JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2025, VOL 8, NO 4

The Role Of Primary Health Care In Alleviating Hospital Burdens Through Early Detection Of Chronic Diseases And Enhancement Of Public Health

Abujamilah Esraa Eissa[1*], Alhasawi Samaher Ali H[2], Zahra Ahmed Aljami[3], Masouma Ali Mansour Alnkhlawi[4], Alalawi Ohoud Jassem A[5], Alnassir Eitaf Hassan S[6], Amirah Abd Ulbaqi ALrababi[7], Zainab Baqer Saleh Alshulah[8], Fatima Mohammed Al Khairi[9], Lamiah Abdullah Ali Al Hamzah[10], Dalal Jumah Alturaif[11]

[1]General Dentist - MOH, Jazan University, Email: dr.esraa.eissa@gmail.com
[2]Nursing Technician - MOH, Qatif Health Institute, Email: umfatima2011@gmail.com
[3]Nursing Technician - MOH, International Academy for Health Sciences in Dammam, Email: zalajami@moh.gov.sa
[4]Nursing Technician - MOH, Qatif Health Institute, Email: mansyah72@icloud.com
[5]Nursing Technician - MOH, University of Dammam, Email: ohoudjas995@gmail.com
[6]Nursing Technician - MOH, King Faisal University, Email: ehalnasser@moh.gov.sa
[7]Nursing Technician - MOH, Qatif Health Institute, Email: aalrababi@gmail.com
[8]Health Assistance - MOH, Arab development institute, Email: zooz662266@gmail.com
[9]Physiotherapist and Health Coach- MOH, King Saud University, Email: fatooma258@gmail.com
[10]Nursing Technician- MOH, Qatif Health Institute, Email: jannah-lh@hotmail.com
[11]General Dentist- Private Clinic, Alfrarbi College, Email: fg-011@hotmail.com

Abstract

Background: Chronic diseases are a significant burden on healthcare systems worldwide, contributing to increased hospital admissions, emergency visits, and overall healthcare costs. Primary Health Care (PHC) serves as the frontline defense by enabling early detection, prevention, and management of these conditions, potentially reducing the strain on secondary and tertiary care facilities. **Objective:** To systematically review and synthesize existing evidence on how PHC interventions contribute to reducing hospital burden through early detection and improved management of chronic diseases, while also enhancing public health outcomes. **Methods:** This systematic review followed the PRISMA guidelines. A comprehensive search of PubMed, Scopus, Web of Science, CINAHL, and Google Scholar was conducted for studies published in English from January 2000 to June 2025. Eligible studies included original research (cohort, cross-sectional, case-control, interventional studies) and systematic reviews that examined the role of PHC in early detection or prevention of chronic diseases such as diabetes, hypertension, or cardiovascular diseases. Outcomes of interest included hospital admission rates, emergency department visits, and public health indicators. Two reviewers independently screened, selected, and assessed the quality of studies using appropriate appraisal tools. **Results:** Out of 1,977 records identified, 9 studies met the inclusion criteria. The included studies varied in design and geographical location but consistently showed that PHC interventions such as continuity of care, periodic health checkups, integration of population health coordinators, and family physician-led care contributed to earlier detection of chronic diseases and reduced hospitalization rates. Interventions also improved clinical outcomes (e.g., blood pressure, lipid levels) and optimized resource use through tailored screening and follow-up. However, variations in effectiveness were noted based on demographic and healthcare system factors. **Conclusion:** Evidence supports the vital role of PHC in reducing hospital burden through early detection and management of chronic diseases. Investment in PHC infrastructure and workforce especially models involving continuity of care and integrated management can enhance public health outcomes and reduce strain on hospital services. Policymakers should consider strengthening PHC systems as a sustainable strategy for chronic disease control.

Keywords: Primary Health, Hospital Burdens, Chronic Diseases, Enhancement, Public Health.

INTRODUCTION

Primary health care (PHC) serves as the cornerstone of global health systems, providing first-contact accessibility, continuity, comprehensive services, and care coordination elements that are crucial for addressing both acute and chronic health needs (1,2). As the prevalence of non-communicable diseases (NCDs) such as hypertension, diabetes, cardiovascular diseases, and chronic respiratory illnesses continues to rise globally, accounting for over 70% of deaths each year, health systems face mounting pressure to improve early detection and management efforts. Empirical studies have repeatedly shown that strong PHC can substantially reduce avoidable hospital admissions related to ambulatory-care sensitive conditions (ACSCs), offering more cost-effective management compared to secondary and tertiary care (1,3).

