

How Community Pharmacy Outreach Engages Underserved Populations in Preventive Care: A Realist Review of Trust, Service Accessibility, Interprofessional Partnerships, and Sustained Participation

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Abstract

Community pharmacies offer opportunities to deliver preventive care to populations experiencing geographical, financial, cultural, linguistic and organizational barriers to healthcare. However, service availability, initial attendance and sustained participation represent different outcomes. Understanding how outreach influences these outcomes requires attention to the circumstances in which services operate and the reasoning of people who encounter them. To examine how, why, for whom and under which circumstances community pharmacy outreach supports engagement and sustained participation in preventive care, with particular attention to relational trust, service accessibility and interprofessional partnerships. A realist review approach was developed around initial programme theory, iterative evidence identification, relevance and rigour appraisal, and context-mechanism-outcome analysis. Public literature discovery and preliminary evidence mapping identified candidate publications addressing pharmacy access, preventive services, underserved populations and interprofessional collaboration. The available search record did not establish a complete, deduplicated and eligibility-screened evidence set. Preliminary evidence mapping identified explanatory questions concerning whether outreach resources are perceived as credible, practically usable and connected to subsequent care. The proposed analytical distinctions concern initial contact, preventive-service uptake, completed referral, follow-up and sustained participation. Formal evidence-supported context-mechanism-outcome configurations and final included-evidence counts remain unestablished. A realist explanation of pharmacy outreach must account for how service resources interact with social circumstances, professional relationships and organizational arrangements. Its claims concerning sustained participation require longitudinal evidence and a completed, transparent synthesis.

Keywords: Community pharmacy, Health equity, Preventive health services, Realist review, Community outreach, Interprofessional collaboration

Introduction

Community pharmacies occupy a distinctive position within preventive healthcare. Their distribution across

residential and commercial settings, established medication-related functions and opportunities for repeated contact create possibilities for reaching people who experience difficulty accessing conventional healthcare services. Nevertheless, pharmacy access encompasses more than geographical proximity. Physical availability, service affordability, operational accessibility and the ability to obtain an appropriate professional response represent different dimensions of access [1]. Geographical assessments of pharmacy vulnerability further indicate that the consequences of

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limited pharmacy availability depend on local circumstances and the presence of viable alternatives [2]. These distinctions are particularly important for underserved populations. Underserved status may reflect interacting disadvantages associated with income, transport, language, discrimination, disability, unstable housing, health-system navigation or exclusion from conventional service pathways. The relative importance of these circumstances varies between populations and preventive-care activities.

Evidence concerning pharmacy services tailored to minoritized populations identifies the importance of adapting delivery arrangements to the needs and experiences of intended recipients [3]. Research on vaccination promotion among vulnerable groups similarly demonstrates the relevance of examining how outreach strategies are organized and delivered [4]. Work concerning pharmacy-based sexually transmitted infection services extends this question to preventive interventions where confidentiality, perceived stigma and the acceptability of the service environment may influence engagement [5].

A central difficulty is that these studies do not necessarily measure the same outcome. A pharmacy may be geographically accessible without offering the required service. An individual may receive information without accepting an intervention. Attendance at an initial encounter may occur without completion of testing, referral or subsequent preventive care.

Consequently, preventive-service reach, initial uptake and sustained participation require separate operational definitions.

Community pharmacy teams also work within social circumstances that influence interactions with marginalised communities. Qualitative research examining care for these populations provides insight into the experiences and practical challenges encountered by pharmacy personnel [6]. Such accounts offer an important perspective on service delivery, although staff perceptions cannot independently establish how recipients interpret an outreach encounter.

Broader reviews of pharmacist-provided preventive services have examined clinical, healthcare-utilization and economic outcomes [7]. These outcomes remain important, but they do not necessarily reveal why individuals engage with a service, why an initially successful encounter leads to subsequent participation, or why people disengage despite apparently accessible provision.

The unresolved question is explanatory.

