


BMJ Open Innovative services in home health nursing: a scoping review protocol

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ABSTRACT

Introduction Advances in the use of technology in home health nursing (HHN) not only can facilitate the delivery of home care but can also influence the entire healthcare system. Additionally, it can contribute to the individual autonomy in the area of health. The aim of this scoping review protocol is to identify, describe and map the types of innovative services and their delivery approaches in the HHN structure worldwide.

Methods and analysis The main question of the research is as follows: what are different types of innovative services and their delivery approaches in the HHN structure around the world? The Joanna Briggs Institute (JBI) method for scoping reviews will guide the conducting this scoping review, and the participants, concept and context framework will be used as eligibility criteria. MEDLINE databases via PubMed, Embase, Cochrane Library, Scopus, Web of Science, Science Direct, Persian scientific databases and grey literature will be searched prior to May 2024 to include eligible studies, without any language restrictions. To be included, studies will be reviewed by two independent reviewers. A data extraction form developed for the study purpose will be used to extract the data relevant to the review questions. Data analysis will be performed based on each innovative service and answering the subquestions about it. According to the concepts of interest, the results will be analysed and presented using tables, figures, images and a narrative summary.

Ethics and dissemination This study will not involve human or animal participants. Data will be sourced from the published literature. To be published, the results of the study will be submitted to an international peer-reviewed, open-access journal as well as scientific meetings on HHN and innovative services research.

INTRODUCTION

Recent advancements in the areas of healthcare, coupled with a decreased desire among individuals to have children, have significantly increased the proportion of the elderly people compared with the past.¹ As indicated by the statistics, the global population of individuals aged 60 and above will increase by 34%, rising from 1 billion in 2019 to 1.4 billion in 2030.² It should be noted that by 2050, around 80% of the elderly population will live in low-income and middle-income countries, imposing remarkable challenges on the

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The search strategy encompassed six electronic databases of peer-reviewed literature, including the bibliographies of articles and a wide range of grey literature sources, such as government and other organisation websites.
- ⇒ By adopting a broad and comprehensive research perspective, this study provides an opportunity to describe research trends in the field of innovation within the structure of home health nursing (HHN) and facilitate the identification of research gaps for future research at the international level.
- ⇒ Although this study identifies the types of innovative services and their delivery approaches within the structure of HHN in the world, there will be no formal evaluation of the quality of the study or direct comparison of the types of innovative services.

health and social systems of these countries.¹ This is due to the fact that the complicated health problems of the elderly people often impose a significant burden on hospitals and primary care centres.^{3,4} Thus, in order to reduce health-related costs and respond to the needs of the society, governments are compelled to shift interventions and healthcare services to a home setting.^{5,6} Health professionals who provide home healthcare (HHC) services include a diverse range of healthcare providers, including nurses, psychiatrists and social workers.⁷ However, out of 64 HHC services identified worldwide, the majority of these services are provided by nurses (47.47%; 73.4%).⁶

As one of the essential aspects of healthcare system, home health nursing (HHN) is capable of addressing future health challenges.⁸ HHN services construct a comprehensive care system provided by highly skilled nurses, working under the supervision of doctors, to patients/clients at their home. HHC includes a wide range of services, ranging from basic to advanced services in three levels of prevention. The primary objective of these services is to improve one's

function, promote independence and minimise the need for frequent hospitalisations.⁹

Today, the tendency for a shorter stay in the hospital has become a global trend.^{10 11} The recipients of HHN, despite having many health problems, will be able to have social activities.¹² They also will be able to play a fundamental role in maintaining the family foundation. In Iran, given the strong emotional ties among family members, the family institution is considered the first and main source of support in providing care, and plays an essential role in complementing formal care services during hospitalisation and after discharge.¹³

The recipients of HHN services are a heterogeneous group of clients whose needs vary from minor to more complex care services. Accordingly, the nurses need to have a range of integrated, coordinated, professional and high-quality care skills over and above their hospital-based skills (having specialised knowledge and using current technology) to care for these patients.¹⁴ Therefore, HHN is a growing specialty that requires a unique set of nursing knowledge and skills to provide valuable services in an accurate and integrated manner in interaction with other members of the care team.¹⁵

There is currently an increasing need and demand for home care. However, in addition to the known and predictable issues, there are also unpredictable trends in the delivery of this valuable type of care. Ignoring these factors can lead to ineffective planning and optimal decision making, resulting in average benefits.¹⁶ In today's cultural environment, the integration of services with innovation and technology is essential for successful outcomes.¹⁷

Innovation is a highly dynamic issue that has attracted significant research funding, particularly in the area of new or innovative health services. Innovation is defined as a novel set of behaviours, routines and working methods that deviate from previous practices and aim to improve health outcomes, administrative efficiency, cost-effectiveness or user experience and is implemented through planned and coordinated services.¹⁸ Innovation plays a crucial role in healthcare, focusing on providing new approaches, methods and tools to reduce costs and improve the quality of life. In this domain, organisations operate in an unpredictable and dynamic context, where decision-makers are challenged to manage complex interactions between multiple institutions.¹⁹ A fragmented approach to healthcare innovation, particularly healthcare service innovation, still exists in the current literature.²⁰ Omachonu and Einspruch define healthcare innovation simply as 'the introduction of a new concept, idea, service, process or product with the aim of improving treatment, diagnosis, education, development, prevention and research and with the long-term goals of improving quality, safety, outcomes, efficiency and costs'.²¹

