Citation	Evidence Appraisal	Abstract	Findings
Mills KT, Obst KM, Shen W, Molina S, Zhang HJ, He H, Cooper LA, He J. Comparative Effectiveness of Implementation Strategies for Blood Pressure Control in Hypertensive Patients: A Systematic Review and Meta-analysis. Ann Intern Med. 2018 Jan 16;168(2):110-120. doi: 10.7326/M17-1805. Epub 2017 Dec 26. PMID: 29277852; PMCID: PMC5788021.	Level 1	"Background The prevalence of hypertension is high and increasing worldwide while the proportion of controlled hypertension is low. Purpose To assess the comparative effectiveness of 8 implementation strategies for blood pressure (BP) control in adults with hypertension. Data Sources Systematic searches of MEDLINE and Embase from inception to September 2017 with no language restriction supplemented with manual reference searches. Study Selection Randomized controlled trials lasting at least 6 months comparing implementation strategies versus usual care on BP reduction in adults with hypertension. Data Extraction Two investigators independently extracted trial data. Trials were grouped by implementation strategy, and BP reduction effects were compared using multivariate-adjusted generalized estimating equations. A modified Cochrane Risk of Bias tool was used for trial quality assessment.	Multicomponent strategies such as team-based care with medication titration by a non-physician are effective at systolic BP reduction.

		Data Synthesis A total of 121 comparisons from 100 articles with 55,920 hypertensive patients were included. Multilevel, multicomponent strategies, such as team-based care with medication titration by non-physician [−7.1 mmHg (95% CI: −8.9, −5.2)], team-based care with medication titration by physician [−6.2 mmHg (−8.1, −4.2)], and multilevel strategies without team-based care [−5.0 mmHg (−8.0, −2.0)] were most effective for systolic BP reduction. Patient-level strategies also resulted in significant systolic BP reductions of −3.9 mmHg (−5.4, −2.3) for health coaching and −2.7 mmHg (−3.6, −1.7) for home BP monitoring. Similar trends were observed for diastolic BP reduction. Provider training was tested in few trials and resulted in non-significant BP reduction. Limitations Sparse data from low- and middle-income countries, few trials of some implementation strategies, and possible publication bias. Conclusions Multilevel, multicomponent strategies, followed by patient-level strategies, are most effective for BP control in patients with hypertension and ought to be used to improve hypertension control."	

Pasha M, Brewer LC, Sennhauser S, Alsawas M, Murad MH. Health Care Delivery Interventions for Hypertension Management in Underserved Populations in the United States: A Systematic Review. Hypertension. 2021 Sep;78(4):955-965. doi: 10.1161/HYPERTENSIONAHA.120.15946. Epub 2021 Aug 15. PMID: 34397275.	Level 1	The high prevalence of uncontrolled hypertension in underserved populations is a major cause of health disparities in the United States and requires innovative health care delivery interventions. We conducted a systematic review of randomized controlled trials and comparative observational studies examining the effectiveness of contemporary systems change and quality improvement interventions aimed at improving blood pressure (BP) control published from 2010 to 2020. We included studies evaluating multicomponent practice improvement interventions conducted in the United States in community health centers. We identified 26 studies including 48 187 patients with hypertension with a high proportion of racial/ethnic minorities, low socioeconomic status, and a high burden of chronic illness. Multicomponent interventions led to an average reduction of 5 to 10 mm Hg in systolic BP. Four studies demonstrated the effectiveness of integrating pharmacists into community health centers for BP management and reduced cardiovascular disparities for at-risk populations. Five studies demonstrated the effectiveness of integrating community health workers into care workflows leading to reduction in BP and high patient satisfaction. Five studies used the electronic medical record as a tool for population management and showed only modest reduction in BP. One study demonstrated the effectiveness	Community health workers and pharmacists improve equity in BP control

