

## Use of hypodermoclysis in elderly people in the home environment: scoping review protocol

*Uso de hipodermoclysis en personas mayores en el ámbito domiciliario: protocolo de revisión del alcance*

*Utilização da hipodermoclise em pessoas idosas no ambiente domiciliar: protocolo de revisão de escopo*

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### Abstract

The aim is to map and summarize scientific productions on the use of hypodermoclysis in elderly people in the home environment. The scoping review will be conducted under recommendations from the JBI Institute and Prisma-Scr. This scoping review will search for sources of evidence in full texts of primary studies and gray literature theses and dissertations, available in the main databases: PubMed, CINAHL, SCOPUS, Web of Science, Science Direct, and SciELO. As an exclusion criterion, review studies (secondary) or those that do not meet the PCC mnemonic combination will not be included: P Population – Health Caregivers; C Concept – Hypodermoclysis; C Context – Domiciled elderly person. In this review there will be no language restrictions, however, a time frame was established starting in 2009. The selection of studies will be made by two independent reviewers using the Endnote and Rayyan software, while a third will resolve differences between them. For extraction, analysis of evidence, and synthesis of knowledge, a structured data extraction tool developed by the JBI Institute and adapted by reviewers will be used to meet the objective and main question of the research. In the final scoping review, there will be a description of the research results and the process of including articles in the study.

**Descriptors:** Hypodermoclysis; Elderly; Caregivers; Residence; Home Care.

### Resumen

El objetivo es mapear y resumir las producciones científicas sobre el uso de la hipodermoclysis en personas mayores en el ámbito domiciliario. La revisión del alcance se llevará a cabo de acuerdo con las recomendaciones del Instituto JBI y Prisma-Scr. Esta revisión de alcance buscará fuentes de evidencia en textos completos de estudios primarios y en tesis y disertaciones de literatura gris, disponibles en las principales bases de datos: PubMed, CINAHL, SCOPUS, Web of Science, Science Direct y SciELO. Como criterio de exclusión, no se incluirán estudios de revisión (secundarios) o aquellos que no cumplan con la combinación nemotécnica del PCC: Población P – Cuidadores de Salud; Concepto C – Hipodermoclysis; Contexto C – Persona mayor domiciliada. En esta revisión no habrá restricciones de idioma, sin embargo se estableció un marco de tiempo a partir de 2009. La selección de los estudios será realizada por dos revisores independientes utilizando los software Endnote y Rayyan, mientras que un tercero resolverá las diferencias entre ellos. Para la extracción, análisis de evidencia y síntesis de conocimiento se utilizará una herramienta de extracción de datos estructurados desarrollada por el Instituto JBI y adaptada por los revisores para cumplir con el objetivo y pregunta principal de la investigación. En la revisión final del alcance habrá una descripción de los resultados de la investigación y el proceso de inclusión de artículos en el estudio.

**Descriptores:** Hipodermoclysis; Anciano; Cuidadores; Residencia; Cuidados en el Hogar.

### Resumo

Objetiva-se mapear e sumarizar as produções científicas sobre o uso da hipodermoclise em pessoas idosas no ambiente domiciliar. A revisão de escopo será conduzida de acordo com as recomendações do Instituto JBI e Prisma-Scr. Esta revisão de escopo buscará fontes de evidência em textos completos de estudos primários e na literatura cinzenta teses e dissertações, disponíveis nas principais bases de dados: PubMed, CINAHL, SCOPUS, Web of Science, Science Direct e SciELO. Como critério de exclusão, não serão incluídos os estudos de revisão (secundários) ou que não atendam a combinação mnemônica PCC: P *Population* – Cuidadores de Saúde; C *Concept* – Hipodermoclise; C *Context* – Pessoa idosa domiciliada. Nessa revisão não haverá restrição de idioma, entretanto estabeleceu-se um recorte temporal a partir do ano de 2009. A seleção dos estudos será feita por dois revisores independentes utilizando os softwares Endnote e Rayyan, enquanto um terceiro resolverá divergências entre esses. Para extração, análise das evidências e síntese do conhecimento será utilizado uma ferramenta de extração de dados estruturada desenvolvido pelo Instituto JBI e adaptado pelos revisores para atender ao objetivo e questão principal da pesquisa. Na revisão de escopo final haverá descrição dos resultados da pesquisa e do processo de inclusão dos artigos no estudo.

**Descriptores:** Hipodermoclise; Pessoa Idosa; Cuidadores; Domicílio; Cuidado Domiciliar.



## Introduction

Increasing life expectancy is a worldwide phenomenon, “in an era of unpredictable health challenges – whether due to climate change, emerging infectious diseases – one trend is certain: around the world, population aging is accelerating”<sup>1</sup>. Furthermore, according to the World Health Organization, life expectancy in the world increased from 66.8 years in 2000 to 73.3 years in 2019<sup>2</sup>; and following the speed at which this phenomenon is happening, there is also an increase in morbidities with relevance to the chronicity of the diseases and the limitations of the subject, both aspects may be related to the natural aging process<sup>3-5</sup>.

