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The Expanding Role of Community Pharmacists in Secondary Prevention Screening: A Scoping Review

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ABSTRACT

Background: The role of community pharmacists has expanded beyond medication dispensing to encompass secondary prevention, a public health strategy aimed at early disease detection to mitigate progression, reduce complications, and decrease morbidity and mortality. Given their accessibility and frequent public interactions, community pharmacists are well-positioned to implement effective screening interventions. However, the full scope of their contributions to secondary prevention remains underexplored. **Objective:** This scoping review aims to identify community pharmacists-led screening strategies, evaluate their impact on patient health outcomes, examine barriers and facilitators influencing their involvement in secondary prevention, and highlight gaps in the literature to inform future research. **Methods:** Following the PRISMA-ScR checklist, a systematic search was performed in PubMed and Scopus databases for articles published in English between 2000 and 2024. Search terms included keywords and index terms related to community pharmacy, secondary prevention, and pharmacist-led interventions. Articles were screened for eligibility based on the PCC framework: *Population:* Community pharmacists; *Concept:* Pharmacist-led screening interventions; *Context:* Community pharmacies. **Results:** A total of 236 studies were included. Findings showed that pharmacist-led screening interventions positively impacted patient outcomes through improved early detection, optimized healthcare utilization, or enhanced chronic disease management. Barriers to implementation were identified, including regulatory constraints, logistical challenges, and varying perceptions of pharmacists' roles among stakeholders. Facilitators included accessibility, community trust, and integration into multidisciplinary teams. **Conclusions:** Community pharmacists are essential for secondary prevention, particularly in screening interventions that improve health outcomes. Further research is needed to optimize their contributions, address barriers, and fully realize their potential.

Keywords: Secondary prevention, Community pharmacy, Pharmacist Interventions, Screening strategies, Health outcomes, Chronic diseases

INTRODUCTION

Context of secondary prevention and screening

Community pharmacists play an increasingly significant role in healthcare systems worldwide, extending far beyond traditional medication dispensing¹. Over the past few decades, their role has expanded to encompass health promotion and disease prevention initiatives. Among these initiatives, secondary prevention, an integral part of preventive care, has emerged as a key public health strategy and is gaining recognition².

Secondary prevention is part of a broader framework of preventive healthcare, which includes several levels of prevention aimed at reducing health risks and improving population health.

To provide a comprehensive context, it is important to define these levels: primordial, primary, secondary, tertiary, and quaternary prevention¹. While primary, secondary, and tertiary prevention have long been established in clinical practice, the concepts of primordial and quaternary prevention were introduced more recently, in 1978 and 1986, respectively². Together, these strategies aim to not only reduce the risk of disease onset but also mitigate complications that arise from existing conditions¹: **Primordial prevention:** targets the underlying social conditions that contribute to the onset of disease. It focuses on reducing risk factors across entire populations through large-scale social changes and national policies. Ex: promoting healthy diets and physical activity to reduce the risks of obesity, cardiovascular diseases, and type 2 diabetes. **Primary prevention:** aims to prevent diseases or injuries before they occur by addressing risk factors in a susceptible population and promoting healthy behaviours. Examples include immunizations thought vaccination campaigns and education on healthy lifestyle choices. **Secondary prevention:** Focuses on early disease detection in individuals with subclinical disease, where pathologic changes have occurred, but symptoms have not yet manifested. Screening tests, such as Pap smears for cervical cancer, are classic secondary prevention strategies designed to detect diseases in their early, asymptomatic stages, enabling prompter intervention and better outcomes. **Tertiary prevention:** occurs once the disease is established, focusing on managing the disease to reduce its severity, prevent complications, and improve quality of life. This can involve rehabilitation programs for patients recovering from strokes or heart attacks. **Quaternary prevention:** seeks to protect patients from over-medicalization and unnecessary interventions. This includes avoiding excessive diagnostic tests and treatments that could harm more than help, as seen in the avoidance of overuse of antiarrhythmic drugs post-myocardial infarction, which could increase mortality. Secondary prevention involves

measures aimed at the early detection and prompt detection of diseases to halt or slow their progression, reduce complications, and decrease associated morbidity and mortality. It relies on screening activities and regular monitoring to identify at-risk individuals and facilitate timely intervention³. As a cornerstone of public health, secondary prevention plays a pivotal role in addressing chronic diseases such as cardiovascular conditions, diabetes, but also cancers for which early detection is crucial to improve clinical outcomes, minimize long-term complications, and reduce the economic burden on healthcare systems⁴.