Innovative processes can make health services highly responsive to needs and societal expectations.¹⁹ The lack of a comprehensive guideline for providing innovative

HHN services is an issue that has been emphasised in various studies and from different perspectives. In the absence of an appropriate and flexible organisational protocol, nurses are unable to identify and address current problems, individual goals and health promotion activities based on a standard approach over each home visit.^{8 22} One of the existing infrastructure gaps is the lack of appropriate use of innovative technologies and intelligent systems, which are constantly being developed.^{23 24}

Advances in the use of technology in HHN can not only facilitate the delivery of home care but also have an impact on the whole healthcare system and contribute to individual health autonomy.^{24–28} Because of its combined impact on culture and financial return on investment, innovation has become a competitive imperative.²⁹ As can be observed, the existing non-structural components in the area of HHN services are intertwined, and each component can be the cause or effect of another.³⁰ Therefore, this wide range of uncertain forces requires deep contemplation, infrastructure, coordination, and detailed and comprehensive planning by the government, academics and the nurses working in this field, if we are to remain hopeful about the future of this valuable care.³¹

Knowledge of innovations can have a significant impact on nurses' awareness and perception of emerging technologies. This knowledge enables nurses to choose the most effective practices and adopt modern approaches to patient care. It can also affect the integration of new tools and methods and the efficiency of healthcare.^{32 33} Therefore, nurses' limited knowledge of innovative services, especially in areas of technology-based healthcare where new technologies are constantly being introduced, can result in outdated practices that reduce the quality of patient care and hinder efficiency.³⁴ Although there is a significant need for education and training of nurses in the field of innovations and its approaches,³² comprehensive guidelines for the provision of innovative services, especially in the field of home care, are limited.^{8 23} It is worth noting that this gap in comprehensive guidelines for innovative services has not been addressed in Iran either. Most of the existing studies have focused on the implementation of specific treatments or e-health innovations,^{35–38} and there are still areas that are neglected and require further clarification.³⁹ The lack of a thorough and comprehensive review of innovative services in the context of the HHN as a basis for developing guidelines motivated us to design this review.

The aim of this scoping review protocol is to identify, describe and map different types of innovative services in the HHN structure around the world. This can play a key role in providing efficient, rapid and cost-effective care and increasing nurse and patient satisfaction with HHN. An initial search in PROSPERO, PubMed, the Cochrane Database of Systematic Reviews and the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis did not identify any recent or ongoing systematic reviews on this topic.

Review question

The main question of the research is as follows: what are different types of innovative services and their delivery approaches in the HHN structure around the world?

And the following subquestions:

1. What are different types of innovative services in the field of HHN and how can they be defined?
2. What are the necessary preparations for providing different types of innovative actions in the field of HHN?
3. What are the necessary preparations for receiving different types of innovative services in the field of HHN?

Eligibility criteria

According to the JBI's methodology for scoping reviews, the participants, concept and context framework is used as a guide to develop clear and meaningful objectives and eligibility criteria.⁴⁰

Participants

This review aims to analyse the studies that have evaluated different types of innovative services and their delivery approaches within the HHN structure around the world. Participants will be recruited using a relatively open approach, that is, nurses and other individuals receiving nursing services at home will be eligible for participating in the study as long as they are within the HHN structure.

Concept

Innovative services within the HHN structure are the concept of interest for this review. Telehealth, telenursing, mhealth and remote patient monitoring are examples of innovative services. Moreover, the necessary preparations for providing and receiving various innovative services will be considered as concepts of interest in relation to innovative services.

Context

This review will consider published studies in the field of HHN in all geographical locations, cultures, races and societies. However, studies of nursing homes are not included in this review.

Types of sources

Given the aim of the study, any type of study (eg, quantitative, qualitative, review, mixed method, design and development of models, patterns, protocols, practical and clinical guidelines) that provides useful and reliable information related to innovative services in the field of HHN will be considered in this scoping review.

METHODS

This review protocol will be conducted according to the JBI approach for scoping reviews^{41 42} and is reported based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).⁴³

