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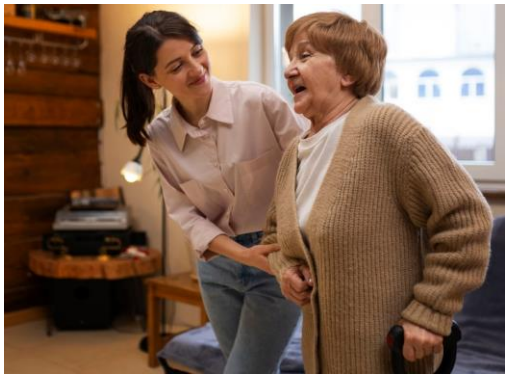
Admissions to Long-Term Care Following Acute Hospitalisations in Older Adults: Demographics and Prior Healthcare Utilisation



Faculty of Medical and Health Sciences &

Hope Foundation

SCHOLARSHIP IMPACT REPORT

January 2026

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THANK YOU AND SUMMARY

I want to thank the Hope Foundation for its generous funding and the Faculty of Medical and Health Sciences for providing this opportunity. I am grateful to Dr Katherine Bloomfield for taking me on this project. I deeply appreciated your encouraging mentorship, and our early morning interactions were always a dose of joy I looked forward to having. I would also like to acknowledge Deborah Clifford and the staff at Waitematā clinical campus for taking care of me over the summer.

This was not only an opportunity to gain confidence in clinical research but also helped me gain perspective on the lived experiences of people transitioning into long-term care. As a medical student, it is common to see patients on the wards who are medically cleared, just 'waiting' for a discharge plan. All too often, you would see the haunting image of an older adult sitting up beside their bed, alone, watching busy feet shuffle by. They may have visitors for a few hours, but for the other 20 hours of the day, they are practically alone. There are always patients who, day after day, like a broken record, ask: "When can I go home?" It's hard to imagine how it would feel to be stuck in hospital for weeks on end, missing home, only to suddenly find out that you would never see home again and instead live in some foreign institution. That would be devastating news. With the fatigue and routineness of ward rounds, we often view these patients as just another name on our list, and it can be easy to forget that the discharge process can be an emotional and overwhelming journey for individuals and their whānau. Learning about the trauma that older adults may experience when transitioning into long term care was very humanising, and it provided new insight that I will carry into my future practice.

INPUT

The project was funded by the Hope Foundation.

RESEARCH ACTIVITY

Background

With the combination of Aotearoa New Zealand's (NZ) ageing population and aging in place policies, many older people are living within our community with significant health and functional needs.[1–3] In NZ, many older adults over the age of 85 utilise long-term care (LTC) facilities,[4] and they have higher functional needs than in previous decades.[5] The terminology

around LTC varies internationally; in the NZ context, this encompasses four levels of care: rest home, private hospital, dementia unit and psychogeriatric specialist hospital.[6]

Acute hospitalisation may be due to a new medical event that has occurred and changed an individual's level of function acutely, such as a stroke or hip fracture, with an element of unpredictability, and may give rise to an unanticipated need to relocate to LTC. Alternatively, for some, transition to LTC may follow a decline in health and function with more frequent healthcare utilisation. Unanticipated transition into LTC can be a traumatic experience for older adults,[7,8] while the sudden need for carers to search for a LTC facility can exacerbate an already stressful period of crisis.[9] Additionally, it is recognised that discharge planning frequently contributes to prolonged hospital admissions.[10,11] This is not only associated with increased risk of iatrogenic complications and functional decline in older adults,[12,13] but also potentially impacts overall hospital flow and capacity, contributing to high costs.[14,15] Taken together, an unplanned transition to LTC after an acute hospitalisation is less favourable compared to a planned transition from the community.

We aimed to a) perform a descriptive analysis of the social and health demographics of older adults who previously resided in the community and transferred to LTC following an acute hospitalisation, b) describe features of their hospitalisation prior to discharge to LTC and c) describe secondary healthcare utilisation in the prior year to hospitalisation/LTC admission. To our knowledge, no such description exists in the international literature, let alone in the NZ context. This information has potential to inform future studies exploring ways to improve pathways to LTC for older people, and/or opportunities to reduce pressures on acute hospital services.