Screening can take two main forms⁵: **Systematic screening:** Organized programs targeting specific populations, often coordinated at national or local levels. **Opportunistic screening:** Conducted during spontaneous encounters with healthcare professionals.

Due to their accessibility and frequent interactions with patients, community pharmacists are well-positioned to implement effective screening interventions. The expansion of their role has been driven by policy changes, workforce expansion, and increasing recognition of their contributions to preventive healthcare⁶. Successful pharmacist-led screening programs have been implemented in various countries, such as the UK's Healthy Living Pharmacy initiative and Canada's community-based eGFR screening for chronic kidney disease⁷. Additionally, community pharmacists play a crucial role in underserved areas, addressing health disparities by providing accessible healthcare services. Technological advancements, such as electronic health records and telehealth, further support pharmacists in screening and preventive care.

Rationale for the review

While numerous studies have demonstrated the positive impact of pharmacist interventions on chronic disease management, such as reducing unnecessary hospitalizations and improving medication adherence, the scope and diversity of community pharmacists' roles in secondary prevention remain underexplored⁸. To date, no overarching review has systematically mapped the evidence on screening interventions led by community pharmacists within community pharmacies, their clinical effectiveness, or the barriers and facilitators that shape their implementation.

As established earlier, screening, as a subset of secondary prevention, is particularly critical as it enables early disease detection, a key prerequisite for effective management. Leveraging pharmacists for screening programs presents a pragmatic and scalable solution to the logistical and economic challenges of large-scale screening implementation⁷.

However, variations exist across different healthcare systems in terms of regulatory frameworks,

reimbursement policies, and pharmacist authority or scope of intervention, which significantly influence their capacity to engage in screening activities.

For instance, while pharmacists in the UK can provide National Health Service (NHS)-funded screening services, those in some regions of the United States face restrictions on direct billing for preventive services.

A scoping review approach is particularly well-suited for systematically exploring this broad and complex topic. It allows for mapping the extent and nature of existing evidence, identifying knowledge gaps, and informing future research⁹. Moreover, the rigorous application of PRISMA-ScR guidelines ensures a transparent and reproducible synthesis of available literature.

Objectives of the scoping review

The primary objective of this scoping review is to assess the extent and nature of the evidence on the role of community pharmacists in secondary prevention screening^{10,11}. Specifically, it aims to:

1. Identify screening strategies implemented by community pharmacists.
2. Evaluate the clinical benefits observed for patients.
3. Analyse barriers and facilitators influencing pharmacists' involvement in screening programs.
4. Compare differences in implementation across various healthcare systems.
5. Highlight gaps in the literature to guide future research.

By integrating these perspectives, this review will provide a deeper understanding of how pharmacists contribute to secondary prevention and explore some country-specific variations that influence their effectiveness in screening programs.

MATERIAL AND METHODS

Preliminary search

A preliminary exploration of MEDLINE, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis was conducted in September 2024 and revealed no existing or ongoing systematic or scoping reviews addressing the specific role of community pharmacists in secondary prevention screening.

Design

This scoping review was conducted in accordance with the PRISMA-ScR guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews). The PRISMA-ScR checklist was utilized for transparency purposes to ensure rigour in reporting¹¹.

