non-profit society), and public (owned by government or by a government-established body) facilities. Research on nursing home quality in Canada is in its infancy. There are relatively few Canadian studies looking at facility ownership and quality (16-21) and no published Canadian research on complaints. Furthermore, health policy in many but not all jurisdictions appears to be moving in a direction of increasing contracting of residential care by health ministries to for-profit facilities. (22)

This study examines publicly-available data in one Canadian province (Ontario) and one large health region (Fraser Health) in British Columbia (BC). Our study goals were: to describe

the frequency distribution and types of complaints; to describe the number of complaints per 100 beds per year by facility ownership, size and other regulatory measures; and to analyze the association of facility ownership characteristics with complaints in each jurisdiction.

Methods

Complaints are described on the Ontario Ministry of Long-Term Care website as, "The expression of dissatisfaction relating to the operation of a long-term care (LTC) home (3)." Complaints can be made at any time by a resident, family or member of the general public (23). Each concern reported in the complaint is followed up by a Ministry of Long-Term Care inspector to determine whether it is "verified".

Verified complaints in Ontario may result in an unmet standard/criterion or citation issued by the inspector against the facility operator. An unmet standard is a finding that a facility has not met one of the standards during the course of any Ministry inspection. A citation against the facility is a more serious finding that a long-term care home operator is in violation of the legislation or regulations that govern that home.

In BC, regulation of nursing homes is devolved to five geographically-based health regions. Each region has a Community Licensing Office where complaints can be directed in writing or by phone. The licensing officer then follows up on the complaint to decide whether it is substantiated and determine the seriousness of the complaint. While the process of determining whether a complaint is founded appears to be similar between jurisdictions, for the purpose of clarity we have retained the specific terminology used by each jurisdiction, 'verified' complaints in Ontario and 'substantiated' complaints in Fraser Health.

Two other regulatory measures used in the BC system are "risk ratings" and inspection violations. A "risk rating" is a score assigned to each facility based on a formal set of criteria. Risk ratings provide a method for inspectors to determine the intensity of monitoring of a given facility. Risk ratings take into consideration a wide range of factors related to complaints; staffing, management and staff supervision, facility physical environment, policies and inspection results (24). Inspection violations are violations of the Community Care and Assisted Living Act Residential Care Regulations (25).

Study population and data sources

Our study population included all licensed facilities providing care to the elderly in Ontario in 2007/08 and in one large health region (Fraser Health) in BC from 2004 to 2008.

Data were extracted from a number of sources. Ontario data on verified complaints, 'standards not met', citations, facility ownership and size were taken from a publicly-available website posted by the Ontario Ministry of Health and Long-Term Care (3). These data were only available for one year (July 1, 2007 to June 30, 2008). Data on chain affiliation were provided by one of the study co-authors (Stocks-Rankin) who collected this information as part of a policy report on ownership in Ontario's long-term care facilities (her master's thesis) (26).

Unlike Ontario, complaints data in BC are not routinely released by the Health Authorities. However these data were available on a website posted by one of Vancouver's daily newspapers (The Vancouver Sun) (27) that obtained access to the information data through a Freedom of Information request to the Fraser Health Authority. The newspaper then constructed a website (27) to make these data publicly available. The complaints data from this source

represent a four year time period from April 1, 2004 to March 31, 2008. The BC data on facility ownership and size were obtained using the same methods described in previous research (28). The study was reviewed and approved by the UBC Research Ethics Board.

Data measures

The complaint categories established by each regulatory body were used to classify complaint types. While these are not exactly the same across jurisdictions, both classifications give the reader an idea of the general themes that gave rise to complaints.

Our main outcome measure was complaints per 100 beds per year calculated by dividing the number of complaints for a given year in a given facility by the total number of beds in that facility. We assumed that occupancy in both jurisdictions was full so that complaints per 100 beds represented a reasonable surrogate measure of complaints per 100 residents. This assumption was based on lengthy wait times, in both Ontario (29) and Fraser Health, for residents to be admitted to residential care over those time periods.
In Fraser Health, for the descriptive portion of the analysis only, we assumed the rate of complaints was spread evenly across the four-year time period and divided the total complaints per 100 beds by four.

