

REVIEW ARTICLE

Exploring implementation considerations for geriatric-HIV clinics: A secondary analysis from a scoping review on HIV models of geriatric care

Kristina Marie Kokorelias^{1,2}  | Anna Grosse^{1,3} | Alice Zhabokritsky^{4,5,6} | Sharon L. Walmsley^{4,5,6} | Luxey Sirisegaram^{1,3}

¹Division of Geriatric Medicine, Department of Medicine, Sinai Health System and University Health Network, Toronto, Ontario, Canada

²Department of Occupational Science & Occupational Therapy, Temerty Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

³Division of Geriatric Medicine, Department of Medicine, University of Toronto, Toronto, Ontario, Canada

⁴Department of Medicine, The University of Toronto, Toronto, Ontario, Canada

⁵Infectious Diseases, Department of Medicine, University Health Network, Toronto, Ontario, Canada

⁶CIHR Canadian HIV Trails Network, Vancouver, British Columbia, Canada

Correspondence

Kristina Marie Kokorelias, Division of Geriatric Medicine, Department of Medicine, Sinai Health and University Health Network, Toronto, Ontario, Canada.
Email: Kristina.Kokorelias@sinaihealth.ca

Abstract

Objectives: This review aimed to map the current state of knowledge regarding the implementation considerations of existing geriatric-HIV models of care, to identify areas of further research and to inform the implementation of future geriatric-HIV interventions that support older adults living with HIV.

Methods: We conducted a scoping review that was methodologically informed by the Arskey and O'Malley's 5 step framework and theoretically informed by the Consolidated Framework for Implementation Research (CFIR). A systematic search of six databases was conducted for peer-reviewed literature. The grey literature was also searched. Article screening was performed in duplicate. Data was extracted for the purpose of this secondary analysis using a data extraction template informed by the CFIR. Data was inductively and deductively analyzed.

Results: In total, 11 articles met the inclusion criteria. The models of care described varied in terms of their location and setting, the number and type of care providers involved, the mechanism of patient referral, the type of assessments and interventions performed and the methods of longitudinal patient follow-up. Four key categories emerged to describe factors that influenced their implementation: care provider buy-in, patient engagement, mechanisms of communication and collaboration, and available resources.

Conclusions: The findings from this scoping review provide an initial understanding of the key factors to consider when implementing geriatric-HIV models of care. We recommend health system planners consider mechanisms of communication and collaboration, opportunities for care provider buy-in, patient engagement and available resources. Future research should explore implementation in more diverse settings to understand the nuances that influence implementation and care delivery.

KEYWORDS

HIV, implementation, older adult, scoping review

INTRODUCTION

HIV has evolved to become a manageable chronic condition [1, 2]. Consequently, more individuals living with HIV are living into older age (aged ≥ 50 years) [3] and a growing number of adults are being diagnosed with HIV for the first time later in life [4–6]. Given these trends, health and social care services will need to adapt to meet the needs of older adults living with HIV.

Many factors make it difficult for older adults living with HIV to receive appropriate geriatric care to meet their health and social care needs. Seminal research by Fritsch in 2005 found that many older adults living with HIV assume that HIV-targeted health and social care services are exclusively for younger populations and thus do not access them for ageing-related concerns [7]. In addition, new HIV diagnoses can be misdiagnosed in older individuals as cognitive impairment (e.g. Alzheimer's disease), cancer or pneumonia [8]. This delay in a new HIV diagnosis contributes to lack of access to HIV-specific services. Furthermore, many healthcare professionals lack knowledge and awareness about HIV in older adults, meaning many lack the experience to provide adequate care for older adults living with HIV and may not refer them to appropriate services [9–11]. As it is an evolving area of medicine, many geriatricians and other geriatric specialists also report a lack of experience with and knowledge about HIV in older adults [10, 12] and consequently are uncomfortable providing care to older adults living with HIV [10]. Thus, how to optimize services and best support healthy aging in older adults living with HIV remains unclear [13].

To identify opportunities for supporting older adults, experts recommend comprehensive geriatric assessments (CGAs) to identify functional deficits and other health and social concerns [14–17]. Accordingly, incorporating geriatricians into HIV models of care has become a popular approach to support older adults living with HIV [16, 18, 19]. While existing research has begun to describe some of these models of care [14, 16, 19, 20], no scoping review to date has summarized the facilitators of and barriers to their successful implementation. This information is required to create evidence-informed guidelines that direct the future development, delivery and implementation of geriatric-HIV models of care, and should be a priority for healthcare systems caring for older adults living with HIV.

To address this knowledge gap, this article provides a secondary analysis of the existing evidence identified in a scoping review about the key components of existing models of geriatric-HIV care. Results from this review are presented in a separate companion article [21]. Our objective in this article is to provide key findings on the barriers to and facilitators of implementing geriatric-HIV models of care. We present a synthesis of the current

state of knowledge regarding the implementation considerations of existing geriatric-HIV models of care to identify areas of further research. Our results will also provide recommendations to inform the implementation of future geriatric-HIV interventions that support older adults living with HIV.

METHODS

Design

We took a systematic approach to finding evidence on the existing geriatric-HIV models of care by conducting a scoping review of the relevant literature. This review followed the Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) extension for Scoping Reviews (PRISMA-ScR) reporting guidelines [22] and was methodologically informed by Arskey and O'Malley [23] and Levac et al. [24]. A protocol for the original review was published to ensure our review was manageable, transparent and reproducible [21] however, the original protocol did not mention a secondary review. Below we present our secondary analysis and report our findings using the PRISMA-ScR [22] (Appendix A).

Theoretical framework

This study was theoretically informed by the Consolidated Framework for Implementation Research (CFIR) [25, 26]. The CFIR is a conceptual framework developed to offer guidance regarding the factors to be considered within a systematic assessment of multilevel implementation contexts that, in turn, can be used to facilitate an understanding of the factors that might influence the implementation of health service interventions [26]. The CFIR is composed of five major domains and 39 constructs, reflecting the factors believed to be most likely to influence the implementation of interventions, including: (a) Intervention characteristics (e.g. stakeholders' perceptions, complexity of interventions); (b) outer setting (i.e. external context or environment such as patient needs); (c) inner setting (e.g. networks, communication); (d) characteristics of individuals (e.g. the individuals involved in the implementation); (e) process (e.g. including planning, engaging appropriate individuals, reflecting and evaluating) [25, 26].

This review explores how existing geriatric-HIV health delivery interventions are implemented. These insights can be used to create evidence-informed recommendations for implementing future geriatric-HIV models of care pertaining to the different domains of the CFIR framework as outlined earlier. The CFIR offers a

comprehensive and multifaceted lens through which we were able to analyse and understand the complex interplay of factors influencing implementation success. The decision to use CFIR was motivated by the framework's ability to capture a wide range of contextual, organizational and individual factors that can impact the implementation of healthcare interventions, as well as its potential to provide actionable insights for developing effective models of care based on a nuanced understanding of the implementation context.

Identifying the research question

As the HIV population ages, there is a need to incorporate geriatric models of care into HIV care. During the analysis phase of the larger scoping review [21], we identified the need to re-examine the data for the identification of implementation barriers and facilitators.

Identifying relevant studies

For the original review we chose six electronic databases for searching: MEDLINE(R) ALL (in Ovid, including Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily), NLM's PubMed OVID, Embase+Embase Classic, EBSCO's CINAHL Complete, Clarivate's Web of Science Core Collection, and Elsevier's Scopus. These sources were searched from date of inception to 2022 on 21 October 2022, using a peer-reviewed [27] and tested search strategy (Appendix B). Grey literature and non-indexed articles were searched for using Google Scholar, Open Grey, open Google searches and relevant websites, including the World Health Organization, UK National Research Register, CADTH's 'Grey Matters', New York Academy of Medicine's Grey Literature Report, the Canadian Medical Association InfoBase and the National Institute for Health and Care Excellence – Guidance. The search terms were similar to those used in the scientific search. These findings were supplemented with a hand search for articles, as well as asking experts within the researchers' networks for any grey literature missed. A hand search was re-done by KMK and AG in February 2023 to ensure that articles were up to date [28]. The authors also reached out to the same experts previously consulted to ask if any new articles could be included.

Selecting studies

Articles were deduplicated using the Bramer method [29, 30]. The larger scoping review considered any

article that described an implemented model or models of care to treat older adults living with HIV exclusively (i.e. not as part of the treatment for multi-morbidity including HIV) and included a registered healthcare provider that specialized in geriatric care (e.g. gerontology social worker, geriatric clinical nurse specialist, geriatrician). Table 1 details the inclusion and exclusion criteria.

The study selection for this study, as well as the larger study, involved two levels of screening (level 1 – title and abstract; and level 2 – full text). At both stages, two researchers independently reviewed the articles. Any conflicts were resolved by a third reviewer. To help ensure consistency across all researchers, a common understanding of geriatric models of care and implemented interventions was established using existing reviews as a guide [33, 34]. This was established prior to data screening and the application of the inclusion/exclusion criteria. Covidence software was used to facilitate the screening process [35].

Charting the data

Data were re-extracted for the purpose of our secondary analysis by one researcher (KMK). We used a data extraction template [24] and codebook [36, 37] informed by the CFIR [26] to extract data into categories based on study background information, details of relevant implementation processes and outcomes. We also reviewed the extracted data from our original review that included the study characteristics (i.e. author, year, country and design) and details of the participants. All extracted data were reviewed and verified by the other members of the research team to enhance the data quality by verifying accuracy.

We made no assessment on the quality of each article.

Summarizing and reporting the data

As with the original review [21], data were first described numerically using descriptive statistics. Next, a narrative descriptive synthesis was conducted [24, 38, 39]. This process entailed the first two authors (KMK and AG) coding the articles using NVivo Software [40], to deductively identify themes informed by the five main CFIR domains [26]. This was then discussed in the context of the charted data, to ensure all relevant ideas were captured. Next, the researchers open-coded the articles using a line-by-line process to identify broad and granular constructs [41] that relate to the five domains [26]. These constructs represented the various

TABLE 1 Original scoping review inclusion and exclusion criteria.