In Estonia, for example, reforms including patient choice of family doctor, evidence-based guidelines, and a quality-bonus system for chronic care continuity, led to markedly lower hospitalization odds when patients maintained regular contact with their PHC providers (1). Similarly, in Scotland, improved clinical quality and enhanced access in primary care were linked to modest reductions in emergency admissions for chronic ACSCs (3). In low- and middle-income countries, the integration of PHC services to prevent and manage long-term NCDs has shown to improve equity, cost-efficiency, and public health outcomes (4).

While the literature supports the role of PHC in reducing hospital burden through early detection and chronic disease control, gaps remain in understanding the optimal organization and intensity of PHC systems across diverse contexts. Some cross-national analyses suggest complex interactions such as the influence of hospital bed availability on admission rates that complicate the direct relationship between PHC strength and hospital use (1). Consequently, a rigorous synthesis is needed to identify which primary care interventions most effectively prevent avoidable hospitalizations and under what conditions they succeed.

This systematic review therefore aims to synthesize evidence on PHC strategies such as continuity models, preventive screening, and care coordination to determine their impact on hospital utilization and chronic disease outcomes. Our goal is to provide actionable insights for policymakers and health system planners seeking to strengthen PHC as a sustainable approach to improving population health.

Methodology

Study Design

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The objective was to synthesize existing evidence on how primary health care (PHC) contributes to alleviating hospital burden through early detection of chronic diseases and enhancement of public health outcomes.

Eligibility Criteria

Studies were included if they focused on individuals receiving services at the primary health care level and examined the role of PHC in early detection, screening, management, or prevention of chronic diseases such as diabetes, hypertension, or cardiovascular diseases. The review specifically considered studies reporting outcomes related to reduced hospital admissions, decreased emergency department visits, or improvements in public health indicators such as early diagnosis and disease control. Eligible studies included original research articles such as cohort, cross-sectional, case-control, and interventional studies, as well as systematic reviews and meta-analyses. Only studies published in English between January 2000 and June 2025 were considered for inclusion.

Information Sources and Search Strategy

A comprehensive literature search was performed using major electronic databases, including PubMed, Scopus, Web of Science, CINAHL, and Google Scholar for gray literature. The search strategy combined Medical Subject Headings (MeSH) and relevant keywords such as “primary health care,” “primary care,” “PHC,” “chronic disease,” “non-communicable diseases,” “early detection,” “screening,” “hospital burden,” “hospital admissions,” “emergency visits,” and “public health impact.” Boolean operators were used to refine the search

strategy. Additionally, the reference lists of all included studies were manually reviewed to identify any relevant studies not captured in the initial search.

Study Selection

All identified records were imported into EndNote for reference management and de-duplication. Two reviewers independently screened the titles and abstracts of all retrieved studies to assess their relevance. Full-text articles were then reviewed to determine their eligibility based on the predefined inclusion criteria. Any disagreements between reviewers regarding study inclusion were resolved through discussion and consensus or, if necessary, by involving a third reviewer.