Community pharmacy outreach may involve direct contact with potential service users, targeted vaccination or screening opportunities, social-needs identification, collaboration with community organizations, referral navigation and coordination with other healthcare professionals. Each arrangement offers different resources to recipients and staff. Whether those resources influence behaviour depends partly on how they are interpreted and on the circumstances in which they become available.

For example, an encounter with a familiar professional may provide an opportunity for confidential discussion. The relevant explanatory process concerns whether the recipient interprets that opportunity as credible, safe and responsive to their circumstances. A convenient appointment may reduce practical difficulty, while its effect on participation may remain limited when the service does not address subsequent costs, transport requirements or referral arrangements.

Interprofessional partnerships introduce another dimension. A pharmacy may identify a preventive need that requires services beyond its own professional authority or organizational capacity. The subsequent pathway depends on the availability of appropriate partners, the communication of relevant information and the responsibilities assigned for further contact.

These observations motivate a realist examination of outreach as a context-dependent intervention.

The primary research question is:

How, why, for whom and under which circumstances does community pharmacy outreach support engagement and sustained participation in preventive care among underserved populations?

The review focuses on three interacting explanatory domains: trust and relational legitimacy, accessibility and service responsiveness, and interprofessional partnerships. It examines how these domains may contribute to different participation outcomes while retaining non-engagement, interrupted referral and attrition as analytically important possibilities.

The intended contribution is a refined programme theory explaining how outreach resources interact with recipient and professional reasoning across different social, clinical and organizational contexts.

Materials and Methods

Review scope and realist research questions

A realist review approach was selected to investigate variation in the operation and outcomes of community pharmacy outreach. Realist synthesis seeks explanations of how programmes work through the interaction of context, mechanisms and outcomes, with attention to differences between circumstances and populations [8]. The review question concerns community pharmacy involvement in preventive care for populations experiencing barriers to accessing or continuing healthcare.

The population of interest includes underserved communities identified through social, economic, geographical, demographic or healthcare-access circumstances. Underserved status is treated as contextually defined rather than as a fixed characteristic shared by all individuals within a population category.

The intervention scope includes pharmacy-led outreach, targeted preventive-service delivery, community engagement, social-needs identification, referral navigation and interprofessional arrangements that connect community pharmacy with preventive healthcare.

Preventive-care activities may include vaccination, screening, risk identification, health promotion and referral to appropriate preventive or early-intervention services.

The principal outcomes are distinguished as initial contact, service acceptance, completed preventive intervention, completed referral, follow-up and sustained participation. Evidence concerning service availability or professional implementation is considered separately from evidence measuring recipient behaviour.

The explanatory questions address which programme resources become available, how recipients and professionals interpret those resources, and how contextual conditions alter the relationship between those responses and subsequent participation.

Development of the initial programme theory

The initial programme theory was organized around three candidate explanatory domains.

The first concerns relational legitimacy: whether recipients interpret pharmacy outreach as credible, respectful, confidential and responsive to their circumstances.

The second concerns practical accessibility: whether available services reduce difficulties associated with time, location, cost, communication or healthcare navigation.

The third concerns partnership infrastructure: whether community organizations and healthcare professionals provide resources that enable an initial pharmacy encounter to connect with subsequent preventive care.

These domains represent starting propositions to be examined against empirical reports, rather than findings established before synthesis.

The distinction between programme resources and participant reasoning is fundamental. A pharmacy's extended opening hours constitute a potentially useful resource; the recipient's perception that attendance is feasible represents a possible response to that resource. Likewise, a referral agreement represents an organizational arrangement, whereas confidence that the referral will lead to appropriate care concerns the recipient's interpretation.

The initial theory therefore preserves alternative responses to the same intervention resource and allows for differences between initial participation and continued engagement.

Search strategy and information sources

The documented evidence-identification work comprised public web discovery, searches targeting PubMed-indexed publication records, and inspection of accessible publisher and bibliographic information.

Searches conducted on 26 September 2026 addressed community pharmacy outreach, underserved populations, preventive healthcare, vaccination equity, screening, social needs, community health workers, interprofessional collaboration and realist synthesis.

The discovery strategy combined topic-specific searches with supplementary searches directed at methodological literature and relevant publications identified through the initial results.