Methods

Study design and recruitment

This was an exploratory retrospective analysis of the hospital records of older adults who had previously lived at home and were discharged to residential care after an acute hospitalisation within Te Whatu Ora (TWO)-Waitematā catchment area of Auckland, New Zealand. At TWO-Waitematā, inpatients require two assessments before being cleared to transition into LTC: a 'suitability statement' is provided by a geriatrician, while the Needs Assessment and Service Coordination (NASC) service identifies the level of care that the patient requires. The suitability statement serves to identify any outstanding medical or functional issues that may be improved or reversed, which could potentially enable individuals to continue living in the community. Therefore, all inpatient referrals to Waitematā Older Adult Services (OAS) over a 3-month period (1 September 2025 – 30 November 2025) were screened. However, stroke and orthogeriatric patients can bypass OAS and receive suitability statements directly from their teams, due to presence of geriatricians within these services. These patient populations needed to be captured separately by screening all patients discharged from the stroke ward and inpatient orthopaedic service within the same 3-month period.

Individuals aged ≥65 years, or ≥55 years for Māori and Pasifika (accounting for the lower life expectancy and greater care needs of Māori and Pasifika older adults[16,17]), residing at home prior to admission and who relocated to LTC after an acute hospitalisation were included. Some individuals were discharged to interim or respite care after hospitalisation, before relocating to LTC. As they did not return home after hospitalisation, they were included. There was also a small number of patients who were cleared for LTC admission but died as inpatients before relocating, and a few who were discharged home with a high package of care while awaiting a bedspace to become available in a chosen LTC facility. These patients were included as they had definitive plans to relocate to LTC. Given the time constraints of this research project, the few patients who remained hospitalised after 7 January 2026 were excluded.

Data collection and variables

Data was sourced from electronic hospital records. Level of care and living arrangements were most reliably recorded from the needs assessment document. Many individuals were medically complex and presented to hospital with multiple problems. For consistency, only the chief presenting complaint was recorded. Primary diagnoses were also recorded; however, they have not been analysed in this report due to inconsistent documentation and because many patients received multiple diagnoses during a single admission.

There was no single record of all the patient's comorbidities. Rather, comorbidities were identified from a combination of prior inpatient discharge summaries, clinic letters and referrals. Health information from primary care, private healthcare, or most other hospitals was not accessible. The Charlson Comorbidity Index (CCI) was then calculated by chart review, as per Charlson's[18] protocol. Prior history of dementia or other cognitive impairment, delirium, falls, and depression were identified as relevant variables to investigate from the literature.[19–22] The inclusion of other variables, such as incontinence and frailty, was initially considered[19,23,24]; however, given time constraints and inconsistent documentation, these were ultimately not included. Appendix 1 details the case definitions of recorded comorbidities. The number of regular medications was collected from the medication history document. This is completed by an inpatient pharmacist at the start of a hospitalisation and captures the medications patients usually take in the community. Appendix 2 documents the regular medications that were included.

The NASC service coordinates the formal supports individuals can receive in the community, as well as transitions into LTC facilities. Previous support plans generated by NASC were used to identify any home help, personal care, respite or carer support available to patients while they were living in the community prior to hospitalisation.

The discharge planning process proved more variable and complex than anticipated, with inconsistent documentation of dates and key events that did not always follow a linear sequence. It was decided that the most meaningful time points to record were the dates of hospital admission and discharge, the date of receipt of a suitability statement, and the date

of NASC assessment. The date of the NASC assessment was defined as the date on which a needs assessor stated the definitive level of care required in the clinical notes or in a formal needs assessment document, whichever came first.

We originally aimed to record secondary healthcare utilisation patterns (interactions with the NASC service, GP referrals, hospital admissions and outpatient clinic visits) in the year prior to index hospitalisation. However, given the complexity of inpatient admission assessments, which took longer than anticipated to collect, and time constraints for this project, healthcare utilisation patterns will be completed at a later date.