This growth is having a direct impact on social and health systems, requiring more and more professionals and institutions to be trained and involved in promoting aging with quality of life<sup>1,5-7</sup>. From this perspective, nurses need to be in a constant training process, learning, researching, and getting to know new technologies, with the main objective of providing quality, effective, efficient, and safe care<sup>8,9</sup>.

Paradoxically, in this context of innovation in healthcare practices for the elderly population, an old but little-explored technique resurfaces, hypodermoclysis. This technique consists of the infusion of fluids, electrolytes, and drugs into the subcutaneous space, in non-emergency situations<sup>10-12</sup>.

When caring for elderly people, drugs should preferably be administered orally, however in some situations this route is not available<sup>11</sup>, 70% of patients in the final stage of life, for example, will require another route of administration<sup>13</sup>, and the intravenous route, which a priori would be the first indication, presents some risks and difficulties, especially in patients over 80 years of age, who have undergone chemotherapy or with dementia<sup>14</sup>. In this context, the subcutaneous route appears to be the safest route.

It should also be noted that hypodermoclysis can not only be indicated in the outpatient or hospital environment, but also in the home environment, the possibility of carrying out this practice at home is of greater importance if we consider the clear advantages of hypodermoclysis compared to other administration techniques. of medications and hydration, such as greater comfort in administration, low cost, ease of puncture and low rate of infections<sup>4,7,10,13,15-17</sup>, in addition to more humanized and personalized care, enabling faster patient recovery, greater autonomy and optimization of hospital beds<sup>18</sup>.

Therefore, carrying out studies on hypodermoclysis in elderly people at home is necessary to promote the development of knowledge about the technique, implementation of protocols and guidelines that support professional practice, and consequently a positive impact on the quality of life of the elderly. elderly people who benefit from hypodermoclysis, as the technique continues to be little explored and consequently little used in Brazil<sup>7,19-21</sup>. Therefore, the question that guided this scoping review was: “How do scientific productions address the use of hypodermoclysis in elderly people in the home environment?”

To answer this question, it was decided to carry out a scoping review with the main objective of mapping and summarizing scientific productions on the use of hypodermoclysis in elderly people in the home environment.

## Methodology

This scoping review will be conducted based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) guideline and following the structuring recommendations of the JBI Institute Manual - JBI Manual for Evidence Synthesis, whose method aims to map the main concepts, clarify and identify knowledge gaps<sup>22</sup>, the aforementioned protocol being previously registered in the Open Science Framework with registration number DOI 10.17605/OSF.IO/4KEJ6, to guarantee the transparency of the review.

The research question, the objective of the study, and the agreement descriptors were elucidated by the mnemonic combination PCC: P Population – Health Caregivers; C Concept – Hypodermoclysis; C Context – Homebound elderly person.

As this is a literature review, this study was not submitted to the Research Ethics Committee involving human beings, however, Resolution No. 466/12, of the National Health Council, was respected, concerning analysis, and sharing results.

## Inclusion criteria

### Participants

This review will consider studies that include healthcare caregivers who help elderly people using hypodermoclysis, healthcare caregivers are understood to be all people who provide care to the patient<sup>18</sup>. These health caregivers would be all those who are able to help others with their needs and activities of daily life with or without family ties. In this logic, the expression “health caregivers” should not be attributed, in this study, only to nursing professionals or other health professionals.

### Concept

Studies that deal with hypodermoclysis as an alternative to infusion therapy. The term “hypodermoclysis” corresponds to the use of the subcutaneous route for continuous infusion of solutions in larger volumes, when a certain medication is infused as a bolus or diluted in a small volume, it is not appropriate to describe this application as hypodermoclysis, but rather as “use of the subcutaneous route”<sup>11</sup>, in this review, we understand hypodermoclysis in its broadest sense, both in the continuous infusion of larger solutions and in the administration of medications in small volumes.

### Context

In this research, the context of interest will be considered the home environment where there are elderly people undergoing hypodermoclysis. Studies will be brought together that deal with domiciled elderly people, who are those who have restrictions on leaving their homes, and bedridden elderly people, who are those who have



restrictions on leaving their beds. For this study we will use the definition of the World Health Organization (WHO) that defines “elderly” as people aged 60 years or older<sup>1</sup>. We will not have an age limit above this. As a home environment, in this study, we understand it as a place where the person naturally establishes their residence, therefore, studies that deal with Long-Term Institutions (LTCFs) will not be included, as they offer care and caregiver support that is different from those other residences.

