Compendium of evidence-based strategies for hypertension control

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Introduction

We have identified 4 pathways through which local health departments can reach patients in order to improve hypertension control. These are presented in our logic model (Figure 1).

Figure 1 – Logic model: Pathways for health departments to achieve hypertension control through evidence-based interventions

In this compendium, we summarize evidence-based practices that can be implemented for each of the pathways to address the hypertension awareness, treatment and control. (Steinman et al., 2015).

1. **Clinical Systems (Program Strategies 10, 11, and 12)**
    a. Promote the creation of registries to manage panels of patients and track indicators
    b. Promote the use of standardized hypertension treatment protocols to improve the treatment and control of hypertension in clinical settings
    c. Promote the use of Clinical Decision-Support Systems (CDSS)
    d. Promote the use of Team-Based Care to Improve Blood Pressure Control
    e. Promote self-measured blood pressure (SMBP) monitoring with additional support
    f. Promote self-measured blood pressure (SMBP) monitoring used alone
2. **Community Pharmacists (Program Strategy 14)**
    a. Engage community pharmacists to promote medication and self-management
3. **Community Health Workers (CHWs) (Program Strategy 13)**
    a. Engage CHWs directly to promote and support management of high blood pressure
    b. Promote CHW inclusion in clinical systems to support management of high blood pressure
4. **Community Organizations (Program Strategy 15 and Strategy Component 1)**
    a. Support evidence-based programs delivered by community organizations (such as the Chronic Disease Self-Management Program)
    b. Implement evidence-based interventions at the entire community level

1. Clinical systems

CLOs can promote evidence-based practices related to identification of patients with undiagnosed hypertension, implementing standardized hypertension treatment protocols, increasing engagement of non-physician team members, and increasing use of self-measured blood-pressure monitoring with clinical support. This pathway aligns with 1422 program strategies 10, 11, and 12.

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Promote the creation of registries to manage panels of patients and track indicators	Quality improvement programs should include five major components 1. Health system-wide hypertension registry 2. Reports of hypertension control rates 3. Development of an evidence-based practice guideline 4. Medical assistant visits for follow-up measurements 5. Promotion of single-pill combination (SPC) therapy	Global Standardized Hypertension Treatment Project Toolkit: How to identify, monitor and manage a panel of patients with hypertension	*Kaiser Permanente Northern California*
Promote the use of standardized hypertension treatment protocols to improve the treatment and control of hypertension in clinical settings	Recommended Elements of Effective Hypertension Protocols • Clarity and simplicity • Lifestyle modification • Treatment by stage of hypertension • Time interval to titration and reassessment • Use of low-cost 1st-line treatment • Exclusions and suggestions for medications based on concurrent medical conditions • Recommended lab tests • Reminder of the underlying causes of non-essential or secondary hypertension • Adherence-enhancing approaches such as fixed dose and/or combination drugs • Indications for referral to hypertensive specialist • Number needed to treat to avoid a clinical event • Supporting references • Congruent with current guidelines, including JNC-7	Global Standardized Hypertension Treatment Project Toolkit: Standardized treatment protocols to improve hypertension control Million Hearts Protocol Resources AHA Treatment Algorithm (Go et al., 2013)	*Veterans Administration (VA)* *Kaiser Permanente (KP)* *New York City Health and Hospitals Corporation (HHC)*

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Promote the use of Clinical Decision-Support Systems (CDSS)	CDSS are computer-based information systems designed to assist healthcare providers in implementing clinical guidelines at the point of care. CDSS use patient data to provide tailored patient assessments and evidence-based treatment recommendations for healthcare providers to consider. Patient information is entered manually or automatically through an electronic health record (EHR) system. May include: o Reminders for overdue CVD preventive services o Assessments of patients' risk for developing CVD o Recommendations for evidence-based treatments to prevent CVD o Recommendations for health behavior changes o Alerts when indicators for CVD risk factors are not at goal	Bright et al. provide a series of features of a successful CDSS Community Guide to Preventive Services: CDSS Task Force Finding and Rationale Statement (includes Considerations for Implementation) Overview	*Midwest Heart Specialists Hypertension management program*
Promote the use of Team-Based Care to Improve Blood Pressure Control	• Team members who most often worked with patients and primary care providers were **clinical pharmacists and nurses.** • Medication management roles for team members were implemented in **three different ways**. Team members could: 1. Change medications independent of the primary care provider 2. Change medications with primary care provider approval or consultation 3. Provide only adherence support and hypertension-related information, with no direct influence on prescribed medications	Community Guide to Preventive Services: Team Based Care Task Force Finding and Rationale Statement (includes Considerations for Implementation) Overview "Improving Patient and Health System Outcomes through Advanced Pharmacy Practice" "Partnering with Pharmacists in the Prevention and Control of Chronic Diseases" [1]	*The Maryland P3 Program (Patients, Pharmacists, Partnerships)* Program Contact: Adelline Ntatin, antatin@dhmh.state.md.us *The Montana Pharmacist Blood Pressure Management Program* Program Contact: Crystelle Fogle, cfogle@mt.gov *The South Carolina Stroke Belt Project* Program Contact: Joy Brooks, brooksjf@dhec.sc.gov