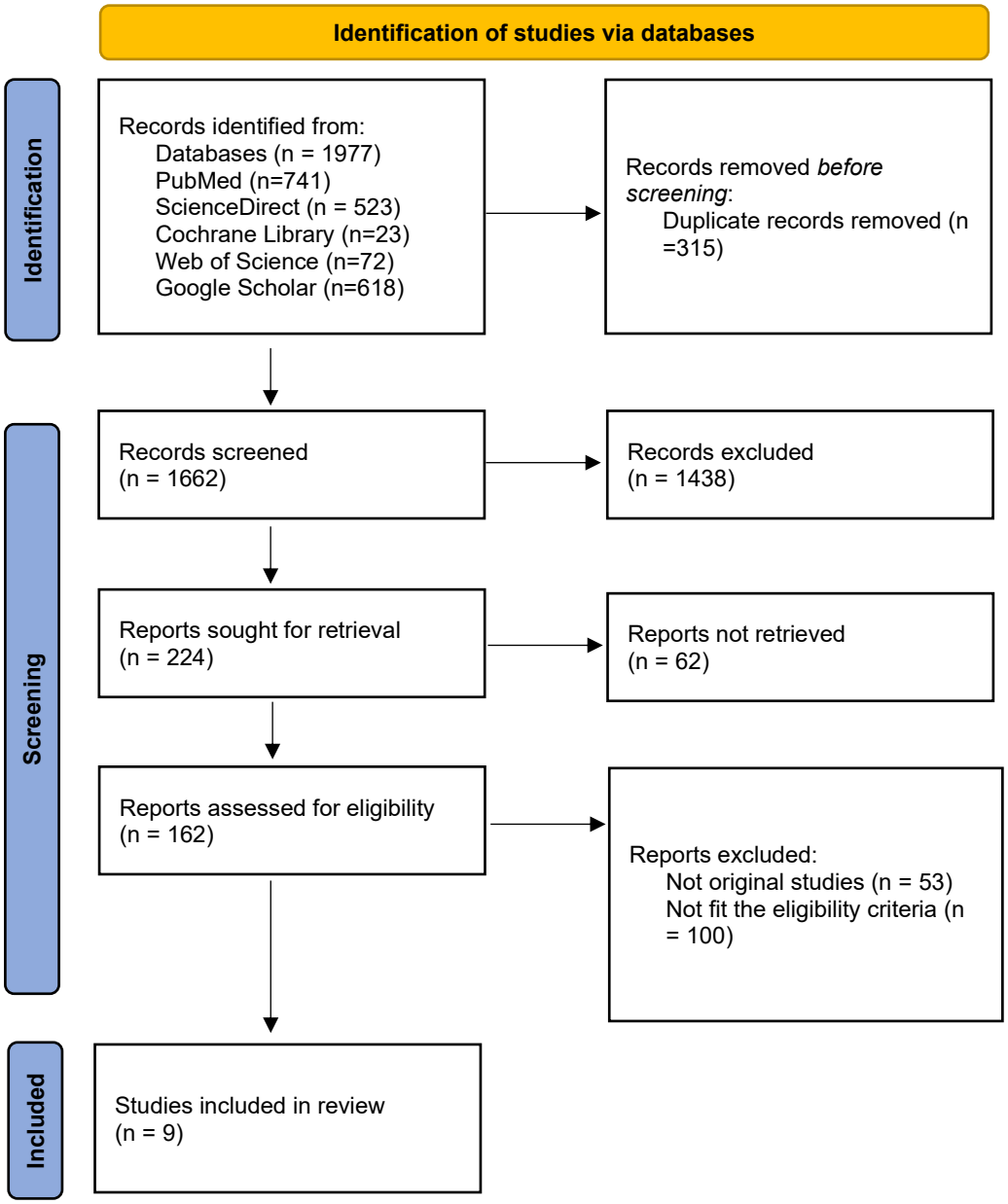

Figure 1: PRISMA flowchart showing the study selection process.

Data Extraction

Data extraction was performed using a standardized form that captured the following details from each study: author(s), year of publication, country of study, study design, sample size and characteristics, type of PHC

intervention (such as screening programs or chronic disease management), measured outcomes (such as hospital admission rates or early detection rates), and key findings relevant to the objectives of the review.

Quality Assessment

The methodological quality of included studies was evaluated using appropriate critical appraisal tools based on study design. Cohort and case-control studies were assessed using the Newcastle-Ottawa Scale (NOS), while cross-sectional and descriptive studies were appraised using tools from the Joanna Briggs Institute (JBI). Systematic reviews included in the study were assessed using AMSTAR 2. Two reviewers independently conducted the quality assessment, and any disagreements were resolved by discussion or consensus.

Results

A total of 1,977 records were identified through database searches, and after removing 315 duplicates, 1,662 records were screened by title and abstract. Of these, 1,438 records were excluded for not meeting the inclusion criteria. The full texts of 224 articles were assessed, but 62 could not be retrieved. From the remaining 162 articles, 53 were excluded for not being original studies, and 100 were excluded for not meeting the eligibility criteria. Ultimately, 9 studies were included in the final review. These studies were conducted across a range of countries including the United States, Canada, South Korea, Japan, Estonia, Brazil, Peru, and the United Kingdom, and were published between 2012 and 2025. The included studies utilized various designs such as retrospective cohort studies, cross-sectional analyses, longitudinal observational studies, quasi-experimental studies, and one cluster randomized controlled trial, with sample sizes ranging from under 1,000 to over half a million participants. This is summarized in Table 1.