Box 1 Search strategy for PubMed

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(Innovative[tiab] OR "Service Innovation"[tiab] OR "Innovative Service"[tiab] OR (Service* AND Innovative) OR "Healthcare Innovation"[tiab] OR (Innovation AND Healthcare)) AND (Technolog*[tiab] OR "Physicians' Practice Pattern"[tiab] OR (Practice Pattern* AND Clinical) OR (Pattern* AND Clinical Practice) OR "Clinical Practice Pattern"[tiab] OR ("Nurses' Practice Patterns"[tiab] OR "Nurse's Practice Pattern"[tiab] OR "Nurse Practice Patterns"[tiab] OR Protocol[tiab] OR (Protocol* AND Nursing) OR Guideline[tiab] OR Guideline[PT] OR "Public Policy"[tiab] OR Policy[tiab] OR "Family Planning Policy"[tiab] OR "Health Planning Guideline"[tiab] OR "Health Planning"[tiab]) AND (Virtual[tiab] OR "Virtual Reality"[tiab]) AND (Telemedicine[tiab] OR Tele-Referral[tiab] OR "Tele Referral"[tiab] OR "Virtual Medicine"[tiab] OR (Medicine AND Virtual) OR "Tele-Intensive Care"[tiab] OR "Tele Intensive Care"[tiab] OR Tele-ICU[tiab] OR "Tele ICU"[tiab] OR "Mobile Health"[tiab] OR mHealth[tiab] OR Telehealth[tiab] OR eHealth[tiab] OR "Short Message Service"[tiab] OR "Text Messaging"[tiab] OR Telecommunication*[tiab] OR Telegraph*[tiab] OR Telenursing[tiab] OR "Healthcare Access"[tiab] OR Telecare[tiab]) AND ("Home Care Service"[tiab] OR (Service* AND Home Care) OR (Care Services AND Home) OR "Domiciliary Care"[tiab] OR (Care AND Domiciliary) OR "Home Health Care"[tiab] OR "Home Care"[tiab] OR (Care AND Home) OR "Nursing Care"[tiab] OR "Hospital Home Care Services"[tiab] OR "Hospital Based Home Care Services"[tiab] OR "Home Care Agenc*[tiab] OR (Agenc* AND Home Care) OR (Care Agenc* AND Home) OR "Home Health Care Agencies"[tiab] OR "Home Health Agenc*[tiab] OR (Agenc* AND Home Health) OR "Home Nursing"[tiab] OR "Home Health Nursing"[tiab] OR (Nursing AND Home Health) OR "Home Health Care Nursing"[tiab] OR "Home-based care"[tiab])
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Search strategy

A three-stage search strategy is used in this review to identify published and unpublished texts. A limited initial search in PubMed and Google Scholar will be carried out as the first step. This initial search is followed by analysing the words of the texts found in the titles and abstracts of the retrieved articles and the index terms used to describe the articles. In the second step, a comprehensive search is performed using all identified keywords and index terms in the available international databases including MEDLINE via PubMed, Embase, Cochrane Library, Scopus, Web of Science, ScienceDirect and Persian scientific databases including SID, Magiran and Irandoc. A sample search strategy for PubMed is shown in [box 1](#). Sources of unpublished studies and grey literature include ProQuest theses and dissertations, authoritative databases of organisations that develop and record clinical guidelines, including WHO, SIGN, NGC, NICE and authoritative databases of healthcare providers (Nursing Care Plans (NCP), Netherlands Comprehensive Cancer Organisation (IKNL) and National Health Service (NHS)). In the third step, the reference lists of the identified reports and articles should be searched for additional studies. Reference lists of the studies selected from the full text or included in reviews are checked in this step. All databases are searched within a 2-week period starting from the search initiation date, and the studies published up to May 2024 are identified. There is no

language restriction in this review, but studies that cannot be translated by the research team will be reported in the final review. Keywords such as innovation, virtual, pattern, protocol and practice guideline are used in combination with home care, HHC, home nursing care and home nursing. Keywords are searched both in English and Persian (online supplemental file).

Study/source of evidence selection

After search, all identified records are collected and entered into EndNote software V.X8, and duplicate studies are removed. Between June and July 2024, the authors plan to conduct a title and abstract screening of all eligible articles to determine whether they meet the inclusion criteria for the review. Titles and abstracts of the remaining articles are screened independently by two reviewers in terms of inclusion criteria. The full text of citations selected on the basis of the inclusion criteria will be retrieved and scrutinised by two independent reviewers, and those that meet all the inclusion criteria will be included in the review. The reasons for removing the full text of the articles that do not meet the inclusion criteria are recorded and reported in the review. Any disagreement between the referees at any stage of the selection process will be resolved by discussion or by a third referee. The search results will be fully reported in the final scoping review and presented in a flow chart (PRISMA-ScR).⁴³ Moreover, if necessary, the authors of the articles are contacted for further information during the study selection process. It is expected that the selection of studies for inclusion in the review will be completed within 6 weeks.

Data extraction

The articles will be distributed among the authors and the data will be extracted from the articles included in the review according to the inclusion criteria by two independent reviewers using the data extraction form developed by the research team (box 2). This form will be extracted based on the research questions as well as the opinions of the research team members. Following a

pilot review, a review group discussion will be held with all authors involved in the scoping review. The purpose of this discussion is to reach a consensus on all aspects of the data extraction form, including extracting data and addressing any questions or contradictions that may arise. The primary data extraction form is typically guided by the review question and commonly includes information on population, concept and context.⁴⁰ The extracted data encompass the details of the texts, including the study design, participants, concept (innovative service in the field of HHN) definition of innovative services, context and necessary preparations for providing and receiving innovative services in the field of HHN. If needed, the draft data extraction form will be reviewed, modified and revised during the process of extracting the data from each included article. Any changes will be explained in detail in the final scoping review, and any disagreement between the referees will be resolved by discussion or a request for the third reviewer's opinion. If necessary, the authors of the articles are contacted to ask for additional or missing information.

