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Original Study

Hospitalization and Mortality Rates in Long-Term Care Facilities: Does For-Profit Status Matter?

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A B S T R A C T

Objectives: To establish if proprietary status (ie, for-profit or not-for-profit) is associated with mortality and hospitalizations among publicly funded long-term care (nursing) homes.

Methods: We conducted a retrospective cohort study of new admissions in 640 publicly funded long-term care facilities in Ontario, Canada (384 for-profit, 256 not-for-profit). A population-based cohort of 53,739 incident admissions into long-term care facilities between January 1, 2010, and March 1, 2012, was observed. We measured adjusted rates of hospital admissions and mortality, per 1000 person-years (PY) of follow-up, among for-profit and not-for-profit facilities at 3, 6, and 12 months postadmission. Rates were measured postadmission and until discharge or death, whichever came first.

Results: One year after admission and before discharge, 11.7% of residents died and 25.7% had at least one hospitalization. After 12 months of follow-up, residents in for-profit facilities had a hospitalization rate of 462 per 1000 PY versus 358 per 1000 PY in not-for-profit facilities. During this period, the crude mortality rate in for-profit facilities was 208 per 1000 PY versus 185 per 1000 PY in not-for-profit facilities. At 3, 6, and 1 year after admission, for-profit facilities had an adjusted hazard ratio of 1.36 (95% confidence interval [CI] 1.28–1.43), 1.33 (95% CI 1.27–1.39), and 1.25 (95% CI 1.21–1.30) for hospitalizations and hazards of 1.20 (95% CI 1.11–1.29), 1.16 (95% CI 1.09–1.24), and 1.10 (95% CI 1.05–1.16) for mortality, respectively.

Conclusions: Publicly funded for-profit facilities have significantly higher rates of both mortality and hospital admissions.

Long-term care (LTC) facilities, also commonly known as nursing homes, deliver care to individuals unable to live in the community due to illness and/or disability. In addition to housing, LTC facilities provide personal and medical support, including 24-hour nursing care. The need for LTC facilities increases with age, and is expected to increase in aging populations.[1,2] Discussions on quality of care in LTC facilities are widespread,[3–6] and monitoring of performance indicators is becoming increasingly common.[7–12]

Internationally, there is significant heterogeneity in how LTC facilities are owned and operated; for example, more than half of facilities in Canada, the United States, and the United Kingdom are managed by for-profit institutions,[13–15] and not-for-profit facilities can be managed by private (eg, religious or lay) or public (eg, municipal, provincial, or federal) corporations. Homes across jurisdictions have varying mixes of public/private funding, depending on factors such as legislation and level of government involvement in

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We have gone through and met the STROBE checklist for observational studies in our manuscript. More details of this process can be requested from the corresponding author.

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care delivery. The effect of LTC facilities' proprietary status on quality of care has been studied, and one review in 2009 suggested that not-for-profit nursing homes provide superior care.[15] There were, however, considerable inconsistencies across the studies and among outcomes. Only 40 of 82 studies reviewed showed statistically significant findings in favor of not-for-profit facilities for all outcomes, a few showed findings in favor of for-profit facilities, and many showed non–statistically significant findings.[15] Several reasons have been proposed for the inconsistencies across studies, including underlying differences in the characteristics of residents that for-profit and not-for-profit homes attract and accept, differences in public and private funding levels both within and across profit status, and inadequate risk-adjustment.[5] In addition, most studies rely on publicly reported quality indicators (eg, prevalence of pressure ulcers or use of physical restraints) that are often tied to remuneration, introducing potential reporting biases.[16,17] It has also been suggested that some quality-of-care indicators may reflect clinical outcomes that are too insignificant to affect important health care events, such as hospitalizations.[18,19]

We examined mortality and hospitalizations in a large, population-based cohort of newly admitted residents in Ontario, Canada. We did so in an environment in which funding mechanisms and resident-placement schemes are structured uniformly across all facilities. First, all facilities receive standardized base public funding, with co-payments (within this funding) paid by the resident based on financial means. Funding is set relative to the needs of residents, measured using internationally validated interRAI Long-Term Care Facilities Assessment System tools.[20] Unlike other jurisdictions, such as the United States, England, and other European countries, all Ontario homes are legislated against charging patients additional funds for core services. This largely addresses concerns of differential funding/payer levels and mixes observed in other jurisdictions.[15] Despite the uniformity of public funding, for-profit facilities in Ontario are able to draw funds deemed as profit for the financial benefit of owners and/or shareholders. Not-for-profit facilities can also make profit, but such funds must be reserved and used solely for the purposes of facility matters.

