Age and Ageing 2023; **52:** 1–5
https://doi.org/10.1093/ageing/afad135

SHORT REPORT

Funded hospital discharges to care homes: a cohort study

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Abstract

Background: Optimising timely discharge from hospitals is an international priority. In 2020, the Coronavirus disease 2019 (COVID-19) pandemic resulted in the United Kingdom Government implementing the Discharge to Assess (D2A) model across England. This funded temporary care home placement to allow further recovery and assessment of care needs outside of the hospital.
Objectives: Determine if older adults discharged from hospital to care homes after implementation of D2A differ in their characteristics or outcomes.
Design and methods: Two cohorts of older adults discharged from hospital to care homes pre- and post-implementation of the D2A model ($n = 244$), with 6 months of follow-up. Data were extracted from routinely collected healthcare records.
Results: The mean duration of the hospital admission was reduced (29 vs. 23 days ($P = 0.02$)) but discharges to care homes did not increase with implementation of D2A ($n = 161$ in both cohorts prior to exclusions). In July–December 2020 (post-implementation), 28% of people were living in a private residence 6 months post-discharge, compared with 18% in the same period in 2019 ($P = 0.09$). When those who died were excluded, this changed to 40 vs. 28% ($P = 0.19$). There was no change in 6-month mortality (26 vs. 35% ($P = 0.17$)), and no increase in readmission rate (0.48 vs. 0.63 ($P = 0.21$) readmissions-per-patient over 6 months). No differences in key characteristics were found. However, patients were placed in care homes further from admission addresses (17.3 vs. 9.8 km ($P = 0.00001$)).
Conclusions: Implementation of D2A did not result in poorer outcomes but was associated with a reduced length of hospital stay.

Keywords: Discharge to Assess, hospital discharges, older people, social care, care homes

Key Points

- Increasing pressure on hospital beds has resulted in long-term care facilities being proposed as a potential solution.
- Clinicians have concerns that this could lead to readmissions or permanent care home placement.
- With system oversight, it is feasible to avoid poorer outcomes whilst reducing the length of hospital admissions.
- Future work is required to consider the impact of such policies on social care.

Background

Older adults often have complex health and social care needs and, as many populations around the world age, pressure on hospital bed occupancy is increasing. Optimising the safety and suitability of hospital discharges is a priority and the COVID-19 pandemic added urgency to this issue.

In March 2020, England's National Health Service (NHS) implemented the Discharge to Assess (D2A) model [1]. Inpatients who could not immediately return home following completion of medical treatment were offered up to 6 weeks of funding for a care home placement, to allow assessment of long-term care needs.

Briefly, D2A [2, 3] comprises four pathways for adults aged ≥65 years:

- Pathway 0: discharge home with no new or additional support (estimated ≥ 50% of discharges).
- Pathway 1: discharge home with new or additional package of support (estimated ≥ 45%).
- Pathway 2: recovery, rehabilitation, assessment, care planning or short-term intensive support in a 24-h bed-based setting, before returning home (estimated ≤ 4%).
- Pathway 3: bed-based 24-h care predicted to be long-term: includes people discharged to a care home for the first time (estimated ≤ 1%).

Although D2A is an established model with previous implementation in some regions for specific patient groups, the national policy [1, 4] with associated funding meant that discharges to care homes were more widely and immediately available. This led to fears and concerns that 'extra' people discharged to care homes would have a poorer prognosis or reduced likelihood of ever returning home.

One early adopter of the D2A model [2] reported that the D2A approach resulted in shorter hospital stays for people aged > 75 years and fewer long-term care placements. Whilst there has been limited evaluation of D2A in other regions [5–7], this has generally not focused on those discharged to care homes. Older adults who returned directly home for further assessment and support under the model have reported their priorities as remaining independent, remaining in hospital if needed and effective communication with families [8].

This study includes all discharges to care homes of older adults admitted from private addresses.

We aimed to consider whether those older adults discharged to care homes after the implementation of the D2A model (i) differ in their key characteristics or (ii) differ in their outcomes (return to a private address, mortality, readmission rates) over 6 months.

Methods

Setting

Peterborough City Hospital is a 635 bed acute teaching hospital provided by North West Anglia NHS Foundation Trust (NWAngliaFT).

Study design

Two retrospective cohorts of hospitalised older adults, pre- and post-implementation of the D2A model, were compared with respect to characteristics and outcomes over 6 months of follow-up.

Population

The study population included hospitalised older adults who were discharged between 1 July and 31 December 2019 (Cohort A) and 1 July and 31 December 2020 (Cohort B). Inclusion criteria were: ≥65 years at time of admission, emergency or elective admission to any speciality, admitted from a private residential address but discharged to a care home and registered with a Cambridgeshire General Practice.

Patients were excluded if being discharged to receive end-of-life care or they had a positive COVID-19 PCR test within 6 months of discharge. Some cases of COVID-19 may have been missed if no PCR test was undertaken or recorded.

In all, 126 were eligible for Cohort A (pre-D2A implementation) and 118 for Cohort B (post-D2A implementation) totalling 244 patients.