Critical appraisal of individual sources of evidence

The primary objective of this scoping review is to outline and consolidate the available evidence across different domains. It focuses on mapping the existing literature and summarising key findings, rather than examining the quality of each study to assess the risk of bias for specific outcomes. Therefore, in line with the aim of the review to provide a comprehensive overview of the available evidence, instead of conducting a formal quality assessment of each study, we will assign a 'level of evidence' rating to each study using the JBI's established categorisation.⁴⁴

Data analysis and presentation

The data will be presented based on the concepts of interest. Data analysis will be performed on the basis of each innovative service and by answering the subquestions specific to each innovative service. For example, in order to identify innovative services in the field of HHN, the following method will be used. First, an initial set of innovative service types will be developed in the HHN domain. All reviewers will independently list the types of innovative services in the HHN domain after reading all studies. The same areas will be maintained, different areas will be discussed, and finally, an initial set of innovative service types will be developed in the HHN domain. Second, two reviewers independently list all innovative services in the HHN domain mentioned in all studies which are included. Any disagreements will be resolved by consensus or by using the opinions of a third reviewer. Third, two reviewers will code the studies and innovative services in the field of HHN to identify them. The selected studies are given a unique code consisting of the letter 'S' followed by a number. For example, 'S1' will be the code assigned to the first study. We will code the agreed innovative service in the HHN domain as the letters 'IS' followed

Box 2 Preliminary data extraction form

Item
Author(s)/title/year/country.
Aims/objectives of the study.
Study type.
Study population.
Methods.
Main results.
Level of evidence.
Type and definition of innovative service.
Necessary preparations for providing innovative service in the field of HHN.
Necessary preparations for receiving the provision of innovative service in the field of HHN.
HHN, home health nursing.

by a number. For instance, the first innovative service in the HHN domain will be coded as 'IS1' (eg, 'IS123 S10' is the innovative service 123 which belongs to the study 10). After a group discussion, all innovative services in the HHN domain will be assigned to a specific domain with which they are most aligned, and it will be considered if there is a need to make changes to the initial set of innovative services in the HHN domain. The frequency of each domain of innovative service in the HHN domain is counted to identify the domain with the most innovative service in the HHN domain. The results of this scoping review are presented in the form of a map of the data extracted from the texts included in the study in the form of graphs, tables and descriptive texts, in accordance with the aims and scope of the review. A narrative summary will be provided, along with tables, figures and graphs to provide a visual illustration of the results in line with the objectives and questions of the review.

ETHICS AND DISSEMINATION

This study will not involve human or animal participants. Data will be sourced from published literature. The results of this scoping review will be submitted for publication in an international peer-reviewed, open-access journal and scientific meetings and conferences on public health, HHN and innovative services research.

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Contributors FE conceived the study, developed the research questions, drafted the manuscript and approved the final manuscript. TK contributed meaningfully to the designing, drafting, and editing, and approved the final manuscript. NP, MK and MA supported the conceptualisation of the study, critically reviewed drafts, edited the manuscript and approved the final manuscript.