Inclusion criteria	Rationale	Exclusion criteria
Available in English	Due to time and resource constraints, only English-language articles will be included.	
Article that describes an implemented model of healthcare	Due to the research objectives of both analyses, interventions under consideration had to exist within real-world settings.	Hypothetical models of care or articles that have not yet been implemented. Articles focused on ethical issues or the theoretical understandings of HIV care or geriatric care, focused on training healthcare providers on how to deliver HIV and/or geriatric care; and/or described social support, rather than care in a clinical, healthcare context.
Empirical studies and perspective articles, including commentaries	Data required sufficient detail about the intervention and implementation to be considered relevant to meet both analyses' research question. Examples of included study designs include: pilot studies (e.g. feasibility or utility studies), action research, case studies, ethnography, evaluation methods, research experiments, qualitative research, questionnaires research, statistical analysis.	Book sections, theses, film broadcasts, abstracts without adequate data, and literature reviews were excluded.
Focus on older adults (≥ 50 years of age [31,32])	Geriatric-HIV clinics not tested with older adults may not meet the needs of older adults. Geriatric age in the context of HIV has traditionally been considered to be ≥ 50 years [31,32]. The focus is on geriatric-HIV interventions.	Mixed samples should include the majority of older adult ≥ 50 years), not necessarily exclusively

factors that influenced implementation. These were then discussed amongst the entire research team. During these discussions, the coded text was evaluated and compared with the quantitative analysis to identify any trends. Moreover, the coded data were discussed to identify the major implementation strategies and determinant factors. These were then given theme labels and written up [36, 42].

RESULTS

Overview

In total, 11 articles met the inclusion and exclusion criteria. Two articles included in the previous review did not sufficiently describe the implementation strategy and was not included in this review. The search process is detailed in Figure 1. Studies were published in the US and the UK. All of the articles were published in the last 13 years. Table 2 provides a summary of the included studies' settings and methods of programme delivery, and indicates how each contributed to the four implementation themes detailed in the following sections.

Characteristics of programmes

The models of care described varied in terms of their location and setting, the number and type of care providers involved, the mechanism of patient referral, the type of assessments and interventions performed and the methods of longitudinal patient follow-up. Models are described in greater detail in the original article [21]. In total, 14 unique programmes were described across the 11 articles. Two articles described the same 'Golden Compass' and two articles describe the same 'Silver Clinic'. Ten of these models ($n = 10/13$, 77%) occurred in-person at outpatient settings. Most studies ($n = 9/11$, 82%) described an in-person geriatric consultation service located within an existing HIV clinic [14–16, 20, 43–47], although one ($n = 1/11$, 9%) detailed a community outreach service delivered in people's homes [48], and two ($n = 2/11$, 18%) included components delivered in an online or telemedicine format [15, 49]. Almost all models of care ($n = 11/14$, 79%) incorporated a multidisciplinary team [14–16, 20, 43–49] into the delivery of care. The most common method of access to geriatric-HIV services described in the studies was via clinician referral when there was a perceived clinical need [14, 16, 20, 43–45] ($n = 6/11$, 55%); however, self-

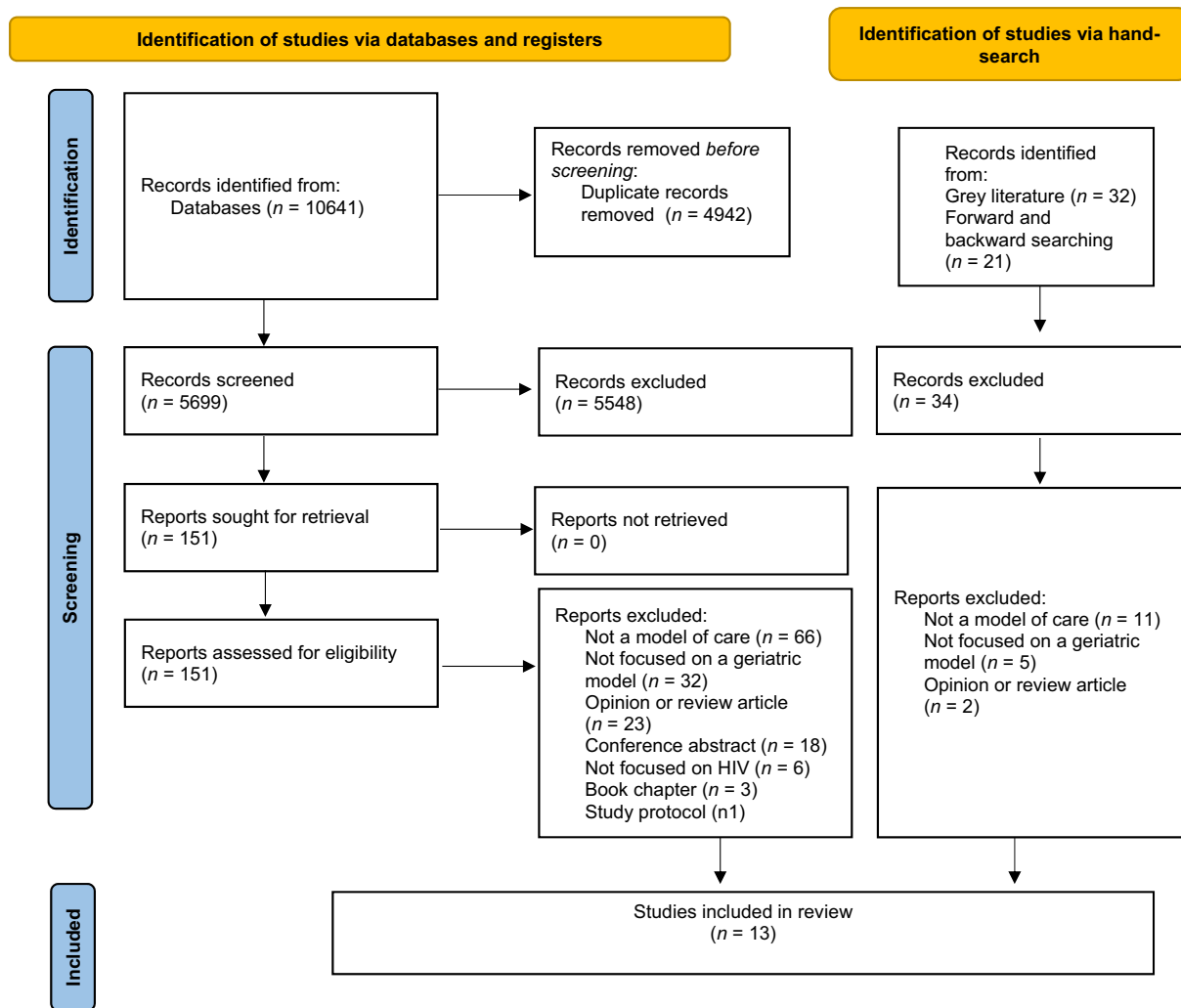


FIGURE 1 PRISMA flow diagram.

referral [49] ($n = 1/11$, 9%) and referral generation via screening processes [46, 47] ($n = 2/11$, 18%) were also described. Assessments and care interventions commonly included geriatric screening tests [e.g. Montreal Cognitive Assessment ($n = 1/11$, 9%)], CGAs ($n = 8/11$, 73%), medication reviews ($n = 2/11$, 18%), mobility and functional assessments ($n = 2/11$, 18%) and patient education initiatives ($n = 5/11$, 45%). Some services provided a one-off geriatric-focused review and relied upon the primary care or HIV provider to implement any recommendations, while others offered longitudinal geriatric follow-up.

Intervention effectiveness

Most studies provided evidence that the addition of geriatric care providers to a patient's HIV care team

improved access to holistic mental and physical health care. CGAs proved to be instrumental in guiding healthcare providers to consider the mental health of service users [47, 50]. Consequently, some models of care were effective in reducing depressive episodes [47, 50], particularly those that embedded mental health providers, such as psychotherapists, in their clinics [14, 45, 50]. The CGA also guided healthcare providers in considering the overall daily functioning and cognitive behaviour of older adults living with HIV, which helped to identify comorbidities [47] by recognizing and diagnosing any coexisting medical conditions that might have otherwise gone unnoticed [42, 51, 52]. By working within multidisciplinary care teams [44, 45, 48], healthcare providers were able to anticipate future patient needs and organize care and services to meet those needs [14, 15, 20, 44–46]. Moreover, healthcare providers were able to focus on the determinants of health of particular importance within

TABLE 2 Characteristics of the geriatric-HIV models of care in the included studies and their contribution to the implementation themes.

First author; year; intervention	Setting; country	Delivery method	Healthcare professionals involved	Implementation factor(s) IDENTIFIED
Bitas [16]; retrospective cohort study using medical record data from a geriatric-HIV clinic	Geriatric consultation service established within existing HIV clinic; USA	In-person outpatient clinic	HIV specialist (infectious diseases or internal medicine physician), social worker, psychiatrist dietician, geriatrician	Care provider buy-in; patient engagement
Cresswell [43]; evaluation of nationwide geriatric service provision via a questionnaire of HIV clinics	Model 1: geriatric and HIV consultation offered in a joint clinic; UK Model 2: one-off geriatric-focused review within an HIV clinic; UK	In-person outpatient clinics	Physician, HIV clinical nurse, specialist, clinical psychologist, dietician, social worker, physiotherapist, occupational therapist	Care provider buy-in; available resources
Davis [44]; viewpoint article describing existing models of geriatric-HIV care	Model 1: referral from HIV clinic to external geriatrician; USA Model 2: combined geriatric and HIV multidisciplinary clinic, USA; Canada and UK Model 3: consultation by dual-trained geriatric and HIV physician; USA	In-person outpatient clinics	Model 1: geriatrician; HIV provider Model 2: physician; geriatrician with HIV training Model 3: dual-trained provider with expertise in geriatrics and HIV	Patient engagement; mechanisms of communication and collaboration; available resources
Garvey [48]; report on a geriatric-HIV service	Geriatric, HIV and palliative care services provided in patients' homes with an after-hours on-call system; USA	In-person home care	Registered nurse (case manager), social worker, counsellor, therapist, nutritionist, home care aide, medical director, chaplain, volunteer(s)	Patient engagement; mechanisms of communication and collaboration; available resources
Greene [45]; needs assessment for a geriatric-HIV service using a patient questionnaire and focus groups	"The Silver Project"; geriatric assessments performed within an existing HIV clinic; USA	In-person outpatient clinic	Administration, nurse, medical assistant, nurse practitioner, physician	Care provider buy-in; patient engagement; mechanisms of communication and collaboration
Greene [14]; implementation analysis of a Geriatric-HIV service using the RE-AIM Framework	"The Golden Compass"; geriatric and cardiology consultation service with group classes for patients within an existing HIV clinic; USA	In-person outpatient clinic	Physician, medical director, cardiologist, geriatrician, registered nurse, pharmacist, program coordinator, medical assistant	Care provider buy-in; patient engagement; mechanisms of communication and collaboration
Levett [46]; evaluation of a geriatric-HIV service using data from medical records and a patient questionnaire	"The Silver Clinic"; geriatric and HIV clinic service within an existing HIV clinic; UK	In-person outpatient clinic	HIV physician, geriatrician, HIV nurse specialist, HIV pharmacist	Care provider buy-in; patient engagement; available resources
Ruiz [47]; report on a geriatric-HIV service	"Mmuta Program"; geriatric screening programme within an	In-person outpatient clinic	Dual-trained geriatrician/HIV specialist, social worker, pharmacist	Patient engagement; available resources