Review questions

This review was guided by the Population, Concept, and Context (PCC) framework to structure its focus¹⁰:

1. Population: community pharmacists
2. Concept: screening interventions conducted or led by pharmacists, focusing on early detection and diagnosis as part of secondary prevention
3. Context: primary care settings, specifically dispensing pharmacies, and comparisons across different healthcare systems

The review aimed to address the following research questions:

1. What screening strategies have community pharmacists implemented?
2. What is the clinical impact of these pharmacist-led screening interventions on patient health outcomes?
3. What barriers and facilitators influence the adoption and success of pharmacist-led screening initiatives?
4. What gaps exist in the current evidence base and what directions should future research take?

Study Eligibility

The inclusion and exclusion criteria are detailed in Table I. Articles published before 2000 were excluded. Studies that did not involve direct screening interventions by community pharmacists, such as literature reviews, educational program descriptions, workshops, or patient cases without interaction, assessment, or examination, were also excluded¹⁰.

The included studies featured a variety of study designs, including quantitative and qualitative research.

Details of study characteristics and key findings are presented in the extraction table presented in the **Appendix II**^{12,13}.

Search strategy

The search strategy involved systematically querying two bibliographic databases, Medline (via PubMed) and Scopus (via Elsevier), for studies published between 2000 and 2024. Keywords and index terms related to community pharmacy, secondary prevention, and pharmacist-led screening interventions were used to construct comprehensive search strings. Specifically, the strategy combined MeSH terms (for PubMed) and free-text keywords, linked using the terms “AND” and “OR” to refine the results¹⁰. The choice was to focus on PubMed and Scopus, two major and complementary databases that together offer relevant coverage of biomedical and pharmaceutical literature. PubMed ensures strong inclusion of high-quality, peer-reviewed biomedical research, while Scopus provides a useful interdisciplinary perspective.

Table 1. Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Population	Community pharmacists	- Wrong population. any other types of pharmacists such as: o Hospital pharmacists o Students
Intervention	- Screening performed or handed by community pharmacists - Early screening, early diagnosis	- Interventions not related to screening - Inappropriate interventions
Concept	- Studies assessing the role of community pharmacists in implementing screening activities as part of secondary prevention - Studies evaluating the impact of these interventions on the early detection of disease, or on improving the management of at-risk patients	- Studies focusing solely on primary or tertiary prevention
Context	- Studies carried out in dispensing pharmacies as part of primary care - International comparisons of the roles of pharmacists in different healthcare systems	- Studies carried out in hospitals or secondary/tertiary care facilities
Sources	- Quantitative studies (clinical trials, cohort studies) - Qualitative studies (interviews, focus groups on the perceptions of pharmacists/patients) - Studies published between 2000 and 2024 - In English only	- Opinion articles, editorials and letters without empirical data - Conference abstracts without full text available - Review articles - Letters to editors - Hypothetical cases

Search terms included:

- **Community Pharmacy:** Community Pharmacy, Retail Pharmacy, Local Pharmacy.
- **Secondary Prevention:** Secondary Prevention, Screening, Early Detection.

A detailed description of the search strings and methodology is provided in **Appendix I**.

Selection of studies and data extraction

Titles and abstracts of all identified records were independently screened by two reviewers (ML and CC) to exclude studies not meeting the eligibility criteria. Discrepancies were resolved through discussion and consensus¹⁰. Full texts of potentially eligible articles were assessed for inclusion in the same manner.

Data extraction was performed manually. The data sheet captured study characteristics, intervention details, and outcomes. The complete data extraction instrument is detailed in **Appendix II**.

RESULTS

Overview of included studies

A total of 236 studies were included in this scoping review, selected from 1006 screened records.

Reasons for exclusions at each stage of screening, such as irrelevance to the research questions or failing to meet the inclusion criteria, are detailed in the PRISMA flow diagram (**Figure I**)¹⁴. The included studies span diverse geographic locations and healthcare systems, highlighting a wide range of pharmacist-led screening interventions and their impact on public health outcomes.

Key Findings

The extracted data included types of screening interventions, clinical outcomes for patients, and barriers and facilitators identified in each study. Given the extensive scope of this scoping review, which included 236 articles, the findings are presented by pathology to provide a structured and thematic overview. This section focuses on the main pathologies and their most significant outcomes, ensuring clarity and relevance. An extensive list of all screened pathologies and their associated findings is provided in the appendix for comprehensive documentation.