RESEARCH OUTPUT[S]

Patient identification

There were 454 inpatient referrals to OAS over the study period (142 Waitakere hospital, 312 North Shore hospital). A total of 196 patients (all ages) were admitted to stroke team care and discharged during the study time period. A total of 372 patients (all ages) were under orthopaedic care during the study time period. Patients fulfilling inclusion criteria were identified from these three sources with 176 patients identified as discharged to LTC either directly from acute wards or after a period of inpatient rehabilitation.

Demographics

176 older adults were included with a mean age (standard deviation, SD) of 84.7 (8.51) (Table 1). Just over half were female and living alone prior to admission. 84% of individuals relocating to LTC after an acute hospitalisation identified as European. Notably, there were 7 Māori and 2 Pasifika patients.

It was most common for individuals to transition into private hospital level of care (n=125, 72%). This was followed by rest home, then dementia unit level of care. Only 1 patient required psychogeriatric level of care (Table 1). Two patients died prior to discharge to LTC.

Presentation to hospital

A total of 155 (88%) patients were admitted through the emergency department. The remainder were referred from other services, mostly from primary care.

Primary presenting complaints are detailed in Table 1. Almost half of the patients presented with a geriatric syndrome, with falls or decreased mobility being the most common presenting complaint (35%). Of the 25 individuals presenting with neurological symptoms, most had

symptoms of stroke or transient ischaemic attack (TIA). 11 (6.3%) admissions were classified as primarily social admissions, and lack of support was a common secondary concern on admission.

Comorbidities

This was a comorbid population with a mean CCI of 6.4 (SD 2.12). The prevalence of individual diagnoses is detailed in Table 1, with case definitions recorded in Appendix 1. Polypharmacy was common, with the mean number of medications on admission being 6.1 (SD 3.87).

Table 1: Population demographics and comorbidities

Total	n = 176	
Sex, n (%)		
Female	92	(52.3)
Male	84	(47.7)
Age, mean (SD)	84.7	(8.51)
Ethnicity, n (%)		
European	148	(84.1)
Māori	7	(4.0)
Pasifika	2	(1.1)
Chinese	8	(4.5)
Korean	4	(2.3)
Indian	4	(2.3)
Other	3	(1.7)
Level of care assessed, n (%)	n = 174[a]	
Rest home	31	(17.8)
Private hospital	125	(71.8)
Dementia unit	17	(9.8)
Psychogeriatric	1	(0.6)
Living arrangements prior to admission, n (%)		
Alone	90	(51.1)
With partner only	48	(27.3)
Other	38	(21.6)
Presenting complaint, n (%)		
Geriatric syndrome	86	(48.9)
Falls / decreased mobility[b]	*61*	*(34.7)*
New worsening cognition[c]	*13*	*(7.4)*
Mixed[d]	*12*	*(6.8)*
Infective	25	(14.2)
Cardiorespiratory	14	(8.0)
Neurological	25	(14.2)
CVA / TIA	*20*	*(11.4)*
Social admission[e]	11	(6.3)
Pain NOS	10	(5.7)
Elective surgical admission[f]	2	(1.1)
Other	3	(1.7)
Referral pathway to hospital, n (%)		
ED referral	155	(88.1)
Non-ED referral	21	(11.9)
Charlson Comorbidity Index (CCI), mean (SD)	6.4	(2.12)
Cognition[g], n (%)		
Dementia	63	(35.8)
Delirium	59	(33.5)
Cognitive impairment NOS	40	(22.7)
History of falls prior to or on admission[g], n (%)	134	(76.1)
Depression[g], n (%)	18	(10.2)
Other comorbidities[g], n (%)		
History of solid tumours, excluding BCCs	67	(38.1)
CVA / TIA	60	(34.1)
Chronic pulmonary disease	35	(19.9)
Congestive heart failure	29	(16.5)
Diabetes mellitus, on medication	27	(15.3)
Chronic kidney disease	26	(14.8)
Myocardial infarction	22	(12.5)
Peripheral vascular disease	20	(11.4)
Rheumatic disease	12	(6.8)
Liver disease	6	(3.4)
Peptic ulcer disease	5	(2.8)
Leukaemia	4	(2.3)
Lymphoma	1	(0.6)
Number of medications[h], mean (SD)	6.1	(3.87)
NASC supports available prior to admission, n (%)		
Home help	47	(26.7)
Personal cares	96	(54.5)
Respite or carer support	24	(13.6)
None	73	(41.5)

Abbreviations: *CVA* = cerebrovascular accident, *TIA* = transient ischaemic attack, *NOS* = not otherwise specified, *ED* = emergency department, *BCC* = basal cell carcinoma, *NASC* = Needs Assessment and Service Coordination.