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Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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Database	Syntax	limitation
PubMed	(Innovative[tiab] OR "Service Innovation"[tiab] OR "Innovative Service"[tiab] OR (Service* AND Innovative) OR "Healthcare Innovation"[tiab] OR (Innovation AND Healthcare)) AND (Technolog*[tiab] OR "Physicians' Practice Pattern"[tiab] OR (Practice Pattern* AND Clinical) OR (Pattern* AND Clinical Practice) OR "Clinical Practice Pattern"[tiab] OR ("Nurses' Practice Patterns"[tiab] OR "Nurse's Practice Pattern"[tiab] OR "Nurse Practice Patterns"[tiab] OR Protocol[tiab] OR (Protocol* AND Nursing) OR Guideline[tiab] OR Guideline[PT] OR "Public Policy"[tiab] OR Policy[tiab] OR "Family Planning Policy"[tiab] OR "Health Planning Guideline"[tiab] OR "Health Planning"[tiab]) AND (Virtual[tiab] OR "Virtual Reality"[tiab]) AND (Telemedicine[tiab] OR Tele-Referral*[tiab] OR "Tele Referral"[tiab] OR "Virtual Medicine"[tiab] OR (Medicine AND Virtual) OR "Tele-Intensive Care"[tiab] OR "Tele Intensive Care"[tiab] OR Tele-ICU[tiab] OR "Tele ICU"[tiab] OR "Mobile Health"[tiab] OR mHealth[tiab] OR Telehealth[tiab] OR eHealth[tiab] OR "Short Message Service"[tiab] OR "Text Messaging"[tiab] OR Telecommunication*[tiab] OR Telegraph*[tiab] OR Telenursing[tiab] OR "Healthcare Access"[tiab] OR Telecare[tiab]) AND ("Home Care Service"[tiab] OR (Service* AND Home Care) OR (Care Services AND Home) OR "Domiciliary Care"[tiab] OR (Care AND Domiciliary) OR "Home Health Care"[tiab] OR "Home Care"[tiab] OR (Care AND Home) OR "Nursing Care"[tiab] OR "Hospital Home Care Services"[tiab] OR "Hospital Based Home Care Services"[tiab] OR "Home Care Agenc*[tiab] OR (Agenc* AND Home Care) OR (Care Agenc* AND Home) OR "Home Health Care Agencies"[tiab] OR "Home Health Agenc*[tiab] OR (Agenc* AND Home Health) OR "Home Nursing"[tiab] OR "Home Health Nursing"[tiab] OR (Nursing AND Home Health) OR "Home Health Care Nursing"[tiab] OR "Home-based care"[tiab])	
Scopus	TITLE-ABS("Innovative") OR TITLE-ABS("Service Innovation") OR TITLE-ABS("Innovative Service") OR TITLE-ABS("Services AND Innovative") OR TITLE-ABS("Healthcare Innovation") OR TITLE-ABS("Innovation AND Healthcare") AND TITLE-ABS("Technology") OR TITLE-ABS("Physicians' Practice Patterns") OR TITLE-ABS("physician's practice Patterns") OR TITLE-ABS("Practice Pattern AND Clinical") OR TITLE-ABS("Pattern AND Clinical Practice") OR TITLE-ABS("Clinical Practice Pattern") OR TITLE-ABS("Nurses' Practice Patterns") OR TITLE-ABS("Practice Pattern AND Nurse's") OR TITLE-ABS("Protocol") OR TITLE-ABS("Protocol* AND Nursing") OR TITLE-ABS("Guideline") OR TITLE-ABS("Public Policy") OR TITLE-ABS("Policy") OR TITLE-ABS("Family Planning Policy") OR TITLE-ABS("Health Planning Guideline") OR TITLE-ABS("Health Planning") AND TITLE-ABS("Virtual") OR TITLE-ABS("Virtual Reality") AND ("Telemedicine") OR TITLE-ABS("Tele-Referral") OR TITLE-ABS("Tele Referral") OR TITLE-ABS("Virtual Medicine") OR TITLE-ABS("Medicine AND Virtual") OR TITLE-ABS("Tele-Intensive Care") OR TITLE-ABS("Tele Intensive Care") OR TITLE-ABS("Tele-ICU") OR TITLE-ABS("Tele ICU") OR TITLE-ABS("Mobile Health") OR TITLE-ABS("mHealth") OR TITLE-ABS("Telehealth") OR TITLE-ABS("eHealth") OR TITLE-ABS("Short Message Service") OR TITLE-ABS("Text Messaging") OR TITLE-ABS("Telecommunication") OR TITLE-ABS("Telegraph") OR TITLE-ABS("Telenursing") OR TITLE-ABS("Healthcare Access") OR TITLE-ABS("Telecare") AND TITLE-ABS("Home Care Service") OR TITLE-ABS("Service AND Home Cares") OR TITLE-ABS(" "Care Services AND	