Data collection

NWAngliaFT Information Services provided a list of older adults who were discharged from any specialty within the cohort time periods specified, whose admission and discharge addresses differed. From this, patients admitted from a residential address and discharged to a care home were identified and then screened using eligibility criteria to give the study cohorts.

Patient data used were extracted from digital health records (data recorded contemporaneously as part of routine clinical care) and the NHS Spine (a national electronic patient record that includes address and mortality information).

Patient characteristics at index admission: demographics, clinical frailty scale (CFS) score [9], morbidity, confirmed or suspected dementia, pre-existing care needs and functional status at discharge.

Outcomes at 6-months post-discharge: residing at private address, mortality and readmission to hospital. Other outcomes considered were length of stay of index admission and distance from admission address to care home.

Analysis

The outcomes, demographics and characteristics were described using means or proportions. Cohort A was compared with Cohort B using *t*-tests and Fisher's exact tests.

Results

Eligibility

Within the Cohort A time period there were 6,177 discharges of older adults, compared with 5,414 for Cohort B. In all, 161 were admitted from private addresses and discharged to care homes in both time periods (2.6 vs. 3.0%, $P = 0.23$).

In Cohort A, 33 were excluded because of receiving end-of-life care and 2 because of positive COVID-19 PCR tests. In Cohort B, the numbers excluded were 23 and 20, respectively. This left 126 eligible in Cohort A and 118 in Cohort B.

Demographics and key characteristics

Table 1 describes the two cohorts, which were comparable on almost all metrics, except for the number of hospital admissions in the preceding 2 years. Cohort B had fewer prior hospital admissions.

Table 1. Demographics and key characteristics

	Cohort A July–December 2019 [*n* = 126] (95% confidence interval)	Cohort B July–December 2020 [*n* = 118] (95% confidence interval)	*P*-value
Demographics			
Average age (years)	84 (83–86)	84 (82–85)	0.58
Female	77 (61%)	68 (58%)	0.60
White—British/Irish/other	123 (98%)	111 (94%)	0.20
Social context			
Lived alone pre-admission	87 (69%)	74 (63%)	0.34
Pre-admission formal/paid carers	63 (50%)	57 (48%)	0.80
Care home need predicted to be temporary	63 (50%)	51 (43%)	0.31
Frailty/morbidity			
Average number of regular medications at discharge	7.0 (6.3–7.6)	6.9 (6.2–7.7)	0.90
CFS on admission (mean)[a]	5.5 (5.2–5.8) [*n* = 92]	5.3 (5.1–5.6) [*n* = 100]	0.37
Average hospital admissions in previous 2 years[b]	2.3 (1.9–2.7)	1.7 (1.4–2.1)	0.04
Cognition/mental health			
Dementia (confirmed or suspected)	73 (58%)	75 (64%)	0.36
Inpatient liaison psychiatry referral	42 (33%)	36 (31%)	0.68
Behaviour charts used	59 (47%)	70 (59%)	0.06
Functional status at discharge			
Needing support to mobilise at discharge[c]	79 (63%)	85 (72%)	0.13
Incontinent or long-term urinary catheter	65 (52%)	57 (48%)	0.70
Needing support with personal care/hygiene	115 (92%)	112 (95%)	0.44

[a]CFS was recorded only for ≥75-year-olds and not for admissions to surgical wards, hence full study population is not included. However, for 22 other cases, the data were not recorded (15 in 2019 and 7 in 2020). [b]Average number of NWAngliaFT hospital admissions starting within 2 years prior to the admission date of the index admission. [c]Defined as requiring hoisting to transfer, or needing support from staff to mobilise in addition to the use of walking aids.

Outcomes

Outcomes are summarised in Table 2. In Cohort A, 18% of people were living in a private residence 6 months after being discharged from hospital compared with 28% in Cohort B ($P = 0.09$). When those who died within the follow-up period were excluded, these proportions changed to 28% in Cohort A compared with 40% in Cohort B ($P = 0.19$). There was no significant difference in mortality at 6 months between the two cohorts (35 vs. 26%, $P = 0.17$).

There was no increase in readmissions within 6 months following the implementation of D2A (0.63 in Cohort A vs. 0.48 readmissions per patient in Cohort B, $P = 0.21$), but the mean duration of the index hospital admission was significantly reduced (29 vs. 23 days, $P = 0.02$).

Cohort B patients were placed in care homes further from their admission address (mean distance of 17.3 vs. 9.8 km, $P = 0.0001$). The distances ranged from 0.3 to 73.2 km for Cohort A and 0.3 to 82.6 km for Cohort B.

Discussion

In this comparison of two older adult inpatient cohorts, implementation of the D2A model corresponded with a reduced length of hospital stay (LoS), similar in magnitude to that reported elsewhere [5]. Contrary to clinician fears, no changes in the absolute number or characteristics of patients discharged from hospital to care homes were observed, along with no evidence of poorer 6-month outcomes. However, D2A implementation did result in patients moving to care homes further from their home address.