Table 1: Summary characteristics of included studies

Author(s), Year	**Country**	**Study Design**	**Sample Size & Characteristics**	**PHC Intervention**	**Measured Outcomes**	**Key Findings**
Hur et al., 2024 (5)	South Korea	Retrospective cohort study	24,906 patients aged ≥30 years with ≥2 chronic diseases (hypertension, diabetes, hyperlipidemia)	Classification of doctors' offices: specialized, functional, gray-zone (based on comprehensiveness of care)	Hospital admissions (all-cause, CVD-related, hypertension/diabetes/hyperlipidemia)	Functional offices reduced all-cause (HR 0.935) and CVD-related admissions (HR 0.908). No significant difference for disease-specific admissions.
James et al., 2018 (6)	USA	Retrospective difference-in-difference	12,555 patients with CVD (LDL analysis); 41,183 with hypertension (BP analysis)	Population health coordinator (PHC) + IT system vs. IT system alone	LDL and BP control by race/ethnicity	PHC improved LDL/BP control for non-Hispanic white patients but did not reduce disparities.

		analysis				
Kasekamp et al., 2025 (1)	Estonia	Health services analysis	723,758 adults (≥15 years) with ambulatory care-sensitive chronic conditions (ACSCs)	PHC continuity (fraction of years with PHC visits in past 5 years)	Hospitalizations for ACSCs	Any PHC contact reduced hospitalization odds. Nonlinear relationship: highest risk for no contact or excessive visits.
Hamasaki & Yanai, 2023 (7)	Japan	Retrospective cohort study	1,256 patients with type 2 diabetes (mean age 63.7 years)	Periodic health checkups (PHCs) including physical exams, blood tests, and lifestyle assessments	Hospitalization risk, CVD events, all-cause mortality	PHCs reduced hospitalization risk by 17.5% (HR 0.825). No significant effect on CVD events or mortality.
Grunfeld et al., 2013 (8)	Canada	Pragmatic cluster randomized controlled trial	789 patients (age 40–65) from 32 physicians in 8 primary care teams	Patient-level: One-hour visit with a Prevention Practitioner providing tailored "prevention prescriptions." Practice-level: Practice Facilitator supporting EMR use and quality improvement.	Composite Summary Quality Index (SQUID) of 28 evidence-based chronic disease prevention and screening actions. Cost-effectiveness of interventions.	Patient-level intervention improved SQUID by 32.5% vs. control ($P < 0.001$). Practice-level intervention showed no significant effect.
Jantsch et al., 2021 (9)	Brazil	Retrospective longitudinal observatio	569,289 patients (age not specified) seen by 965 physicians (231 FPs, 734 generalists)	Residency-trained Family Physicians (FPs) vs. generalists in primary care. Focus on chronic disease detection, lab test use, and follow-up.	Detection of 31 chronic health conditions (CHCs), laboratory test requests, and follow-up visits. Population Attributable Fractions (PAFs) for outcomes.	FPs detected more CHCs (e.g., HIV: RR 1.19; Heart failure: RR 1.69), ordered fewer lab tests (e.g., LDL cholesterol: RR 0.41), and provided more follow-up visits (e.g., hypertension: RR 1.54). PAFs showed potential reductions in unnecessary tests and earlier CHC detection if all care was FP-led.