TABLE 2 (Continued)

First author; year; intervention	Setting; country	Delivery method	Healthcare professionals involved	Implementation factor(s) IDENTIFIED
using data from medical records	existing HIV clinic; USA		Nurse practitioner	
Schmalzle [49]; report on a geriatric-HIV service using data from medical records and patient 'listening sessions'	"The STRONG Program"; geriatric consultation service within an existing HIV clinic; USA	In-person outpatient clinic; telemedicine	social worker, pharmacists, physician	Mechanisms of communication and collaboration; available resources
Siegler [15]; viewpoint article describing existing models of Geriatric-HIV care	Model 1: geriatric consultation service within an existing HIV clinic; USA, UK, Canada, Spain Model 2: 'metabolic clinic' model providing geriatric-focused HIV care; Australia, China, Italy Model 3: online supports; Italy, Australia, France, Spain	In-person outpatient clinic; online	Geriatrician, psychologist, pharmacist	Patient engagement; Mechanisms of communication and collaboration; available resources
Tan [20]; evaluation of a geriatric-HIV service using data from patient and provider interviews	"The Golden Compass"; geriatric and cardiology consultation service with group classes for patients within an existing HIV clinic; USA	In-person outpatient clinic	HIV geriatrician, cardiologist, pharmacist, general practitioner	Care provider buy-in patient engagement; Mechanisms of communication and collaboration; AVAILABLE resources

Abbreviation: CGA, comprehensive geriatric assessment.

the context of older adults living with HIV [45]. Focusing on the determinants of health and meeting older adults living with HIV's current and future needs were shown to improve patient's quality of life [14, 45, 48] and their satisfaction with care [14, 20]. Improving satisfaction in care increased trust between services users and providers [20]. Patient satisfaction was commonly measured through qualitative data collection methods, such as semi-structured interviews [14, 20]. No study explicitly examined healthcare providers' outcomes, as the majority were focused on patient outcomes.

Implementation factors

When analysing the described geriatric-HIV models of care for factors that influenced their implementation, four key categories of barriers and facilitators emerged: care provider buy-in, patient engagement, mechanisms of communication and collaboration, and available resources. Each category presented in the following

sections incorporates factors that can be considered as facilitating, as well as posing a barrier to, implementation.

Care provider buy-in (inner setting and outer setting)

The perceptions of care providers (e.g. geriatricians, HIV specialists) were noted to be important for the implementation of geriatric-HIV models of care in six included studies [14, 20, 43, 45, 46]. Adequate buy-in from both referring and consulting clinicians was required for some programmes to be viable. There needed to be an awareness of geriatric-focused programmes among clinicians caring for older persons with HIV to generate referrals [14], and geriatricians had to be willing to see older adults living with HIV who were sometimes younger than their usual demographic [44]. Moreover, not only did geriatric-HIV services need to be visible and available but they also had to be perceived as valuable [14, 16, 46].

Ways in which care providers felt these programmes were able to add value included providing better patient care, operating synergistically with existing multidisciplinary HIV care teams [20] and offering opportunities to further staff education and build their confidence in caring for older adults with HIV [20, 45]. When care providers were not aware of geriatric-HIV models of care or did not find them to be beneficial, this was a potential barrier to implementation. For example, Cresswell and Levett's survey of UK-based HIV clinics [43] found that only 23% of HIV clinics without a dedicated geriatric service saw a need for one, possibly explaining why only two such services exist.

Patient engagement (inner setting)

Nine included studies commented on the role of patient engagement in the implementation of geriatric-HIV models of care [14–16, 20, 44–48]. When older adults living with HIV were appropriately and adequately engaged, this helped to facilitate programme implementation [14, 15, 20, 44–48]; however, when this did not occur, it was seen as a barrier [14–16, 44]. Several factors were identified as positively contributing to patient engagement. The co-location of HIV and geriatric services within a single venue was found to improve patient attendance and satisfaction [20, 44, 45]. Organized group education sessions and community support networks were reported to foster valuable social connections [14, 45]. Taking a shared decision-making approach [20, 48] and involving older adults living with HIV's caregivers within the professional care team [48] were also effective strategies. Furthermore, providing patient education and promoting self-management using both online and in-person resources were used to enhance patient engagement [15, 20].

Conversely, the implementation of geriatric-HIV models of care was impeded when older adults living with HIV did not understand or agree with the purpose or need for geriatric services [14, 44] and when they felt stigmatized by having a 'geriatric' label [14]. Furthermore, referrals to additional care providers contributed to people's appointment burden, resulting in intentional or unintentional non-attendance at scheduled visits [44]. Other patient factors that limited engagement with geriatric-HIV services included cognitive impairment, mental and physical health challenges and a lack of social support [16]. One study noted that service provision not being offered in patient's preferred language was also a barrier to care [14].

Four studies mentioned consulting with older adults living with HIV during the design and planning phases of

their geriatric-HIV model of care [14, 44, 45, 49]. When this occurred, it was reported to facilitate programme implementation by better meeting patient needs.

Mechanisms of communication and collaboration (inner setting)

The mechanisms of communication and collaboration between primary and speciality care providers, multidisciplinary teams and older adults living with HIV were found to be significant factors in the implementation of geriatric-HIV care models in seven studies [14, 15, 20, 44, 45, 48, 49]. The co-location of geriatric and HIV services facilitated patient referrals and resulted in better communication, collaboration and coordination between clinicians in some programmes [44]. Timely access to specialist reviews and the ability to provide older adults living with HIV with assistance to navigate health systems had the potential to enhance their care [20]. Furthermore, good communication with older adults' primary care providers and well-kept medical records were important for the success of care programmes [45]. Having a case-manager to coordinate multidisciplinary teams [48] and means by which to provide linkages to community resources [48] also facilitated implementation. Finally, telemedicine was found to be an effective strategy to communicate with older adults living with HIV and to provide continuity of care during the COVID-19 pandemic [49].

Barriers to the implementation of coordinated geriatric-HIV care models from a communication and collaboration perspective were primarily related to referral and follow-up procedures. Confusion over referral workflow [14] and clinicians forgetting to refer older adults living with HIV to geriatric-HIV services [44] were detrimental to their operation. Similarly, the implementation of programmes was impeded when there was a lack of clarity regarding longitudinal follow-up plans [14] and when recommendations made by external providers were not feasible [15].

Available resources (outer setting)

The availability of various resources to support geriatric-HIV models of care was noted to be either a barrier to or facilitator of their implementation in seven studies [15, 20, 43, 44, 46, 47, 49]. Resources included physical infrastructure (e.g. consulting rooms, space for group programmes), care provider availability, access to multidisciplinary services (e.g. physiotherapy, pharmacy), the ability to perform tests (e.g. blood tests, hearing tests),

medical record systems, information technology and community supports. Having adequate resources was noted to be particularly important for addressing age-related needs and implementing the recommendations that resulted from geriatric assessments [15, 44]. Additionally, in one study, a geriatric-HIV programme was able to adapt and continue operating throughout the COVID-19 pandemic because of sufficient telemedicine support [49].

Financial resources and regulations were highlighted as a consideration in programme implementation, in terms of both direct programme funding and care provider billing structures [43, 44]. It was noted that, in some parts of the USA, billing regulations prevented older adults living with HIV from accessing services from multiple specialities (i.e. geriatrics and infectious diseases) in a single integrated clinic [44]. Additionally, physicians could only bill for services from a single speciality in some US jurisdictions, reducing the financial viability of the dual-trained HIV and geriatrics provider model of care [44]. Conversely, billing methods in other countries, such as Canada, were noted to be organized in such a way that they facilitated shared clinic models [44]. Programme implementation also required both immediate and prolonged financial assistance from grants, along with extra backing from institutions. Five articles ($n = 5/11$, 45%) reported that the reported programmes required receipt of external grant funding prior to implementation. However, six articles ($n = 6/11$, 54%) disclosed receipt of financial support for the research, authorship and/or publication of their article, suggesting that research grant funding supported the evaluation of the models of care.

DISCUSSION

Our scoping review synthesizes current evidence to describe the characteristics of barriers and facilitators that influence the implementation of geriatric-HIV models of care. To the best of our knowledge, this is the first scoping review to explore the implementation of interventions used for supporting older adults living with HIV. This study was theoretically informed by the CFIR implementation science framework [25, 26]. We described how inner setting characteristics, such as provider buy-in, mechanisms of communication and collaboration, patient engagement and organizational resources have a role in facilitating models of care. We also identified how outer-setting factors, like the availability of partnering organizations, also influences programme implementation. Our findings indicate that many of these

factors can be barriers or facilitators depending on the organizational context; however, how to best implement and facilitate new models of care remains understudied (e.g. most work is done in only two geographical regions). Although some of these implementation characteristics have been identified from considering the implementation of other complex health interventions to support care, such as patient navigation [51–53], our synthesis also identified the important role of care provider billing structures [43, 44] and the need for services to be perceived as valuable [14, 16, 46].

