

# Recognizing and responding to deterioration in care homes: a scoping review protocol

Sevim Y. Hodge<sup>1,2</sup> • Mohammad R. Ali<sup>3</sup> • Adam L. Gordon<sup>4</sup>

<sup>1</sup>Division of Rehabilitation, Ageing and Well Being, University of Nottingham, Nottingham, UK, <sup>2</sup>Institute of Nursing and Midwifery Care Excellence, Nottingham University Hospital NHS Trust, Nottingham, UK, <sup>3</sup>Nottingham Respiratory Research Unit, Nottingham University Hospital NHS Trust, Nottingham, UK, and <sup>4</sup>Division of Medical Sciences and Graduate Entry Medicine, University of Nottingham, Nottingham, UK

## ABSTRACT

**Objective:** To identify the available published primary research and any relevant policies, guidelines, or protocols regarding how care home staff recognize and respond to an acutely deteriorating resident.

**Introduction:** Older people living in care homes have complex health care needs. Chronic illnesses, comorbidities, frailty, cognitive impairment, and physical dependency can contribute to unpredictable changes in their health status that can lead to residents becoming unwell and acutely deteriorating. Exploring how care home staff recognize and respond to acutely deteriorating health among residents is important to understand whether opportunities exist to minimize these unpredictable changes in health.

**Inclusion criteria:** This scoping review will consider studies that feature the recognition and response to acute deterioration in care home residents. This review will consider qualitative and quantitative primary research. Non-indexed and gray literature such as policies, deterioration tools, and reports from health policy organizations will also be included.

**Methods:** The searches will be conducted using bibliographic databases, university repositories, and non-indexed and gray literature, such as reports by health care and health policy organizations. The studies will be independently selected from the inclusion criteria by two researchers based on their title and abstract. In case of disagreement, a third researcher will be consulted. An adapted version of the JBI data extraction form will be used to extrapolate data from included studies. The results will be presented in tabular form, accompanied by a narrative summary related to the objectives of the scoping review.

**Keywords:** acute illness; care home; deterioration management; identifying illness; older people

*JBI Evid Synth* 2021; 19(2):447–453.

## Introduction

The United Kingdom (UK) has an aging population. The Office of National Statistics<sup>1</sup> reports that more than 20% of the population are aged 65 and over and are classified by the World Health Organization (WHO)<sup>2</sup> as older people. As this population group ages, their health and social needs are predicted to increase due to age-related disabilities and progression of long-term conditions.<sup>3</sup> This is likely to impact health and social care provision as the demand for services will rise in accordance with individuals' needs.<sup>4</sup>

Long-term conditions, multi-morbidity, cancer, and age-related diseases contribute to older people being at greater risk of becoming unwell and acutely deteriorating.<sup>5-6</sup> Acute deterioration refers to rapid changes in an individual's physiological and/or mental status. This may occur as a result of a suspected viral or bacterial infection, sepsis, or any other acute illness that was not anticipated. Older people, particularly care home residents (individuals living in care facilities that provide 24-hour assistance with personal care, support with daily living, and/or additional nursing care), have complex health needs<sup>7</sup> and are often affected by physical frailty and reduced functional reserve. As a result, they are at greater risk of becoming unwell and acutely deteriorating. Acute deterioration is a potentially avoidable and treatable condition; however, if recognition and response is

Correspondence: Sevim Y. Hodge, sevimhodge@icloud.com

The authors declare no conflict of interest.

DOI: 10.11124/JBISIR-D-19-00413

delayed this can lead to poorer health outcomes, increased length of stay in hospital, and death.<sup>8-11</sup>

Health literature emphasizes the importance of health care staff being aware of the signs and symptoms of an acutely deteriorating patient to facilitate early recognition and management.<sup>6,12</sup> Signs and symptoms of acute deterioration may include, but are not limited to, increased respiratory rate, new arrhythmia or changes from normal heart rate, new confusion or altered mental state, mottled skin, cold peripheries, slow capillary refill, reduced urine output, reduced oxygen saturations, hypotension, pyrexia, or hypothermia.<sup>6,12,13</sup> To support health care workers in identifying and responding to deterioration, early warning assessment tools have been developed and are used across in-patient hospital settings throughout the UK.<sup>14,15</sup> Early warning assessment tools require health professionals to undertake a set of routine physiological observations and allocate a score based on set parameters. The aggregate score (combined score for each observation) determines the degree of deterioration and the level of escalation required for a patient.<sup>14</sup>