[a]The denominator for level of care assessment was n = 174. Two patients were excluded because they died as inpatients before receiving a NASC level of care assessment, despite already having a suitability statement. [b]These included falls that were not secondary to another presenting complaint, e.g. neurological or cardiorespiratory symptoms. [c]New worsening cognition included acute delirium and chronic worsening of cognition (e.g. dementia progression). [d]Presentations of 'mixed' geriatric syndrome was defined as any combination of falls, decreased mobility, urinary incontinence, and bowel constipation or incontinence not related to recent surgery. [e]Social admissions included presentations secondary to insufficient supports available in the community, with no primary medical reason for admission. [f]Although these patients initially presented for an elective surgery, they developed new post-operative illness requiring long hospital stays and hence were treated as acute admissions. [g]Appendix 1 details the case definitions of these variables. [h]Appendix 2 defines the regular medications that were included.

36% of patients had diagnosed dementia, while 23% had some other form of cognitive impairment documented at baseline. 34% of individuals had a recorded history of delirium prior to or at the time of admission. Most individuals (76%) had a history of falls prior to or on admission. There was a 10% prevalence of documented depression (Table 1).

Supports available prior to admission

Only the supports organised by the NASC service were identified (Table 1), i.e., government-funded supports and not privately arranged or informal supports from family/friends. 47 (27%) individuals had home help, 96 (55%) had personal care supports and 24 (14%) had respite or carer supports available prior to admission. Of those who had supports, a mean of 1.1 (SD 0.62) hours of home help and 8.7 (SD 5.56) hours of personal cares per week were available. However, 42% of individuals were not known to the NASC service prior to admission.

Length of stay and discharge planning timeline

The mean length of stay was 33.7 (SD 25.54) days. There are typically two required assessments before patients are cleared for discharge to a LTC facility: a suitability statement completed by a geriatrician that LTC is appropriate and a needs assessment completed by the NASC service to determine the appropriate level of care. 14 patients had already received a suitability statement prior to admission, mostly from previous admissions, clinics or community visits. Two patients did not have a suitability statement completed during index admission (clinical reasons were unclear). Of the remaining 160 patients, the suitability statement was completed, on average, 22.1 (SD 21.31) days after admission.

The timing of needs assessments was challenging to interpret. It was more common, but not required, for needs assessments to be completed after a suitability statement was available. Two patients received a suitability statement but died before having a needs assessment, and another did not require a needs assessment as a different funding pathway was used. Of the remaining 173 individuals, the mean time from admission to needs assessment was 24.8 (SD 21.75) days.

Pre-existing suitability statements

Of the 14 individuals who had a suitability statement completed *prior to* admission, the mean length of admission was 21.6 (SD 15.30) days and mean time from admission to needs assessment was 13.7 (SD 12.05) days. On the other hand, individuals requiring a new suitability statement during hospitalisation had a mean hospitalisation length of 34.9 (SD 26.07) days. Those who received a needs assessment waited a mean of 25.9 (SD 22.21) days after admission.

RESEARCH OUTCOME[S]

General demographics of older adults transitioning to LTC after an acute hospitalisation

To our knowledge, this is the first detailed description of a population of older adults transitioning from home to LTC during an acute hospitalisation in a NZ context. The mean age was 84.7, just over half were female, and most were European, consistent with previous descriptions of older adults in NZ transitioning into LTC from any pathway.[25,26] As reported in other literature, Māori and Pasifika were under-represented in this population compared to the background population, which may reflect systemic barriers to accessing LTC and/or differing care patterns.[27,28]

Connolly et al[26] studied LTC residents in NZ and found that 40% of LTC residents resided in private hospital level of care. In our study, a substantially greater proportion (72%) of patients who had previously resided at home transitioned to a private hospital after acute hospitalisation. Private hospitals provide a higher level of care than rest homes.[6] This suggests that after a hospitalisation, individuals are more likely to have greater care needs, possibly in the context of an acute deterioration or physical deconditioning associated with long admissions.