Among the studies included in this review, many did not describe their implementation in great detail. However, we were able to delineate implementation considerations as they related to the perceived value and/or benefit of geriatric-HIV models of care among healthcare teams. By incorporating CGAs into routine clinical care of older adults living with HIV, interdisciplinary teams of providers were able to develop a comprehensive plan for treatment that improves holistic care, optimizes access to various care providers and improves quality of life [16, 17, 54, 55]. However, the teams seldom made explicit the roles of primary care providers, and thus we are unsure of factors related to the collaboration between primary care and specialist healthcare providers that influence implementation. We did note, however, that perceptions about the benefit of the geriatric-HIV partnerships (CFIR; characteristics of individuals) can hinder the implementation of geriatric-HIV collaborative partnerships. Ongoing health practitioner training/educational opportunities in geriatric care can provide a possible solution to address these differences in perspectives, by exposing non-geriatric specialists to the principles of geriatric medicine and the role of CGAs [56, 57]. Moreover, a scoping review has found that 46% of geriatricians were not comfortable providing care to people living with HIV, which then contributes to a geriatric workforce inadequately trained to provide collaborative HIV care [10]. Exposure to older adults living with HIV can help to increase knowledge about HIV in older adults [15]. Additionally, further interprofessional education could help to increase trust and understanding of the unique role that individual practitioners can play in supporting collaborative models of care [58, 59]. A specific focus of future research should be on the role of attitudes and skills of various providers caring for older adults living with HIV, as well as the factors influencing uptake and sustainability of efforts to overcome behavioural change.

This review describes some of the broad outer characteristics, external to organizations, that were reported to be barriers and enablers to the implementation of geriatric-HIV initiatives. These included the availability of

other providers to provide interdisciplinary care by joining the care team or offering services external to the model of care (CHIR; cosmopolitanism). This study alluded to the importance of funding and reimbursement mechanisms in influencing the delivery of collaborative care within geriatric-HIV models. Almost all models were explicitly within hospital settings and thus there appears to be limited data about the delivery of geriatric-HIV care in other settings. From a health system policy level (CFIR; outer setting), improvements to promote collaborative team-based care across settings are warranted [60, 61], such as improving complex billing procedures and creating processes and policies to support collaborative working relationships among primary care, specialists and community care actors [62–64]. In addition, countries like Canada, with restrictive payment models for non-physicians who are compensated mostly through private or third-party sources, can face system-level barriers to collaborative care implementation [65] within the context of geriatric-HIV models of care that rely on community stakeholders to deliver some non-medical services. The integration of information systems (e.g. electronic medical records) among various care settings and providers to facilitate referrals and follow-up care can also facilitate programme implementation [66, 67]. Existing research suggests that funding educational and administrative supports to provide linkages with community partners could serve to promote the integration of healthcare services [68], particularly within primary care [69]. As such, future research and cost analysis should look at the factors indicative of a culture in which collaboration can thrive, especially in settings other than primary care.

Numerous studies indicated the role that patient engagement (CFIR; inner setting) has in co-developing and implementing novel models of geriatric-HIV care [14–16, 20, 44–48]. Strong leadership from professional stakeholders in supporting and encouraging older adults living with HIV and family members to engage in health system design is important [70]. Those championing the role of older adults living with HIV and their families must be cognizant of the cultural differences among older adults living with HIV, and respectful of the needs of all groups involved in the implementation of novel models of care [71, 72]. Co-design methodologies can help to guide implementation scientists in engaging older adults and families in all aspects of the implementation design process [73]. This methodology also helps to establish an ongoing collaborative partnership between researchers and end-users of the services [73], such that the model of care can meet their needs. Future co-design research is encouraged to establish how models of care should be evaluated from the perspective of patient and family outcomes.

Limitations

The results presented in this article are based on the secondary analysis of evidence identified in a previous scoping review. While a hand search was conducted 4 months after the original search, relevant material to this scoping review may have been missed due to the limitations in our search strategy and our inclusion/exclusion criteria, including the exclusion of relevant literature published in languages other than English. Moreover, a qualitative appraisal and critical assessment of the included studies were not within the scope of this review. Thus, a systematic assessment of study quality was not undertaken as part of our methodology and, as such, results should be interpreted with caution. Our findings may be biased toward models of care in English-speaking countries. By not incorporating non-English studies, we may have inadvertently limited the representation of research from lower and middle-income countries, potentially skewing the relevance and applicability of our findings towards higher-income settings. The omission of non-English studies could potentially lead to the exclusion of valuable insights from diverse cultural, economic and social contexts. This means that our findings might predominantly pertain to settings with greater access to resources, which may limit the generalizability of our conclusions to broader global health contexts. Furthermore, it should be noted that due to the limited availability of detailed information within the included studies, an avenue for potential enhancement could involve extending our grey literature review to encompass platforms such as clinicaltrials.gov. This broader approach could yield a more comprehensive insight into relevant implementation factors of geriatric-HIV models of care.

CONCLUSION

To address the needs of the growing number of older adults living with HIV who require specialist geriatric support, geriatric-HIV models of care are emerging. Pragmatic and logistical factors to consider when implementing models of care in new settings are needed. Overall, the findings from this scoping review provide an initial understanding of the key factors to consider when implementing geriatric-HIV models of care across healthcare settings. We recommend that health system planners consider mechanisms of communication and collaboration, opportunities for provider buy-in, patient engagement and available resources. It is imperative that future research explore implementation in more diverse settings to understand the nuances that influence implementation and care delivery. Given the significant number of

individuals living with HIV into older age, more research into how best to implement geriatric-HIV models of care across diverse care and geographical settings is warranted to improve provider experience, optimize the delivery of healthcare, and improve the quality of care provided to older adults living with HIV.

AUTHOR CONTRIBUTIONS

KMK and LS contributed to the project idea and initiated the project. KMK conceptualized the study design. KMK and AG wrote the first draft of this manuscript and revised the article. KMK and LS provided guidance to the information specialist with respect to the design of the search strategy. All authors finalized the literature search strategy. KMK piloted the search. AZ and LS were involved in editing and revising the manuscript. All authors approved the final version of the protocol and are accountable for all aspects of the work.

ACKNOWLEDGEMENTS

We would like to thank and acknowledge the contributions of Charmaine De Castro, Information Specialist at the Mount Sinai Hospital – Sinai Health System, for providing guidance on the original search strategy development, and conducting the literature search.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

ORCID

Kristina Marie Kokorelias  <https://orcid.org/0000-0002-1277-472X>

REFERENCES

- Broder S. The development of antiretroviral therapy and its impact on the HIV-1/AIDS pandemic. *Antiviral Res.* 2010; 85(1):1-18.
- Speakman E, Pawluch D. Deadly disease vs. Chronic illness: competing understandings of HIV in the HIV non-disclosure debate. *Qual Sociol Rev.* 2021;17(4):24-42.
- Guaraldi G, Milic J, Mussini C. Aging with HIV. *Curr HIV/AIDS Rep.* 2019;16(6):475-481.
- McMillan J, Gill M, Rubin L. Distinct risks, clinical characteristics and outcomes by age at time of HIV diagnosis. *HIV Med.* 2020;21(8):505-511.
- Nogueras M, Navarro G, Antón E, et al. Epidemiological and clinical features, response to HAART, and survival in HIV-infected patients diagnosed at the age of 50 or more. *BMC Infect Dis.* 2006;6(1):1-9.
- Barnett LC. *Factors Contributing to the Increase in HIV/AIDS and Late Diagnoses of the Virus among Older Adults.* Walden University; 2011.
- Fritsch T. HIV/AIDS and the older adult: an exploratory study of the age-related differences in access to medical and social services. *J Appl Gerontol.* 2005;24(1):35-54.
- Emlet CA, Poindexter CC. Unserved, unseen, and unheard: integrating programs for HIV-infected and HIV-affected older adults. *Health Soc Work.* 2004;29(2):86-96. doi:10.1093/hsw/29.2.86
- Hughes AK. HIV knowledge and attitudes among providers in aging: results from a national survey. *AIDS Patient Care STDS.* 2011;25(9):539-545.
- Jones HT, Barber TJ. How do geriatricians feel about managing older people living with HIV? A scoping review. *Eur Geriatr Med.* 2022;13(4):987-997. doi:10.1007/s41999-022-00642-4
- St Clair-Sullivan N, Simmons K, Harding R, et al. Frailty and frailty screening: a qualitative study to elicit perspectives of people living with HIV and their healthcare professionals. *HIV Med.* 2022;24:480-490.
- Brañas F, Ryan P, Troya J, Sánchez-Conde M. Geriatric-HIV medicine: the geriatrician's role. *Eur Geriatr Med.* 2019;10(2): 259-265. doi:10.1007/s41999-018-0144-1
- O'Brien KK, Ibáñez-Carrasco F, Solomon P, et al. Research priorities for rehabilitation and aging with HIV: a framework from the Canada-international HIV and rehabilitation research collaborative (CIHRRC). *AIDS Res Ther.* 2020;17(1):1-13.
- Greene M, Myers J, Tan JY, et al. The Golden compass program: overview of the initial implementation of a comprehensive program for older adults living with HIV. *J Int Assoc Provid AIDS Care.* 2020;19:2325958220935267. doi:10.1177/2325958220935267
- Siegler EL, Burchett CO, Glesby MJ. Older people with HIV are an essential part of the continuum of HIV care. *J Int AIDS Soc.* 2018;21(10):e25188. doi:10.1002/jia2.25188
- Bitas C, Jones S, Singh HK, Ramirez M, Siegler E, Glesby M. Adherence to recommendations from comprehensive geriatric assessment of older individuals with HIV. *J Int Assoc Provid AIDS Care.* 2019;18:2325958218821656. doi:10.1177/2325958218821656
- Sangarlangkarn A, Appelbaum JS. Comprehensive geriatric assessment in older persons with HIV. *Open Forum Infect Dis.* 2020;7(11):ofaa485. doi:10.1093/ofid/ofaa485
- Scrutton J, Holley-Moore G, Bamford S-M. Creating a sustainable 21st century healthcare system. International Longevity Centre-UK (ILC-UK). 2015.
- Morrow H, Horner M, Thomson-Glover R. 992 results of a PILOT HIV/frailty clinic – can comprehensive geriatric assessment benefit frail people living with HIV? *Age Ageing.* 2022;51-(Supplement_2):afac126-afac143. doi:10.1093/ageing/afac126.043
- Tan JY, Greene M, Blat C, et al. Examining the impact of the Golden compass clinical care program for older people with HIV: a qualitative study. *AIDS Behav.* 2022;26(5):1562-1571. doi:10.1007/s10461-021-03509-0
- Kokorelias KM, Sirisegaram L, Grosse A. A systematic review and qualitative analysis of geriatric models of care for individuals living with HIV. *Canadian Geriatrics Journal.* 2023;26(2): 311-311.
- Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med.* 2018;169(7):467-473.
- Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol.* 2005;8(1):19-32.
- Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci.* 2010;5(1):1-9.