In Ontario, we were only able to examine verified complaints as data on the total number of lodged complaints were not available. In Fraser Health, both substantiated and total complaints were available. The latter includes substantiated and unsubstantiated complaints, complaints for which there was insufficient data, complaints outside the licensing mandate, and complaints for which data was not available. We decided to examine this measure (total complaints) since the literature describes considerable challenges to the substantiation of complaints in this population (14;15;30).

Our main explanatory variable of interest was facility ownership. Ownership in Ontario was classified into five groups; for-profit chain affiliation (defined as a for-profit facility with more than one site), for-profit single site, non-profit, charitable (defined as a non-profit facility with charitable status), and public (defined as a facility owned and operated by a municipality). The Ontario non-profit facility classifications were those posted on the publicly available website. Ownership in Fraser Health was classified into two groups (for-profit and non-profit) due to the small number of publicly-owned facilities (n=2) and the absence of data for chain affiliation.

We also examined the frequency of complaints in relation to facility size, measured by bed numbers and the other regulatory measures, for each jurisdiction posted along with the complaints data for the same time period. In Ontario these were standards not met and citations. In Fraser Health, these were inspection violations and facility risk ratings. All regulatory measures were dichotomized into observations falling at or below the mean or median versus all other observations. The median value was used as the cutoff where the standard deviation was greater than the mean and the mean value was used otherwise. Risk ratings, only available for one year in Fraser Health, were also dichotomized into high and medium versus low risk. We further examined the distribution of complaints by year for Fraser Health.

Data analysis

Firstly, we described the frequency distribution of complaints over the study periods. We then described the types and frequency of complaint categories. Next, we explored differences in the distribution of complaints per 100 beds per year by facility size, ownership, and other regulatory measures. One would expect there to be some correlation of complaints with other regulatory measures, given the former is a trigger for more frequent inspections. However, since regulatory measures encompass a broader range of factors beyond complaints, we wanted to describe the distribution of complaints in relation to these measures.

All analyses were done at the facility level. We used negative binomial regression analysis to examine the effect of facility ownership on complaints due to the high proportion of facilities with no complaints (over-dispersion of complaints data). Ownership, facility size and year were entered concurrently for all models. The latter covariates were dropped in the final model if they did not appear to influence the results (confounding effect). Standard errors were adjusted for the Fraser Health models to account for repeated measures of the same facilities over the four year time period. SAS version 9.2 was used to run the analyses.

Results

There were a total of 604 facilities in Ontario and 299 verified complaints in 2007/08. Twenty-five percent of the facilities accounted for all complaints (Table 1). The most frequent complaint category was resident care (n=156, 52.2%), followed by facility organization and/or administration (n=44, 14.7%) (Table 2a). Just over one in ten complaints related to the facility environment (n=34, 11.4%) and less than one in ten (n=22, 7.4%) were complaints about the food (Table 2a). A small number related to abuse (n=6, 2.0%). There were 0.45 (1.10) mean (SD) verified complaints per 100 beds per year in Ontario (data not shown).

In Ontario, mean (SD) verified complaints per 100 beds per year were higher in facilities found to have more than the median of two 'unmet standards' compared to those with two or fewer 'unmet standards', 0.89 (1.51) versus 0.14 (0.42) (Table 3a). Mean (SD) verified complaints per 100 beds per year were also higher in facilities with any citations compared to facilities with no citations, 1.20 (1.60) versus 0.38 (1.00).

