


Hypertension disease management programs

▶ Intervention in brief

<p>High and rising risk:</p>	<p>Hypertension disease management programs aim to help adult patients with blood pressure readings at or above 130/80 mmHg to lower and maintain lowered blood pressure. Because hypertension is commonly comorbid with chronic diseases such as heart failure and diabetes, the goal is to reduce the burden of multiple chronic diseases on the patient by improving patients' self-management long-term.</p>
<p>Strength of evidence</p>	<p> Strength of evidence is listed as high because programs are successful at lowering and maintaining lower blood pressure. Further study is needed to confirm whether this results in changes in downstream utilization and cost.</p>
<p>Impact</p>	<ul style="list-style-type: none"> • Decreased cost: \$23,777 increased cost per quality-adjusted life year (QALY) gained (this assumes a willingness to pay threshold of \$50,000 per QALY gained and is comparable to cost-effectiveness ratios of other interventions considered to provide excellent value); \$5.42-\$7.39 cost-effectiveness ratio per 1% improvement in medication adherence and 1 mmHg decrease in diastolic blood pressure after 6 months • Decreased utilization: None • Improved quality, clinical outcomes: <ul style="list-style-type: none"> • Reduced systolic blood pressure (2.0-28.6 mmHg or 2-19%) and diastolic blood pressure (1.5-18 mmHg or 1-19%) • Improved proportion of patients with controlled blood pressure (57 percentage points greater increase than control; 33% of patients moved from hypertensive to pre-hypertensive or pre-hypertensive to normal) • Lower risk ratio of major cardiovascular events (14%), myocardial infarction (13%), stroke (22%), albuminuria (10%), and retinopathy progression (19%) • Decreased weight (insignificant to 2.56 kg) and HbA1c (0.4%) • Decreased depression scores (2.5 fewer symptoms on the Center for Epidemiological Studies Depression Scale) • Increased access: None • Improved stakeholder satisfaction: 4% increased health-related quality of life; 77% increased proportion of patients self-rating their health as "excellent" or "very good"; 1.7 point increased patient engagement according to the PACIC¹ tool
<p>How to succeed</p>	<p>To build an effective hypertension management program:</p> <ul style="list-style-type: none"> • Use clinical or non-clinical staff to reinforce self-management practices (e.g., CHW), provide patients with disease management education (e.g., RN or dietician), and offer medication management support (e.g., pharmacist) • Incorporate at-home self-monitoring that requires regular self-reported blood pressure readings to engage patients in their care • Take a disease-agnostic approach, since evidence suggests that self-monitoring is equally effective among patients with a history of myocardial infarction, diabetes, and chronic kidney disease² • Augment self-management with supportive touchpoints like text messages, phone calls, or face-to-face check-ins to keep patients engaged <p>To learn more about developing an evidence-based approach, check out our Guide to Launching a Hypertension Program here.</p>

1) Patient Assessment of Chronic Illness Care.
 2) One exception is stroke; self-monitoring may be less effective for patients with a history of stroke.

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► Demonstrated impact

Literature review summary

Title: Cost-Effectiveness of Intensive Blood Pressure Management

Publication: JAMA Cardiology

Date: 2013

Type: Simulation study

Study population: 68-year-old high-risk adults with hypertension but not diabetes, some of whom were simulated to receive treatment according to the Systolic Blood Pressure Intervention Trial (SPRINT) and all of whom were tracked using a Markov model

Major findings: Intensive blood pressure management increased costs by \$23,777 per QALY gained. This assumes a willingness to pay threshold of \$50,000 per QALY gained and is comparable to cost-effectiveness ratios of other interventions considered to provide excellent value.

Source: Full article [here](#).

Title: Digital Interventions to Promote Self-Management in Adults with Hypertension Systematic Review and Meta-Analysis

Publication: Journal of Hypertension

Date: 2016

Type: Systematic review and meta-analysis

Study population: 1,259 adults with hypertension participating in seven studies analyzed in eight papers across the U.S., Korea, Honduras, Mexico, Canada, and Finland

Major findings: Hypertension management programs resulted in:

- A cost effectiveness ratio of \$5.42 per 1% improvement in medication adherence and \$7.39 per 1 mmHg decrease in diastolic blood pressure
- Reduced systolic blood pressure (weighted mean difference of 3.74 mmHg) and diastolic blood pressure (weighted mean difference of 2.37 mmHg)
- Reduced weight (insignificant to 2.56 kg), HbA1c level (0.4%), and depression score (2.5 fewer symptoms on the Center for Epidemiological Studies depression scale)

Source: Full article [here](#).