Cardiovascular diseases

Pharmacists conducted cardiovascular screenings, such as blood pressure checks, cholesterol profiling, and pulse checks for atrial fibrillation, often using tools like iPhone ECGs and portable monitors^{13,15}.

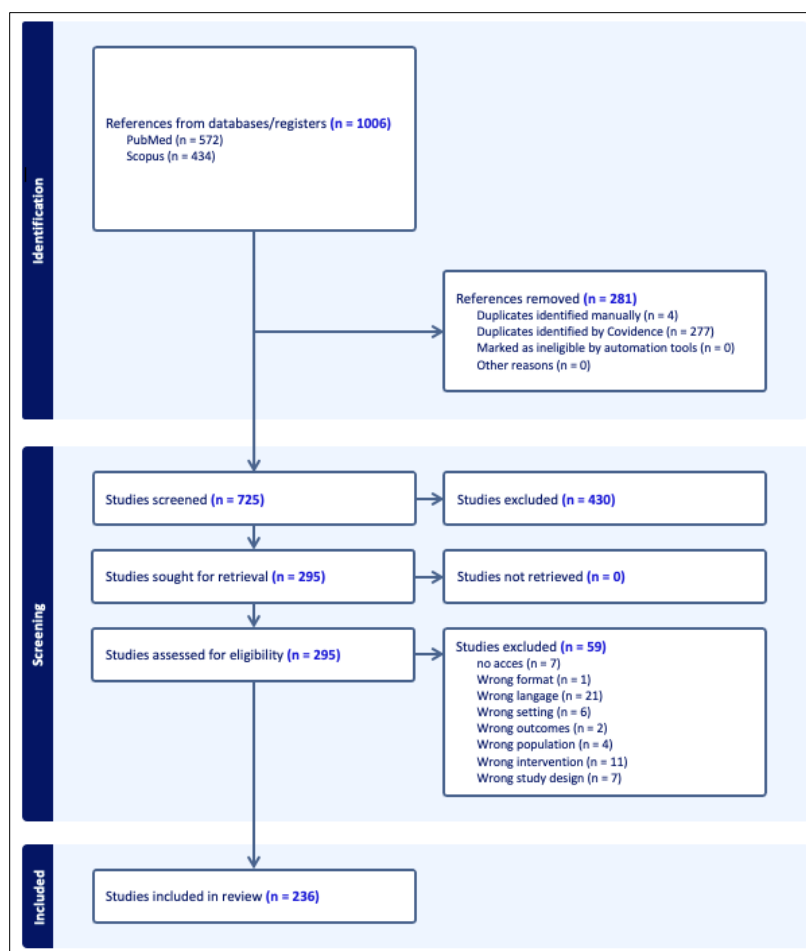


Figure 1. PRISMA ScR flow diagram

Collaborative care models with primary care providers enhanced patient outcomes by ensuring timely referrals^{16,17}. Programs like the Healthy LifeCheck (2013) highlighted the feasibility of implementing cardiovascular risk assessments in community pharmacies¹⁸.

Challenges included regulatory constraints, lack of standardized protocols, and limited access to diagnostic tools¹⁹. Facilitators included high patient trust, accessibility of pharmacies, and pharmacists' integration into multidisciplinary teams¹⁸.

Diabetes

Pharmacist-led diabetes screenings leveraged tools like HbA1c testing²⁰, glucose monitoring, and AUSDRISK to detect undiagnosed diabetes and assess risk²¹. Studies like the one conducted by Bramlage et al. demonstrated improved glycemic control and adherence

to follow-up care²². Prevention programs emphasizing lifestyle counseling further reduced risks²³.

Barriers included logistical constraints and inconsistent reimbursement policies but frequent pharmacist-patient interactions and trust significantly facilitated these initiatives²⁰.