25. Breimaier HE, Heckemann B, Halfens RJ, et al. The consolidated framework for implementation research (CFIR): a useful theoretical framework for guiding and evaluating a guideline implementation process in a hospital-based nursing practice. *BMC Nurs*. 2015;14(1):1-9.
26. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4(1):1-15.
27. McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS peer review of electronic search strategies: 2015 guideline statement. *J Clin Epidemiol*. 2016;75:40-46.
28. Moher D, Tsertsvadze A, Tricco A, et al. When and how to update systematic reviews. *Cochrane Database Syst Rev*. 2008;1.
29. Bramer WM, Giustini D, de Jonge GB, Holland L, Bekhuis T. De-duplication of database search results for systematic reviews in EndNote. *J Med Libr Assoc*. 2016;104(3):240-243.
30. Bramer WM, Milic J, Mast F. Reviewing retrieved references for inclusion in systematic reviews using EndNote. *J Med Libr Assoc*. 2017;105(1):84-87.
31. Sankar A, Nevedal A, Neufeld S, Berry R, Luborsky M. What do we know about older adults and HIV? A review of social and behavioral literature. *AIDS Care*. 2011;23(10):1187-1207.
32. Sánchez-Conde M, Díaz-Alvarez J, Dronda F, Brañas F. Why are people with HIV considered “older adults” in their fifties? *Eur Geriatr Med*. 2019;10(2):183-188.
33. Krause KE, Kokorelias KM, Sinha SK. A systematic review and qualitative analysis of geriatric models of care for rural and remote populations. *Rural Remote Health*. 2022;22(3):7486.
34. Sinha SK, Bessman ES, Flomenbaum N, Leff B. A systematic review and qualitative analysis to inform the development of a new emergency department-based geriatric case management model. *Ann Emerg Med*. 2011;57(6):672-682.
35. Babineau J. Product review: covidence (systematic review software). *J Can Health Libr Assoc*. 2014;35(2):68-71.
36. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101.
37. Braun V, Clarke V, Weate P. Using thematic analysis in sport and exercise research. *Routledge Handbook of Qualitative Research in Sport and Exercise*. Routledge; 2016:213-227.
38. Colquhoun HL, Levac D, O'Brien KK, et al. Scoping reviews: time for clarity in definition, methods, and reporting. *J Clin Epidemiol*. 2014;67(12):1291-1294.
39. Evans D. Systematic reviews of interpretive research: interpretive data synthesis of processed data. *Aust J Adv Nurs*. 2002;20(2).
40. Beekhuyzen J. Putting the pieces of the puzzle together: using Nvivo for a literature review. *Proceedings of QUALIT2007: Qualitative Research, from the Margins to the Mainstream*. Victoria University of Wellington; 2007:18-20.
41. Cascio MA, Lee E, Vaudrin N, Freedman DA. A team-based approach to open coding: considerations for creating intercoder consensus. *Field Methods*. 2019;31(2):116-130.
42. Braun V, Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qual Res Psychol*. 2020;18:1-25.
43. Cresswell FV, Levett T. Specialist care of older adults with HIV infection in the UK: a service evaluation. *HIV Med*. 2017;18(7):519-524. doi:10.1111/hiv.12481
44. Davis AJ, Greene M, Siegler E, et al. Strengths and challenges of various models of geriatric consultation for older adults living with human immunodeficiency virus. *Clin Infect Dis*. 2022;74(6):1101-1106. doi:10.1093/cid/ciab682
45. Greene ML, Tan JY, Weiser SD, et al. Patient and provider perceptions of a comprehensive care program for HIV-positive adults over 50 years of age: the formation of the Golden compass HIV and aging care program in San Francisco. *PLoS One*. 2018;13(12):e0208486. doi:10.1371/journal.pone.0208486
46. Levett T, Alford K, Roberts J, Adler Z, Wright J, Vera JH. Evaluation of a combined HIV and geriatrics Clinic for Older People Living with HIV: the Silver Clinic in Brighton, UK. *Geriatrics (Basel)*. 2020;5(4):81. doi:10.3390/geriatrics5040081
47. Ruiz M, Cefalu C, Ogbuokiri J. A dedicated screening program for geriatric HIV-infected patients integrating HIV and geriatric care. *J Int Assoc Physicians AIDS Care (Chic)*. 2010;9(3):157-161. doi:10.1177/1545109710367519
48. Garvey C. AIDS care for the elderly. A community-based approach. *AIDS Patient Care*. 1994;8(3):118-120. doi:10.1089/apc.1994.8.118
49. Schmalzle SA, Viviano NA, Mohanty K, et al. People aging with HIV – protecting a population vulnerable to effects of COVID-19 and its control measures. *AIDS Care*. 2022;34:1-9. doi:10.1080/09540121.2021.2020208
50. Heckman TG, Heckman BD, Anderson T, Bianco JA, Sutton M, Lovejoy TI. Common factors and depressive symptom relief trajectories in group Teletherapy for persons ageing with HIV: common factors and depression in HIV-infected older adults. *Clin Psychol Psychother*. 2017;24(1):139-148. doi:10.1002/cpp.1989
51. Kokorelias KM, Shiers-Hanley JE, Rios J, Knoepfli A, Hitzig SL. Factors influencing the implementation of patient navigation programs for adults with complex needs: a scoping review of the literature. *Health Serv Insights*. 2021;14:117863292111033267.
52. Kokorelias KM, Liu Z, L. Hitzig S. Understanding implementation characteristics in navigation programs for persons living with dementia and their caregivers: a scoping review. *Int J Care Coord*. 2023;26:20534345231151208.
53. Hitzig SL, Sheppard CL. Implementing Montessori methods for dementia: a scoping review. *Gerontologist*. 2017;57(5):e94-e114.
54. Sundermann EE, Erlandson KM, Pope CN, et al. Current challenges and solutions in research and clinical care of older persons living with HIV: findings presented at the 9th international workshop on HIV and aging. *AIDS Res Hum Retroviruses*. 2019;35(11-12):985-998.
55. Guaraldi G, Palella FJ Jr. Clinical implications of aging with HIV infection: perspectives and the future medical care agenda. *AIDS*. 2017;31:S129-S135.
56. Kotsani M, Kravvariti E, Avgerinou C, et al. The relevance and added value of geriatric medicine (GM): introducing GM to non-geriatricians. *J Clin Med*. 2021;10(14):3018.
57. Avgerinou C, Kotsani M, Smyrnakis E. GPs and geriatricians have discrete and complementary roles in the delivery of care for older people with frailty. *Br J Gen Pract*. 2021;71(711).
58. Durbin A, Durbin J, Hensel JM, Deber R. Barriers and enablers to integrating mental health into primary care: a policy analysis. *J Behav Health Serv Res*. 2016;43:127-139.

59. Flores-Sandoval C, Sibbald S, Ryan BL, Orange JB. Interprofessional team-based geriatric education and training: a review of interventions in Canada. *Gerontol Geriatr Educ*. 2021;42(2):178-195.
60. Suter E, Mallinson S, Misfeldt R, Boakye O, Nasmith L, Wong ST. Advancing team-based primary health care: a comparative analysis of policies in western Canada. *BMC Health Serv Res*. 2017;17(1):1-9.
61. Medves J, Godfrey C, Turner C, et al. Systematic review of practice guideline dissemination and implementation strategies for healthcare teams and team-based practice. *Int J Evid Based Healthc*. 2010;8(2):79-89.
62. Gao H, Yous M-L, Connelly D, et al. Implementation and impacts of virtual team-based care planning for older persons in formal care settings: a scoping review. *Digit Health*. 2023;9:20552076231151567.
63. Wranik WD, Haydt SM. Funding models and medical dominance in interdisciplinary primary care teams: qualitative evidence from three Canadian provinces. *Hum Resour Health*. 2018;16(1):1-9.
64. Wranik WD, Haydt SM, Katz A, et al. Funding and remuneration of interdisciplinary primary care teams in Canada: a conceptual framework and application. *BMC Health Serv Res*. 2017;17(1):1-12.
65. Bullock HL, Abelson J. A fresh approach to reform? A policy analysis of the development and implementation of ontario's mental health and addictions strategy. *Healthc Policy*. 2019;14(3):29-42.
66. Mao Y, Wu Z, Poundstone K, et al. Development of a unified web-based national HIV/AIDS information system in China. *Int J Epidemiol*. 2010;39(suppl_2):ii79-ii89.
67. Kim-Hwang JE, Chen AH, Bell DS, Guzman D, Yee HF Jr, Kushel MB. Evaluating electronic referrals for specialty care at a public hospital. *J Gen Intern Med*. 2010;25:1123-1128.
68. Schuetz B, Mann E, Everett W. Educating health professionals collaboratively for team-based primary care. *Health Aff*. 2010;29(8):1476-1480.
69. Kates N. Mental health and primary care: contributing to mental health system transformation in Canada. *Can J Community Ment Health*. 2018;36(Special Issue):33-67.
70. Sibbald SL, Kokorelias KM, Embuldeniya G, Wodchis WP. Engagement of patient and family advisors in health system redesign in Canada. *J Health Serv Res Policy*. 2022;28:13558196221109056.
71. Saucedo JA, Brooks RA, Xavier J, et al. From theory to application: a description of transnationalism in culturally-appropriate HIV interventions of outreach, access, and retention among Latino/a populations. *J Immigr Minor Health*. 2019;21(2):332-345.
72. Bucharski D, Reutter LI, Ogilvie LD. "You need to know where we're coming from": Canadian aboriginal women's perspectives on culturally appropriate HIV counseling and testing. *Health Care Women Int*. 2006;27(8):723-747.
73. Goodyear-Smith F, Jackson C, Greenhalgh T. Co-design and implementation research: challenges and solutions for ethics committees. *BMC Med Ethics*. 2015;16(1):1-5.