Older adults at risk of requiring institutionalisation may be detected earlier in the community

Almost 90% of patients presented to hospital via ED rather than referral from primary care, possibly reflecting either the medical acuity of their medical presentation or alternatively issues with accessing primary care prior to hospital presentation. Further analysis of records may help answer this question.

Our results show that the population of older adults transitioning to LTC after an acute hospitalisation had a high prevalence of comorbidities, polypharmacy, history of previous falls and cognitive impairment, suggesting that this population was significantly frail at baseline. These variables have previously been described as potential predictors of admissions to LTC following acute hospitalisation.[19–22,29] Baseline frailty should be considered alongside social vulnerability, which is also associated with an increased risk of requiring placement in LTC.[19,23] Half of our participants were living alone prior to admission, and 42% did not have any supports organised by NASC in the community, although we acknowledge that informal or privately-funded supports would not have been captured in this study.

Due to the complexity of clinical notes and time constraints, we were unable to assess prior secondary healthcare utilisation, and this aspect of the study remains required. Given the medical complexity and frailty of this patient group, we hypothesise that many will have had prior interactions with secondary care. If proven to be the case, these healthcare interactions

could be future touchpoints to engage older people and whanau in optimising function and future planning.

The literature suggests that if relocation to LTC is necessary, a planned transition is more beneficial than an unplanned transition, as occurs during an acute hospitalisation. There are psychological sequelae of unplanned transitions to LTC after hospitalisation, which have been described by individuals as a major, traumatic life event.[7] McKenna and Staniforth[7] postulate that people in this stage of life are already experiencing some form of loss, and the loss of the familiarity of home further compounds this. Older adults having planned transitions tend to have better experiences adjusting to LTC as their adjustment phase precedes admission.[30] Planned transitions also afford individuals more time and opportunity to be involved in decision-making, thereby preserving some sense of autonomy.[7,8] Unplanned transitions to LTC can also be an overwhelming experience for carers who may feel unprepared to search for a facility during an already stressful crisis.[9] Additionally, our results suggest that inpatients experience long hospital stays – weeks on average – before transitioning to LTC.[31,32] Prolonged hospital admission of older adults is not only associated with increased risk of iatrogenic complications and functional decline,[12,13] but also potentially impacts overall hospital flow and capacity, contributing to high costs.[14,15] There is evidence that individuals transitioning to a private hospital from an acute hospitalisation, as were the majority of individuals in this study, have an increased risk of death than those transitioning to LTC from the community.[26]

There are numerous barriers to having earlier discussions about a potential need for LTC. Older adults may avoid discussions about LTC because they associate institutionalisation with palliation and death.[33] Some individuals in McKenna and Staniforth's[7] qualitative study cited narratives of abuse in care and perceived LTC residents as "zombies". Carers and family members may also resist considering LTC until a crisis event occurs, such as an acute hospitalisation, where they are forced to accept a sudden decision to transition to LTC.[34–36] This may be associated with a perceived duty to continue caring for individuals and feelings of guilt for abandoning the older adult.[34–36] Additionally, functional deterioration of individuals may be insidious, such that carers do not recognise a need for an increased level of support.[35] A lack of knowledge about how to access higher levels of care from the community may also delay discussion about LTC, which could be addressed by earlier discussions with individuals who are highly likely to relocate in the near future.[37]

It must be emphasised that this suggestion does not oppose the current ageing in place policies.[38] Ageing in the community should be encouraged where possible, but for a subset of older adults who are particularly frail, socially vulnerable and unable to safely continue living in the community, they may benefit from earlier identification and discussions around increasing supports, including potentially LTC.

Data collection is not yet complete. Data on previous healthcare utilisation in the year prior to admission (interactions with the NASC service, GP referrals, hospital admissions, and outpatient clinic visits) is still to be collected to identify the secondary health services older

adults have engaged with before the hospitalisation that precedes LTC admission. In the future, the demographics and prior healthcare trajectories of older adults relocating to LTC from acute hospitalisation can also be compared to those relocating from the community to elucidate factors leading to different pathways to LTC.