Recently, there has been a growing discourse surrounding the need to manage acute deterioration in care homes to minimize emergency department attendances and reduce hospital admissions. In response to this, there has been a new trend towards extrapolating deterioration practices/early warning assessment tools from secondary care services (hospitals) into care homes with the aim of identifying and managing acute deterioration more effectively.<sup>14,16</sup> This may not be logical or practical for use with the differing clinical profile of care home residents who may manifest signs and symptoms of deterioration differently. Additionally, differences in skills and competencies of care home staff may limit the transferability of secondary care deterioration assessment tools.<sup>17</sup>

Hospital deterioration assessment tools are being transposed into care homes with a limited understanding of how care home staff recognize and respond to the signs and symptoms of an acutely deteriorating resident. The role of hospital-derived deterioration protocols and practices being used in care homes remains uncertain.<sup>17</sup> In light of this, the use of hospital deterioration assessment tools may be limited in its applicability to care home residents who are affected by frailty and other comorbidities, and do not always manifest signs of physiological instability in the same way as younger patients.<sup>18,19</sup> However,

currently, no alternative framework/assessment tool exists to help manage acute deterioration in care home residents who have a different epidemiology compared with other population groups.

In order to support care homes with managing acute deterioration effectively out of hospital, understanding what constitutes deterioration within care homes needs to be explored. Furthermore, an understanding of what is already known about how care homes identify and respond to deterioration will provide essential cues about what implementation or evaluation research is required to better understand this under-researched area.

This scoping review will explore and collate the evidence regarding how care home staff recognize and respond to acutely deteriorating residents.

In preparing this protocol, a preliminary literature search was conducted using PROSPERO, the Cochrane Library, JBI Evidence-based Practice Database, Google Scholar, CINAHL, and MEDLINE, using the terms “deterioration” and “care homes.” The pilot searches are designed to broadly explore the types of evidence available and assess if the research question has been addressed to avoid duplicating a review. No current scoping or systematic reviews regarding the recognition and response to acute deterioration in care homes were identified; however, two systematic reviews concerning resident hospital admission data were identified from this process: Graverholt<sup>20</sup> aimed to evaluate interventions that were designed to reduce hospital admissions from care homes, while Dwyer<sup>21</sup> reported outcomes for residents who were admitted to emergency departments or acute hospital wards. Both reviews considered care home deterioration and acute illness from the perspective of the acute secondary care hospitals. The literature did not consider the broader questions surrounding resident deterioration in care homes; for example, how care home staff define, recognize, and respond to deterioration within the care home setting. No systematic reviews concerning recognition and response of acute deterioration in care home residents were identified. The proposed scoping review will fill a gap in the evidence base regarding the identification and response to deteriorating residents in care homes.

The objective of the review is to identify published primary research as well as non-indexed and gray literature including policies, guidelines, and protocols regarding how care home staff recognize and respond to an acutely deteriorating resident.

## Review questions

- i) What is known from the existing literature of how care home staff recognize and respond to an acutely deteriorating resident?
- ii) How do care home staff identify an acutely deteriorating resident?
- iii) What do care home staff do in response to finding an acutely deteriorating resident?
- iv) What mechanisms (if any) do care home staff use to help deliver care to an acutely deteriorating resident?

## Inclusion criteria

### Participants

This scoping review will consider care home staff responsible for providing direct clinical and supportive care to residents. Care home staff refers to registered nurses, allied health professionals, and any unregistered staff, such as care assistants. This does not include medical doctors or health care professionals who are employed by external agencies or have been requested to provide additional support services. The review will focus on care homes featuring residents aged  $\geq 65$  years old.