How to cite this article: Kokorelias KM, Grosse A, Zhabokritsky A, Walmsley SL, Sirisegaram L. Exploring implementation considerations for geriatric-HIV clinics: A secondary analysis from a scoping review on HIV models of geriatric care. *HIV Med*. 2023;1-22. doi:[10.1111/hiv.13549](https://doi.org/10.1111/hiv.13549)

APPENDIX A

Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) checklist

Section	Item	PRISMA-ScR checklist item	Reported on page no.
Title			
Title	1	Identify the report as a scoping review.	Title page
Abstract			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results and conclusions that relate to the review questions and objectives.	Abstract
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g. population or participants, concepts and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
Methods			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g. a website address); and if available, provide registration information, including the registration number.	3
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g. years considered, language and publication status), and provide a rationale.	Table 1
Information sources ^a	7	Describe all information sources in the search (e.g. databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	3
Search	8	Present the full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix B
Selection of sources of evidence ^b	9	State the process for selecting sources of evidence (i.e. screening and eligibility) included in the scoping review.	4
Data charting process ^c	10	Describe the methods of charting data from the included sources of evidence (e.g. calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	4
Critical appraisal of individual sources of evidence ^d	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5–8

Section	Item	PRISMA-ScR checklist item	Reported on page no.
Results			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Figure 1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Table 2
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Table 2
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Table 2
Discussion			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes and types of evidence available), link to the review questions and objectives and consider the relevance to key groups.	8
Limitations	20	Discuss the limitations of the scoping review process.	9
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	10
Funding			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Funding

Abbreviation: JBI, Joanna Briggs Institute.

^a Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and websites.

^b A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g. quantitative and/or qualitative research, expert opinion and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote).

^c The frameworks by Arksey and O'Malley [6] and Levac et al. [7] and the JBI guidance [4,5] refer to the process of data extraction in a scoping review as data charting.

^d The process of systematically examining research evidence to assess its validity, results and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of 'risk of bias' (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g. quantitative and/or qualitative research, expert opinion and policy document).

From: Ref. [22]

APPENDIX B

All search strategies run and exported on Friday,
21 October 2022

Databases	Number of Results
OID Medline	2281
OID Embase+Embase Classic	2440
EBSCO's CINAHL Complete	1150
Clarivate's Web of Science Core Collection	567
Elsevier's Scopus	3996
NLM's PubMed (non-Medline)	207
Total results before deduplication	10 641
Total results after deduplication in Covidence	5748

OID Medline

Ovid MEDLINE(R) ALL <1946 to October 20, 2022>

1. Aged/or "aged, 80 and over"/or centenarians/or nonagenarians/or octogenarians/or frail elderly/or middle aged/5510146.
2. ((Old adj2 Adult*) or (Old adj2 Person*) or (Old adj2 People*) or (Old adj2 Patient*) or (Old adj2 Citizen*) or (Older adj2 Adult*) or (Older adj2 Person*) or (Older adj2 People*) or (Older adj2 Patient*) or (Older adj2 Citizen*) or (Oldest adj2 Adult*) or (Oldest adj2 Person*) or (Oldest adj2 People*) or (Oldest adj2 Patient*) or (Oldest adj2 Citizen*) or (Ag?ing adj2 Adult*) or (Ag?ing adj2 Person*) or (Ag?ing adj2 People*) or (Ag?ing adj2 Patient*) or (Ag?ing adj2 Citizen*) or (Aged adj2 Adult*) or (Aged adj2 Person*) or (Aged adj2 People*) or (Aged adj2 Patient*) or (Aged adj2 Citizen*) or (Middle adj1 Age) or (Middle adj1 Aged)).tw, kf, kw. 502 952.
3. (Gerontolog* or Oldest Old or Elder* or Geriatric* or Senior* or Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenerian or Quinquagenarian or Unyoung).tw, kf, kw. 470 547.
4. ((Aged adj "50") or (Aged adj "60") or (Aged adj "70") or (Aged adj "75") or (Aged adj "80") or (Aged adj "85") or (Aged adj "90") or (Aged adj "95") or (Aged adj "100") or (Aged adj fifty*) or (Aged adj fifty-five) or (Aged adj sixty*) or (Aged adj sixty-five) or (Aged adj seventy*) or (Aged adj seventy-five) or (Aged adj eighty*) or (Aged adj eighty-five) or (Aged adj ninety*) or (Aged adj ninety-five) or (Aged adj one hundred) or (Aged adj a hundred)).tw, kf, kw. 61 306.
5. 1 or 2 or 3 or 4 5 872 999.
6. "Delivery of Health Care"/111452.
7. Community Health Services/32909.
8. Remote Consultation/5607.
9. Geriatric Assessment/31652.
10. (MoC or (model* adj5 care) or (deliver* adj2 care) or (deliver* adj2 healthcare) or (deliver* adj2 health care) or (community adj1 distribution*) or (healthcare adj1 system*)).tw, kf, kw.130 725.
11. ((remote adj1 consult*) or (off-site adj1 consult*) or (telephone adj1 consult*) or (telecommunication* adj1 consult*)).tw, kf, kw. 2128.
12. ((communit* adj1 healthcare) or (communit* adj1 health)).tw, kf, kw. 35 980.
13. ((geriatric* adj1 assess*) or (geriatric* adj1 consult*) or (geriatric adj1 referral*) or (old age adj1 assess*) or (elderly adj1 assess*)).tw, kf, kw. 6405.
14. ((differentiated adj1 care) or (differentiated adj1 service*) or (differentiated adj2 delivery)).tw, kf, kw. 410.
15. 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 319 249.
16. hiv/or hiv-1/or hiv-2/106039.
17. hiv infections/or acquired immunodeficiency syndrome/or acute retroviral syndrome/or aids arteritis, central nervous system/or aids dementia complex/or aids-associated nephropathy/or aids-related complex/or aids-related opportunistic infections/or hiv enteropathy/or hiv seropositivity/or hiv wasting syndrome/or hiv-associated lipodystrophy syndrome/309467.
18. (HIV or (human adj1 immunodeficien*) or (human adj1 immune adj1 deficien*)).tw, kf, kw. 365 489.
19. ((AIDS adj1 virus) or (acquired immune adj1 deficien*) or (acquired adj1 immunodeficien*)).tw, kf, kw. 28 485.

- 20. 16 or 17 or 18 or 19 441 673.
- 21. 5 and 15 and 20 2281.

OID Embase+Embase Classic
 Embase Classic+Embase <1947 to 2022 October 20>

- 1. aged/or “aged, 80 and over”/or very elderly/or frail elderly/or middle aged/4888640.
- 2. ((Old adj2 Adult*) or (Old adj2 Person*) or (Old adj2 People*) or (Old adj2 Patient*) or (Old adj2 Citizen*) or (Older adj2 Adult*) or (Older adj2 Person*) or (Older adj2 People*) or (Older adj2 Patient*) or (Older adj2 Citizen*) or (Oldest adj2 Adult*) or (Oldest adj2 Person*) or (Oldest adj2 People*) or (Oldest adj2 Patient*) or (Oldest adj2 Citizen*) or (Ag?ing adj2 Adult*) or (Ag?ing adj2 Person*) or (Ag?ing adj2 People*) or (Ag?ing adj2 Patient*) or (Ag?ing adj2 Citizen*) or (Aged adj2 Adult*) or (Aged adj2 Person*) or (Aged adj2 People*) or (Aged adj2 Patient*) or (Aged adj2 Citizen*) or (Middle adj1 Age) or (Middle adj1 Aged)).tw, kf, kw. 728 430.
- 3. (Gerontolog* or Oldest Old or Elder* or Geriatric* or Senior* or Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenarian or Quinquagenarian or Unyoung).tw, kf, kw. 656 941.
- 4. ((Aged adj “50”) or (Aged adj “60”) or (Aged adj “70”) or (Aged adj “75”) or (Aged adj “80”) or (Aged adj “85”) or (Aged adj “90”) or (Aged adj “95”) or (Aged adj “100”) or (Aged adj fifty*) or (Aged adj fifty-five) or (Aged adj sixty*) or (Aged adj sixty-five) or (Aged adj seventy*) or (Aged adj seventy-five) or (Aged adj eighty*) or (Aged adj eighty-five) or (Aged adj ninety*) or (Aged adj ninety-five) or (Aged adj one hundred) or (Aged adj a hundred)).tw, kf, kw. 88 862.
- 5. 1 or 2 or 3 or 4 5 453 571.
- 6. health care delivery/201688.

- 7. community care/64088.
- 8. teleconsultation/14124.
- 9. geriatric assessment/19921.
- 10. (MoC or (model* adj5 care) or (deliver* adj2 care) or (deliver* adj2 healthcare) or (deliver* adj2 health care) or (community adj1 distribution*) or (healthcare adj1 system*)).tw, kf, kw. 169 905.
- 11. ((remote adj1 consult*) or (off-site adj1 consult*) or (telephone adj1 consult*) or (telecommunication* adj1 consult*)).tw, kf, kw. 3470.
- 12. ((communit* adj1 healthcare) or (communit* adj1 health)).tw, kf, kw. 43 634.
- 13. ((geriatric* adj1 assess*) or (geriatric* adj1 consult*) or (geriatric adj1 referral*) or (old age adj1 assess*) or (elderly adj1 assess*)).tw, kf, kw. 11 558.
- 14. ((differentiated adj1 care) or (differentiated adj1 service*) or (differentiated adj2 delivery)).tw, kf, kw. 530.
- 15. 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 464 145.
- 16. human immunodeficiency virus/or human immunodeficiency virus 1/or human immunodeficiency virus 2/213039.
- 17. human immunodeficiency virus infection/or acquired immune deficiency syndrome/or acute hiv infection/or aids arteritis/or hiv associated dementia/or hiv associated lipodystrophy/or hiv associated nephropathy/or hiv enteropathy/386074.
- 18. (HIV or (human adj1 immunodeficien*) or (human adj1 immune adj1 deficien*)).tw, kf, kw. 469 207.
- 19. ((AIDS adj1 virus) or (acquired immune adj1 deficien*) or (acquired adj1 immunodeficien*)).tw, kf, kw. 29 057.
- 20. 16 or 17 or 18 or 19 601 526.
- 21. 5 and 15 and 20 2440.