Efforts were made to consider and mitigate consequences of the COVID-19 pandemic. Discharges during the first months of D2A implementation, when large numbers of hospital discharges took place nationally, were not included. Patients testing positive for COVID-19 were excluded from results. We acknowledge the pandemic could have heightened motivations to avoid care homes, because of factors such as visiting restrictions and fear of the virus, positively impacting on post-D2A primary outcomes. However, these outcomes could also have been negatively impacted by markedly reduced opportunities for social engagement, recovery and rehabilitation. There were 763 fewer discharges during the time period of Cohort B, likely because of reduced pandemic elective activity. Elective admissions rarely result in new care home placement, perhaps explaining the higher proportion of discharges to care homes during the period of Cohort B. It is notable that absolute numbers of discharges to care homes were static across study periods.

The study findings are limited by being a single-centre study using information collected as part of routine clinical care. Additionally, whilst the numbers included represent a

Table 2. Outcomes

	Cohort A July–December 2019 [*n* = 126] (95% confidence interval)	Cohort B July–December 2020 [*n* = 118] (95% confidence interval)	*P*-value
Living at private address at 6 months	23 (18%)	33 (28%)	0.09
Survivors at private address at 6 months[a]	23 (28%) [*n* = 82]	33 (40%) [*n* = 87]	0.19
Mortality at 6 months[b]	44 (35%)	31 (26%)	0.17
Mean readmissions within 6 m per patient	0.63 (0.47–0.78)	0.49 (0.35–0.63)	0.21
Mean Length of Index Admission (days)	29 (25–33)	23 (20–26)	0.02
Distance between pre-admission address and care home (km)[c]	9.8 (8.0–11.6)	17.3 (14.0–20.7)	0.0001

[a]In Cohort A, 59 survivors remained in care homes at 6 months, compared with 54 of Cohort B (1.0% of all discharges of older adults in both cases). [b]There was also no significant difference in mortality at 6 months when known COVID-19 cases were included (i.e. 35 vs. 31%, $P = 0.52$). [c]Distance by car.

meaningful population size, with characteristics typical of older people admitted to acute inpatient care, they may be insufficient to identify real differences in some outcomes. Nevertheless, it was possible to complete a carefully designed evaluation of a critical part of the patient care pathway, taking advantage of policy change that created a 'natural experiment' in the hospital discharge process. We were also able to utilise relatively detailed and contemporaneously recorded patient data from reliable sources and the proportion of discharges to care homes approximated published D2A estimates for Pathways 2 and 3 [3, 4] (acknowledging discharges to inpatient rehabilitation beds have not been counted).

Therefore, our results offer useful insights. Shorter LoS, in the absence of any increase in readmission or mortality, has the potential to mitigate and reduce adverse consequences associated with prolonged hospitalisation, including deconditioning [10] and hospital acquired infections. Reducing LoS would also represent an important efficiency improvement, if replicated at scale. Even small changes could have a large impact on the whole system [11].

We did not find evidence that older adults were more likely to get 'stuck' in care homes following the implementation of D2A. Exploration of outcomes at 6 months showed no differences in terms of the proportions returning home. It should be borne in mind that this study refers to a care pathway with clinician oversight: it should not be assumed that funded care home beds without equivalent support to rehabilitate, or skilled assessment of longer-term needs, would lead to similar findings. Care homes are often positioned as the solution for older people who no longer require medical care but who are unable to live at home in the short or long term [12]. The impact on community health services and the care home sector of increased numbers of people discharged from hospital in need of rehabilitation and ongoing assessment continues to be a cause for concern [13–15]. Being discharged to a care home bed further from home may also have negative and unexplored consequences. Evidence demonstrates that forced relocation to a care home is a difficult transition and interventions that support continuity and a sense of continuity are important [16].

This study demonstrates how routinely collected data can support meaningful and timely evaluation of changes to hospital discharge processes. At a time when older adults face evolving policy and practice in response to strained health and care systems, strengthening data infrastructure and its integration in health and social care is vital [17]. Older adults have the right to healthcare services that both meet their needs and optimise their outcomes.

Acknowledgements: This is a summary of a study supported by the National Institute of Health Research (NIHR) Applied Research Collaboration East of England (ARC EoE) programme. The views expressed are those of the authors, and not necessarily those of the NIHR, NHS or Department of Health and Social Care. C.G. is an NIHR Senior Investigator. This service evaluation was approved by the Research and Development team at North West Anglia NHS Foundation Trust. We gratefully acknowledge the cooperation and support of Mary Donaldson, former Head of Discharge Planning and Patient Flow Initiatives, North West Anglia NHS Foundation Trust.

Declaration of Conflicts of Interest: None.

Declaration of Sources of Funding: C.W. was supported by an NIHR ARC (East of England) Research Fellowship. V.L.K. was funded by an MRC/NIHR Clinical Academic Research Partnership Grant (CARP; grant code: MR/T023902/1).

Data Availability Statement: The data underlying this article cannot be made publicly available.

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Received 24 January 2023; editorial decision 27 May 2023

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