	Home”) OR TITLE-ABS(“Domiciliary Care”) OR TITLE-ABS(“Care AND Domiciliary”) OR TITLE-ABS(“Home Health Care”) OR TITLE-ABS(“Home Care”) OR TITLE-ABS(“Care AND Home”) OR TITLE-ABS(“Nursing Care”) OR TITLE-ABS(“Hospital Home Care Services”) OR TITLE-ABS(“Hospital-Based Home Care”) OR TITLE-ABS(“Hospital Based Home Care”) OR TITLE-ABS(“Home Care Agency”) OR TITLE-ABS(“Agency* AND Home Care”) OR TITLE-ABS(“Care Agency* AND Home”) OR TITLE-ABS(“Home Health Care Agencies”) OR TITLE-ABS(“Home Health Agency”) OR TITLE-ABS(“Agency* AND Home Health”) OR TITLE-ABS(“Home Nursing”) OR TITLE-ABS(“Home Health Nursing”) OR TITLE-ABS(“Nursing AND Home Health”) OR TITLE-ABS(“Home Health Care Nursing”) OR TITLE-ABS(“Home-based care”)	
Embase	(('Innovative':ab,ti OR 'Service Innovation':ab,ti OR 'Innovative Service':ab,ti OR 'Service Innovative':ab,ti OR 'Healthcare Innovation':ab,ti OR 'Innovation, Healthcare':ab,ti) AND ('Technolog':ab,ti OR 'Physicians' Practice Pattern':ab,ti OR 'Practice Pattern*', Physicians':ab,ti OR 'Physician's Practice Pattern':ab,ti OR 'Nurses' Practice Patterns':ab,ti OR 'Nurse's Practice Pattern':ab,ti OR 'Nurse Practice Patterns':ab,ti OR 'Practice Pattern*', Nurse's':ab,ti OR 'Protocol':ab,ti OR 'Protocol*',Nursing':ab,ti OR 'Nursing Protocol':ab,ti OR 'Guideline':ab,ti OR 'Public Policy':ab,ti OR 'Policy':ab,ti OR 'Family Planning Policy':ab,ti OR 'Health Planning Guideline':ab,ti OR 'Health Planning':ab,ti) AND ('Virtual':ab,ti OR 'Virtual Reality':ab,ti) AND ('Telemedicine':ab,ti OR 'Tele-Referral':ab,ti OR 'Tele Referral':ab,ti OR 'Virtual Medicine':ab,ti OR 'Medicine, Virtual':ab,ti OR 'Tele-Intensive Care':ab,ti OR 'Tele Intensive Care':ab,ti OR 'Tele-ICU':ab,ti OR 'Tele ICU':ab,ti OR 'Mobile Health':ab,ti OR 'mHealth':ab,ti OR 'Telehealth':ab,ti OR 'eHealth':ab,ti OR 'Short Message Service':ab,ti OR 'Text Messaging':ab,ti OR 'Telecommunication':ab,ti OR 'Telegraph':ab,ti OR 'Telenursing':ab,ti OR 'Healthcare Access':ab,ti OR 'Telecare':ab,ti) AND ('Home Care Service':ab,ti OR 'Service*', Home Care':ab,ti OR 'Care Services, Home':ab,ti OR 'Domiciliary Care':ab,ti OR 'Care, Domiciliary':ab,ti OR 'Home Health Care':ab,ti OR 'Home Care':ab,ti OR 'Care, Home':ab,ti OR 'Nursing Care':ab,ti OR 'Hospital Home Care Services':ab,ti OR 'Hospital-Based Home Care':ab,ti OR 'Hospital Based Home Care':ab,ti OR 'Home Care Agenc':ab,ti OR 'Agenc*', Home Care':ab,ti OR 'Care Agenc*':ab,ti OR 'Home':ab,ti OR 'Home Health Care Agencies':ab,ti OR 'Home Health Agenc':ab,ti OR 'Agenc*', Home Health':ab,ti OR 'Home Nursing':ab,ti OR 'Home Health Nursing':ab,ti OR 'Nursing, Home Health':ab,ti OR 'Home Health Care Nursing':ab,ti OR 'Home-based care':ab,ti)	
Web of Science	(TS=(Innovative) OR TS=(Service Innovation) OR TS=(Innovative Service) OR TS=(Service* AND Innovative) OR TS=(Healthcare Innovation) OR TS=(Innovation AND Healthcare)) AND (TS=(Technology*) TS=(Physicians' Practice Pattern*) OR TS=(Physician's Practice Pattern*) OR TS=(Clinical Practice Pattern*) OR OR TS=(Nurses' Practice Patterns) OR TS=(Protocol) OR TS=(Nursing Protocol*) OR TS=(Guideline) OR TS=(Public Policy) OR TS=(Policy) OR TS=(Family Planning Policy) OR TS=(Health Planning Guideline*) OR TS=(Health Planning)) AND (TS=(Virtual) OR TS=(Virtual Reality)) AND (TS= (Telemedicine) OR TS=(Tele-Referral) OR TS=(Tele Referral) OR TS=(Virtual Medicine) OR TS=(Medicine AND Virtual) OR TS=(Tele-Intensive Care) OR TS=(Tele Intensive Care) OR TS=(Tele-ICU) OR TS=(Tele ICU) OR TS=(Mobile Health) OR TS=(mHealth) OR TS=(Telehealth) OR TS=(eHealth) OR TS=(Short Message Service) OR TS=(Text Messaging) OR TS=(Telecommunication) OR TS=(Telegraph) OR TS=(Telenursing) OR TS=(Healthcare Access) OR TS=(Telecare)) AND (TS=(Home Care Service*) OR TS=(Service AND Home Care) OR TS=(Care Services AND Home) OR TS=(Domiciliary Care) OR TS=(Care AND	

