


# BMJ Open Interventions to promote the implementation of pressure injuries prevention measures in nursing homes: a scoping review protocol

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## ABSTRACT

**Introduction** Currently, various guidelines and documents on the prevention of pressure injuries have been published, but there are many serious lags in the actual practice in nursing homes. So some interventions are required to promote the implementation of normative practices. There was a review of preventive interventions for pressure injuries in long-term care facilities, but there is no systematic review of how to promote the implementation of preventive measures. This review aims to summarise interventions that promote the implementation of pressure injuries prevention measures in nursing homes, explore the research scope and gaps in this field and provide evidence and striving direction for global nursing homes to improve existing preventive behaviours.

**Methods and analysis** This scoping review will combine the Arksey and O'Malley framework with further clarification and advice of the scoping review by Levac *et al* as methodological guidance. Systematic retrieval of relevant literature databases, grey literature and references included studies will be conducted. Two reviewers will screen titles and abstracts independently, and then screen the full text of potentially relevant articles to determine final inclusion. After that, two reviewers will extract data based on a predesigned data extraction table independently. Inductive analysis and narrative analysis will be used to collate, summarise and report the results. Finally, managers of nursing homes in China will be consulted for additional information and their viewpoints on the research findings.

**Ethics and dissemination** Since the scoping review is a secondary analysis of the literature, there is no need to apply for ethical approval. Our goal is to share the results with key stakeholders to help them find the direction of effort and improve clinical practice. Therefore, dissemination plans include publication in international journals and sharing it at conferences to inform more healthcare workers about the scope and gaps of the studies.

## INTRODUCTION

In 2019, the European Pressure Ulcer Advisory Panel (EPUAP), the National Pressure Injury Advisory Panel (NPIAP) and the Pan Pacific Pressure Injury Alliance (PPPIA) collaborated to produce the third edition

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This will be the first scoping review to identify and map the studies that promote the implementation of pressure injuries prevention measures in nursing homes.
- ⇒ A comprehensive literature retrieval strategy, electronic literature sources, grey literature and references included studies will be used to obtain available evidence.
- ⇒ Included articles will be limited to English, which may narrow the scope of research.

evidence-based guideline on the prevention and treatment of pressure injuries (PI).<sup>1</sup> This guideline updated the definition of PI: localised damage to the skin and/or underlying tissue, as a result of pressure or pressure in combination with shear, and usually occur over a bony prominence but may also be related to a medical device or other object.<sup>1</sup> The guideline specifically emphasises PI among the elderly in the community as a special group. As a gathering place for the elderly in the community, the residents in nursing homes are mostly suffering from chronic diseases, malnutrition, incontinence, cognitive impairment and long-term bedridden or sitting in wheelchairs, which greatly increases the possibility of PI.

Internationally, although there are many effective PI prevention measures, the incidence of PI in nursing homes is still high. In 2019, a study by Anthony *et al* found that the global PI prevalence in long-term care homes ranged from 3.4% to 32.4% between 1998 and 2017.<sup>2</sup> Although improvements have been seen in some countries in recent years, there is still scope for further reductions in the PI prevalence of long-term homes in most countries.<sup>2</sup> Among the 1158 residents of nine nursing homes in eastern China, 56 (4.8%) had at least one PI.<sup>3</sup> In 33 nursing homes in Geneva, Switzerland, the overall prevalence

of PI was 5.7%.<sup>4</sup> In 720 long-term care homes in Japan, the average incidence of PI is 9.6%/month.<sup>5</sup> Obviously, residents with PI of nursing homes are also a group that we cannot ignore.

In a cross-sectional study, 67 patients with PI were approximately 1.5 times more likely to require hospital readmissions from a nursing home compared with the normal population.<sup>6</sup> Globally, the prevention of PI has always been considered more important than the treatment, and the prevention of PI in nursing homes is more worthy of attention. Once PI occurs, it will both increase the nursing workload and bring anxiety and pain to the affected persons, and also reduce their quality of life and lead to their death.<sup>7,8</sup>