Search concepts included community pharmacy, outreach, prevention, underserved populations, health equity, accessibility, trust, referral, community health workers and sustained participation.

The intended publication window for the final bibliography was 2017–2025. Journal quartile status was treated as a bibliography requirement, not as an eligibility criterion for evidence considered in the realist synthesis.

The available search history establishes preliminary discovery activity, but it does not provide a complete exportable set of database records. Accordingly, the searches cannot be reported as completed systematic searches of PubMed, Embase, CINAHL or Scopus.

Database-specific retrieval totals, complete deduplication records and supplementary-search counts were not recoverable from the documented material.

Study selection and evidence appraisal

The eligibility framework was designed to prioritize reports capable of informing the review question and testing the initial programme theory.

Potentially relevant evidence includes empirical studies of pharmacy outreach, qualitative investigations of recipient or professional experiences, evaluations of preventive-service delivery, and reports examining interprofessional arrangements.

Methodological and contextual publications serve separate functions. Their presence in the bibliography does not automatically establish their inclusion as empirical evidence units.

Realist evidence appraisal requires consideration of both the relevance of material to programme-theory development and the rigour of the methods generating the information. Contemporary methodological guidance further emphasizes the richness of evidence and its contribution to explanatory reasoning [9].

The planned appraisal therefore examines whether a source provides sufficient information to support a proposed resource–reasoning–outcome relationship, whether its methods support the particular claim extracted, and whether limitations affect transfer to other populations or settings.

No completed record-level screening ledger or final evidence-appraisal register was established during the documented discovery work.

Consequently, the present material does not support reporting a final included-study count, full-text exclusion total or completed relevance-and-rigour assessment.

Data extraction and organization

The extraction structure was developed to distinguish individual reports, underlying programmes and evidence fragments.

Each candidate evidence unit was assigned a provisional identifier and mapped to publication design, population, setting, intervention or construct, reported outcome, temporal characteristics and potential explanatory contribution.

The intended fragment-level extraction distinguishes contextual circumstances, programme resources, recipient or staff reasoning, and reported outcomes.

Additional fields address professional responsibilities, partnership arrangements, evidence quality, alternative explanations, contradictory findings and applicability limitations.

This approach is consistent with realist work examining outreach and community-coalition interventions, in which explanatory propositions require comparison across different service and population contexts [10].

Where multiple reports concern the same underlying programme, programme-level identifiers are required to prevent the reports from being mistaken for independent interventions.

The preliminary candidate register was prepared, but complete full-text extraction and verification of all underlying evidence units were not completed.

Context–mechanism–outcome analysis

The analytical approach distinguishes context, mechanism and outcome without treating them as interchangeable descriptive categories.

Context encompasses circumstances influencing whether an intervention resource is available, meaningful or usable. These may include geographical conditions, social relationships, service organization, professional authority and interorganizational arrangements.

Mechanisms concern how programme resources interact with the reasoning or responses of recipients and relevant professionals.

Outcomes concern the resulting patterns of engagement or service use, interpreted in relation to the definitions and observation periods employed in the underlying evidence.

The planned synthesis examines convergent and contradictory accounts across the three explanatory domains. It also separates the existence of an interprofessional relationship from its practical operation.

A realist review of collaboration between general practice and community pharmacy provides a relevant methodological precedent for investigating how organizational relationships operate differently across contexts [11].

The analysis is intended to compare whether particular arrangements support initial engagement, completed interventions, return attendance or continuity with other services.

Negative cases include reported non-engagement, incomplete referral, interrupted follow-up and situations

in which the presence of a service does not translate into use.

These categories guide theory testing; they are not presented here as completed findings.

Programme-theory refinement

Programme-theory refinement was specified as an iterative process involving comparison between initial propositions, extracted evidence, contradictory cases and alternative explanations.

An explanatory proposition would be retained when relevant and sufficiently rigorous evidence supports its proposed relationship. Contradictory evidence would require examination of differences in population, intervention resources, organizational circumstances, measurement and observation period.

Where evidence supports only service reach or initial attendance, the resulting proposition must remain limited to that outcome. Claims concerning sustained participation require evidence demonstrating continued involvement over an identifiable period.