		of incentivizing clinics with higher payments for uninsured and Medicaid patients meeting performance criteria. Very few studies evaluated treatment complications or medications side effects. Multicomponent quality improvement interventions instituted in community health centers are effective in lowering BP. Several components of the interventions were identified as being associated with higher efficacy.	
Abdalla M, Bolen SD, Brettler J, Egan BM, Ferdinand KC, Ford CD, Lackland DT, Wall HK, Shimbo D; American Heart Association and American Medical Association. Implementation Strategies to Improve Blood Pressure Control in the United States: A Scientific Statement From the American Heart Association and American Medical Association. Hypertension. 2023 Oct;80(10):e143-e157. doi: 10.1161/HYP.0000000000000232. Epub 2023 Aug 31. PMID: 37650292; PMCID: PMC10578150.	Level 2	Hypertension is one of the most important risk factors that contribute to incident cardiovascular events. A multitude of US and international hypertension guidelines, scientific statements, and policy statements have recommended evidence-based approaches for hypertension management and improved blood pressure (BP) control. These recommendations are based largely on high-quality observational and randomized controlled trial data. However, recent published data demonstrate troubling temporal trends with declining BP control in the United States after decades of steady improvements. Therefore, there is a widening disconnect between what hypertension experts recommend and actual BP control in practice. This scientific statement provides information on the implementation strategies to optimize hypertension management and to improve BP control among adults in the United States. Key approaches include antiracism efforts, accurate BP measurement and increased use of self-measured	Scientific statement about team-based care effectiveness – several other strategies that will improve equity in BP control

		BP monitoring, team-based care, implementation of policies and programs to facilitate lifestyle change, standardized treatment protocols using team-based care, improvement of medication acceptance and adherence, continuous quality improvement, financial strategies, and large-scale dissemination and implementation. Closing the gap between scientific evidence, expert recommendations, and achieving BP control, particularly among disproportionately affected populations, is urgently needed to improve cardiovascular health.	
Community Preventive Services Task Force. Team-based care to improve blood pressure control: recommendation of the Community Preventive Services Task Force. Am J Prev Med. 2014 Jul;47(1):100-2. doi: 10.1016/j.amepre.2014.03.003. Epub 2014 Jun 2. PMID: 24933493.	Level 3	The Community Preventive Services Task Force recommends team-based care to improve blood pressure control on the basis of strong evidence of effectiveness in improving the proportion of patients with controlled blood pressure (BP) and reducing systolic BP (SBP) and diastolic BP (DBP). Evidence was considered strong based on findings from 80 studies of team-based care organized primarily with nurses and pharmacists working in collaboration with primary care providers, other professionals, and patients. The economic evidence indicates that team-based care is cost-effective.	Recommendation statement from CPSTF – team-based care improves BP control, and is cost-effective
Tandan M, Dunlea S, Cullen W, Bury G. Teamwork and its impact on chronic disease clinical outcomes in primary care: a systematic review and meta-analysis. Public Health. 2024 Apr;229:88-115. doi:	2	Objective Teamwork positively affects staff performance and patient outcomes in chronic disease management. However, there is limited research on the impact of specific team components on clinical outcomes. This review aims to explore the	Team-based care including pharmacists improve BP control, but combination of interventions are

10.1016/j.puhe.2024.01.019. Epub 2024 Feb 26. PMID: 38412699.		impact of teamwork components on key clinical outcomes of chronic diseases in primary care. Study design Systematic review and meta-analysis. Methods This systematic review and meta-analysis conducted searching EMBASE, PubMed, Cochrane Central Register of Controlled Trials. Studies included must have at least one teamwork component, conducted in primary care for selected chronic diseases, and report an impact of teamwork on clinical outcomes. Mean differences and 95% confidence intervals were used to determine pooled effects of intervention. Results A total of 54 studies from 1988 to 2021 were reviewed. Shared decision-making, roles sharing, and leadership were missing in most studies. Team-based intervention showed a reduction in mean systolic blood pressure (MD = 5.88, 95% CI 3.29–8.46, P= <0.001, I2 = 95%), diastolic blood pressure (MD = 3.23, 95% CI 1.53 to 4.92, P = <0.001, I2 = 94%), and HbA1C (MD = 0.38, 95% CI 0.21 to 0.54, P = <0.001, I2 = 58%). More team components led to better SBP and DBP outcomes, while individual team components have no impact on HbA1C. Fewer studies limit analysis of cholesterol levels, hospitalizations, emergency visits and chronic obstructive pulmonary disease-related outcomes. Conclusion	effective at reducing BP – doesn't detail equity