Sexually transmitted diseases (STDs)

Pharmacists utilized point-of-care (POC) testing for HIV, hepatitis C, and chlamydia, providing timely diagnosis and referrals^{24,25}. Initiatives like the integration of self-testing kits for HIV improved access in underserved populations^{24,26}. Test-and-treat programs for infections like chlamydia and gonorrhea reduced transmission rates and increased treatment uptake²⁷.

Stigma and confidentiality concerns hindered patient participation, but accessible testing options and pharmacist education campaigns addressed these challenges effectively^{28,29}.

Osteoporosis

Community pharmacists conducted bone mineral density (BMD) scans and used tools like OSTA to screen high-risk populations for osteoporosis^{30,31}. Portable devices and structured questionnaires facilitated early detection, while educational programs increased awareness and prompted timely referrals^{31,32}.

Challenges included limited diagnostic equipment³³, while facilitators such as pharmacists' accessibility and patient trust supported these interventions³⁴.

Bacterial infections

Pharmacist-led initiatives included C-reactive protein (CRP) testing for respiratory infections and H. pylori testing for gastrointestinal issues^{35,36}. These efforts reduced unnecessary antibiotic use and promoted antimicrobial stewardship^{37,38}.

Barriers included time constraints and documentation requirements, but patient education campaigns and pharmacists' expanded roles facilitated successful implementation^{35,39}.

Cancer

Pharmacists supported cancer screening through programs like the distribution of faecal immunochemical test (FIT) kits for colorectal cancer and risk assessments for skin cancer^{40,41}. Educational outreach increased awareness and participation in screening⁴².

Barriers included limited oncology training and patient reluctance, while affordability and accessibility of pharmacy-based services enhanced uptake^{43,44}.

Influenza and streptococcus

Pharmacists utilized POC testing to diagnose and manage respiratory infections like influenza and strep throat^{45,46}. These services improved diagnostic accuracy and treatment timeliness⁴⁷. Public education campaigns emphasized prevention and vaccinations⁴⁸.

Barriers included variability in access to supplies and training, while strong patient-pharmacist relationships and trust facilitated effective implementation⁴⁹.

Other screened pathologies and health conditions 163-242

Pharmacists also play a crucial role in managing a variety of other health conditions, including alcohol dependency^{50,51}, metabolic/bowel syndrome^{52,53}, COPD^{54,55} for which they perform spirometry, chronic diseases^{56,57}, cognitive impairment^{58,59}, mental health issues^{60,61}, coeliac disease^{62,63}, chronic kidney disease (CKD)^{7,64}, malaria⁶⁵, tuberculosis^{12,66}, sleeping disorders^{67,68}, and erectile dysfunction⁶⁹.

Despite challenges like regulatory barriers and limited diagnostic tools, the high level of patient trust, accessibility of pharmacies, and integration into

multidisciplinary teams make these interventions effective.

Outcomes, barriers and facilitators

Outcomes and ramifications

Pharmacist-led interventions have demonstrated significant benefits for public health by improving detection rates for conditions such as hypertension, diabetes, and other chronic diseases^{56,70}. These efforts have facilitated the early identification of at-risk individuals, enhanced chronic disease management through better treatment adherence⁷¹, and optimized medication regimens. Research has demonstrated that the active participation of pharmacists can lead to a decrease in hospital admissions and emergency room visits⁵⁶. These findings emphasize the crucial role of community pharmacists in implementing disease-specific screening initiatives. Pharmacists can significantly improve public health outcomes by tailoring their contributions to prevalent chronic conditions.

Barriers to implementation

Numerous obstacles impede the expansion and potency of pharmacist-led screening initiatives. Regulatory restrictions in certain jurisdictions limit the scope of practice for pharmacists, preventing them from fully utilizing their skills in preventive care⁷². Additionally, variability still exists in the standardization of screening procedures across pharmacies, leading to inconsistent protocols^{73,74}. Another important barrier is limited awareness among patients and stakeholders about the roles pharmacists can play in preventive care^{75,76}. Addressing these systemic issues is essential to facilitate wider adoption.