### Concept

The review will consider studies that feature how care home staff recognize and respond to acute deterioration. The review will include the use of any assessment tools, frameworks, policies/guidelines, standard operating procedures, and/or clinical judgment with the aim to capture the following:

- Recognizing the deteriorating resident: how care home staff recognize deterioration and what tools they use, for example, experiential knowledge, tools/framework/policies/protocols or guidelines.
- Responding to a deteriorating resident: What care home staff do once they recognize a deteriorating resident, for example, any action directly relating to recognizing a deteriorating resident (this includes the decision to not respond); escalation; physiological observation; assessment of needs; use of a tool, guideline, policy/protocol or framework; advanced care plan; any service improvement project, trial, or initiative that aims at managing deterioration in care homes.

### Context

For the purposes of the scoping review, care homes are facilities that provide accommodation

and long-term care to their residents; this includes help with personal care and support with activities of daily living. This also includes nursing homes that provide help with personal care as well as assistance from registered nurses.<sup>22</sup> Care home refers to any facility that provides long-term care to residents where the care home is the registered permanent address for individuals. This includes residential homes and residential aged care facilities that provide 24-hour assistance with personal care and activities of daily living, and nursing homes or facilities that provide additional nursing care to meet the nursing needs of the residents. This does not include care homes that provide respite care for individuals on a temporary basis or any home/domiciliary care.

### Types of sources

The review will consider both quantitative and qualitative studies regarding how care home staff recognize and respond to a deteriorating resident. The review will include papers that present primary research, including randomized controlled trials, non-randomized controlled trials, quasi-experimental studies, before and after studies, prospective and retrospective cohort studies, case control studies and cross-sectional studies, case series, individual case reports service evaluations, systematic reviews, phenomenology, grounded theory, ethnography, action research, and feminist research. In addition, non-indexed and gray literature such as policies/guidelines/protocols will be considered.

## Methods

The scoping review will be conducted in accordance with JBI methodology for scoping reviews.<sup>23</sup>

### Search strategy

The search strategy will aim to locate published primary studies, non-indexed and gray literature, such as policies, guidelines, and deterioration tools. Arksey and O'Malley<sup>24</sup> recommends the support of library services to develop a sensitive search strategy. Involvement of library information scientists will feature to ensure the appropriate index and key terms are captured to aid the search process. The reference lists of articles included in the review will also be screened for additional papers.

The increased emphasis on deterioration since the Royal College of Physicians launched the National Early Warning Score (NEWS)<sup>14</sup> has led to a rapid

service reconfiguration across health and social care to focus more explicitly on deterioration. Whilst this tool was first reported in 2012, the NEWS Development and Implementation Groups (NEWSDIG) commenced in 2009,<sup>15</sup> therefore, the search period will be limited to 2009 to the present day. Only studies available in English will be included.

### Information sources

The databases to be searched will include CINAHL (EBSCOhost), EMCARE (Ovid), MEDLINE (Ovid) and HMIC (Ovid). Other sources include reference lists of included studies, and recommended studies, guidelines, policies, assessment tools, and standard operating procedures from experts/key stakeholders. A full search strategy of MEDLINE (Ovid) is listed in Appendix I.

### Study selection

Following the search, all identified literature will be collated and uploaded into Mendeley V1.19.4 (Mendeley Ltd., Elsevier, Netherlands) and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant papers will be retrieved in full and their citation details imported into Mendeley. The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusions of full text papers that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final scoping review presented in a Preferred Reporting Items for Systematic Reviews and Meta Analyses for scoping reviews (PRISMA-ScR) flow chart.<sup>25</sup>

Studies considering impact/outcomes of care home residents in relation to non-care home settings; studies that do not consider acute deterioration in the context of the definition described in this protocol; and opinion pieces, conference, stories, abstracts, and editorials will be excluded from the review.

### Data extraction

Data will be extracted from papers included in the scoping review by two independent reviewers

using an adapted version of the JBI's data extraction tool (Appendix II).<sup>23</sup> The data extracted will include specific details about the population, concept, context, methodology, methods, geographical location, and key findings relevant to the review question. Any disagreements between reviewers will be discussed until consensus is reached; if this is not achieved, a third reviewer will be consulted. Authors of included papers will be contacted to request missing or additional data where required.

### Data presentation

The extracted data from included articles will be presented in a tabular and diagrammatic form to provide an overview of the date of publication, research type, research question, methodology, methods, key measures, and findings. Articles with similar methodological approaches or research questions will be grouped together into themes that will be discussed as part of a narrative analysis. A narrative summary will accompany the tabulated/diagrammatic results and will describe how the results relate to the review question and objectives.