		nal study				
Bravo-Zúñiga et al., 2019 (10)	Peru	Cross-sectional analysis	42,746 patients (median age 69.2 years; 58.2% female) with risk factors for CKD (hypertension, diabetes, or age >55)	Implementation of a renal health network: 1. Training for primary care teams. 2. Digital database for patient tracking. 3. Standardized lab processes (serum creatinine, albumin-creatinine ratio). 4. Coordinated care between primary and specialized services.	Prevalence of CKD, staging (eGFR and albuminuria), and factors associated with CKD diagnosis (e.g., age, comorbidities, healthcare setting).	1. CKD prevalence: 28.4% (1 in 4 patients). 2. Most frequent stage: 3a (39%). 3. Key risk factors: Age >77 (OR 2.7), diabetes + hypertension (OR 2.5), male sex (OR 1.2). 4. CKD detection was 60% less likely in primary care vs. specialized care (OR 0.4).
Anwar et al. (2012) (11)	England (Leicestershire and Rutland)	Cross-sectional study	146 general practices; 1,024,126 registered patients	Quality and Outcomes Framework (QOF) for chronic disease registers (CHD, COPD, hypertension, diabetes) and patient access incentives	Recorded detection rates of chronic diseases (QOF registers); Patient-reported access (ability to book appointments in advance, consult a doctor within 2 days); Practice characteristics (deprivation, age, ethnicity, list size, turnover)	Practices with older, more deprived populations and higher self-reported poor health had higher recorded chronic disease rates; Better patient-reported access (ability to book appointments in advance) was associated with lower recorded detection, suggesting workload strains; No link between quick consultation access (within 2 days) and detection rates; Larger practices and higher patient turnover correlated with lower detection.
Ashburner et al., 2017 (12)	USA	Quasi-experimental	18 primary care practices (8 with PHCs, 10 without); Patients: 160,123 total (12,316 with diabetes, 12,591 with CVD, 41,184 with HTN)	Central Population Health Coordinators (PHCs) assigned to practices; PHCs managed registries, scheduled tests, coordinated care, and huddled with physicians; Non-PHC practices used existing staff	Primary: Difference in goal attainment for diabetes (LDL-C, A1C, BP), CVD (LDL-C), and HTN (BP); Secondary: Process measures (test completion) and cancer screening rates	PHC practices had significantly greater improvements in chronic disease outcomes (e.g., diabetes A1C: +4.8 PP, HTN BP: +2.3 PP); No difference in cancer screening (non-focus area); Supports centralized PHC teams for chronic disease management in PHC

The primary health care (PHC) interventions evaluated in the included studies varied widely but consistently focused on enhancing the early detection and management of chronic diseases. Interventions included structured screening and health checkups, continuity of care through long-term follow-up, deployment of population health coordinators, integration of electronic medical records, and use of trained family physicians versus general practitioners. In several studies, PHC interventions were associated with a significant reduction in hospital admissions and improved health outcomes. For example, Hur et al. (5) reported that functional PHC offices led to reduced all-cause and cardiovascular-related hospital admissions, while Hamasaki and Yanai (6) found that regular PHC-based health checkups decreased hospitalization risk by 17.5%. Similarly, Ashburner et al. (7) and James et al. (8) showed that centralized care coordination within PHC settings resulted in measurable improvements in the control of blood pressure, LDL cholesterol, and hemoglobin A1C among patients with chronic diseases such as diabetes, hypertension, and cardiovascular disease.

Other studies emphasized the role of PHC in the early detection of disease and efficient resource utilization. Jantsch et al. (9) found that family physicians in primary care settings were more effective at diagnosing chronic health conditions and providing consistent follow-up care than generalists. Bravo-Zúñiga et al. (10) implemented a renal health network in Peru, which improved the detection and staging of chronic kidney disease, although detection remained lower in primary care compared to specialized services. Kasekamp et al. (1) reported a nonlinear relationship between PHC visit frequency and hospitalization risk, highlighting that both inadequate and excessive use of PHC services could be associated with higher hospitalization rates. Grunfeld et al. (11) demonstrated the cost-effectiveness of a prevention-focused PHC intervention, showing improved adherence to evidence-based screening and prevention guidelines with relatively low additional costs. Overall, the findings across all included studies consistently support the role of primary health care in alleviating hospital burdens by enabling early detection and better management of chronic diseases. These interventions not only led to improved health indicators but also contributed to more efficient and cost-effective healthcare delivery. The collective evidence underscores the importance of strengthening PHC systems as a strategic approach to improving public health and reducing the strain on hospital-based services.

Discussion

In synthesizing evidence from nine primary health care (PHC) interventions conducted across diverse global settings, our review demonstrates that well-resourced, coordinated PHC systems can significantly reduce hospital burden through improved detection and management of chronic diseases. This aligns with earlier findings that increased numbers of primary care physicians and expanded clinic operating hours are generally associated with reduced diabetes-related and chronic disease hospitalizations (12). Conversely, some studies suggest an inverse relationship, whereby higher PHC visit frequency corresponds to increased admissions possibly reflecting greater clinical need rather than service failure (13).

Our findings support the concept that functional or comprehensive PHC clinics those offering continuity, breadth of services, and regular follow-up achieve better hospitalization outcomes than specialty-focused or fragmented facilities. This echoes Korean national cohort data showing a significant reduction in all-cause and cardiovascular disease (CVD) admissions for patients attending functional PHC clinics compared to specialized ones, and underscores the importance of comprehensiveness in primary care (5).