Over one-half of all Ontario facilities were for-profit (n=336) and of these, the majority (n=286) were part of a chain (Table 3a). Mean (SD) complaints per 100 beds per year were 0.60 (1.34), 0.34 (0.88), 0.40 (1.03), 0.22 (0.49) and 0.26 (0.53) in Ontario's for-profit chain, for-profit single site, non-profit, non-profit charitable and public facilities respectively. Compared to for-profit chain facilities, the adjusted incident rate ratios and 95% confidence intervals of complaints were 0.56 (0.27 - 1.16), 0.58 (0.34 - 1.00), 0.43 (0.21 - 0.88), and 0.50 (0.30 - 0.84) for for-profit single site, non-profit, charitable and public facilities respectively (Table 4a).

There were a total of 62 facilities in Fraser Health and 330 total complaints between April 1, 2004 and March 31, 2008 (Table 1). Approximately fifty percent of the facilities (N=29) accounted for all the substantiated complaints. Mean (SD) substantiated and total complaints per 100 beds per year in Fraser Health were 0.78 (1.63) and 1.81 (2.47) respectively making a substantiation rate over that time period of 43% (data not shown). Like Ontario, most complaints in Fraser Health related to resident care (Table 2b). Mean substantiated and total complaints in Fraser Health showed some variation across years, with a trend of increasing complaints per 100 beds over the four year time period (data not shown).

Fifty-seven percent of facilities in Fraser Health (n=35) were for-profit. Mean (SD) substantiated complaints per 100 beds per year were 1.17 (2.00) and 0.28 (0.72) in Fraser

Health's for-profit facilities and non-profit facilities respectively. Mean (SD) substantiated complaints per 100 beds per year were lower in facilities with a lower rate of inspection violations, 0.23 (0.52) versus 1.33 (2.12). Complaints per 100 beds per year were also lower in facilities with a low risk rating compared to facilities with a moderate or high risk rating (Table 3b). In Fraser Health, adjusted incident rate ratios of total complaints and substantiated complaints in non-profit facilities were 0.18 (0.07 – 0.45) and 0.34 (0.21 – 0.57) respectively compared to for-profit facilities (Table 4b).

Discussion

This study found that compared to for-profit chain facilities in Ontario, non-profit, charitable and public facilities had a one-and-a-half to two times lower chance of receiving a verified complaint (Table 3a). In another jurisdiction (Fraser Health, BC), non-profit facilities had a three to four times lower chance of receiving a complaint compared to for-profit facilities for total and substantiated complaints respectively (Table 3b). These findings are consistent with the U.S. literature where Stevenson and colleagues, in a five-year examination of complaints in all U.S. states, found that for-profit facilities had an almost two-fold greater chance of receiving a complaint compared to non-profit facilities, and chains had a significantly higher rate of complaints compared to non chain facilities (14). Harrington and colleagues also found that for-profit investor ownership predicted 0.679 additional deficiencies (a U.S. regulatory measure similar to 'standards not met'), and chain ownership an additional 0.633 deficiencies per facility (31) compared to non-profit facilities.

One interesting finding in Ontario is that non-profit single site facilities demonstrate higher complaint rates compared to public and charitable facilities. This diversity of performance between public and non-profit groups has been previously described in Canadian research on ownership and quality in nursing home populations. One study found BC hospitalization rates for care sensitive conditions in publicly owned, or hospital-based facilities were significantly lower compared to both for-profit and non-profit single site facilities (19). One possible explanation for this may be the increased funding associated with both public and charitable ownership allowing higher staffing levels and improved care quality. Municipal homes are generally associated with better funding than other facilities, and while charitable homes receive the same funding as other independently owned care facilities, this group also receives charitable donations and more volunteers.

Compared to Canada, the rate of verified/substantiated complaints overall appears to be higher in the U.S., where the national average number of substantiated complaints was 4.3 per 100 residents (14). This compares to 0.45 and 0.78 in Ontario and Fraser Health respectively. This may be because U.S. consumers truly experience a lower quality of care compared to Canada, however, such differences across jurisdictions are more likely to reflect differences in regulatory systems rather than differences in quality per se (14). Moreover, even within the U.S. the annual number of complaints per 100 beds ranged from a low of 0.6 per 100 beds in South Dakota to a high of 16.5 in Washington (14). Such variation underscores that, while complaints have the potential to be a useful additional measure of care quality, variation in complaints is best examined for facilities within the same regulatory jurisdiction (14).