Facilitators for success

Despite these challenges, several factors contribute to the success of pharmacist-led screening campaigns. The widespread availability and convenience of community pharmacies make these services easily accessible to the public^{77,78}. The value of a patient's relationship with a pharmacist cannot be overstated, as these trusted connections foster patient involvement in screening programs^{79,80}. Furthermore, the integration of pharmacists into healthcare teams enhances follow-up and care coordination, ensuring that patients receive comprehensive support^{81,82}. Adequate training and access to diagnostic tools empower pharmacists to deliver effective interventions, further contributing to the success of these programs^{83,84}.

Research consistently highlights the crucial role of favourable policies, education, and funding in optimizing the effectiveness of pharmacists. Despite the barriers, evidence suggests that pharmacists have great potential to contribute to public health through effective screening interventions.

Limitations of this study

While this review provides valuable insights into the role of community pharmacists in secondary prevention screening, certain limitations must be acknowledged when interpreting the findings.

Search scope

The review was limited to studies published in English and only included two databases, PubMed and Scopus. This may have excluded relevant studies published in other languages or those available in non-indexed journals. Consequently, the scope of countries covered might be limited, potentially missing interesting resources from non-English speaking regions⁸⁵.

Study heterogeneity

The included studies varied widely in terms of methodology, interventions, and outcome measures. This diversity made it challenging to draw definitive conclusions or compare results across studies.

Access to full texts

Some potentially relevant studies could not be included in this scoping review due to lack of access to their full texts, which may have limited the comprehensiveness of the review.

Study-level limitations

Many studies used observational designs or self-reported outcomes, leading to potential biases and limiting generalizability⁸⁶.

Time constraints

Limited time for conducting the review may have impacted the comprehensiveness of the search strategy and study selection process.

DISCUSSION

Summary of Findings

This scoping review maps the evidence on the role of community pharmacists in secondary prevention through screening interventions, revealing the following key insights:

Diversity of screening interventions

Community pharmacists have launched numerous screening initiatives for persistent health issues like diabetes, heart conditions, cognitive decline, and coeliac disease. These programs harnessed the accessibility of community pharmacies and their frequent patient interactions to target vulnerable populations efficiently. For instance, implementing on-site diagnostic tests for conditions like chronic kidney disease^{7,87} and influenza^{45,88} in community pharmacies proved the viability and advantage of pharmacy-driven initiatives. Moreover, screening programs for conditions

like tuberculosis^{12,66} and diabetes^{20,21} have identified many undiagnosed cases.

Positive clinical outcomes

The interventions led to quantifiable improvements in early disease detection, patient care, and healthcare usage. Studies such as Papastergiou et al⁷ on chronic kidney disease and Kirby et al⁸⁹ on influenza highlighted positive clinical outcomes like early detection and effective referrals. However, variations in outcomes across studies underline the need for standardized protocols and robust evaluations to ensure consistent results across different healthcare settings^{87,90}.

Barriers and facilitators

Regulatory hurdles, inadequate education, and widespread misunderstandings regarding pharmacists' responsibilities persist⁹¹. The absence of legal permission for community pharmacies to perform rapid diagnostic tests, as observed in Rwanda⁶⁵, posed a significant obstacle. Facilitators of expanding interventions include the easy accessibility of community pharmacies, patients' trust, and pharmacists' willingness to take on expanded responsibilities. These factors offer substantial potential for scaling up these initiatives^{50,92}.

Cross-Country Differences in Pharmacist-Led Screening Interventions

Pharmacist-led screening programs vary significantly across countries due to differences in healthcare system structures, regulatory frameworks, and cultural attitudes toward pharmacy services.