		Team-based interventions improve outcomes for chronic diseases, but more research is needed on managing cholesterol, hospitalizations, and chronic obstructive pulmonary disease. Studies with 4–5 team components were more effective in reducing systolic blood pressure and diastolic blood pressure. Heterogeneity should be considered, and additional research is needed to optimize interventions for specific patient populations.	
Jacob V, Reynolds JA, Chattopadhyay SK, Nowak K, Hopkins DP, Fulmer E, Bhatt AN, Therrien NL, Cuellar AE, Kottke TE, Clymer JM, Rask KJ; Community Preventive Services Task Force. Economics of Team-Based Care for Blood Pressure Control: Updated Community Guide Systematic Review. Am J Prev Med. 2023 Oct;65(4):735-754. doi: 10.1016/j.amepre.2023.04.013. Epub 2023 Apr 28. PMID: 37121447; PMCID: PMC10527860.	Level 2	Introduction This paper examined the recent evidence from economic evaluations of team-based care for controlling high blood pressure. Methods The search covered studies published from January 2011 through January 2021 and was limited to those based in the U.S. and other high-income countries. This yielded 35 studies: 23 based in the U.S. and 12 based in other high-income countries. Analyses were conducted from May 2021 through February 2023. All monetary values reported are in 2020 U.S. dollars. Results The median intervention cost per patient per year was $438 for U.S. studies and $299 for all studies. The median change in healthcare cost per patient per year after the intervention was −$140 for both U.S. studies and for all studies. The median net cost per patient per year was $439 for U.S. studies and $133 for all studies. The median cost per	Most studies found team-based care to be cost effective, even with higher net cost in the US than other countries. Still need further evidence in rural and community settings.

		quality-adjusted life year gained was $12,897 for U.S. studies and $15,202 for all studies, which are below a conservative benchmark of $50,000 for cost-effectiveness. Discussion Intervention cost and net cost were higher in the U.S. than in other high-income countries. Healthcare cost averted did not exceed intervention cost in most studies. The evidence shows that team-based care for blood pressure control is cost-effective, reaffirming the favorable cost-effectiveness conclusion reached in the 2015 systematic review.	
Mobile Vans			
Angela Coaston 1, Soo-Jeong Lee 1, Julene Johnson, et al. Mobile Medical Clinics in the United States Post-Affordable Care Act: An Integrative Review. Popul Health Manag. 2022 Apr;25(2):264-279. PMID: 35442787	Level 2	Despite changes brought about by the 2010 Affordable Care Act (ACA), millions of individuals are still unable to access health care in the United States. Mobile medical clinics have been an invisible force of care delivery for vulnerable and marginalized populations for decades; however, little is known about their impact post-ACA. Guided by the Anderson Behavioral Model, the purpose of this article was to review and critique the state of the current literature about mobile medical clinics in the United States since 2010. Following Whittemore and Knafl's integrative review methodology, the search was conducted in 6 databases and delivered 1934 results; 341 articles were removed as duplicates. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines, 2	Integrative review of mobile medical van units – not all articles are RCTs and do not look at utilization.

		independent reviewers screened and adjudicated the remaining titles, abstracts, and full-texts, yielding 12 articles in the final review. The Mixed Methods Appraisal Tool (MMAT) was used to evaluate the quality of the articles. Studies revealed variation in quality, study design, and location; and diversity of chronic diseases and populations addressed (eg, children with asthma, complementary alternative medicine use with children, adults with diabetes and hypertension, patients with chronic disease with an emphasis on the patient experience, utilization patterns in migrant farmers). Mobile medical clinics provide care for the prevention, treatment, and management of chronic illness and their wide geographic spread confirms their broad use across the United States. They provide a return on investment through emergency room avoidance, decreasing hospital length of stay, and improving chronic disease management.	
Song Z, Hill C, Bennet J, Vavasis A, Oriol NE. Mobile clinic in Massachusetts associated with cost savings from lowering blood pressure and emergency department use. Health Aff (Millwood). 2013 Jan;32(1):36-44. doi: 10.1377/hlthaff.2011.1392. PMID: 23297269; PMCID: PMC3991926.	Level 3	Mobile health clinics are in increasingly wide use, but evidence of their clinical impact or cost-effectiveness is limited. Using a unique data set of 5,900 patients who made a total of 10,509 visits in 2010–12 to the Family Van, an urban mobile health clinic in Massachusetts, we examined the effect of screenings and counseling provided by the clinic on blood pressure. Patients who presented with high blood pressure during their initial visit experienced average reductions of 10.7 mmHg and 6.2 mmHg in systolic and diastolic	Retrospective analysis of data collected by mobile van – examined equity in BP control by those served by the van. Van produced savings through patient-reported reduction of ED visits.