EBSCO's CINAHL Complete
 Friday, October 21, 2022 6:53:34 PM

#	Query	Limiters/expanders	Last run via	Results
S17	S5 AND S12 AND S16	Expanders – apply equivalent subjects Search modes–Boolean/ phrase	Interface – EBSCOhost Research Databases Search Screen – advanced search Database – CINAHL Complete	1150
S16	S13 OR S14 OR S15	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost Research Databases Search Screen – advanced search Database – CINAHL Complete	131 307
S15	TI ((AIDS N0 virus) or (acquired immune N0 deficien*) or (acquired N0 immunodeficien*)) OR AB ((AIDS N0 virus) or (acquired immune N0 deficien*) or (acquired N0 immunodeficien*))	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost Research Databases Search Screen – advanced search Database – CINAHL Complete	3880

(Continues)

#	Query	Limiters/expanders	Last run via	Results
S14	TI (HIV or (human N0 immunodeficien*) or (human N0 immune N0 deficien*)) OR AB (HIV or (human N0 immunodeficien*) or (human N0 immune N0 deficien*))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	105 791
S13	(MH “HIV Infections”) OR (MH “Human Immunodeficiency Virus”) OR (MH “Acquired Immunodeficiency Syndrome”) OR (MH “AIDS Dementia Complex”) OR (MH “AIDS-Associated Nephropathy”) OR (MH “AIDS-Related Complex”) OR (MH “AIDS-Related Opportunistic Infections”) OR (MH “HIV Enteropathy”) OR (MH “HIV Seropositivity”) OR (MH “HIV Wasting Syndrome”)	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	96 402
S12	S6 OR S7 OR S8 OR S9 OR S10 OR S11	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	204 819
S11	TI ((differentiated N0 care) or (differentiated N0 service*) or (differentiated N1 delivery)) OR AB ((differentiated N0 care) or (differentiated N0 service*) or (differentiated N1 delivery))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	133
S10	TI ((geriatric* N0 assess*) or (geriatric* N0 consult*) or (geriatric N0 referral*) or (old age N0 assess*) or (elderly N0 assess*)) OR AB ((geriatric* N0 assess*) or (geriatric* N0 consult*) or (geriatric N0 referral*) or (old age N0 assess*) or (elderly N0 assess*))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	2780
S9	TI ((communit* N0 healthcare) or (communit* N0 health)) OR AB ((communit* N0 healthcare) or (communit* N0 health))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	21 460
S8	TI ((remote N0 consult*) or (off-site N0 consult*) or (telephone N0 consult*) or (telecommunication* N0 consult*)) OR AB ((remote N0 consult*) or (off-site N0 consult*) or (telephone N0 consult*) or (telecommunication* N0 consult*))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	843
S7	TI (MoC or (model* N5 care) or (deliver* N1 care) or (deliver* N1 healthcare) or (deliver* N1 health care) or (community N0 distribution*) or (healthcare N0 system*)) OR AB (MoC or (model* N5 care) or (deliver* N1 care) or (deliver* N1 healthcare) or (deliver* N1 health care) or (community N0 distribution*) or (healthcare N0 system*))	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	98 774
S6	(MH “Health Care Delivery”) OR (MH “Community Health Services”) OR (MH “Remote Consultation”) OR (MH “Geriatric Assessment”)	Expanders – apply equivalent subjects Search modes – Boolean/phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	101 762

#	Query	Limiters/expanders	Last run via	Results
S5	S1 OR S2 OR S3 OR S4	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost research databases Search Screen – advanced search Database – CINAHL Complete	1 547 990
S4	TI ((Aged W0 “50”) or (Aged W0 “60”) or (Aged W0 “70”) or (Aged W0 “75”) or (Aged W0 “80”) or (Aged W0 “85”) or (Aged W0 “90”) or (Aged W0 “95”) or (Aged W0 “100”) or (Aged W0 fifty*) or (Aged W0 fifty-five) or (Aged W0 sixty*) or (Aged W0 sixty-five) or (Aged W0 seventy*) or (Aged W0 seventy-five) or (Aged W0 eighty*) or (Aged W0 eighty-five) or (Aged W0 ninety*) or (Aged W0 ninety-five) or (Aged W0 one hundred) or (Aged W0 a hundred)) OR AB ((Aged W0 “50”) or (Aged W0 “60”) or (Aged W0 “70”) or (Aged W0 “75”) or (Aged W0 “80”) or (Aged W0 “85”) or (Aged W0 “90”) or (Aged W0 “95”) or (Aged W0 “100”) or (Aged W0 fifty*) or (Aged W0 fifty-five) or (Aged W0 sixty*) or (Aged W0 sixty-five) or (Aged W0 seventy*) or (Aged W0 seventy-five) or (Aged W0 eighty*) or (Aged W0 eighty-five) or (Aged W0 ninety*) or (Aged W0 ninety-five) or (Aged W0 one hundred) or (Aged W0 a hundred))	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost research Databases Search Screen – advanced search Database – CINAHL Complete	20 803
S3	TI (Gerontolog* or Oldest Old or Elder* or Geriatric* or Senior* or Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenerian or Quinquagenarian or Unyoung) OR AB (Gerontolog* or Oldest Old or Elder* or Geriatric* or Senior* or Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenerian or Quinquagenarian or Unyoung)	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost research Databases Search Screen – advanced search Database – CINAHL Complete	174 479
S2	TI ((Old N1 Adult*) or (Old N1 Person*) or (Old N1 People*) or (Old N1 Patient*) or (Old N1 Citizen*) or (Older N1 Adult*) or (Older N1 Person*) or (Older N1 People*) or (Older N1 Patient*) or (Older N1 Citizen*) or (Oldest N1 Adult*) or (Oldest N1 Person*) or (Oldest N1 People*) or (Oldest N1 Patient*) or (Oldest N1 Citizen*) or (Ag#ing N1 Adult*) or (Ag#ing N1 Person*) or (Ag#ing N1 People*) or (Ag#ing N1 Patient*) or (Ag#ing N1 Citizen*) or (Aged N1 Adult*) or (Aged N1 Person*) or (Aged N1 People*) or (Aged N1 Patient*) or (Aged N1 Citizen*) or (Middle N0 Age) or (Middle N0 Aged)) OR AB ((Old N1 Adult*) or (Old N1 Person*) or (Old N1 People*) or (Old N1 Patient*) or (Old N1 Citizen*) or (Older	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost research Databases Search Screen – advanced search Database – CINAHL Complete	197 356

(Continues)

#	Query	Limiters/expanders	Last run via	Results
	N1 Adult*) or (Older N1 Person*) or (Older N1 People*) or (Older N1 Patient*) or (Older N1 Citizen*) or (Oldest N1 Adult*) or (Oldest N1 Person*) or (Oldest N1 People*) or (Oldest N1 Patient*) or (Oldest N1 Citizen*) or (Ag#ing N1 Adult*) or (Ag#ing N1 Person*) or (Ag#ing N1 People*) or (Ag#ing N1 Patient*) or (Ag#ing N1 Citizen*) or (Aged N1 Adult*) or (Aged N1 Person*) or (Aged N1 People*) or (Aged N1 Patient*) or (Aged N1 Citizen*) or (Middle N0 Age) or (Middle N0 Aged))			
S1	(MH "Aged") OR (MH "Aged, 80 and Over") OR (MH "Health Services for Older Persons") OR (MH "Frail Elderly") OR (MH "Centenarians") OR (MH "Nonagenarians") OR (MH "Octogenarians") OR (MH "Middle Age")	Expanders – apply equivalent subjects Search modes – Boolean/ phrase	Interface – EBSCOhost research Databases Search Screen – advanced search Database – CINAHL Complete	1 434 567

Web of Science:

- # Web of Science Search Strategy (v0.1).
- # Database: Web of Science Core Collection.
- # Entitlements:

WOS.SSCI: 1900 to 2022
 WOS.AHCI: 1975 to 2022
 WOS.BHCI: 2005 to 2022
 WOS.ISTP: 1990 to 2022
 WOS.ESCI: 2005 to 2022
 WOS.SCI: 1900 to 2022
 WOS.BSCI: 2005 to 2022
 WOS.ISSHP: 1990 to 2022

Searches:

1. ((TS = ((Old Near/1 Adult*) or (Old Near/1 Person*) or (Old Near/1 People*) or (Old Near/1 Patient*) or (Old Near/1 Citizen*) or (Older Near/1 Adult*) or (Older Near/1 Person*) or (Older Near/1 People*) or (Older Near/1 Patient*) or (Older Near/1 Citizen*) or (Oldest Near/1 Adult*) or (Oldest Near/1 Person*) or (Oldest Near/1 People*) or (Oldest Near/1 Patient*) or (Oldest Near/1 Citizen*) or (Ag\$ing Near/1 Adult*) or (Ag\$ing Near/1 Person*) or (Ag\$ing Near/1 People*) or (Ag\$ing Near/1 Patient*) or (Ag\$ing Near/1 Citizen*) or (Aged Near/1 Adult*) or (Aged Near/1 Person*) or (Aged Near/1 People*) or (Aged Near/1 Patient*) or (Aged Near/1 Citizen*) or (Middle Near/0 Age) or (Middle Near/0 Aged))) OR TS = (Gerontolog* or Oldest Old or Elder* or Geriatric* or Senior* or
2. (((TS = (MoC or (model* Near/5 care) or (deliver* Near/1 care) or (deliver* Near/1 healthcare) or (deliver* Near/1 "health care") or (community Near/0 distribution*) or (healthcare Near/0 system*))) OR TS = ((remote Near/0 consult*) or ("off-site" Near/0 consult*) or (telephone Near/0 consult*) or (telecommunication* Near/0 consult*)) OR TS = ((communit* Near/0 healthcare) or (communit* Near/0 health))) OR TS = ((geriatric* Near/0 assess*) or (geriatric* Near/0 consult*) or (geriatric Near/0 referral*) or ("old age" Near/0 assess*) or (elderly Near/0 assess*))) OR TS = ((differentiated Near/0 care) or (differentiated Near/0 service*) or (differentiated Near/1 delivery)))Date run: Fri Oct 21 2022 12:03:02 GMT-0400 (Eastern Daylight Time)Results: 2785965.

Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenarian or Quinquagenarian or Unyoung)) OR TS = ((Aged Near/0 "50") or (Aged Near/0 "60") or (Aged Near/0 "70") or (Aged Near/0 "75") or (Aged Near/0 "80") or (Aged Near/0 "85") or (Aged Near/0 "90") or (Aged Near/0 "95") or (Aged Near/0 "100") or (Aged Near/0 fifty*) or (Aged Near/0 "fifty-five") or (Aged Near/0 sixty*) or (Aged Near/0 "sixty-five") or (Aged Near/0 seventy*) or (Aged Near/0 "seventy-five") or (Aged Near/0 eighty*) or (Aged Near/0 "eighty-five") or (Aged Near/0 ninety*) or (Aged Near/0 "ninety-five") or (Aged Near/0 "one hundred") or (Aged Near/0 "a hundred"))Date run: Fri Oct 21 2022 12:03:02 GMT-0400 (Eastern Daylight Time)Results: 2785965.