An interesting difference in our findings compared to U.S. studies on nursing home complaints is in the frequency of complaints of abuse against residents. Whereas this was the second most common complaint in U.S. nursing homes (14;30), complaints of abuse were

relatively rare in both Canadian jurisdictions studied. However again, given the lack of a common complaints classification system across jurisdictions, it is difficult to know how to interpret this difference.

Fewer than half of all complaints lodged in Fraser Health were substantiated (43%). This is only slightly higher than the 38% substantiation rates in the U.S. (14) and underscores the challenge to regulators to corroborate complaints in this population. Reported events are often unwitnessed and cognitively impaired residents may have difficulty recalling the details of a given experience. Despite the low substantiation rate, in view of the power differential that families and residents face when lodging a complaint, there is no reason to believe that the majority of complaints made are unfounded.

The finding that complaints frequency appears higher in facilities with higher rates of citations and inspection violations is not surprising given that complaints trigger further investigations thereby increasing the likelihood of regulatory findings and/or sanctions. This finding is also consistent with the U.S. literature (14;30). However, it is also possible that facilities with poorer performance on other regulatory measures are also more likely to receive complaints.

This study has a number of limitations. The first is that we were restricted to facility level data and unable to adjust for resident case mix. While complaints should at least theoretically be independent of case mix, it is possible that such lack of adjustment may result in unintended confounding of results. For example, a disproportionate number of residents with dementia in non-profit and public facilities who may be less likely to lodge complaints may produce a spurious association between for-profit facilities and a higher complaints rate. Although one study of Massachusetts' nursing homes found no effect of case mix on complaints, it would nonetheless be important for future research to try and adjust for this (30). Other unmeasured variables that may contribute to unintended bias include the degree to which families are involved in visiting residents and the presence of family councils (14).

A second limitation is the cross sectional nature of the study. For Ontario we were restricted to one year of data only and for BC complaints data we only had data available from one health region. Thirdly, we were unable to link complaints data to other quality measures. U.S. research has demonstrated an association of higher complaint rates with lower care aide staffing levels and pressure sores (14), and it would be important to assess the degree to which complaints correlate with these and other care process and outcome quality measures in the Canadian context. Fourthly, the study did not distinguish between user pay and for-profit facilities whose main income source is from publicly-funded beds. While the former group comprised a relatively small proportion of all long-term care beds, there may well be important distinctions between the care quality in such facilities. Finally, by measuring complaints per bed as a surrogate for complaints per residents we were assuming full occupancy at all times. While we believed this to be a reasonable assumption based on long waits for admission to nursing homes in both jurisdictions (29) it is possible that this assumption may not be equally true across facilities of all ownership categories and may have spuriously biased results.

Complaints, like pressure ulcers and restraints use, are indicators of poor quality. The absence of complaints in a given facility by no means implies that this facility provides good quality care (32). However, complaints, unlike other indicators measured through inspection reports or administrative data, are consumer driven, can occur at any time, and represent an independent additional measure to the clinical process and outcome measures more traditionally

thought to reflect quality. There is a growing trend among governments to make complaints data publicly available, both to inform consumers and improve accountability.

Our finding that public and non-profit facilities have a lower frequency of complaints is consistent with the growing body of Canadian and U.S. literature demonstrating poorer performance on care process and outcome measures (31;33;34) associated with for-profit delivery of residential long-term care. The form of ownership that best supports higher care quality is a relevant policy question given the upcoming challenge to all jurisdictions to expand specialized seniors housing and on-site care to meet the needs of the aging population. The difference in consumer complaints by ownership adds further empirical evidence from the Canadian context to inform this discussion.