Legal and Regulatory Frameworks

In some countries, such as Canada and the UK, pharmacists are legally authorized to perform point-of-care diagnostic tests, order and interpret lab tests or prescribe treatments for common conditions⁹³. In contrast, countries like France, Belgium or the Netherlands⁹⁴ have more restrictive regulations⁹⁵ limiting pharmacists' roles in screening to advisory functions rather than direct diagnostic interventions. In Rwanda, the lack of legal permission for pharmacists to conduct rapid diagnostic tests has posed a barrier to implementing screening initiatives⁶⁵.

Healthcare Access and Reimbursement

The feasibility of pharmacist-led screening is strongly influenced by how healthcare services are funded⁹⁶. In countries where universal healthcare systems are implemented (e.g., Belgium, UK, Canada, France), government funding and reimbursement mechanisms facilitate patient access to pharmacist-led screenings⁹⁷. Conversely, in the US, where healthcare relies more on private insurance, accessibility depends

on individual coverage, creating disparities in who can benefit from these services⁹⁸.

Cultural Trust in Pharmacists

Public perception of pharmacists' roles also affects the uptake of screening programs. In countries like the UK⁹⁹ and Australia¹⁰⁰, pharmacists are widely recognized as healthcare providers, making patients more willing to undergo screening in pharmacies. In contrast, in some European countries, there is still a strong cultural preference for physician-led care, which may limit public trust in pharmacist-led screening initiatives¹⁰¹.

Focus on Disease Priorities

Different countries prioritize screening for various diseases based on their public health needs. For instance, in Japan, where mask-wearing for infection control are ingrained in public behavior^{102,103} pharmacy-based flu screenings are well-integrated into preventive strategies. In the US and Canada, where obesity and lifestyle-related chronic diseases are major public health concerns, pharmacist-led screenings focus heavily on metabolic disorders. Meanwhile, in South Africa and India, pharmacy-based tuberculosis screening is more relevant due to higher disease prevalence.

Policy and Practice Implications

Enhancing Integration into Healthcare Systems

Community pharmacists are in a prime position to bridge the gaps in secondary prevention due to their widespread presence and accessibility.

Policy Initiatives

Policymakers should recognize and expand pharmacists' roles by providing regulatory support, such as authorizing point-of-care testing and facilitating reimbursement mechanisms. Countries like Canada¹⁰⁴ and the UK¹⁰⁵ have already implemented measures to integrate pharmacies into primary healthcare by allowing pharmacists to conduct tests for various conditions.

Collaborative models

Integrating pharmacists into multidisciplinary teams can enhance follow-up care, especially for high risk populations, such as those identified in screening for cardiovascular disease^{13,106}. Interprofessional collaboration optimizes patient outcomes, particularly in managing chronic conditions.

Addressing Barriers to Implementation

Training and education

Targeted training programs focusing on screening techniques and chronic disease management can empower pharmacists to deliver more effective interventions. Overcoming knowledge gaps observed in studies such as those by Papastergiou *et al*⁷. on kidney disease and Gayathri *et al*⁶⁶. Tuberculosis is necessary.

Public awareness campaigns

Public awareness campaigns can inform patients about the expanded roles of pharmacists in health management, potentially increasing uptake of screening services and improving public perception of pharmacists' capabilities⁵⁰.

Cost-effectiveness and sustainability

While many studies highlighted the feasibility of pharmacist-led screening, cost-effectiveness data remained sparse. For example, studies on influenza and diabetes screening did not provide detailed economic evaluations. Future research should prioritize economic evaluations to justify scaling these interventions, particularly in resource-constrained settings. Research like the cost-effectiveness study by Perraudin *et al*⁶⁸ on sleep apnoea screening in pharmacies serves as a model for future evaluations of pharmacy-based screening programs.

Knowledge Gaps and Future Research

This review identified several gaps in the literature:

Underexplored pathologies

Limited research exists on pharmacist-led screening for conditions beyond common chronic diseases, such as certain types of cancers and infectious diseases like tuberculosis.

Long-term consequences

Only a handful of research studies have examined the sustained effects of pharmacist-led screenings on patient well-being and healthcare system efficiency. Longitudinal studies are required to measure long-term benefits.