### Acknowledgments

Alison Ashmore, senior research librarian, Faculty of Medicine & Health Sciences and Faculty of Science, University of Nottingham Libraries; Elizabeth Hendron, senior librarian, Nottingham University Hospitals NHS Trust, UK.

### Funding

This review will be completed as part of a National Institute of Health Research/Health Education England (NIHR/HEE) Silver Scholar Award for SH. No direct funding was provided for this review.

### References

1. Office for National Statistics. Changes in the older resident care home population between 2001 and 2011 [internet]. 2014 [cited 2020 Mar 28]. Available from: [http://www.ons.gov.uk/ons/dcp171776\\_373040.pdf](http://www.ons.gov.uk/ons/dcp171776_373040.pdf).
2. (WHO) WHO. Proposed working definition of an older person in Africa for the MDS Project [internet]. 2002 [cited 2019 Sep 9]. Available from: <https://www.who.int/healthinfo/survey/ageingdefnolder/en/>.
3. Government Office for Science. Present and future configuration of health and social care services to enhance

- robustness in older age [internet]. 2016 [cited 2020 Apr 05]. Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/447240/gs-15-12-future-ageing-health-social-care-er16.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/447240/gs-15-12-future-ageing-health-social-care-er16.pdf).
4. Fund TK. What are the priorities for health and social care? [internet]. 2017 [cited 2019 Jul 8]. Available from: <https://www.kingsfund.org.uk/publications/what-are-priorities-health-and-social-care>.
  5. Mayr FB, Yende S, Angus DC. Epidemiology of severe sepsis. *Virulence* 2014;5(1):4–11.
  6. National Institute for Health and Care Excellence [NICE]. Acutely ill adults in hospital: recognising and responding to deterior deterioration [internet]. 2007 [cited 2020 Apr 21]. Available from: <https://www.nice.org.uk/guidance/cg50>.
  7. Baylis A, Perks-Baker S. Enhanced health in care homes. Learning from experiences so far. The Kings Fund [internet]. 2017 [cited 2020 Apr 05]. Available from: [https://www.kingsfund.org.uk/sites/default/files/2017-11/Enhanced\\_health\\_care\\_homes\\_Kings\\_Fund\\_December\\_2017.pdf](https://www.kingsfund.org.uk/sites/default/files/2017-11/Enhanced_health_care_homes_Kings_Fund_December_2017.pdf).
  8. Gordon AL, Franklin M, Bradshaw L, Logan P, Elliott R, Gladman JRF. Health status of UK care home residents: a cohort study. *Age Ageing* 2014;43(1):97–103.
  9. Smith P, Sherlaw-Johnson C, Ariti C, Bardsley M. Focus on: Hospital admissions from care homes About QualityWatch [internet]. Nuffield Trust. 2015 [cited 2020 May 12]. Available from: <https://www.nuffieldtrust.org.uk/research/focus-on-hospital-admissions-from-care-homes>.
  10. England NHS. Improving outcomes for patients with sepsis: a cross-system action plan [internet]. 2015 [cited 2020 Apr 21]. Available from: <https://www.england.nhs.uk/wp-content/uploads/2015/08/Sepsis-Action-Plan-23.12.15-v1.pdf>.
  11. Massey D, Chaboyer W, Anderson V. What factors influence ward nurses' recognition of and response to patient deterioration? An integrative review of the literature. *Nurs Open* 2017;4(1):6–23.
  12. National Institute for Health and Care Excellence [NICE]. Sepsis: recognition, diagnosis and early management. *BJU Int* 2018;121(4):497–514.
  13. Douw G, Schoonhoven L, Holwerda T, Huisman-de Waal G, van Zanten ARH, van Achterberg T, et al. Nurses' worry or concern and early recognition of deteriorating patients on general wards in acute care hospitals: a systematic review. *Crit Care* 2015;19(1):230.
  14. Royal College of Physicians. National Early Warning Score 2 (NEWS 2) [internet]. 2017 [cited 2020 Apr 21]. Available from: <https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2>.
  15. Jones M. NEWSDIG: The national early warning score development and implementation group. *Clin Med J R Coll Physicians London* 2012;12(6):501–3.
  16. Wessex Academic Health Science Network. RESTORE 2 [internet]. 2020 [cited 2020 Apr 21]. Available from: <https://wessexahsn.org.uk/projects/329/restore2>.
  17. Hodge S, Thompson C, Gordon AL. National early warning scores in care homes: do policy imperatives reflect a genuine need? *Age Ageing* 2020;49(1):5–6.
  18. Robbins I, Gordon A, Dyas J, Logan P, Gladman J. Explaining the barriers to and tensions in delivering effective health-care in UK care homes: a qualitative study. *BMJ Open* 2013;3(7):e003178.
  19. Jayasundera R, Neilly M, Smith T, Myint P. Are early warning scores useful predictors for mortality and morbidity in hospitalised acutely unwell older patients? A systematic review. *J Clin Med* 2018;7(10):309.
  20. Graverholt B, Forsetlund L, Jamtvedt G. Reducing hospital admissions from nursing homes: a systematic review. *BMC Health Serv Res* 2014;14(1):1–8.
  21. Dwyer R, Gabbe B, Stoelwinder JU, Lowthian J. A systematic review of outcomes following emergency transfer to hospital for residents of aged care facilities. *Age Ageing* 2014;43(6):759–66.
  22. National Health Service (NHS). Care homes [internet]. 2019 [cited 2020 Apr 3]. Available from: <https://www.nhs.uk/conditions/social-care-and-support-guide/care-services-equipment-and-care-homes/care-homes/>.
  23. Peters M, Godfrey C, McInerney P, Soares C, Khalil H, Parker D. Chapter 11: Scoping reviews. In Aromataris E, Munn Z, editors. *JBIR Reviewer's Manual* [internet]. 2017 [cited 2020 Apr 03]. Available from: <https://reviewersmanual.joannabriggs.org/>.
  24. Askey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2009;8(1):19–32.
  25. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Med* 2018;169(7):467–73.



