

Online supplement 1

Section A

Working protocol

Title: Determining when a hospital admission of an older person has been avoided in a sub-acute setting: a scoping systematic review & concept analysis

Objective: To identify and map information and evidence describing measurement, evaluation or quantification of hospital admission avoidance for older people relevant to a sub-acute admission avoidance service.

Question: What information do we need, and how might we record it in order to determine when a hospital admission for an older person has been avoided in subacute admission avoidance service?

Inclusion criteria

- **Type of participant**

Any patient aged 65 years or above living in the community and presenting with any acute condition or acute exacerbation of a chronic condition.

- **Concept**

Any information or evidence describing measurement, evaluation or quantification of hospital admission avoidance and the methods applied to achieve that, for older people relevant in the sub-acute setting. As such, outcomes of interest are either the components of such a process and or how they are applied. Only outcomes regarding admission avoidance relevant to outside of an acute hospital are of interest. Measurements of number of hospital admissions are not of interest.

- **Context**

Relevant to an admission avoidance service providing sub-acute care for older people. Information or evidence will be limited to that from OECD countries.

Types of sources

- **Medical databases**

We will search the main databases Medline (& in process), Embase and Cinhal. The reference list of identified papers would be screened and forward referencing through Google Scholar performed to identify other relevant papers.

- **Grey literature**

We will search relevant health organisation websites across members of the OECD community for any literature describing admission avoidance in older people within

the local system e.g. In the UK we will look at the Kings Fund and the Nuffield trust. In the USA, we will search the individual private health provider websites as well as the AHRQ website.

- **Experts in the field**

We will contact experts on admission avoidance identified both from our previous research and any literature found in the current scoping process.

Search Strategy

A search using all identified keywords and index terms will then be undertaken across all included databases.

The reference list of included full papers would be screened and forward referencing through Google Scholar performed to identify other relevant papers.

Screening of references from database searches

References will be managed in Endnote. References will be screened dual screened by two reviewers (AH, BD) first by title and abstract and then as full papers.

References will then be screened by title and abstract of the two of the researchers. Followed by screening of the full papers. Both using the following inclusion/exclusion criteria

We will dual screen the first 500 references to test our inclusion/exclusion criteria. After which we tighten our criteria in order to make decisions easier.

Data extraction

A draft charting table or form has been developed to record the key information of the source, such as author, reference, and results or findings relevant to our question. This may be further refined at the review stage and updated accordingly.

Thus key information will include:

Author(s)

Year of publication

Origin/country of origin (where the study was published or conducted)

Aims/purpose

Study population and sample size (if applicable)

Methodology/methods

Outcomes and details of these (e.g. how measures) (if applicable)

Key findings that relate to the scoping review question/s.

Risk of bias

Risk of bias will not be formed as this review is not assessing efficacy or safety but is a descriptive systematic review.

Data analysis

Concept analysis as defined by Walker and Avant Method

We will apply a method of eight distinct steps designed to simplify the process of defining a concept for its application to theory and practice. The eight steps consist of: (1) select a concept, (2) determine the aims or purposes of analysis, (3) identify all uses of the concept that you can discover, (4) determine the defining attributes, (5) identify a model case, (6) identify borderline, related, contrary, invented, and illegitimate cases, (7) identify antecedents and consequences, and (8) define empirical referents. It is through the application of these specific steps of Walker and Avant's framework that the concept of avoidable admission will be analysed within and an operational definition will be offered.

Section B

Parent search strategy run in Medline

Database: Ovid MEDLINE(R) <1946 to present>

Search Strategy:

-
- 1 "Aged, 80 and over"/ or Aged/
 - 2 older.mp.
 - 3 elderly.mp.
 - 4 *Health Services for the Aged/
 - 5 *Ambulatory Care/
 - 6 *Day Care, Medical/
 - 7 *Home Nursing/
 - 8 *Home Health Nursing/
 - 9 *Home Care Services, Hospital-Based/
 - 10 *Intermediate Care Facilities/
 - 11 virtual ward.mp.
 - 12 intermediate care.mp.
 - 13 (crisis response or crisis resolution).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
 - 14 (reablement or re-ablement).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
 - 15 hospital care at home.mp.
 - 16 (hospital at home or hospital-at-home).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
 - 17 home hospital.mp.
 - 18 medical day hospital care.mp.
 - 19 day hospital.mp.
 - 20 (out patient facility or out-patient facility).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
 - 21 domiciliary care.mp.
 - 22 intermediate services.mp.
 - 23 outreach program.mp.

- 24 hospital outreach.mp.
- 25 (nursing led units or nursing-led units).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
- 26 hospital in home.mp.
- 27 hospital in the home.mp.
- 28 medical home care.mp.
- 29 crisis intervention service.mp.
- 30 day unit.mp.
- 31 day centre.mp.
- 32 substitutive care.mp.
- 33 shared care.mp.
- 34 guided care.mp.
- 35 (home-based versus hospital-based or home based versus hospital based).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
- 36 home hospitalisation.mp.
- 37 (rapid response team or rapid response nurse).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
- 38 Quality Indicators, Health Care/ or quality indicator*.mp.
- 39 prevention quality indicator*.mp.
- 40 integrated care.mp.
- 41 Hospitalization/
- 42 Patient Admission/
- 43 Patient Readmission/
- 44 hospital admission.mp.
- 45 admission.mp.
- 46 avoidable hospital admission.mp.
- 47 avoidable admission.mp.
- 48 (avoidable hospitalisation or avoidable hospitalization).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
- 49 preventable admissions.mp.

50 Preventable hospital admission.mp.

51 (preventable hospitalisation or preventable hospitalisation).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

52 or/1-3

53 or/4-40

54 or/41-51

55 52 and 53 and 54

56 limit 55 to yr="2006 -Current"

57 (hospitalised or hospitalized).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

58 56 not 57

Section C

Grey literature

The following websites were searched in May 2016

Organisation	Website
Nuffield Trust	http://www.nuffieldtrust.org.uk/
Kings Fund	http://www.kingsfund.org.uk/
Blue Cross/Blue Shield (Illinois)	http://www.bcbsil.com/
Blue shield (California)	https://www.blueshieldca.com/
Kaiser Permanente	https://www.kaiserpermanente.org
VA scheme	https://www.va.gov/
United Health	http://www.unitedhealthgroup.com/
Harvard Pilgrim	https://www.harvardpilgrim.org/portal/page?_pageid=1391,1&_dad=portal&_schema=PORTAL
Kathlyn Ward	http://www.kathleenwardhealthclinic.ie/
AHRQ	http://www.ahrq.gov/
WHO (publications & guidelines)	http://www.who.int/en/

Experts contacted

Martin Bardsley

<https://www.health.org.uk/about-the-health-foundation/our-people/data-analytics-team/dr-martin-bardsley>

<https://www.nuffieldtrust.org.uk/person/dr-martin-bardsley>

Dan Lasserson

<https://www.birmingham.ac.uk/staff/profiles/applied-health/Lasserson-daniel.aspx>