**Sources**

This scoping review will consider as sources of evidence complete texts of primary studies, theses, and dissertations, available in the main databases.

Qualitative studies will be included without delimiting the approach, while quantitative studies will include experimental and quasi-experimental sources of evidence, including case study, clinical study, comparative study, controlled clinical study, evaluation study, meta-analysis, observational, multicenter, and randomized clinical study. Additional sources from gray literature such as dissertations and theses will also be considered. As an exclusion criterion, review studies (secondary).

In this review there was no language restriction, however it established a time frame from the year 2009, what motivated this time frame was that after research in the National Library of Medicine the MeSH term “hypodermoclysis” which is our main term in the descriptor of the research concept was only included in 2009, so the search prior to that year would be irrelevant.

**Search strategy**

Following the structuring recommendations for scoping reviews of the JBI Institute Manual - JBI Manual for Evidence Synthesis and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR)<sup>22</sup>, a preliminary search will be carried out in March 2022 using the term Medical Subject Headings (MeSH): “hypodermoclysis” in the databases of PROSPERO, Pubmed, CLIO and OSF to find out if there is already a review underway or completed with the same purpose. In this search, only two scope reviews were found with the concept of hypodermoclysis<sup>23,24</sup>, however, its population and context differ from this research and therefore make it unprecedented. As recommended in all types of JBI reviews, a three-step search strategy was used<sup>22</sup>:

- Step 1: An initial search in PubMed and Cumulative Index to Nursing and Allied Health Literature (CINAHL) via Business Source Complete (EBSCO) was performed to identify articles on the subject, and expand the capture of studies in the next phase<sup>22</sup>. The search strategy, including the MeSH and index terms identified at this stage, were adapted for each source of information included as shown in Chart 1.
- Step 2: In the second stage of the search strategy, all previously identified keywords and index terms will be adapted for the other databases: SCOPUS, Web of Science Core Collection, Science Direct, Scientific Electronic Library Online – SciELO, and are shown in Chart 2.

**Chart 1.** Step 1: Initial research in the most relevant bases in the field of research linked to biological and health sciences. Feira de Santana, BA, Brazil, 2022

Data base	Strategy
PUBMED	((((((((((Caregivers[Mesh]) OR (Health Personnel[MeSH Terms])) OR (Nursing[MeSH Terms])) OR (Nurses[MeSH Terms])) AND (Hypodermoclysis[MeSH Terms])) AND (Aged[MeSH Terms])) OR (Geriatricians[MeSH Terms])) OR (Geriatric Nursing[MeSH Terms])) AND (Nursing Homes[MeSH Terms])) OR (Home Care Service[MeSH Terms])) OR (Long-Term Care[MeSH Terms]) AND (2009:2022[pdat]))
CINAHL	TI Caregivers OR TI nurses OR TI nursing AND TI hypodermoclysis AND TI “nursing homes” OR TI “long-term care”

**Chart 2.** Step 2: Search strategy in all databases used in this review. Feira de Santana, BA, Brazil, 2022

Data base	Query
PUBMED	((((((((((((((Caregivers[Mesh]) OR (Health Personnel[MeSH Terms])) OR (Nursing[MeSH Terms])) OR (Nurses[MeSH Terms])) AND (Hypodermoclysis[MeSH Terms])) AND (Aged[MeSH Terms])) OR (Geriatricians[MeSH Terms])) OR (Geriatric Nursing[MeSH Terms])) AND (Nursing Homes[MeSH Terms])) OR (Home Care Service[MeSH Terms])) OR (Long-Term Care[MeSH Terms]) AND (2009:2022[pdat]))
CINAHL	TI Caregivers OR TI nurses OR TI nursing AND TI hypodermoclysis AND TI “nursing homes” OR TI “long-term care”
SCOPUS	TITLE-ABS-KEY (caregivers OR "Health Personnel" OR nursing OR nurses AND hypodermoclysis AND aged OR geriatricians OR "Geriatric Nursing" AND "Nursing Homes" OR "Home Care Service" OR "Long-Term Care" ) AND (LIMIT-TO



	(PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2015 ) OR LIMIT-TO ( PUBYEAR , 2014 ) OR LIMIT-TO ( PUBYEAR , 2012 ) OR LIMIT-TO ( PUBYEAR , 2010 ) ) AND ( LIMIT-TO ( DOCTYPE, "ar" ) )
WEB OF SCIENCE	TS=(caregivers OR "Health Personnel" OR nursing OR nurses) AND TS=(hypodermoclysis) AND TS=("Nursing Homes" OR "Home Care Service" OR "Long-Term Care")
SCIENCE DIRECT	(caregivers OR "Health Personnel" OR nursing OR nurses) AND hypodermoclysis AND ("Nursing Homes" OR "Home Care Service" OR "Long-Term Care")
SCIELO.ORG	(ti:(caregivers OR "Health Personnel" OR nursing OR nurses)) OR (ab:(caregivers OR "Health Personnel" OR nursing OR nurses)) AND (ti:(hypodermoclysis) OR (ab:(hypodermoclysis)) AND (ti:(("Nursing Homes" OR "Home Care Service" OR "Long-Term Care"))) OR (ab:(("Nursing Homes" OR "Home Care Service" OR "Long-Term Care"))))