Author Contributions

Margaret J McGregor conceived the project, wrote the first draft of the manuscript, oversaw the data collection and analysis, and participated in all phases of the writing of the manuscript. Marcy Cohen conceived the project, and contributed to the writing and editing of the manuscript. Catherine Stocks-Rankin contributed to the data collection and the writing and editing of the manuscript. Michelle B Cox and Kia Salomons contributed to the data analysis, and the writing and editing of the manuscript. Kim M McGrail, Charmaine Spencer, and Lisa A Ronald contributed to data interpretation, and the writing and editing of the manuscript. Dr Michael Schulzer supervised the data analysis and assisted with the manuscript editing. All authors approved the final version of the manuscript. Michelle B. Cox performed the statistical analysis under the supervision of Dr. Michael Schulzer. Dr McGregor is acting as the guarantor of the article.

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Table 1: Frequency distribution of complaints in Ontario facilities (N=604), 2007/08 and Fraser Health facilities (N=62), 2004-2008

Number of complaints	Ontario facilities with verified complaints 2007/08* n (%)	Fraser Health facilities with substantiated complaints 2004-2008*† n (%)	Fraser Health facilities with total complaints 2004-2008‡ n (%)
0	450 (74.5)	33 (53.2)	13 (21.0)
1	72 (11.9)	8 (12.9)	7 (11.3)
2	46 (7.6)	8 (12.9)	10 (16.1)
3	19 (3.2)	2 (3.2)	5 (8.1)
4	11 (1.8)	3 (4.8)	4 (6.5)
5	3 (0.5)	0	7 (11.3)
6 – 10	3 (0.5)	4 (6.5)	7 (11.3)
>10	0	4 (6.5)	9 (14.5)
Total	**299**	**128**	**330**

* 'verified' and 'substantiated' are the terms used by Ontario and Fraser Health respectively
† 'substantiated' complaints include complaints with all allegations substantiated and complaints with some allegations substantiated
‡ 'total' complaints comprised of substantiated complaints, unsubstantiated complaints, complaints for which there is insufficient information to substantiate, complaints outside licensing mandate, and complaints with data not available

Table 2a: Number and type of verified complaints in Ontario (N=604), 2007/08

Complaint types	Verified complaints n (%)
Resident care	156 (52.2)
Facility organization/administration	44 (14.7)
Environment	34 (11.4)
Resident rights	25 (8.4)
Dietary	22 (7.4)
Medical care	6 (2.0)
Alleged staff to resident abuse	3 (1.0)
Alleged resident to resident abuse	2 (0.7)
Other alleged abuse	1 (0.3)
Financial	1 (0.3)
Others	5 (1.7)
Total	**299**

Table 2b: Number and type of substantiated and total complaints in Fraser Health (N=62), 2004-2008

Complaint types	**Substantiated complaints* n (%)**	**Total complaints† n (%)**
Care – Inadequacy/deficiency in care	21 (16.4)	48 (14.6)
Unsuitable/insufficient staff	19 (14.8)	43 (13.0)
Poor environmental sanitation	14 (10.9)	28 (8.5)
Medication concerns	12 (9.4)	24 (7.3)
Physical abuse	8 (6.3)	22 (6.7)
Injury	7 (5.5)	17 (5.2)
Emotional/verbal abuse	7 (5.5)	15 (4.6)
Neglect	4 (3.1)	14 (4.2)
Staffing – Inappropriate staff conduct	5 (3.9)	13 (3.9)
Staffing – Unqualified staff	2 (1.6)	10 (3.0)
Poor/inadequate food quality/assistance	4 (3.1)	9 (2.7)
Financial abuse	0	5 (1.5)
Care Plans – Inadequate or not in place	1 (0.8)	3 (0.9)
Improper discipline or behaviour management	0	1 (0.3)
Over license capacity	0	1 (0.3)
Other	24 (18.8)	69 (20.9)
Data not available	0	8 (2.4)
Total	**128**	**330**

* 'substantiated' complaints include complaints with all allegations substantiated and complaints with some allegations substantiated