	Domiciliary) OR TS=(Home Health Care) OR TS=(Home Care) OR TS=(Care AND Home) OR TS=(Nursing Care) OR TS=(Hospital Home Care Services) OR TS=(Hospital Based Home Care) OR TS=(Home Care Agency) OR TS=(Agency AND Home Care) OR TS=(Care Agency AND Home) OR TS=(Home Health Care Agencies) OR TS=(Home Health Agency) OR TS=(Agency AND Home Health) OR TS=(Home Nursing) OR TS=(Home Health Nursing) OR TS=(Nursing AND Home Health) OR TS=(Home Health Care Nursing) OR TS=(Home-based care))	
PROQUEST	(AB(Innovative) OR AB("Service Innovation") OR AB("Innovative Service") OR (AB(Service*) AND AB(Innovative)) OR AB("Healthcare Innovation") OR (AB(Innovation) AND AB(Healthcare))) AND (AB(Technolog*) OR AB("Physicians' Practice Pattern*") OR AB("Physician's Practice Pattern*") OR AB("Clinical Practice Pattern*") OR AB("Nurses' Practice Patterns") OR AB(Protocol) OR AB("Nursing Protocol*") OR AB(Guideline) OR AB("Public Policy") OR AB(Policy) OR AB("Family Planning Policy") OR AB("Health Planning Guideline*") OR AB("Health Planning")) AND (AB(Virtual) OR AB("Virtual Reality")) AND (AB(Telemedicine) OR AB(Tele-Referral*) OR AB("Tele Referral") OR AB("Virtual Medicine") OR (AB(Medicine) AND AB(Virtual)) OR AB("Tele-Intensive Care") OR AB("Tele Intensive Care") OR AB(Tele-ICU) OR AB("Tele ICU") OR AB("Mobile Health") OR AB(mHealth) OR AB(Telehealth) OR AB(eHealth) OR AB("Short Message Service") OR AB("Text Messaging") OR AB(Telecommunication*) OR AB(Telegraph*) OR AB(Telenursing) OR AB("Healthcare Access") OR AB(Telecare)) AND (AB("Home Care Service*") OR (AB(Service*) AND AB(Home Care)) OR (AB(Care Services) AND AB(Home)) OR AB("Domiciliary Care") OR (AB(Care) AND AB(Domiciliary)) OR AB("Home Health Care") OR AB("Home Care") OR (AB(Care) AND AB(Home)) OR AB("Nursing Care") OR AB("Hospital Home Care Services") OR AB("Hospital Based Home Care*") OR AB("Home Care Agenc*") OR (AB(Agenc*) AND AB(Home Care)) OR (AB(Care Agenc*) AND Home) OR AB("Home Health Care Agencies") OR AB("Home Health Agenc*") OR (AB(Agenc*) AND AB(Home Health)) OR AB("Home Nursing") OR AB("Home Health Nursing") OR (AB(Nursing) AND AB(Home Health)) OR AB("Home Health Care Nursing") OR AB("Home-based care"))	
Cochrane Library	((("Innovative"):ti,ab,kw OR ("Service Innovation"):ti,ab,kw OR ("Innovative Service"):ti,ab,kw OR ("Service* AND Innovative"):ti,ab,kw OR ("Healthcare Innovation"):ti,ab,kw OR ("Innovation AND Healthcare"):ti,ab,kw) AND ((Technolog*):ti,ab,kw OR ("Physicians' Practice Pattern*"):ti,ab,kw OR ("Physician's Practice Pattern*"):ti,ab,kw OR ("Clinical Practice Pattern*"):ti,ab,kw OR ("Nurses' Practice Patterns"):ti,ab,kw OR ("Protocol"):ti,ab,kw OR ("Nursing Protocol*"):ti,ab,kw OR ("Guideline"):ti,ab,kw OR ("Public Policy"):ti,ab,kw OR ("Policy"):ti,ab,kw OR ("Family Planning Policy"):ti,ab,kw OR ("Health Planning Guideline*"):ti,ab,kw OR ("Health Planning"):ti,ab,kw) AND ((("Virtual"):ti,ab,kw OR ("Virtual Reality"):ti,ab,kw) AND ((Telemedicine):ti,ab,kw OR ("Tele-Referral*"):ti,ab,kw OR ("Tele Referral"):ti,ab,kw OR ("Virtual Medicine"):ti,ab,kw OR ("Medicine AND Virtual"):ti,ab,kw OR ("Tele-Intensive Care"):ti,ab,kw OR ("Tele Intensive Care"):ti,ab,kw OR ("Tele-ICU"):ti,ab,kw OR ("Tele ICU"):ti,ab,kw OR ("Mobile Health"):ti,ab,kw OR ("mHealth"):ti,ab,kw OR ("Telehealth"):ti,ab,kw OR ("eHealth"):ti,ab,kw OR ("Short Message Service"):ti,ab,kw OR ("Text Messaging"):ti,ab,kw OR ("Telecommunication*"):ti,ab,kw OR ("Telegraph*"):ti,ab,kw OR ("Telenursing"):ti,ab,kw OR ("Healthcare Access"):ti,ab,kw OR ("Telecare"):ti,ab,kw) AND ((("Home Care Service*"):ti,ab,kw OR ("Service*	