The intended refined theory therefore preserves the distinction between recipient engagement and organizational implementation, and between referral initiation and subsequent preventive-care completion.

Because the documented search, selection and extraction record remains incomplete, formal evidence-supported programme-theory refinement cannot yet be reported as an executed result.

Results and Discussion

The results presented here retain the limitations of the preliminary mapping. The preliminary literature mapping supports examination of several explanatory

relationships, but the documented search does not establish a complete screened evidence set. Consequently, the programme theory presented below is a provisional realist synthesis, not a claim that all eligible evidence has been identified, appraised and synthesized.

Description of the included evidence

The mapped literature encompasses qualitative investigations, implementation evaluations, observational studies, intervention research, scoping reviews and methodological syntheses. The evidence addresses different preventive services, populations and organizational arrangements, with vaccination and health-related social-needs programmes particularly prominent among the identified publications.

A qualitative investigation of vaccination equity in Pennsylvania examined community pharmacy strategies for addressing unequal access and identified considerations relevant to developing relationships with underserved communities [12]. A person-centred co-design study involving ethnic minority communities in the United Kingdom generated recommendations for improving access to medication advice, including attention to communication and service awareness [13]. These sources contribute different forms of evidence. The former addresses vaccination-equity strategies, whereas the latter captures perspectives that can inform service adaptation. Neither establishes that a particular outreach model produces sustained preventive-care participation across populations.

Table 1 distinguishes the principal evidence contexts identified during preliminary mapping. The entries characterize the candidate evidence reservoir; they are not a final enumeration of included studies.

Table 1. Preventive-care outreach evidence contexts identified during preliminary realist mapping

Evidence context	Population or setting	Outreach or service resource	Relevant contextual information	Evidence limitation
Vaccination equity research	Underserved community populations	Community pharmacy vaccination access and engagement	Community relationships and service delivery conditions	Sustained individual participation requires separate evidence
Person-centred service co-design	Ethnic minority community members	Adaptation of pharmacy communication and access	Cultural responsiveness and service awareness	Recommendations do not establish implementation outcomes
Social-needs programmes	Community pharmacy service users	Screening, referral and navigation support	Staff capacity and community-service availability	Referral initiation differs from resolution

Pharmacy–community partnerships	Pharmacy teams and external organizations	Collaborative service delivery	Professional responsibilities and organizational coordination	Partnership presence does not establish completed care
Preventive screening services	Pharmacy users eligible for screening	Accessible assessment or testing	Service availability and subsequent clinical pathways	Initial screening differs from follow-up completion

Note: The table presents analytical categories derived from the candidate evidence reservoir. It does not report final included-study totals or study-level quality ratings.

Initial programme theory

Research on how patients develop trust in community pharmacists provides a basis for examining the relational conditions under which professional advice becomes acceptable [14]. Patient perspectives on discussing social determinants of health further raise questions about whether individuals regard the pharmacy encounter as an appropriate setting for disclosing personal circumstances [15].

The initial programme theory consequently treats accessibility, relational legitimacy and partnership capacity as potentially interacting resources. Their influence depends on recipients' interpretations and the practical opportunities available after the encounter.

Table 2 presents the propositions identified for testing against the mapped literature.

Table 2. Initial explanatory propositions linking outreach resources to participation

Initial proposition	Programme resource	Potential recipient or staff reasoning	Alternative explanation
Relational legitimacy	Familiar professional interaction	Advice is considered credible and safe to accept	Prior confidence or established healthcare engagement
Practical accessibility	Convenient, affordable and responsive service	Participation is perceived as feasible	Existing motivation or alternative access
Partnership continuity	Identifiable referral and navigation support	Subsequent care appears achievable	Independent access to external services
Repeated participation	Accessible follow-up and continuing contact	Returning is considered useful and manageable	Preventive-care needs or schedules unrelated to outreach

Note: These are initial theory propositions, not confirmed causal relationships. Their explanatory status depends on subsequent evidence testing.