The lengthy discharge planning process is not solely attributed to 'inefficiencies' of the NASC service

The mean length of stay of older adults awaiting LTC placement was 33.7 days, although this was highly variable. Other studies have similarly reported long lengths of stay among hospitalised older adults awaiting placement in residential care.[31,32] This is unsurprising, as previous research has suggested that discharge planning and awaiting LTC admission contribute to a large proportion of prolonged hospital stays.[10,11] Yet, only one study attempting to elucidate the sequence of events critical to discharge planning during a hospitalisation could be identified. Whitehead et al[31] conducted a prospective cohort study of 100 referrals to the Aged Care Assessment Team (ACAT) in an Australian hospital, recording the average length of stay and the time elapsed until ACAT referral, ACAT approval, and availability of a bedspace in residential care. However, these timepoints are not applicable to the NZ context. In NZ, the discharge planning timeline is usually more complex as referrals to OAS and NASC, rather than a single service, are required before inpatients can be discharged to LTC.

Prior TWO-Waitematā analyses show most OAS referrals are actioned within 24 hours of receipt (personal communication, Dr Geetha Mylvaganam, Geriatrician, TWO-Waitematā). At TWO-Waitematā, there is an anecdotal perception that inefficiencies/staff shortages in the NASC service are responsible for the long wait times experienced by older adult inpatients. We found that the mean time from admission to completed NASC assessment was 24.8 days, 2.7 days longer than the mean time from admission to suitability statement (22.1 days), although these time periods were highly variable. We acknowledge that these timepoints are challenging to interpret as they do not always follow a linear sequence. Anecdotally, suitability statements often, but not always, preceded the completion of NASC assessments (with NASC often awaiting OAS opinion prior to initiating a detailed assessment). Even so, these measurements are likely to overrepresent the time until NASC engages with patients. We defined NASC assessment as the first mention of a definitive level of care in the clinical notes or a formal needs assessment document. However, reviewing hospital notes revealed NASC would often begin engaging with patients long before this. Informal or verbal interactions with patients or in multidisciplinary team meetings often preceded formal documentation in the clinical notes. Assessments could also span multiple days or weeks. Not uncommonly, NASC would delay assessments until the patient was more medically optimised, patient consent to relocate to LTC was provided, or a formal suitability statement was available. With this in mind, the lengthy discharge planning process may more likely reflect these restrictions than "inefficiencies" in the NASC service itself. We suspect that much of the length of stay is

determined by the time required to treat acute illness/injury, to assess whether the patient is at their functional baseline, and to determine whether LTC is the next appropriate step.

Suitability statements are often given during an earlier admission

Although not the primary aim of the study, we incidentally found that so-called 'plan A / plan B' discharge plans were common. Plan A / plan B discharges refer to patients who are discharged home after a hospital admission (plan A), but receive a suitability statement as inpatients, with the expectation that LTC placement may very likely be required in the near future (plan B), i.e. patients that would be high-risk for a 'failed-discharge' to home. Fourteen participants with previous plan A/plan B discharges had suitability statements available from a previous admission. However, while screening all referrals to OAS and discharges from the inpatient stroke and orthopaedic services, we identified a significant number of patients who were directly discharged home as plan A, with a new suitability statement "just in case" they would require a transition to LTC (not included in this analysis).

Clinical teams may view suitability statements as another impediment in the discharge planning process. Teams may justify preparing suitability statements in advance to hasten the discharge planning process, should the patient re-present to hospital and require a transition to LTC in the future. Indeed, our results suggest that patients with pre-existing suitability statements had a shorter average length of stay and a shorter time to receiving a NASC assessment than those requiring a new suitability statement. However, the purpose of a suitability statement is to advocate for patients by assessing for any outstanding medical or functional issues that could be addressed, potentially allowing individuals to continue living in the community. Despite speeding up the acute-care discharge process, it is possible some of these suitability statements may have been premature and may encourage acute-care teams to hastily initiate discharge planning to a LTC facility, without requiring a geriatrician to reassess for new reversible functional or medical issues (e.g., medication changes from the previous admission that may have contributed to increased fall risk), which is potentially concerning. Further analysis of these 'plan A/plan B' discharges is required to understand if these suitability statements are being appropriately undertaken.