Second, the resident-to-facility matching process in Ontario has features that remove biases in patient and facility preferences. Ontario's referral system is organized centrally; potential residents choose a number of facilities (currently 5), and are placed on the wait list of those facilities. Where applicants fall on each of the facilities' respective wait lists depends primarily on the relative needs of other applicants on the list. When a facility has an open bed, the first person on the list is offered the bed. Profit status is typically not a consideration when patients choose their list of facilities. Where patients fall on each list, and how quickly a list moves is out of the control the applicant. Significant disincentive is placed on applicants to avoid rejecting a matched home; these clients would automatically be put on the bottom of the wait list, and can be financially penalized if waiting from an acute care bed. Conversely, a recent report shows that facilities in Ontario rarely reject a matched resident.[21] This is in contrast to most other jurisdictions, such as in the United States and England, where homes have greater control on who to admit and how many (if any) government-funded residents they accept. Finally, our study considers and adjusts for a large set of both individual- and facility-level covariates, largely not done in previous studies.[15] We aimed to conclusively determine whether proprietary status (for-profit or not-for-profit) is associated with rates of hospitalizations and mortality in the LTC population.

Methods

We carried out a population-based retrospective cohort study to examine the differences between rates of hospitalization and mortality in for-profit and not-for-profit LTC homes. We captured all incident admissions to LTC facilities between January 1, 2010, and March 31, 2012, in Ontario, Canada. To accomplish this, we applied several exclusions, including removing an admission if it was observed that the resident was transferred from another facility or had a previous admission in a LTC facility (Appendix Figure 1). Using encrypted health card numbers as unique but encoded identifiers, records of health care use were linked across various administrative databases. No written consent was obtained; all data were encrypted using health card numbers as unique identifiers. Thus all records used were de-identified and anonymized. All data were housed and analyzed at the Institute for Clinical Evaluative Sciences (ICES), a prescribed entity for the purposes of section 45 Ontario's Personal Health Information Privacy Act. Ethics approval was obtained from ICES at the Sunnybrook Health Sciences Centre Research Ethics Board in Toronto, Ontario, and from the Ottawa Hospital Research Institute Ethics Board in Ottawa, Ontario (Protocol 20130579-01H).

Data Sources and Definitions

Incident admissions to LTC facilities were identified using the Canadian Continuing Care Reporting System (CCRS). The CCRS collects information on all residents and facilities using the validated Resident Assessment Instrument Minimum Data Set (RAI-MDS).[20,22] Assessments are done at entry, quarterly, and on any significant health status changes. We used the CCRS to capture information on patient demographics, clinical status, and functional status.[22] We categorized facilities by for-profit and not-for-profit (religious, lay, or government) ownership, and by facility size. All homes fall under the same provincial LTC legislation; for-profit facilities typically distribute a portion of net revenues to investors, whereas not-for-profits do not. Information from the CCRS is used to support system planning and clinical practice, and directly affects the level of funding provided by the government, based on level of need for services for each resident.

Data on hospitalizations and mortality were obtained using linkage of individuals in the CCRS to the Discharge Abstract Database (DAD) and the Registered Persons Database (RPDB), respectively. The RPDB also was used to obtain patient age, sex, and postal code. Following well-established methods, both neighborhood income of client's last residence and rurality were captured by linking to Statistics Canada census data using postal codes.[23]

Outcomes

Outcomes were calculated at 3, 6, and 12 months after admission using rates per 1000 person-years (PY) of follow-up in LTC. Patients were followed from admission to any discharge, death, or for 365 days, whichever came first. We examined time to first hospitalization and time to death for each individual, during the follow-up period, while residents were in their incident LTC facility. Hospitalizations that occur before discharge from the LTC facility are captured by observing a record in the DAD with an admission date that overlapped the length of stay in the LTC facility.

Some hospitalizations and all deaths led to discharge from a LTC facility. The date of such events are captured in the DAD admission date or RPDB death date, which should be the same as the CCRS discharge date (end of follow-up period for each resident); to account for administrative discrepancies in these dates, hospitalizations (in DAD) and deaths (in RPDB) captured 3 days post-CCRS discharge date were included if it was noted in the CCRS that these discharges occurred to hospital or death, respectively.