Since the early 1990s, there have been many guidelines for PI clinical practice published.<sup>9</sup> At the same time, some scholars have also studied the basic preventive measures in nursing homes, such as the frequency of reposition and the use of preventive dressings.<sup>10,11</sup> However, these recommended interventions for the prevention and healing of PI are not commonly implemented in long-term care settings,<sup>12</sup> and there is a lag in the care knowledge and behaviour of caregivers in nursing homes. Of the 2671 people in 33 nursing homes in Switzerland, less than half of the patients were redirected at the reposition frequency recommended by the risk level, and it is very rare to use all appropriate preventive measures, and the number of preventive measures implemented varies greatly between nursing homes.<sup>4</sup> A survey of 282 nurses in a nursing home in South Korea showed that the knowledge of PI prevention was at a moderate level, and they did not reassess PI and make a new nursing plan when necessary.<sup>13</sup> In private for-profit residential care homes in Hong Kong, preventive behaviours were implemented after PI developed, preventive dressings were used improperly and risk assessment tools were used insufficiently.<sup>14</sup>

To sum up, there are recommended measures for the prevention of PI in the world, but as mentioned above, some good preventive measures have not been effectively implemented into practice in nursing homes. So exploring and studying the interventions to promote the effective implementation of PI prevention measures in nursing homes may be needed. Fortunately, the number of such studies has increased in recent years, such as reminding nursing staff by music to change the position of the elderly,<sup>15</sup> using the care bundle to prevent PI<sup>16</sup> and conducting training based on the evidence.<sup>17</sup> All these studies have effectively promoted the implementation of PI prevention measures, and fundamentally reduced the incidence of PI. Therefore, reviewing the various interventions is a priority for stakeholders to understand this area. We searched the literature and found a systematic review<sup>18</sup> published in 2019, in which, the authors summarised all preventive interventions for PI in long-term older people care facilities, including conventional interventions and interventions to promote the implementation of prevention measures, and did not discuss them separately. In addition, the retrieval time of this

article was from 2005 to 2017, nearly 5 years away from now, and the study outcomes were limited to PI incidence or prevalence or healing time. A more systematic overview is obviously needed to extensively explore the evidence of interventions to promote the prevention practice of PI in nursing homes, and the author of this paper<sup>18</sup> also suggested that a more systematic accumulation of information is still needed due to various interventions.

In recent years, more and more scoping reviews have been published, which can help authors determine the scope of research in a particular area, identify research gaps, clarify key concepts/definitions and facilitate future studies.<sup>19</sup> For this, our study team aims to conduct a scoping review, to summarise interventions that promote the implementation of PI prevention measures in nursing homes and to find the research gaps. It will improve the implementation and management of nursing interventions to prevent PI in nursing homes, reduce the incidence of PI and indicate the next research direction. As of April 2022, we found no protocol and review similar to our proposed scoping review. This scoping review will be conducted from May 2022.

## SCOPING REVIEW OBJECTIVES

The purpose of this scoping review is to identify interventions of promoting the implementation of PI prevention measures, find the research gap in this field, and provide information and direction for further study.

## METHODS AND ANALYSIS

To complete this scoping review effectively, we will use the Arksey and O'Malley<sup>20</sup> framework and further clarification and advice on the writing process of the scoping review by Levac *et al*.<sup>21</sup> as methodological guidance. Our research will be divided into six steps: (1) identifying the research questions; (2) identifying potentially relevant studies; (3) selecting relevant studies; (4) charting the data; (5) collating, summarising and reporting the results and (6) consulting with stakeholders. Each aspect is discussed in detail below. Moreover, we will report this scoping review under the guide of Preferred Reporting Items for Systematic Reviews and Meta Analyses for scoping reviews (PRISMA-ScR) checklist.<sup>22</sup>

### Patient and public involvement

This scoping review study will have no patient or public involvement in the design, or conduct, or reporting or dissemination plans of the research.

### Stage 1: identifying the research questions

The objectives of this scoping review are to identify studies that facilitate the practice of preventing PI interventions in nursing home settings, map their content of implementations in order to guide managers of nursing homes on what aspects can be changed to perfect prophylactic effect and find research gaps to guide future research

**Table 1** Search strategy (PubMed)

Search	Query
#1	pressure ulcer [mh] OR pressure ulcer* [tw] OR pressure injur* [tw] OR pressure sore* [tw] OR bedsores* [tw] OR decubitus ulcer* [tw]
#2	nursing homes [mh] OR long-term care [mh] OR residential facilities [mh] OR skilled nursing facilities [mh] OR homes for the aged [mh] OR nursing home* [tw] OR long-term care home* [tw] OR residential facilit* [tw] OR skilled nursing facilit* [tw] OR residential aged care setting* [tw] OR care facilit* [tw] OR care home* [tw]
#3	quality improvement [mh] OR prevent* [tw] OR reduce [tw] OR reducing [tw] OR reduction [tw] OR improv* [tw] OR educat* [tw] OR improving the quality [tw] OR quality improvement [tw] OR manage* [tw] OR program* [tw] OR guideline* [tw] OR implement* [tw] OR intervention* [tw]
#4	#1 AND #2 AND #3

directions of this field. Our research questions are as follows:

1. What interventions have been conducted to promote the prevention and management of PI in nursing homes and whether they are effective or not?
2. What outcome measures have been used to measure the effectiveness of interventions promoting the implementation of PI prevention measures in nursing homes?
3. Are there any barriers to conducting interventions that facilitate the implementation of PI preventive measures?
4. What are the research gaps in the literature about the interventions promoting the implementation of PI prevention measures in nursing homes?

## Stage 2: identifying potentially relevant studies

### Databases and search strategy

We will search the following electronic databases: PubMed, Web of science core collection, CINAHL (via EBSCOhost), Embase, Cochrane Central Register of Controlled Trials, Psych INFO (via Ovid). Before this, we have completed an initial limited search in PubMed and CINAHL and read titles and abstracts of relevant articles to find the keywords. Then, the research team established a retrieval strategy based on these keywords, taking PubMed as an example (table 1). This search strategy will be tailored to the specific requirements of each database. In addition, grey literature (Open Grey, Clinical Trials. Gov, MedNar, ProQuest Dissertations and Theses Full Texts) and reference lists of eligible studies will also be searched to ensure the universality of the evidence resources. Also, we will update the search towards the end of this review.

### Eligibility criteria

We will use the PCC (population, concept and context) mnemonic to definite eligibility criteria instead of PICO

(population, intervention, control, outcome). The reasons are that PCC can identify the focus and context of the review and there is no need to declare specific outcomes, interventions or phenomena of interest for a scoping review.<sup>23</sup> Also, the content of intervention (I) and outcome (O) are the purpose of this study, so these aspects are unsure before conducting the study. The inclusion criteria based on the PCC are as follows:

- ▶ Population: residents living in nursing homes or nurses or managers in a nursing home
- ▶ Context: nursing home (for more information on the nursing home, see 'Concept').
- ▶ Concept: this scoping review will consider studies conducted in nursing home settings where interventions have been used to promote the implementation of routine PI prevention measures. For the purpose of this scoping review, the following definitions will be applied.

### Pressure injury

This review will use the definition of PI in the latest 2019 EPUAP guidance, as stated in the introduction: localised damage to the skin and/or underlying tissue, as a result of pressure or pressure in combination with shear, and usually occur over a bony prominence but may also be related to a medical device or other object.<sup>1</sup>

### Nursing home

The definition of the nursing home is different internationally. We will adopt the international definition proposed by the International Association of Gerontology and Geriatrics (IAGG) and the American Medical Directors Association (AMDA) Foundation: a nursing home is a facility with a domestic-styled environment that provides 24-hour functional support and care for persons who require assistance with activities of daily living (ADLs) and who often have complex health needs and increased vulnerability.<sup>24</sup> They also gave some points to operationalise the nursing home definition: (1) is a facility that provides 24-hour functional support for people who require assistance with ADLs/IADLs (Instrumental Activities of Daily Living) and have identified health needs; (2) may or may not be staffed with healthcare professionals; (3) provides long-term care and/or rehabilitation as part of hospital avoidance or to facilitate early hospital discharges; (4) does not function as a hospital ward and is not hospital-based; (5) may play a role in providing palliative and/or hospice care at the end of life.<sup>22</sup> If there is no clear information, we will contact the study authors to consult whether the context of the study can be regarded as a nursing home. If we cannot contact to authors, members of the research team will be asked to decide based on known information.

### Interventions to promote the prevention practice of pressure injuries

There is no consensus on this. But based on the purpose of this review, we will summarise the interventions that promote the PI prevention practices, rather than

discussing the conventional PI prevention suggestions from the guidelines or other documents. So, the term of interventions does not refer to repositioning every 2 hours or keeping the skin clean and so on, but to organisational changes or programmes that promote the implementation of preventive measures, such as care bundles, evidence-based care and clinical decision support systems.