Trust and relational legitimacy

Collaborative vaccination initiatives provide examples of pharmacy engagement with underserved communities [16]. Longitudinal evaluation of community pharmacy influenza vaccination services adds an organizational perspective on how preventive services operate beyond their initial introduction [17].

Evidence concerning pharmacists' vaccination roles across different health systems also indicates the importance of examining professional authority and service arrangements in their specific settings [18].

Trust may involve confidence in professional competence, respectful communication, confidentiality and the legitimacy of the outreach activity. These dimensions should be differentiated because a recipient may trust a pharmacist's clinical advice while remaining

uncertain about how personal information will be handled by another organization.

A plausible mechanism involves interpreting a professional encounter as safe and worthwhile. However, evidence of service provision or attendance alone cannot establish that this reasoning occurred.

Accessibility and service responsiveness

Pharmacy personnel's confidence in screening for social needs raises questions about whether staff have the skills and organizational resources necessary to identify circumstances affecting preventive-care access [19]. Research on social-needs screening identifies practical implementation considerations [20].

Proposed pharmacy practice models describe opportunities to integrate responses to social circumstances into existing services [21]. Subsequent implementation research provides a separate basis for

examining how such arrangements operate in practice [22].

Integration of community health workers offers another service resource, particularly when identified needs require navigation beyond the pharmacy [23].

Accessibility therefore encompasses both the initial encounter and the feasibility of subsequent action. A screening opportunity may be convenient while the referred service remains inaccessible. Service responsiveness depends on whether the arrangement can accommodate the person's circumstances and whether appropriate assistance is available when needs extend beyond pharmacy practice.

Interprofessional partnerships

Pharmacy collaboration with community-based organizations provides an organizational setting for addressing health-related social needs [24]. A pragmatic evaluation of a community health worker model offers evidence relevant to differentiating screening, referral and subsequent assistance [25].

Research examining programme facilitators' perspectives adds information about implementation conditions [26]. Vaccination-equity initiatives involving community health workers provide another relevant context for studying outreach responsibilities [27].

These sources make partnership functioning a central explanatory question. Referral arrangements may provide professional resources, but continuity depends on how responsibilities are distributed and whether the recipient can use the next service.

The provisional mechanism concerns confidence and practical ability to act on the referral. Partner availability, communication and assigned follow-up responsibilities are potential contextual conditions. The existence of a partnership must not be reported as proof of successful navigation.

Mechanisms supporting sustained participation

Implementation research concerning a community pharmacy life-course vaccination review provides a relevant setting for examining preventive-service organization [28]. Pharmacy biometric screening research illustrates the distinction between an initial assessment and any subsequent clinical response [29]. Colorectal cancer screening introduces further questions concerning completion of testing and follow-up after results become available [30].

Qualitative research on proposed pharmacy PrEP provision examines anticipated barriers and facilitators [31]. Geospatial assessment of PrEP accessibility addresses a different dimension: the distribution of possible service access points [32].

Together, these sources support a conceptual distinction between access conditions, actual encounters and subsequent care. They do not establish a common measure of sustained participation.

For this review, sustained participation requires evidence of continued preventive-care involvement over a reported observation period. A single attendance event, referral or screening episode must remain a distinct outcome.

Context–mechanism–outcome configurations

Realist research concerning community link work provides an explanatory comparison for examining how service resources interact with social circumstances [33]. Evidence on pharmacists' uptake of public-health interventions provides a complementary implementation perspective [34].

The provisional configurations in **Table 3** distinguish resources from the reasoning they may elicit. They are hypotheses for evidence testing, not completed synthesis findings.

Table 3. Provisional context–mechanism–outcome configurations for pharmacy outreach

Context	Programme resource	Possible actor reasoning	Outcome requiring verification	Contradictory possibility
Limited access to conventional services	Locally available pharmacy encounter	Attendance becomes feasible	Initial preventive-service use	Service remains unaffordable or unsuitable
Previous exclusion or mistrust	Respectful, confidential interaction	Professional advice becomes acceptable	Engagement with preventive care	Confidentiality concerns persist
Complex social or clinical needs	Community-worker navigation	Subsequent care appears achievable	Completed referral	Handoff remains incomplete

Continuing preventive-care need	Accessible follow-up arrangement	Returning appears worthwhile	Repeated participation	Follow-up becomes inaccessible
Note: Every configuration is a proposed explanatory relationship. The stated outcomes are variables requiring empirical verification, not findings attributed to the candidate literature.				