Chart 3. Step 3: Estratégia de pesquisa na literatura cinzenta. Feira de Santana, BA, Brasil, 2022

Data base	Query
Teses Capes	"hypodermoclysis"
Portal DART-Europe E-theses	"hypodermoclysis"
Repositórios Científicos de Acesso Aberto de Portugal (RCAAP)	"hypodermoclysis"
The Biblioteca do Conhecimento Online-b-on (Online Knowledge Library)	"hypodermoclysis" "2009-2022" "Assunto: hypodermoclysis"

- Step 3: At this stage, references from all identified sources that have full text will be analyzed, screened, and included in the final selection of the study sample.

The search for gray literature will be carried out through the sources: Teses Capes; DART-Europe E-theses Portal; Portuguese Open Access Scientific Repositories (RCAAP); The Online Knowledge Library. In all sources the term "hypodermoclysis" will be used for the search so that it is possible to expand the search and in RCAAP and Online Knowledge Library the search will be limited, selecting only "complete texts" (Chart 3).

**Source for selection of evidence and study**

All identified citations will be grouped and sent to EndNote 20 (Clarivate Analytics, PA, USA), in this tool duplicates will be removed and the remaining citations will be sent again for a second analysis in Rayyan Intelligent Systematic Review, in this second tool a new exclusion of duplicates and then the titles and abstracts will be shared with the two independent reviewers for peer evaluation, respecting the inclusion and exclusion criteria of this review.

The material found in the gray literature will be organized in Microsoft Excel® spreadsheets due to the impossibility of using the EndNote 20 and Rayyan tools. In the spreadsheets they will be analyzed to exclude duplicates and will later be shared with the two independent reviewers for peer evaluation, also respecting the inclusion and exclusion criteria of this review.

Potentially relevant articles will be retrieved in full and those that do not meet the inclusion criteria will be excluded and clearly recorded and reported in the scoping review.

Any disagreements that arise between reviewers at each stage of the selection process will be resolved through discussion or with a third reviewer. At the end, the results will be fully reported in a scoping review and presented in a flowchart of Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews: PRISMA-ScR<sup>22</sup>.

**Data extraction**

Pairs of independent reviewers will evaluate each selected study using a structured data extraction tool (Chart 4). The data extraction form used was developed by the JBI Institute and adapted by the reviewers to meet the objective and research question, which should include the following data: title; author(s); year of publication; study location; goal; population; concept; context; agents are involved in providing care; clinical conditions of the person using hypodermoclysis; indications for the use of hypodermoclysis; reasons for suspending the use of hypodermoclysis; facilitating aspects for the use of hypodermoclysis, hindering aspects for the use of hypodermoclysis.

The data extraction tool will be modified and revised as necessary during the data extraction process for each included article. Modifications will be detailed in the full scoping review.



Chart 4. Data extraction instrument. Feira de Santana, BA, Brazil, 2022

Data extraction form	
Reviewer name	Review date
Title	
Author(s)	
Year	
Local	
goal	
Population	
Concept	
Context	
Agents involved in care	
Clinical conditions of the patient who is using hypodermoclysis	
Reasons and indications for hypodermoclysis	
Reason for suspending hypodermoclysis	
Aspects that favor the use of the technique at home	
Aspects that limit the use of the technique at home	

### Data analysis and presentation

The extracted data will be presented in the form of a table, graphs, or summaries to facilitate the analysis and understanding of the findings, in addition, the resulting data will be described considering the theoretical framework, in the form of a descriptive and critical reflective text describing how the results are related with the objective and the question of the review.

### Expected Results

The aim is to characterize scientific productions on the use of hypodermoclysis in elderly people in the home environment based on this mapping.

### Final Considerations

The protocol of this scoping review demonstrates the entire strategy of a future study that can contribute to a greater quality of life for elderly people who benefit from hypodermoclysis, especially those at home who are not

under constant and professionalized care such as in hospital institutions.

Furthermore, this study will promote the development of knowledge about the technique, implementation of protocols and guidelines that support professional practice as the technique continues to be little explored and consequently little used in Brazil. The fact that hypodermoclysis is still little explored may be one of the limitations of this study, restricting the number of studies in the final selection.

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