		blood pressure, respectively, during their follow-up visits. These changes were associated with 32.2 percent and 44.6 percent reductions in the relative risk of myocardial infarction and stroke, respectively, which we converted into savings using estimates of the incidence and costs of these conditions over thirty months. The savings from this reduction in blood pressure and patient-reported avoided emergency department visits produced a positive lower bound for the clinic's return on investment of 1.3. All other services of the clinic—those aimed at diabetes, obesity, and maternal health, for example—were excluded from this lower-bound estimate. Policy makers should consider mobile clinics as a delivery model for underserved communities with poor health status and high use of emergency departments.	
David E Harris, Lois Hamel, Abouel-Makarim Aboueissa, Deborah Johnson. A cardiovascular disease risk factor screening program designed to reach rural residents of Maine, USA. Rural Remote Health. 2011;11(3):1-15. Epub 2011 Aug 5. PMID: 21834601	Level 3	Introduction: Cardiovascular disease is the leading cause of death in many countries and a particular burden to rural communities. Hypertension and diabetes are risk factors for cardiovascular disease, but screening for them is suboptimal, particularly in rural settings. Thus screening programs targeting rural dwellers may be important. This article reports the findings of a blood pressure (BP) and blood glucose screening program conducted from a mobile van that visited community events including agricultural fairs across Maine, U.S.A. to bring screening to rural Mainers. The study objectives were to determine: (1) if the screening program was successful at	Implementation study of mobile van unit in rural Maine – van reached geographically report at-risk populations in screening, but no comparison group. Screening at agricultural fairs and in rural areas were predictors of

		reaching rural Mainers; (2) if rural screenees had a different risk of hypertension or diabetes compared with non-rural screenees; and (3) what characteristics of a community event predict that a screening conducted at that event will reach a high fraction of rural residents. Methods: The van visited events from 2006-2009 conducting voluntary BP and blood glucose screenings. Results were analyzed by the rurality of the town of residence of the screenees, the rurality of location of the screening event, and the type of screening event (agricultural fair vs other). Systolic BP of 140 mmHg or greater or diastolic BP of 90 mmHg or greater was considered to be hypertension, and systolic BP of 120-139 mmHg or diastolic BP 80-89 mmHg as pre-hypertension. Blood glucose of 140-199 mg/dL was considered to be pre-diabetes and blood glucose of 200 mg/dL or greater as diabetes. Rurality was divided into urban, sub-urban, large rural town, and small rural town/ isolated rural based on Rural Urban Commuting Codes (RUCAs), assigned by zip code. Mean BP and blood glucose values were compared across residence rurality categories by ANOVA, the distribution of screening values into normal/ abnormal categories was compared across residence rurality categories by chi2 test, and the impact of type and rurality of location of screening event on the residence of screenees was assessed with analysis by regression with categorical variables.	attracting more screenees.

		Results: Over 4 years, 2451 Mainers from 254 towns were screened at 42 events located in 28 towns. Seventy-six percent of screenees lived in rural areas and screenees were more likely to live in rural areas compared with all Maine residents ($p < 0.001$). Rurality of residence impacted hypertension risk ($p = 0.001$) but not diabetes risk. Screenees from large rural towns had the highest mean systolic BPs and rural-dwellers had higher hypertension or pre-hypertension risk compared with urban/ sub-urban dwellers. Conducting screenings at agricultural fairs ($p = 0.003$) and in rural areas ($p = 0.001$) were independent predictors of attracting more rural screenees. Conclusions: Holding cardiovascular risk factor screenings in locations that are culturally appropriate and geographically convenient for an at-risk population are common approaches; however, their effectiveness is seldom tested. The results show that both the type of event at which the screening is conducted and the rurality of location of that event help attract rural screenees, and that it is possible for a screening program to reach a population significantly more rural than the population of the state and one that has an elevated hypertension risk.	