	AND Home Care"):ti,ab,kw OR ("Care Services AND Home"):ti,ab,kw OR ("Domiciliary Care"):ti,ab,kw OR ("Care AND Domiciliary"):ti,ab,kw OR ("Home Health Care"):ti,ab,kw OR ("Home Care"):ti,ab,kw OR ("Care AND Home"):ti,ab,kw OR ("Nursing Care"):ti,ab,kw OR ("Hospital Home Care Services"):ti,ab,kw OR ("Hospital Based Home Care*"):ti,ab,kw OR ("Home Care Agenc*"):ti,ab,kw OR ("Agenc* AND Home Care"):ti,ab,kw OR ("Care Agenc* AND Home"):ti,ab,kw OR ("Home Health Care Agencies"):ti,ab,kw OR ("Home Health Agenc*"):ti,ab,kw OR ("Agenc* AND Home Health"):ti,ab,kw OR ("Home Nursing"):ti,ab,kw OR ("Home Health Nursing"):ti,ab,kw OR ("Nursing AND Home Health"):ti,ab,kw OR ("Home Health Care Nursing"):ti,ab,kw OR ("Home-based care"):ti,ab,kw)	
Science Direct	TITLE-ABS-KEY(Innovative) OR TITLE-ABS-KEY(Service Innovation) OR TITLE-ABS-KEY(Innovative Service) OR TITLE-ABS-KEY(Service* AND Innovative) OR TITLE-ABS-KEY(Healthcare Innovation) OR TITLE-ABS-KEY(Innovation AND Healthcare) AND TITLE-ABS-KEY(Technology*) OR TITLE-ABS-KEY(Physicians' Practice Pattern*) OR TITLE-ABS-KEY(Physician's Practice Pattern*) OR TITLE-ABS-KEY(Clinical Practice Pattern*) OR TITLE-ABS-KEY(Nurses' Practice Patterns) OR TITLE-ABS-KEY(Protocol) OR TITLE-ABS-KEY(Nursing Protocol*) OR TITLE-ABS-KEY(Guideline) OR TITLE-ABS-KEY(Public Policy) OR TITLE-ABS-KEY(Policy) OR TITLE-ABS-KEY(Family Planning Policy) OR TITLE-ABS-KEY(Health Planning Guideline*) OR TITLE-ABS-KEY(Health Planning) AND TITLE-ABS-KEY(Virtual) OR TITLE-ABS-KEY(Virtual Reality) AND TITLE-ABS-KEY(Telemedicine) OR TITLE-ABS-KEY(Tele-Referral) OR TITLE-ABS-KEY(Tele Referral) OR TITLE-ABS-KEY(Virtual Medicine) OR TITLE-ABS-KEY(Medicine AND Virtual) OR TITLE-ABS-KEY(Tele-Intensive Care) OR TITLE-ABS-KEY(Tele Intensive Care) OR TITLE-ABS-KEY(Tele-ICU) OR TITLE-ABS-KEY(Tele ICU) OR TITLE-ABS-KEY(Mobile Health) OR TITLE-ABS-KEY(mHealth) OR TITLE-ABS-KEY(Telehealth) OR TITLE-ABS-KEY(eHealth) OR TITLE-ABS-KEY(Short Message Service) OR TITLE-ABS-KEY(Text Messaging) OR TITLE-ABS-KEY(Telecommunication) OR TITLE-ABS-KEY(Telegraph) OR TITLE-ABS-KEY(Telenursing) OR TITLE-ABS-KEY(Healthcare Access) OR TITLE-ABS-KEY(Telecare) AND TITLE-ABS-KEY(Home Care Service*) OR TITLE-ABS-KEY(Service AND Home Care) OR TITLE-ABS-KEY(Care Services AND Home) OR TITLE-ABS-KEY(Domiciliary Care) OR TITLE-ABS-KEY(Care AND Domiciliary) OR TITLE-ABS-KEY(Home Health Care) OR TITLE-ABS-KEY(Home Care) OR TITLE-ABS-KEY(Care AND Home) OR TITLE-ABS-KEY(Nursing Care) OR TITLE-ABS-KEY(Hospital Home Care Services) OR TITLE-ABS-KEY(Hospital Based Home Care) OR TITLE-ABS-KEY(Home Care Agency) OR TITLE-ABS-KEY(Agency AND Home Care) OR TITLE-ABS-KEY(Care Agency AND Home) OR TITLE-ABS-KEY(Home Health Care Agencies) OR TITLE-ABS-KEY(Home Health Agency) OR TITLE-ABS-KEY(Agency AND Home Health) OR TITLE-ABS-KEY(Home Nursing) OR TITLE-ABS-KEY(Home Health Nursing) OR TITLE-ABS-KEY(Nursing AND Home Health) OR TITLE-ABS-KEY(Home Health Care Nursing) OR TITLE-ABS-KEY(Home-based care)	
WHO	Innovation service AND Home Health Care	
SIGN	Innovation service AND Home Health Care	
NGC	Innovation service AND Home Health Care	
NICE	Innovation service AND Home Health Care	
NCP	Innovation service AND Home Health Care	
IKNL	Innovation service AND Home Health Care	

NHS	Innovation service AND Home Health Care	
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Supplementary file: Search strategy

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	In our manuscript
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	Page 1, line 2
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	Page 2, line 23
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	Page 1, line 4 to 23
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	Page 12, line 1 to 5
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	-
Support:			
Sources	5a	Indicate sources of financial or other support for the review	Page 12, line 6 to 8
Sponsor	5b	Provide name for the review funder and/or sponsor	Page 12, line 6 to 8
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	Page 12, line 6 to 8
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	Page 3 to 5
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	Page 6, line 23 to 24
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	Page 7, line 3 to 26
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	Page 8, line 5 to 24
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	Page 8 to 9, Table 1

Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	Page 9, line 2 to 5
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	Page 9, line 5 to 15
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	Page 9, line 17 to page 10, line 14
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	Page 10, Table 2
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	Page 9, line 5 to 15
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	Page 9, line 5 to 15
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	-
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I ² , Kendall's τ)	-
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	-
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	Page 11, line 1 to 24
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	Page 10, line 16 to 21
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	-

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.