Refined programme theory

Research on pharmacist–community health worker collaboration offers an evidence reservoir for examining interprofessional responsibilities [35]. Related synthesis concerning medication adherence provides adjacent evidence about collaborative practice, although its outcome cannot be substituted for preventive-care participation [36].

A randomized evaluation of immunization-information-system use provides a more specific intervention context [37]. Research on pharmacist communication addressing vaccine hesitancy contributes another prevention-related perspective [38].

Patient-reported vaccination barriers in an underserved urban population illustrate the importance of recipient circumstances [39]. National survey evidence

concerning pharmacists' immunization activities provides information about organizational implementation [40].

The available material supports a provisional refinement in which outreach resources must be interpreted and used within particular social and organizational contexts. The refinement retains three separate outcomes: initial engagement, completed preventive-care activity and sustained participation.

Figure 1 illustrates the proposed context–resource–mechanism–outcome relationships through which community pharmacy outreach may support initial engagement, preventive-care completion, referral continuity, and sustained participation, while retaining potential pathways to non-engagement and attrition.

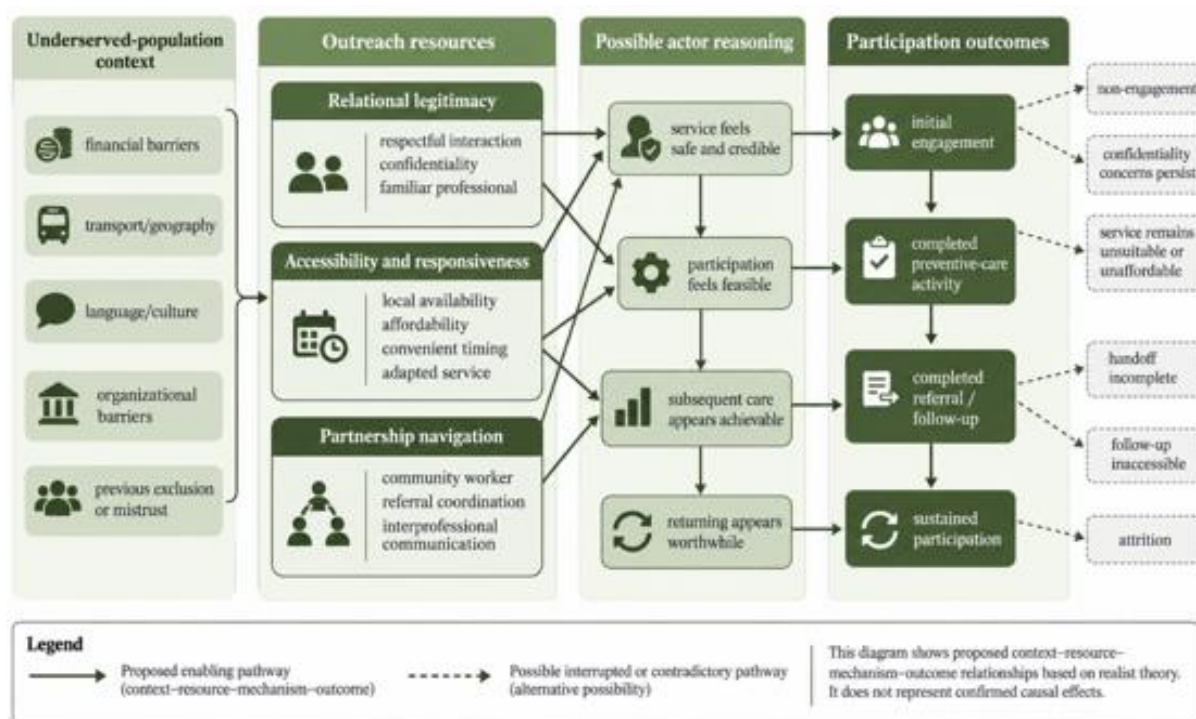


Figure 1. Provisional realist programme theory of community pharmacy outreach and sustained preventive-care participation.