† 'total' complaints comprised of substantiated complaints, unsubstantiated complaints, complaints for which there is insufficient information to substantiate, complaints outside licensing mandate, and complaints with data not available

Table 3a: Verified complaints by facility characteristics in Ontario (N=604), 2007/08

Facility characteristics	n (%)	Mean verified complaints per 100 beds per year (SD)
Size		
Smaller than or equal to mean*	340 (56.3)	0.50 (1.30)
Larger than mean*	264 (43.7)	0.38 (0.71)
Ownership		
For-profit chain	286 (47.4)	0.60 (1.34)
For-profit single site	50 (8.3)	0.34 (0.88)
Non-profit	94 (15.6)	0.40 (1.03)
Charitable	54 (8.9)	0.22 (0.49)
Public (Municipal)	103 (17.1)	0.26 (0.53)
Missing	17	
Citations per 100 beds per year		
No citations	554 (91.7)	0.38 (1.00)
One or more citations	50 (8.3)	1.20 (1.60)
Failing to meet standards per 100 beds per year		
Two or less failures to meet standards	353 (58.4)	0.14 (0.42)
More than two failures to meet standards	251 (41.6)	0.89 (1.51)

* Mean facility size =124.5 beds

Table 3b: Substantiated and total complaints by facility characteristics in Fraser Health (N=62), 2004-2008

Facility characteristics	n (%)	Mean substantiated complaints per 100 beds per year (SD)*	Mean total complaints per 100 beds per year (SD)†
Size			
Smaller than or equal to mean‡	36 (58.1)	1.03 (1.99)	1.98 (2.75)
Larger than mean‡	26 (41.9)	0.44 (0.85)	1.56 (2.05)
Ownership			
For-profit	35 (56.5)	1.17 (2.00)	2.57 (3.00)
Non-profit	27 (43.5)	0.28 (0.72)	0.82 (0.85)
Inspection violations per 100 beds per year			
Lower than or equal to median§	31 (50.0)	0.23 (0.52)	1.07 (1.73)
Higher than median§	31 (50.0)	1.33 (2.12)	2.54 (2.88)
Risk rating (2007/08 only)‖			
Low	24 (38.7)	0.34 (0.86)	1.23 (1.59)
Moderate or high	31 (50.0)	1.25 (2.07)	2.34 (2.82)
Missing	7		

***** 'substantiated' complaints include complaints with all allegations substantiated and complaints with some allegations substantiated

† 'total' complaints comprised of substantiated complaints, unsubstantiated complaints, complaints for which there is insufficient information to substantiate, complaints outside licensing mandate, and complaints with data not available

‡ Mean size = 89.4 beds

§ Median number of inspection violations = 3.5 per 100 beds per year

‖ Risk rating data only available for 2007/08

Table 4a: Incident rate ratio (95% confidence interval) of verified complaints in Ontario's long term care facilities (N=604), 2007/08

	Verified complaints*
For-profit single site†	0.56 (0.27 - 1.16)
Non-profit†	0.58 (0.34 – 1.00)
Charitable†	0.43 (0.21 - 0.88)‡
Public (Municipal)†	0.50 (0.30 – 0.84)§

* Adjusted for facility size
† Compared to for-profit chain facilities
‡ $p<0.05$
§ $p<0.01$

Table 4b: Incident rate ratios (95% confidence intervals) of substantiated and total complaints in Fraser Health's long term care facilities (N=62), 2004-2008

	Substantiated complaints*†
Non-profit‡	0.18 (0.07 – 0.45)§
	Total complaints‖†¶
Non-profit‡	0.34 (0.21 – 0.57)§

* 'substantiated' complaints include complaints with all allegations substantiated and complaints with some allegations substantiated
† Adjusted for year
‡ Compared to for-profit facilities
§ $p<0.001$
‖ 'total' complaints comprised of substantiated complaints, unsubstantiated complaints, complaints for which there is insufficient information to substantiate, complaints outside licensing mandate, and complaints with data not available
¶ Adjusted for facility size