Limitations

Most older adults relocating to LTC after an acute hospitalisation were captured by screening OAS referrals and discharges from the inpatient stroke and orthopaedic services. However, we acknowledge there are other, albeit minor, avenues through which patients may gain approval to transition into LTC. For example, the inpatient mental health service may approve transitions into LTC directly, although this is probably a negligible number of patients.

Functional status, measures of frailty, and incontinence were other variables identified as potentially relevant predictors of LTC admission following acute hospitalisation.[19,20,22,24] However, we decided not to measure these variables because there was no reliable or

consistent source documenting them. Furthermore, many comorbidities were likely to be under-recorded, especially previous history of falls, delirium and depression, which were rarely included in the documented past medical history. Similarly, only the supports organised by the NASC service were visible in our electronic hospital records, meaning that informal or alternatively funded supports received by patients in the community went undetected. The timeline of critical events in discharge planning was difficult to interpret because the events did not follow a strictly linear sequence. We originally intended to record the dates of referral to inpatient NASC and the start of NASC assessment, but these timepoints were not accurately documented and were hence not meaningful to include in the analysis. Suitability for LTC and NASC assessments for level of care may be communicated verbally to other team members before formal documentation, so the recorded dates may be later than the actual assessment.

It should be acknowledged that the results from this research may not be generalisable to other populations outside the Waitematā region, which has a predominantly urban and European population with the longest life expectancy.

FUTURE IMPACT

These results will be used to inform future studies, exploring potential ways to improve pathways to LTC for older people, and/or opportunities to reduce pressures on acute hospital services. This is a complex clinical space and understanding the demographics, health needs and interactions older frail people have with healthcare systems is crucial.

FOR MORE INFORMATION, PLEASE CONTACT

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Appendix 1: Case definitions of comorbidities

1. Cognition
    - The dementia group included any patient who had a diagnosis of dementia, even if a new diagnosis was made during hospital admission.
    - All other patients with some other baseline cognitive impairment (e.g. mild cognitive impairment) were recorded as "cognitive impairment not otherwise specified".
    - Only patients with a recorded history of delirium prior to or on admission were included in the delirium group.
    - Given the fluctuating nature of delirium, history of delirium and baseline dementia or cognitive impairment NOS were not mutually exclusive.
2. The falls group included patients with a previously reported/documented history of falls or who had a fall preceding presentation to hospital.
3. Depression was defined as a documented diagnosis of depression. Symptoms of depression without a formal diagnosis were not included in this group.
4. Other comorbidities were incidentally recorded when calculating the Charlson Comorbidity Index.
    - Definitions of most comorbidities align with those described in Charlson's[18] paper, except for PVD and CKD.
    - If patients had a documented diagnosis of PVD and/or CKD, they were included in these groups (even if they did not meet Charlson's[18] criteria and contribute to the CCI score).
    - No patients had AIDS or hemiplegia.

Appendix 2: Inclusion criteria for regular medications

1. In this study, “number of medications” described the number of regular medications each patient was taking prior to the index admission. This was derived from the medication history document compiled by an inpatient pharmacist at the beginning of hospital admission.
    a. New medications prescribed on admission were not included.
2. PRN (as needed) medications were excluded
3. Medications were excluded if patients decided not to take prescribed regular medications.
4. Over the counter medications were excluded.
5. Emollients, creams, ointments, gels and shampoos were excluded.
6. Nasal inhalers or sprays were excluded, as it was common for patients to use fluticasone propionate (a hayfever medication).
7. Lubricating eye drops (e.g. Poly-Tears) were excluded, but other prescribed eye drops were included.
8. Vitamins and nutritional supplements were included if they were prescribed.
9. If the patient was taking a short-term course of antibiotics or prednisone on admission, this was included. This could be a surrogate marker for recent infection/pathology.
10. Recently stopped medications were excluded.