Table 4 identifies the propositions requiring formal testing.

Table 4. Provisional programme-theory refinements and pharmacy-service implications

Refined proposition	Relevant context	Evidence-testing requirement	Conditional service-design implication
Relational legitimacy may influence service acceptance	Previous healthcare experiences and confidentiality concerns	Recipient accounts linked to actual engagement	Support respectful communication and privacy
Practical access may influence initial uptake	Transport, cost, timing and service availability	Observed use rather than proximity alone	Align delivery with identified access circumstances
Partnership navigation may influence care continuation	Needs extending beyond pharmacy capacity	Documented referral and subsequent action	Clarify responsibilities across organizations
Repeated participation may require continuing support	Ongoing preventive needs and follow-up requirements	Longitudinal participation measures	Preserve accessible routes for return and follow-up

Note: These propositions are proposed synthesis. They are not claims of demonstrated intervention effectiveness.

Explanation of outreach mechanisms across different contexts

The preliminary mapping identifies three explanatory domains that may interact during pharmacy outreach. Relational legitimacy concerns whether an encounter is considered acceptable; accessibility concerns whether available services can be used; partnership infrastructure concerns the connection between pharmacy activity and subsequent care.

Their relative importance is likely to depend on the specific population, intervention and organizational setting. An arrangement that reduces geographical barriers may leave confidentiality concerns unresolved. Similarly, a trusted professional relationship may support engagement without overcoming the practical difficulty of attending a referred service.

The proposed programme theory therefore requires testing against contradictory cases and evidence with clearly defined outcomes. Its status remains provisional because a completed realist synthesis and appraisal record has not been established.

Implications for underserved populations

Underserved populations should not be treated as a homogeneous category. The circumstances affecting participation may include overlapping social, financial, geographical, linguistic and organizational disadvantages.

Outreach may provide opportunities for engagement when service arrangements correspond to these circumstances. However, an improvement in service reach cannot establish equitable participation without evidence concerning who uses the service, who does not, and whether subsequent care occurs.

Evaluations should distinguish initial contact from completion and follow-up, report population-specific

findings where supported, and identify circumstances associated with non-engagement or attrition.

Implications for pharmacy service design

The provisional analysis suggests several questions for service design: whether the encounter is acceptable to intended recipients, whether its practical requirements are manageable, and whether further care remains accessible after the pharmacy interaction.

Partnership arrangements warrant explicit attention to referral responsibilities, communication and follow-up. Evaluation should retain separate indicators for outreach reach, intervention completion, referral resolution and continued participation.

These considerations are conditional implications of the preliminary theory, not validated implementation recommendations.

Limitations and transferability

The principal limitation is the absence of a complete, reproducible search-and-selection record and finished fragment-level appraisal. The candidate bibliography cannot establish the number or characteristics of all eligible evidence units.

Further limitations concern the variation between preventive services, populations, healthcare systems, study designs and outcome definitions. Evidence concerning vaccination, screening, medication adherence or social-needs referral cannot automatically be generalized to all forms of preventive care.

The provisional configurations also require direct investigation of recipients' reasoning. Professional perspectives and organizational implementation measures cannot independently establish participant mechanisms.

Transferability should therefore be judged through the correspondence between contexts, resources, mechanisms and measured outcomes, supported by completed evidence extraction and explicit attention to contradictory findings.

Conclusion

Community pharmacy outreach offers several potential resources for preventive-care engagement among underserved populations, including accessible encounters, trusted professional relationships and connections with other healthcare services.

A realist explanation depends on understanding how these resources interact with recipients' circumstances and reasoning. Initial engagement, completed preventive care and sustained participation remain distinct outcomes, while non-engagement and attrition require explicit examination.

The proposed programme theory provides a basis for further evidence testing. Claims concerning its explanatory validity and transferability require completion of the documented search, appraisal and realist synthesis.

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