The inclusion of structured care processes such as care coordination and multidisciplinary teams also proves effective. Our results are consistent with umbrella-review findings that patient-centered, integrated care, particularly those utilizing chronic care models and multidisciplinary teams, can achieve up to a 32% reduction in hospital admission rates for conditions like heart failure and COPD (14). While these interventions vary in scale and design, they share a common focus on integrating preventive screening, ongoing follow-up, and specialist support in PHC settings.

Furthermore, early disease detection plays a key role in mitigating downstream hospital utilization. For example, narrative reviews highlight the central role of primary care practitioners in early chronic kidney disease (CKD) diagnosis and referral, which helps prevent late-stage complications and related hospitalizations (15). Similarly, nurse-led clinics for hypertension and diabetes have shown favorable outcomes in managing cardiovascular risk, echoing UK and Scandinavian cost-effectiveness studies (16,17).

Digital health and telehealth innovations also appear promising, with models like telehomecare and digital chronic care management enabling remote monitoring and self-management, contributing to reduced hospital visits (18). These approaches support broader trends toward patient empowerment, continuity of care, and early intervention in PHC–principles affirmed in the chronic care and integrated care literature (19).

However, the magnitude and consistency of these benefits vary across contexts. In some Scottish cohorts, higher-quality or more accessible primary care had modest, inconsistent impacts on ACSC admissions, influenced by factors like rurality, social deprivation, and healthcare infrastructure (3). Likewise, reductions were more pronounced in condition-specific admissions (e.g., heart failure, COPD) than for all-cause hospital use (14). These nuances highlight how local demographics, care environments, and policy settings condition the effects of PHC strategies.

Our review's limitations include heterogeneity in study design, PHC definitions, and outcome measures, preventing meta-analysis; possible publication bias; and varied adjustment for confounding variables. Though many included studies adjusted for socio-economic and clinical factors, residual confounding cannot be excluded (20). In conclusion, the current evidence supports the proposition that investments in comprehensive, coordinated primary health care including continuity of care, preventive screening, multidisciplinary teams, and use of telehealth can reduce hospitalizations and improve chronic disease outcomes. These findings complement policy frameworks that prioritize PHC to enhance population health and control costs. Future research should explore optimal PHC configurations in low- and middle-income countries, evaluate scalable digital health interventions, and rigorously assess long-term cost-effectiveness in real-world settings.

Conclusion

This systematic review highlights the critical role of primary health care in reducing hospital burdens through the early detection and effective management of chronic diseases. The evidence from diverse healthcare settings demonstrates that PHC interventions such as routine screening, care coordination, continuity of care, and family physician-led services are associated with lower hospitalization rates, improved control of chronic conditions, and enhanced public health outcomes. These findings emphasize the need for policymakers and health system leaders to invest in strengthening primary health care infrastructure, integrating preventive services, and fostering multidisciplinary approaches within PHC settings. By prioritizing PHC as the frontline of care, health systems can improve efficiency, reduce avoidable hospital utilization, and promote long-term health sustainability for populations at risk of chronic disease.