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Promote self-measured blood pressure (SMBP) monitoring with additional support	Self-measured blood pressure monitoring interventions combined with additional support include one or more of the following: o **One-on-one patient counseling** on medications and health behavior changes (e.g., diet and exercise); o **Educational sessions** on high blood pressure and blood pressure self-management; and/or o **Access to electronic or web-based tools** (e.g., electronic requests for medication refills, text or email reminders to measure blood pressure or attend appointments, direct communications with healthcare providers via secure messaging). Self-measured blood pressure monitoring interventions are often **used with team-based care.**	Community Guide to Preventive Services: Self-Measured Blood Pressure Monitoring Interventions for Improved Blood Pressure Control – When Combined with Additional Support Million Hearts Action Guides for Clinicians and Public Health Professionals	
Promote self-measured blood pressure (SMBP) monitoring used alone	Patients are trained to use validated, and usually automated, blood pressure measurement devices on a regular basis in familiar settings, typically their homes. Patients share blood pressure readings with their healthcare providers during clinic visits, by telephone, or electronically. These measurements are monitored and used in treatment decisions to improve blood pressure control.	Community Guide to Preventive Services: Self-Measured Blood Pressure Monitoring Interventions for Improved Blood Pressure Control – When Used Alone	

Articles

Bright TJ, Wong A, Dhurjati R, Bristow E, Bastian L, et al. Effect of clinical decision-support systems: a systematic review. *Ann Intern Med* 2012; 157(1):29-43.

Go AS, Bauman MA, Coleman King SM, Fonarow GC, Lawrence W, Williams KA, et al. An effective approach to high blood pressure control: a science advisory from the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention. Hypertension. 2014;63(4):878-85.

Jaffe MG, Lee GA, Young JD, Sidney S, Go AS. Improved blood pressure control associated with a large-scale hypertension program. Jama. 2013;310(7):699-705.

Morrison C, Glover D, Gilchrist S, Casey M, Lanza A, Lane R, et al. A program guide for public health: partnering with pharmacists in the prevention and control of chronic diseases. Atlanta, GA: Centers for Disease Control and Prevention, 2012.

2. Community Pharmacists

The distinction between clinical pharmacists and community pharmacists appears to be more one of roles rather than actual location of practice. For the purposes of this compendium we consider clinical pharmacists to be the ones who are officially part of the care team, and do medication management or consult with the physician (Morrison et al. 2012). As such, they are included in the clinical systems interventions above. In contrast, community pharmacists are pharmacists who focus on BP monitoring, medication adherence and lifestyle modifications (Morrison et al. 2012). CLOs can work with the WA Pharmacy Association and the representatives of local and national pharmacy chains to engage pharmacists in hypertension control. This pathway aligns with 1422 program strategy 14.

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Engage community pharmacists to promote medication and self-management	Take BP when patients pick up prescriptions, assess medication adherence, provide hypertension/lifestyle counseling ("patient consultation services")	Morrison et al. 2012 WHO CINDI	*The Asheville Project*, Asheville, NC[2] Program Contact: Destiny Mattsson, dmattsson@ashevillenc.gov *Know your Blood Pressure*, Wegmans Food Markets, MD, MA, NJ, NY, PA, VA (Brochure) *Live Well Omaha: Douglas County Putting Prevention to Work*, NE Division Chief: Mary Balluff, mary.balluff@douglascounty-ne.gov *Pharmacy-Based Health Promotion Program*, Quebec City, Canada *Cardiovascular Risk Management by Community Pharmacists*, IA Contact: Karen Farris, karen-farris@uiowa.edu

Articles

Bunting, Barry A., Benjamin H. Smith, and Susan E. Sutherland. "The Asheville Project: clinical and economic outcomes of a community-based long-term medication therapy management program for hypertension and dyslipidemia." JAPHA-WASHINGTON- 48.1 (2008): 23.

Côté, Isabelle, et al. "A pharmacy-based health promotion programme in hypertension." Pharmacoeconomics 21.6 (2003): 415-428.

Tsuyuki, Ross T., et al. "A randomized trial of the effect of community pharmacist intervention on cholesterol risk management: the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)." *Archives of Internal Medicine* 162.10 (2002): 1149-1155.

Morrison C, Glover D, Gilchrist S, Casey M, Lanza A, Lane R, et al. A program guide for public health: partnering with pharmacists in the prevention and control of chronic diseases. Atlanta, GA: Centers for Disease Control and Prevention, 2012.

World Health Organization. Europe: Pharmacy-Based Hypertension Management Model: Protocol and Guidelines. A joint CINDI/EuroPharm Forum project 2005. Vol. 85730. EUR/04/5049481. ISBN WHOLIS.