2. (((TS = (MoC or (model* Near/5 care) or (deliver* Near/1 care) or (deliver* Near/1 healthcare) or (deliver* Near/1 "health care") or (community Near/0 distribution*) or (healthcare Near/0 system*))) OR TS = ((remote Near/0 consult*) or ("off-site" Near/0 consult*) or (telephone Near/0 consult*) or (telecommunication* Near/0 consult*)) OR TS = ((communit* Near/0 healthcare) or (communit* Near/0 health))) OR TS = ((geriatric* Near/0 assess*) or (geriatric* Near/0 consult*) or (geriatric Near/0 referral*) or ("old age" Near/0 assess*) or (elderly Near/0 assess*))) OR TS = ((differentiated Near/0 care) or (differentiated Near/0 service*) or (differentiated Near/1 delivery)))Date run: Fri Oct 21 2022 12:03:55 GMT-0400 (Eastern Daylight Time)Results: 182417.

3. (TS = (HIV or (human Near/0 immunodeficien*) or (human Near/0 immune Near/0 deficien*)) OR TS = ((AIDS Near/0 virus) or (acquired immune Near/0 deficien*) or (acquired Near/0 immunodeficien*))Date run: Fri Oct 212 022 12:04:37 GMT-0400 (Eastern Daylight Time)Results: 465479.
4. #1 AND #2 AND #3Date run: Fri Oct 212 022 12:04:43 GMT-0400 (Eastern Daylight Time)Results: 567.

Scopus:

(TITLE-ABS-KEY((Old W/1 Adult*) or (Old W/1 Person*) or (Old W/1 People*) or (Old W/1 Patient*) or (Old W/1 Citizen*) or (Older W/1 Adult*) or (Older W/1 Person*) or (Older W/1 People*) or (Older W/1 Patient*) or (Older W/1 Citizen*) or (Oldest W/1 Adult*) or (Oldest W/1 Person*) or (Oldest W/1 People*) or (Oldest W/1 Patient*) or (Oldest W/1 Citizen*) or (Ag*ing W/1 Adult*) or (Ag*ing W/1 Person*) or (Ag*ing W/1 People*) or (Ag*ing W/1 Patient*) or (Ag*ing W/1 Citizen*) or (Aged W/1 Adult*) or (Aged W/1 Person*) or (Aged W/1 People*) or (Aged W/1 Patient*) or (Aged W/1 Citizen*) or (Middle W/0 Age) or (Middle W/0 Aged) or Gerontolog* or “Oldest Old” or Elder* or Geriatric* or Senior* or Long-Lived or Over-the-hill or Senescen* or Centenarian or Nonagenarian or Octogenarian or Septuagenarian or Sexagenarian or Quinquagenarian or Unyoung or (Aged Pre/0 “50”) or (Aged Pre/0 “60”) or (Aged Pre/0 “70”) or (Aged Pre/0 “75”) or (Aged Pre/0 “80”) or (Aged Pre/0 “85”) or (Aged Pre/0 “90”) or (Aged Pre/0 “95”) or (Aged Pre/0 “100”) or (Aged Pre/0 fifty*) or (Aged Pre/0 “fifty-five”) or (Aged Pre/0 sixty*) or (Aged Pre/0 “sixty-five”) or (Aged Pre/0 seventy*) or (Aged Pre/0 “seventy-five”) or (Aged Pre/0 eighty*) or (Aged Pre/0 “eighty-five”) or (Aged Pre/0 ninety*) or (Aged Pre/0 “ninety-five”) or (Aged Pre/0 “one hundred”) or (Aged Pre/0 “a hundred”))) AND (TITLE-ABS-KEY(MoC or (model* W/4 care) or (deliver* W/1 care) or (deliver* W/1 healthcare) or (deliver* W/1 health care) or (community W/0 distribution*) or (healthcare W/0 system*) or (remote W/0 consult*) or (off-site W/0 consult*) or (telephone W/0 consult*) or (telecommunication* W/0 consult*) or (communit* W/0 healthcare) or (communit* W/0 health) or (geriatric* W/0 assess*) or (geriatric* W/0 consult*) or (geriatric W/0 referral*) or (old age W/0 assess*) or (elderly W/0 assess*) or (differentiated W/0 care) or (differentiated W/0 service*) or (differentiated W/1 delivery))) AND (TITLE-ABS-KEY(HIV or (human W/0 immunodeficien*) or (human W/0 immune W/0 deficien*) or (AIDS W/0 virus) or (acquired immune W/0 deficien*) or (acquired W/0 immunodeficien*)))

3996 Results; Ran on October 21, 2022 @ 4:17 PM EST.

NLM's PubMed (Non-Medline):

(((((aged[MeSH Terms] or “aged, 80 and over”[MeSH Terms] or centenarians[MeSH Terms] or nonagenarians [MeSH Terms] or octogenarians[MeSH Terms] or frail elderly[MeSH Terms] or middle aged[MeSH Terms]) OR ((Old Adult*[Title/Abstract] OR (Old Person*[Title/Abstract] OR (Old People*[Title/Abstract] OR (Old Patient*[Title/Abstract] OR (Old Citizen*[Title/Abstract] OR (Older Adult*[Title/Abstract] OR (Older Person*[Title/Abstract] OR (Older People*[Title/Abstract] OR (Older Patient*[Title/Abstract] OR (Older Citizen*[Title/Abstract] OR (Oldest Adult*[Title/Abstract] OR (Oldest Person*[Title/Abstract] OR (Oldest People*[Title/Abstract] OR (Oldest Patient*[Title/Abstract] OR (Oldest Citizen*[Title/Abstract] OR (Ag?ing Adult*[Title/Abstract] OR (Aging Person*[Title/Abstract] OR (Aging People*[Title/Abstract] OR (Aging Patient*[Title/Abstract] OR (Aging Citizen*[Title/Abstract] OR (Aged Adult*[Title/Abstract] OR (Aged Person*[Title/Abstract] OR (Aged People*[Title/Abstract] OR (Aged Patient*[Title/Abstract] OR (Aged Citizen*[Title/Abstract] OR (Middle Age[Title/Abstract] OR (Middle Aged[Title/Abstract]))) OR (Gerontolog*[Title/Abstract] OR Oldest Old [Title/Abstract] OR Elder*[Title/Abstract] OR Geriatric*[Title/Abstract] OR Senior*[Title/Abstract] OR Long-Lived [Title/Abstract] OR Over-the-hill[Title/Abstract] OR Senescen*[Title/Abstract] OR Centenarian[Title/Abstract] OR Nonagenarian[Title/Abstract] OR Octogenarian[Title/Abstract] OR Septuagenarian[Title/Abstract] OR Sexagenarian[Title/Abstract] OR Quinquagenarian[Title/Abstract] OR Unyoung[Title/Abstract])) OR ((Aged “50”[Title/Abstract] OR (Aged “60”[Title/Abstract] OR (Aged “70”[Title/Abstract] OR (Aged “75”[Title/Abstract] OR (Aged “80”[Title/Abstract] OR (Aged “85”[Title/Abstract] OR (Aged “90”[Title/Abstract] OR (Aged “95”[Title/Abstract] OR (Aged “100”[Title/Abstract] OR (Aged “100”[Title/Abstract] OR (Aged fifty*[Title/Abstract] OR (Aged fifty-five[Title/Abstract] OR (Aged sixty*[Title/Abstract] OR (Aged sixty-five[Title/Abstract] OR (Aged seventy*[Title/Abstract] OR (Aged seventy-five[Title/Abstract] OR (Aged eighty*[Title/Abstract] OR (Aged eighty-five[Title/Abstract] OR (Aged ninety*[Title/Abstract] OR (Aged ninety-five [Title/Abstract] OR (Aged one hundred[Title/Abstract] (Aged a hundred))) AND (((“Delivery of Health Care”[-MeSH Terms] OR (Community Health Services[MeSH Terms])) OR (Remote Consultation[MeSH Terms])) OR (Geriatric Assessment[MeSH Terms])) OR (((MoC[Title/Abstract] OR (model of care[Title/Abstract] OR (models of care[Title/Abstract] OR (delivery of care[Title/Abstract] OR (delivery of healthcare[Title/Abstract] OR (delivery of health care[Title/Abstract] OR (community distribution*[Title/Abstract] OR (healthcare system*[Title/Abstract])) OR ((remote consult*[Title/Abstract] OR (off-site consult*[Title/Abstract] OR (telephone consult*[Title/Abstract] OR (telecommunication* consult*[Title/Abstract]))) OR ((communit*

healthcare[Title/Abstract]) OR (communit* health[Title/Abstract])) OR ((geriatric assess*[Title/Abstract]) OR (geriatric consult*[Title/Abstract]) OR (geriatric referral*[Title/Abstract]) OR (old age assess*[Title/Abstract]) OR (elderly assess*[Title/Abstract])) OR ((differentiated care[Title/Abstract]) OR (differentiated service*[Title/Abstract]) OR (differentiated delivery[Title/Abstract]))) AND ((hiv[MeSH Terms] or hiv-1[MeSH Terms] or hiv-2[MeSH Terms] or hiv infections[MeSH Terms] or acquired immunodeficiency syndrome[MeSH Terms] or acute retroviral syndrome[MeSH Terms] or aids arteritis, central nervous system[MeSH Terms] or aids dementia complex[MeSH Terms] or aids-associated nephropathy[MeSH Terms] or aids-related complex[MeSH Terms] or aids-related

opportunistic infections[MeSH Terms] or hiv enteropathy[MeSH Terms] or hiv seropositivity[MeSH Terms] or hiv wasting syndrome[MeSH Terms] or hiv-associated lipodystrophy syndrome[MeSH Terms]) OR ((HIV[Title/Abstract] OR (human immunodeficien*[Title/Abstract]) OR (human immune deficien*[Title/Abstract])) OR ((AIDS virus[Title/Abstract] OR (acquired immune deficien*[Title/Abstract]) OR (acquired immunodeficien*[Title/Abstract]))) AND (pubstatusaheadofprint OR publisher[SB] OR in process[SB] OR pubmednotmedline[SB])

207 Results; Run on 21 October 2022 @ 3:21 PM EST.