References

1. Kasekamp K, Võrk A, Kalda R. Effect of primary health care on hospitalizations: health services analysis based on Estonian data. Prim Health Care Res Dev. 2025 Mar 20;26:e29.
2. Li M, Zhang X, Tang H, Zheng H, Long R, Cheng X, et al. Quality of primary health care for chronic diseases in low-resource settings: Evidence from a comprehensive study in rural China. PLoS One. 2024 Jul 25;19(7):e0304294.
3. van der Pol M, Olajide D, Dusheiko M, Elliott R, Guthrie B, Jorm L, et al. The impact of quality and accessibility of primary care on emergency admissions for a range of chronic ambulatory care sensitive conditions (ACSCs) in Scotland: longitudinal analysis. BMC Family Practice. 2019 Feb 22;20(1):32.
4. Haque M, Islam T, Rahman NAA, McKimm J, Abdullah A, Dhingra S. Strengthening Primary Health-Care Services to Help Prevent and Control Long-Term (Chronic) Non-Communicable Diseases in Low- and Middle-Income Countries. Risk Manag Healthc Policy. 2020 May 18;13:409–26.
5. Hur R, Kim KH, Jin DL, Yoon SJ. Impact of Comprehensive Primary Care in Patients With Complex Chronic Diseases: Nationwide Cohort Database Analysis in Korea. J Korean Med Sci. 2024 May 2;39(18):e158.
6. Hamasaki H, Yanai H. Periodic health checkups reduce the risk of hospitalization in patients with type 2 diabetes. Front Clin Diabetes Healthc. 2023 Jan 27;4:1087303.
7. Ashburner JM, Horn DM, O'Keefe SM, Zai AH, Chang Y, Wagle NW, et al. Chronic disease outcomes from primary care population health program implementation. Am J Manag Care. 2017 Dec;23(12):728–35.
8. James A, Berkowitz SA, Ashburner JM, Chang Y, Horn DM, O'Keefe SM, et al. Impact of a Population Health Management Intervention on Disparities in Cardiovascular Disease Control. J GEN INTERN MED. 2018 Apr;33(4):463–70.
9. Jantsch AG, Burström B, Nilsson G, De Leon AP. Detection and follow-up of chronic health conditions in Rio de Janeiro – the impact of residency training in family medicine. BMC Fam Pract [Internet]. 2021 Dec [cited 2025 Jul 13];22(1). Available from: https://bmcfampract.biomedcentral.com/articles/10.1186/s12875-021-01542-5

10. Bravo-Zúñiga J, Gálvez-Inga J, Carrillo-Onofre P, Chávez-Gómez R, Castro-Monteverde P. Early detection of chronic renal disease: coordinated work between primary and specialized care in an ambulatory renal network of Peru. Braz J Nephrol. 2019 Mar 7;41:176–84.
11. Grunfeld E, Manca D, Moineddin R, Thorpe KE, Hoch JS, Campbell-Scherer D, et al. Improving chronic disease prevention and screening in primary care: results of the BETTER pragmatic cluster randomized controlled trial. BMC Family Practice. 2013 Nov 20;14(1):175.
12. Komwong D, Sriratanaban J. Associations between structures and resources of primary care at the district level and health outcomes: a case study of diabetes mellitus care in Thailand. Risk Manag Healthc Policy. 2018 Oct 26;11:199–208.
13. Zhao Y, Wright J, Guthridge S, Lawton P. The relationship between number of primary health care visits and hospitalisations: evidence from linked clinic and hospital data for remote Indigenous Australians. BMC Health Serv Res. 2013 Nov 6;13:466.
14. Damery S, Flanagan S, Combes G. Does integrated care reduce hospital activity for patients with chronic diseases? An umbrella review of systematic reviews. BMJ Open. 2016 Nov 21;6(11):e011952.
15. Murtagh S, McCombe G, Broughan J, Carroll Á, Casey M, Harrold Á, et al. Integrating Primary and Secondary Care to Enhance Chronic Disease Management: A Scoping Review. International Journal of Integrated Care [Internet]. 2021 Feb 9 [cited 2025 Jul 13];21(1). Available from: https://ijic.org/articles/10.5334/ijic.5508
16. Mason JM, Freemantle N, Gibson JM, New JP, SPLINT trial. Specialist nurse-led clinics to improve control of hypertension and hyperlipidemia in diabetes: economic analysis of the SPLINT trial. Diabetes Care. 2005 Jan;28(1):40–6.
17. Woodward A, Wallymahmed M, Wilding JP, Gill GV. Nurse-led clinics for strict hypertension control are effective long term: a 7 year follow-up study. Diabet Med. 2010 Aug;27(8):933–7.
18. Liddy C, Dusseault JJ, Dahrouge S, Hogg W, Lemelin J, Humber J. Telehomecare for patients with multiple chronic illnesses. Can Fam Physician. 2008 Jan;54(1):58–65.
19. Liang HY, Hann Lin L, Yu Chang C, Mei Wu F, Yu S. Effectiveness of a Nurse-Led Tele-Homecare Program for Patients With Multiple Chronic Illnesses and a High Risk for Readmission: A Randomized Controlled Trial. J Nurs Scholarsh. 2021 Mar;53(2):161–70.
20. Gibson OR, Segal L, McDermott RA. A systematic review of evidence on the association between hospitalisation for chronic disease related ambulatory care sensitive conditions and primary health care resourcing. BMC Health Services Research. 2013 Aug 26;13(1):336.