



Reducing emergency presentations from long-term care: A before-and-after study of a multidisciplinary team intervention

M.J. Connolly^{a,b,*}, J.B. Broad^a, T. Bish^b, X. Zhang^a, D. Bramley^b, N Kerse^d, K Bloomfield^{a,b}, M. Boyd^{a,b,c}

^a Department of Geriatric Medicine, University of Auckland, New Zealand

^b Waitemata District Health Board, Auckland, New Zealand

^c School of Nursing, University of Auckland, New Zealand

^d School of Population Health, University of Auckland, New Zealand

ARTICLE INFO

Keywords:

Aged
Long-term care
Hospitalizations
Chronic conditions
Nursing homes

ABSTRACT

Introduction: The complexity of care required by many older people living in long-term care (LTC) facilities poses challenges that can lead to potentially avoidable referrals to a hospital emergency department (ED). The Aged Residential Care Intervention Project (ARCHIP) ran an implementation study to evaluate a multidisciplinary team (MDT) intervention supporting LTC facility staff to decrease potentially avoidable ED presentations by residents.

Methods: ARCHIP (conducted in 21 facilities [1,296 beds] with previously noted high ED referral rates) comprised clinical coaching for LTC facility staff by a gerontology nurse specialist (GNS) and an MDT (facility senior nurse, resident's general practitioner, GNS, geriatrician, pharmacist) review of selected high-risk residents' care-plans. A before-after repeated measures analysis was conducted for 9 months before and 9 months after intervention commencement (a 29-month period because of staggered facility enrolment). Modelling was adjusted for time trend, seasonality, facility size, and cluster effect.

Results: ED admission rate ratio post- versus pre-intervention was 0.75 (95% C.I. 0.63, 0.89, p-value = 0.0008), a 25% reduction in ED presentations post-intervention. A sensitivity model used a shorter, staggered time period centred on intervention start (9 months pre-intervention and 9 months post-intervention) for each facility, and a four-level categorical intervention variable testing intervention effect over time. The sensitivity test showed a 24% reduction in ED presentations in months 1–3 post-intervention (p-value = 0.07), a 34% reduction in months 4–6 (p-value = 0.01), and a 32% reduction in ED presentations in months 7–9 (p-value = 0.03). However, when the higher ED referral rates for 3 months immediately pre-intervention were modelled, the impact of the intervention on ED presentation rates reverted almost to previous levels.

Key Conclusions: A GNS-led MDT outreach intervention, targeted at selected conditions, decreases avoidable ED admissions of high-risk residents from selected facilities.

1. Introduction

Older people's health is an increasingly important issue. The proportion of New Zealanders over age 85 will double between 2021 and 2040. [1] Similar demographics exist OECD-wide, raising sustainability issues for healthcare models [2].

Older residents of long-term residential care (LTC) are at high risk of hospitalisation due to increased frailty and disability. In follow-up of our 2008 Auckland LTC cohort [3,4] 6% were hospitalised (mostly acute admissions) within four weeks post-survey. In common with other

jurisdictions, New Zealand has witnessed increasing age and co-morbidity and polypharmacy in its LTC residents. Our previous work has described in some detail these changes [3,4]. Thus, new ways to support LTC are needed to improve outcomes [5].

Although it is not justifiable to claim a direct association between LTC care quality and hospitalisations, useful indicators of LTC quality, which have large between-facility variation, [6] may include hospitalisations [7] many of which relate to complications or exacerbations of chronic medical conditions and some of which are potentially avoidable [8]. It is well known that older people often decondition during a

* Corresponding author at: University of Auckland, Department of Geriatrics, C/- Waitemata District Health Board, PO Box 93 503, Takapuna, Auckland, New Zealand.

E-mail address: martin.connolly@waitematadhb.govt.nz (M.J. Connolly).

<https://doi.org/10.1016/j.maturitas.2018.08.014>

Received 12 April 2018; Received in revised form 20 August 2018; Accepted 31 August 2018

0378-5122/ © 2018 Elsevier B.V. All rights reserved.

hospitalisation, and are at high risk for skin tears, pressure ulcers, falls, under-nutrition, confusion, infections and new disability [5,9]. Rates of avoidable hospitalisations vary with patient and practice factors and with method of classification [8].

The Aged Residential Care Healthcare Utilisation Study (ARCHUS: funded by the Health Research Council of New Zealand) was a cluster-randomised controlled trial of an interdisciplinary outreach intervention aiming to decrease potentially avoidable hospitalisations from LTC. We have previously reported [10] ARCHUS had no overall effect on avoidable admissions, all acute admissions or mortality, but that in a post-hoc analysis we did demonstrate reduction in hospitalisations for five important medical conditions which we termed ‘the big five’: congestive heart failure, chronic obstructive pulmonary disease, ischaemic heart disease, stroke and pneumonia [11]. The present paper reports an uncontrolled district-wide implementation of a modified initiative, the aim of which was to assess its generalisability across a wide range of LTC facilities with high rates of acute hospitalisation.

2. Methods

The study was carried out with Waitemata District Health Board (WDHB), which comprises a large geographical region to the north of Auckland, New Zealand. It is New Zealand’s most populous District Health Board with an estimated population of 600,000 and includes both urban and rural catchments. At the commencement of the study WDHB had 63 LTC facilities certified to provide care for older people. Using routinely-collected ED presentation records (hospital data), the research nurse selected and recruited 21 facilities with above-average rates of hospital presentations during the three-month period excluding the calendar month prior to intervention start. All facility residents during the study period were included. Bed-types included lower-level ‘rest home’ care (24-hour-care but not 24-hour registered nurse coverage), higher-dependency ‘private hospital’ care (24-hour registered nurse coverage) low level dementia care and high-level psychogeriatrics care.