Title: Self-Monitoring of Blood Pressure in Hypertension: A Systematic Review and Individual Patient Data Meta-Analysis

Publication: PLoS Medicine

Date: 2017

Type: Systematic review and meta-analysis

Study population: 6,300 patients with hypertension who participated in 15 randomized controlled trials across North America and Europe where they were managed as outpatients and self-measured blood pressure

Major findings: Hypertension management programs reduced systolic blood pressure (3.2 mmHg) and diastolic blood pressure (1.5 mmHg) after 12 months.

Source: Full article [here](#).

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Title: Effects of Intensive Blood Pressure Lowering on Cardiovascular and Renal Outcomes: Updated Systematic Review and Meta-Analysis

Publication: The Lancet

Date: 2016

Type: Systematic review and meta-analysis

Study population: 44,989 child and adult patients with chronic diseases (including diabetes, chronic kidney disease, hypertension, and other vascular diseases and risk factors) participating in 19 randomized controlled trials

Major findings: Hypertension management programs resulted in a lower risk ratio of major cardiovascular events (14%), myocardial infarction (13%), stroke (22%), albuminuria (10%), and retinopathy progression (19%). They had insignificant impacts on risk ratios for heart failure, cardiovascular death, total mortality, or end-stage renal disease.

Source: Full article [here](#).

Title: Sustainability of Blood Pressure Reduction in Black Barbershops

Publication: Circulation

Date: 2018

Type: Randomized controlled trial

Study population: 319 non-Hispanic black male patrons of any of 52 participating barbershops in Los Angeles County, California. Participants ranged from 35-79 years of age, had a baseline systolic blood pressures at or above 140 mmHg, and attended the same barbershop at least once every six weeks for more than six months.

Major findings: Hypertension management by barbers measuring patient blood pressure and encouraging patients to follow up with their pharmacists and PCPs, onsite pharmacist consults at the barbershop, and ongoing pharmacist-PCP collaboration resulted in:

- Reduced systolic blood pressure (28.6 mmHg or 19%)
- Reduced diastolic blood pressure (17.8 mmHg or 19%)
- Greater reduction in systolic blood pressure (20.8 mmHg or 14%) and diastolic blood pressure (14.5 mmHg or 16%), and greater odds of controlling hypertension (57 percentage points) compared to control after one year
- Increased proportion of patients self-rating their health as “excellent” or “very good” (by 77%)
- Increase of self-reported patient engagement (by 1.7 points according to the Patient Assessment of Chronic Illness Care tool)

Source: Full article [here](#).

Title: Improving Hypertension Control in Primary Care with the Measure Accurately, Act Rapidly, and Partner with Patients Protocol

Publication: Hypertension

Date: 2018

Type: Case study

Study population: 16,787 adults (54% female, 46% covered by Medicare) ages 18-85 (mean age of 61.2 years) with diagnosed hypertension and attending any of 16 community-based clinical sites making up the Greenville Health System Department of Family Medicine in Greenville, South Carolina between February 2015 and April 2016

Major findings: Hypertension management reduced systolic blood pressure (2 mmHg or 2%) and diastolic blood pressure (1.6 mmHg or 1%) after 12 months.

Source: Full article [here](#).

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Title: Effects of a Community Population Health Initiative on Blood Pressure Control in Latinos

Publication: Journal of the American Heart Association

Date: 2018

Type: Case study

Study population: 5,714 adult Latino patients (average age 58.5 years, 59% female) with risk factors for cardiovascular disease who attended any of three primary care clinics in the University Health System in San Antonio, Texas participating in a community-based high blood pressure management program between July 2016-June 2018. Patients had an average BMI of 33.4 and 60% had diabetes mellitus. The program was modeled after the American Heart Association's (AHA) Check. Change. Control. program.

Major findings: Hypertension management reduced systolic blood pressure (7.6mmHg or 5.5%) and diastolic blood pressure (4.2 mmHg or 6%). The program improved patients' health-related quality of life according to the European quality of life five-dimension visual analog scale (EQ-5D) (4%).

Source: Full article [here](#).

Title: Outcomes of a Multi-Community Hypertension Implementation Study: The American Heart Association's Check. Change. Control. Program

Publication: Journal of Clinical Hypertension

Date: 2017

Type: Case study

Study population: 4,069 adult patients (average age 51 years) across 18 sites in the US participating in the AHA's Check. Change. Control. program in 2013. The majority of patients were female (74.5%) and 40.6% of patients had a systolic blood pressure at or above 140 mmHg and/or a diastolic blood pressure at or above 90 mmHg.

Major findings: Hypertension management reduced systolic blood pressure (7.5 mmHg) and diastolic blood pressure (3.3 mmHg). The program also led to 33% of patients moving to a lower blood pressure category (e.g., from hypertensive to pre-hypertensive or from pre-hypertensive to normal).

Source: Full article [here](#).

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Appendix

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