3. Community Health Workers (CHWs)

CHWs are frontline public health workers who are trusted members of and/or have an unusually close understanding of the community served. They do not provide clinical care, generally do not hold another professional license, and their expertise is based on shared culture and life experience with people served. CLOs can engage CHWs directly or work with clinical systems to facilitate the integration of CHWs in care teams. This pathway aligns with 1422 program strategy 13.

The 2013 ruling by the Centers for Medicaid Services (CMS) allows states to provide Medicaid reimbursement for USPSTF recommended preventive services when "recommended by a physician or other licensed practitioner" and delivered by a broad array of health professionals, including CHWs. Under this ruling, states determine which services will be covered, who will provide them (including any required education, training, experience, credentialing, certification, or registration), and how providers will be reimbursed. Therefore, implementers of CHW interventions should consider these state-specific regulations when making decisions about CHW engagement in their organizations. [REF The Community Guide].

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Engage CHWs directly to promote and support management of high blood pressure	Interventions that engage community health workers to focus on cardiovascular disease (CVD) prevention implement one or more of the following models of care: 1. **Screening and Health Education.** Community health workers screen for high blood pressure, cholesterol, and behavioral risk factors recommended by the United States Preventive Services Task Force (USPSTF); deliver individual or group education on CVD risk factors; provide adherence support for medications; and offer self-management support for health behavior changes, such as increasing physical activity and smoking cessation 2. **Outreach, Enrollment, and Information.** Community health workers reach out to individuals and families who are eligible for medical services, help them apply for these services, and provide proactive client follow-up and monitoring, such as appointment reminders and home visits.	The Guide to Preventive Community Services: Interventions Engaging CHWs Overview Your Heart, Your Life (CHW manual for Hispanics/Latinos) With Every Heartbeat is Life (CHW manual for African Americans) Addressing Chronic Disease through CHWs (CDC, 2011)	*Health Coach for Hypertension Control (HCHC) Project*, Oconee County, SC *NHLBI Communities in Action* Hispanic/Latino CHWs: implementation examples

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Promote CHW inclusion in clinical systems to support management of high blood pressure	Interventions that engage community health workers to provide 1. **Team-Based Care**. In a team-based care arrangement, community health workers partner with patients and licensed providers, such as physicians and nurses, to improve coordination of care and support for patients. 2. **Patient Navigation.** Community health workers help individuals and families navigate complex medical service systems and processes to increase their access to care. 3. **Community Organization.** Community health workers facilitate self-directed change and community development by serving as liaisons between the community and healthcare systems.	The Guide to Preventive Community Services: Interventions Engaging CHWs Task Force Finding and Rationale Statement Making the Connection: The role of CHWs in health homes (Health Management Association, 2012)	*Core Health Program--Spectrum Health*, Grand Rapids, MI *Kentucky Homeplace*, 27 counties in Eastern Kentucky Homeplace Director: Mace Baker, mace.baker@uky.edu

Articles

Dye CJ, Williams JE, Evatt JH. Improving hypertension self-management with community health coaches. Health promotion practice. 2014:1524839914533797.

4. Community Organizations

The types of evidence-based practices included in this section fall into 2 categories. They are either established evidence-based programs that are delivered by community organizations, or community-wide interventions that include partnerships between multiple organizations. The table below includes only a small number of such examples; however, there are a number of EBP repositories that CLOs can use to select interventions that are more suitable for their population, location, and resources. These are referenced below. This pathway aligns with 1422 program strategy 15.

Intervention	Description	Implementation guidelines or toolkits	Specific examples
Support evidence-based programs delivered by community organizations	CDSMP plus hypertension module	EBI factsheet NYDOH Implementation manuals for each of the EBPs	*Living well with Chronic Conditions* in WA Project Director: Todd Dubble (360) 725-2562 Project Coordinator: Maureen (Mo) Lally lallym@dshs.wa.gov
Implement evidence-based interventions at the entire community level	These interventions target the entire population of a community, and frequently involve a number of community organizations as partners	Websites of these projects include details about implementation and potential materials that can be used in other communities	*Bootheel Heart Health Project*, Bootheel, MO Primary Contact: Ross Brownson brownson@slu.edu *Community-Based Multiple Risk Factor Intervention for Cardiovascular Risk*, Baltimore,

			MD Primary Contact: Diane Becker dbecker@jhmi.edu *Heartbeat Limburg*, Netherlands *Franklin Cardiovascular Health Program*, Franklin County, ME

Articles

Schuit AJ, Wendel-Vos GC, Verschuren WM, Ronckers ET, Ament A, Van Assema P, et al. Effect of 5-year community intervention Hartslag Limburg on cardiovascular risk factors. American journal of preventive medicine. 2006;30(3):237-42.

Evidence-based intervention repositories

National Cancer Institute's Research-tested Intervention Programs

The Guide to Community Preventive Services, plus real examples of implementation

Promising Practices Database