Comparative studies

Cross-country comparisons within the same article are essential to understanding how healthcare systems influence the effectiveness of pharmacist-led screening interventions. For instance, discrepancies in healthcare access and laws between nations such as the US and the UK may influence the results of comparable programs. The US healthcare system, characterized by high costs and a mix of private and public insurance, often results in barriers to access and inconsistent coverage. In contrast, countries like the UK and Canada have more integrated systems with universal coverage, facilitating broader implementation of pharmacist-led screenings.

Digital and technological integration

The integration of digital and technological tools, such as electronic health records and telehealth platforms, in pharmacy-based screenings holds great untapped potential. Research on integrating digital tools

into screening, such as those used for diabetes screening, could improve service delivery and patient outcomes.

CONCLUSION

This scoping review highlights the critical role of community pharmacists in secondary prevention through screening interventions. The findings emphasize the positive impact of pharmacist-led initiatives on early disease detection, chronic disease management, and optimized healthcare utilization. Despite significant obstacles, such as regulatory constraints, inconsistent protocols, and limited awareness of pharmacists' roles, facilitators like accessibility, community trust, and multidisciplinary collaboration underline the immense potential of these interventions.

The review identifies significant gaps in the literature, including the need for standardized protocols, economic evaluations, and studies on underexplored conditions. Addressing these gaps is essential to realizing the potential of community pharmacists as frontline providers in preventive healthcare.

Future efforts should focus on enabling supportive policies, integrating pharmacists into healthcare teams, and leveraging digital tools to scale up these interventions. By addressing systemic barriers and building on existing facilitators, pharmacist-led screenings can contribute significantly to improving global public health outcomes.

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Authors contributions

Messi-Emini Laura: conceptualization of the review, drafting, and finalizing the manuscript. Cindy Chaballe: co-reviewer for study screening and extraction, ensuring accuracy and consistency of findings. Bardiau Marjorie: development of the search strategy and data management on the Covidence platform. Crunenbergh Robin: supervision, methodological guidance, critical revisions, finalizing the manuscript and submission process.

Conflicts of interest

The authors declare no competing interests related to this work.

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Appendices

Appendix I: Search strategy

Search conducted in October 2024

DATA BASE	QUERY PUBMED	QUERY SCOPUS
STRATEGY	((((((secondary prevention*[Title/Abstract] OR "early therap*[Title/Abstract] OR "relapse prevention*[Title/Abstract] OR "early detection*[Title/Abstract] OR "early diagnos*[Title/Abstract] OR "early testing*[Title/Abstract] OR "early screening"[Title/Abstract] OR "diagnostic service*[Title/Abstract]) OR ("point-of-care testing*[Title/Abstract] OR "point-of-care screening*[Title/Abstract])) OR ("Point-of-Care Testing"[Mesh])) OR ("Early Diagnosis"[Mesh])) OR ("Diagnostic Services"[Mesh])) OR ("Secondary Prevention"[Mesh])) AND (((("Pharmacies"[Mesh]) OR ("Community Pharmacy Services"[Mesh])) OR (("community pharmac*[Title/Abstract] OR "distribution pharmac*[Title/Abstract] OR "dispensing pharmac*[Title/Abstract] OR "dispensatory pharmac*[Title/Abstract] OR "retail pharmac*[Title/Abstract] OR "local pharmac*[Title/Abstract] OR "independant pharmac*[Title/Abstract] OR "store pharmac*[Title/Abstract]) OR (drugstore*[Title/Abstract]))))	TITLE-ABS-KEY (("secondary prevention*" OR "early therap*" OR "relapse prevention*" OR "early detection*" OR "early diagnos*" OR "early testing*" OR "early screening" OR "diagnostic service*" OR "point-of-care testing*" OR "point-of-care screening*") AND ("community pharmac*" OR "distribution pharmac*" OR "dispensing pharmac*" OR "dispensatory pharmac*" OR "retail pharmac*" OR "local pharmac*" OR "independant pharmac*" OR "store pharmac*" OR drugstore*))
RESULTS	572	434