- ▶ Type of studies: this scoping review will include quantitative, qualitative and mixed-methods studies, such as randomised controlled study, quasi-randomised controlled trials, non-randomised controlled trials, before–after study, case–control, case series study and quality improvement programme. Secondary studies will not be included in this review.
- ▶ Language: the language is limited to English.
- ▶ Time limited: published from January 2002 to May 2022.

#### Exclusion criteria

- ▶ Publication type: research protocols, meeting abstracts, conference proceedings and articles that the full text is unavailable will not be considered.

#### Stage 3: selecting relevant studies

The screening process for this scoping review will consist of two phases. First, the title and abstract will be reviewed by two independent reviewers against inclusion criteria. Then, the full text of all potentially relevant articles will be obtained by a researcher for the next phase, which is full-text screening. The same two reviewers will use the above eligibility criteria to select full-text studies. Differences arising from the above two stages can be resolved through discussion or referral to a third reviewer.

Finally, we will draw the research screening flow chart, indicate the reasons for the exclusion of articles in the full-text screening process and list the basic information of the excluded articles in the appendix.

#### Stage 4: charting the data

Two reviewers will extract data from each included article independently. Any differences will be resolved through discussion or, if necessary, by a third reviewer. If data on interventions, participants or other information is missing or inadequately described, the corresponding author will be contacted for the missing information. If unable to contact, the data will be provided to the extent available. And standardised forms (Microsoft Excel sheets including studies, interventions and the following information) will be used developed by the research team to collect and present the data.

The data collected will include the following information to reflect the extent and nature of studies: authors, country, year of publication, study design, the aim of the study, setting, population and sample, the characteristics of participants (eg, age, gender, occupation, underlying disease of residents living in nursing homes), interventions (eg, the name or phrase that describes the intervention, materials, procedures, intervention provider,

the number of times and duration of the intervention), outcome indicators, outcomes, barriers in intervention process (if available) and further study points (if available).

The drafted charts will be constantly updated during the data extraction process on the basis of the new aspect of information and needs. The quality of the included studies will not be evaluated, as the main purpose of this scoping review is to map existing evidence and set the direction for future research or systematic review.

#### Stage 5: collating, summarising and reporting the results

After data extraction, the method of inductive analysis will be used to categorise the interventions, which are expected to be divided into patient, nurse and management policy aspects. At the same time, a narrative analysis of the results will be performed according to the type of intervention. In the discussion of the results, we will highlight the types and contents of interventions, outcome measures, barriers, and future research directions.

#### Stage 6: consulting with stakeholders

Arksey and O'Malley<sup>20</sup> argued that this stage is optional, but Levac *et al* recommended that consultation is an important component of the scoping review, the findings of the scoping review can be used as a basis for consultation, and it is an opportunity for knowledge transfer and exchange with stakeholders in the field.<sup>21</sup> So the nurses, nursing assistants and managers of nursing homes in China will be consulted for additional information on the interventions they are currently using to promote PI prevention. In addition, we will share the study findings with them and interview their opinions to understand which of the interventions they want to implement as the direction for future improvement and what concerns or practical barriers they have in translating these results into practice. However, consulting with nursing homes residents and their families will not be conducted. Because we consider that the main population of implementing interventions is nurses, nursing assistants and managers. They are playing an active role in implementing preventive measures and they are direct stakeholders. While the residents are subjects who do not have the experience of implementing PI preventive interventions. So if we do some interviews with them, the result may be ambiguous and without a point of view. So we will only consult with nurses, nursing assistants and managers. Also, we will make it clear to them that the clinical effectiveness of results is uncertain due to lacking critical appraisal. The reason for us to perform this stage is to obtain additional resources and information, and to make the research results meaningful to the daily practice of nursing homes in China.

#### ETHICS AND DISSEMINATION

Since the scoping review is a secondary analysis of the literature, there is no need to apply for ethical approval.

But the ethical issues about preparing and publishing article should be considered.<sup>25</sup>

Our goal is to share our results with key stakeholders in nursing homes to help them find the direction of the next effort and improve clinical practice. Therefore, dissemination plans include publication in international journals and sharing it at conferences to inform more healthcare workers about the scope and gaps of the studies.

**Contributors** L-FY, YL and C-TW proposed the research questions for this scoping review protocol and developed the research strategy and the methodological process. C-PN and L-FY contributed meaningfully to designing the search strategy. L-FY drafted the manuscript. Y-LL and YL revised the manuscript in both language and content. All authors approved the final manuscript.

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**Competing interests** None declared.

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