ARCHUS study methodology has been previously described in detail [12,13]. It was a cluster-randomised controlled trial (RCT) of an intervention in 36 greater Auckland RAC facilities (18 intervention, 18 control matched by facility type & size; stratified by District Health Board [DHB]). All residents in these facilities during the study were included, contributing nationally collected data on hospital admission, death and person-time information. The ARCHUS intervention combined several approaches to care: (a) Baseline facility assessment to identify areas of need and facility care plan developed by the interdisciplinary team; (b) monitoring and benchmarking of resident indicators linked to quality of care provided (falls, nutrition, restraint use, weight loss, UTIs, residents on ≥ 9 medications); (c) three 1-hour multidisciplinary team (MDT) meetings - monthly for the first three months at each facility, including medication review by study gerontology nurse specialist (GNS), geriatrician, general practitioner (GP), pharmacist & nurse manager. Typically, six residents were considered per meeting with priority given to new admissions, the recently hospitalised, those with recent ‘incidents’ (e.g. fall) and those on ≥ 9 medications; (d) gerontology education and clinical coaching for RAC nurses & care-givers. For specific residents the intervention also included consultation with community physiotherapy, speech-language therapy, palliative care/ hospice. GNS’s time commitment was 20% across all intervention facilities. Residents in control facilities received usual DHB support, which did not include any of the elements (a–d) above. Potentially avoidable admissions (the primary endpoint) were classified from a pre-specified list of diagnoses recorded as ICD codes in routinely-collected public hospital admission records held by the Ministry of Health using the NHI (unique national health identifier for all NZ health service users). Facilities supplied NHIs and minimal other resident information monthly during the study.

The currently reported ARCHIP intervention combined several

approaches from the ARCHUS intervention following the CReDECI guidelines for reporting development and evaluation of complex interventions [14]: (a) baseline facility assessment identifying needs, and facility care plan developed by study GNS and facility senior nurse; (b) clinical coaching for LTC nurses & care-givers, with (compared to ARCHUS) increased clinical coaching time at each facility (paper in preparation); (c) three 1-hour MDT meetings, including medication review, by study geriatrician, GNS, pharmacist & facility general practitioner and senior LTC nurse(s). It was anticipated that clinical coaching would enhance ability of the LTC staff understand and implement the recommendations of the MDT. The ARCHIP intervention differed from ARCHUS in that it did not include benchmarking of resident indicators linked to care quality or an enhanced education package for LTC nurses & care-givers. However, based on the findings of the ‘big five’ analysis [11], the MDTs and clinical coaching preferentially (though not exclusively) targeted residents with a history of at least one of the ‘big five’ diagnoses recorded in their clinical notes (including hospital records). For the purposes of the intervention the 21 facilities were classified into four geographical clusters. Each cluster received the three-month intervention on a staggered basis starting in May 2014.

The study was approved by NZ’s Health and Disability Ethics Committee as a facility-level intervention (NZ/1/5C2405). Facility managers provided written, informed consent before randomisation. ARCHIP was registered with the Australian New Zealand Clinical Trials Registry (ACTRN12614000499684). Care was taken to blind investigators to facility identification where possible [13].

Endpoints were obtained from national databases of all publicly-funded hospital visits maintained by the Ministry of Health. The primary endpoint was the number of presentations (for any cause) to hospital emergency department (‘ED presentations’). Internal WDHB data indicates that approximately 85% of older people presenting to ED from LTC are admitted to hospital.

The SAS[®] 9.4 software was used for statistical analyses (SAS Institute, Cary, NC). Generalised linear mixed models were used to investigate the impact of intervention on ED presentations. In the model, the response variable was the number of ED presentations per facility per month which was assumed to have a Poisson distribution. The key predictors (covariates in the model) were intervention, month and seasonality. Facility size (number of beds) was used as an offset variable. The clustering effect was also adjusted. The main model included 21 intervention facilities only and 29-month period for each facility which was at least nine months before and nine months after intervention start. Three sensitivity models were conducted with different numbers of facilities (21 intervention facilities only or all 63 facilities) and time periods. All analyses were “intention to treat” and significance tests two-tailed.

3. Results

All 21 selected LTC facilities completed the intervention. All planned MDT meetings and all per-protocol GNS visits occurred. Forty-two MDT meetings were completed, with 247 residents discussed, and invited participants (GNS, geriatrician; clinical pharmacist & facility GP and senior LTC nurses) attended each MDT 184 (74.5%) of residents discussed had a history of one or more of the big five diagnoses prior to MDT. There were no deviations from the study protocol.

Table 1 details the characteristics of the ‘intervention’ facilities. There were 21 intervention facilities and 42 non-intervention (used in sensitivity analyses) facilities in the study (1258 and 1934 beds respectively at study start). The 21 intervention facilities were grouped into four geographical clusters. In terms of facility size, there were four small facilities (less than 30 beds), nine mid-sized facilities (30–59 beds) and eight large facilities (more than 60 beds). 12 facilities were part of chain, and nine facilities were stand-alone. Six facilities were part of retirement villages and 15 were not.

Download English Version:

<https://daneshyari.com/en/article/11030932>

Download Persian Version:

<https://daneshyari.com/article/11030932>

[Daneshyari.com](https://daneshyari.com)