## Appendix I: Search strategy

### MEDLINE (Ovid)

Searched November 9, 2020

All terms were searched as exact subject headings (MH) and keywords. The “truncation facility” (\*) was used to search for terms with varying spelling and suffixes.

Search	Query	Results
1	exp Home Nursing/	9398
2	exp residential facilities/ or assisted living facilities/ or homes for the aged/	52,974
3	((“nursing home*” or “residential home” or “age? care facilit*” or “care facilit*”).ti,ab.	51,785
4	((“RACF” or “residential aged care facilit*”).ti,ab.	733
5	1 or 2 or 3 or 4	89,998
6	exp Clinical Deterioration/	304
7	((“rapid*” or “acute*”) adj2 unwell).ti,ab.	346
8	exp Acute Disease/	213,558
9	deterior*.mp.	129,458
10	((“acute* unwell” or “rapid* unwell” or “acute* deterior*” or “rapid* deterior*”).mp.	4260
11	((“recognis*” or “identif*” or “respon*” or “manag*”) adj3 “deterior*”).mp.	2096
12	6 or 7 or 8 or 9 or 10	341,343
13	5 and 11 and 12	30
14	Limit 13 to (English language and yr=“2009-current” and “all aged (65 and over)”) )	10

## Appendix II: Data extraction tool

<b>Scoping review details</b>	
Scoping review title:	
Review objective/s:	
Review question/s:	
<b>Inclusion/exclusion criteria</b>	
Population	
Concept	
Context	
Types of evidence source	
<b>Evidence source details and characteristics</b>	
Citation details (eg, author/s, date, title, journal, volume, issue, pages)	
Country	
Context	
Participants (details eg, age/sex and number)	
<b>Details/results extracted from source of evidence (in relation to the concept of the scoping review)</b>	
What type of care home facility (residential, nursing or residential aged care facility)?	
How do care home staff have identified an acutely deteriorating resident? (eg, through observations, monitoring signs and symptoms, “gut feeling”)	
What happened (response) as a result of identifying an acutely deteriorating resident (this includes the decision to not respond)?	
What mechanism did care home staff use to support recognition and response to acute deterioration (eg, tools/policies/guidelines/assessments or interventions)?	