Cardiovascular disease refers to several types of conditions that affect the heart and blood vessels. Cardiovascular diseases, including heart disease and stroke, account for one-third of all U.S. deaths and contribute an estimated $315 billion annually in healthcare costs and lost productivity.\textsuperscript{1,2} Many cardiovascular disease risk factors, such as high blood pressure, high cholesterol, excess weight, poor diet, smoking and diabetes, can be prevented or treated through behavior change and appropriate medication.\textsuperscript{1}

This fact sheet provides proven intervention strategies—including programs and services—to reduce patients' risk for cardiovascular disease. It can help decision makers in both public and private sectors make choices about what intervention strategies are best for their communities. This fact sheet summarizes information in The Guide to Community Preventive Services (The Community Guide), an evidence-based resource of what works in public health.

Use the information in this fact sheet to select from the following intervention strategies you can use in your community and healthcare organizations:

- Incorporate team-based care interventions using a multidisciplinary team such as primary care providers, nurses, and pharmacists or engaging community health workers to help patients improve blood pressure control.
- Introduce clinical decision-support systems within healthcare systems to implement clinical guidelines at the point of care.
- Reduce out-of-pocket costs for medications to control high blood pressure and high cholesterol in patients.
- Implement self-measured blood pressure monitoring interventions used alone or combined with additional support such as counseling, education, or web-based tools to improve blood pressure outcomes in patients.

The Community Guide provides evidence-based findings and recommendations from the Community Preventive Services Task Force (CPSTF) about preventive services and programs to improve health. The CPSTF—an independent, nonfederal panel of public health and prevention experts—bases its findings on systematic reviews of the scientific literature. Learn more about The Community Guide and what works to prevent cardiovascular disease by visiting www.thecommunityguide.org/topic/cardiovascular-disease.
WHAT WORKS  Cardiovascular Disease Prevention and Control

THE PUBLIC HEALTH CHALLENGE

Cardiovascular disease is the leading cause of death globally\(^3\)

- Nearly 800,000 people die in the U.S. each year from cardiovascular diseases—that’s almost 1 out of every 3 deaths.\(^4\)
- Approximately every 1 minute and 23 seconds, an American will die from a coronary event.\(^2\)
- Almost half of Americans (47%) exhibit at least one of three key cardiovascular disease risk factors: uncontrolled hypertension, high levels of low-density lipoprotein cholesterol and smoking.\(^5\)
- Smoking, physical inactivity, and poor diet increase the risk of cardiovascular disease.\(^6\)

High blood pressure is a leading cause of heart disease and stroke in the U.S.

About 1 in 3 U.S. adults—or 75 million people—have high blood pressure.\(^7\)

High blood pressure was the main or contributing cause of death for more than 410,000 Americans in 2014.\(^8\)

An estimated 46,000 deaths might be prevented each year if 70% of patients under the age of 80 with high blood pressure were treated according to goals established in current clinical guidelines.\(^10\)

For more about cardiovascular disease prevention and control, visit www.cdc.gov/dhdsp/index.htm.
SUMMARIZING THE CPSTF FINDINGS

All CPSTF findings for cardiovascular disease prevention and control are available online at www.thecommunityguide.org/topic/cardiovascular-disease. Some of the findings are described below.

- **Implementing Clinical Decision-Support Systems at the point-of-care.** Provider practices related to cardiovascular disease preventive care services, clinical tests and treatments can be improved through the use of clinical decision-support systems. These computer-based information systems are designed to assist healthcare providers by providing patient-specific information during healthcare visits. Clinical decision-support systems allow healthcare providers to screen for cardiovascular disease risk factors, assess a patient’s risk for developing cardiovascular disease, and alert patients during visits when health indicators for cardiovascular disease risk factors are elevated.

- **Reducing out of pocket costs for patients.** Reducing out-of-pocket costs for medications to control high blood pressure and high cholesterol can be implemented alone or in combination with other interventions including team-based care. In addition, reducing out-of-pocket costs can increase medication adherence, which subsequently helps increase the proportion of patients that meet the recommended blood pressure goal by a median of 18 percentage points, as well as a median increase of 13 percentage points for the proportion of patients who meet the recommended cholesterol goal.

- **Incorporating team-based care in health systems.** Team-based care consists of a health care team that works together to improve patient care. The coordinated team includes the patient, the patient’s primary care provider, as well as other health professionals (e.g., nurses, pharmacists and dietitians). Team-based care interventions allow for communication between team members, the use of clinical guidelines by team members, consistent monitoring of patient progress, and engagement of patients in their own care. Healthcare systems that used team-based care increased the proportion of patients with controlled blood pressure by a median of 12 percentage points when compared to usual care.

- **Implementing self-measured blood pressure monitoring interventions.** Self-measured blood pressure monitoring interventions allow patients who are trained to use validated blood pressure measurement devices, to share their blood pressure readings with their healthcare providers during clinic visits, by telephone, or electronically. These interventions may be used alone or combined with additional support. When used alone, patients receive self-measured blood pressure tools, training, and monitoring. When combined with additional support, patients receive one-on-one counseling, blood pressure management education, and web-based support to communicate with health care providers.

PUTTING THE CPSTF FINDINGS TO WORK

As a public health decision maker, practitioner, community leader, or someone who can influence the health of your community, you can use The Community Guide to create a blueprint for success.

- See how other communities have applied the CPSTF recommendations for cardiovascular disease prevention and control at www.thecommunityguide.org/content/the-community-guide-in-action. Get ideas from their Community Guide in Action stories.

- Visit CDC’s Division of Heart Disease and Stroke Prevention at www.cdc.gov/dhdsp to learn more about programs that support healthy behaviors to prevent and manage conditions related to cardiovascular health.

- Visit the Department of Health and Human Services Million Hearts® initiative at millionhearts.hhs.gov to identify ways to reduce cardiovascular disease risk across the U.S.

- Use the Healthy People 2020 initiative at www.healthypeople.gov/2020/topics-objectives/topic/heart-disease-and-stroke/ehrs to learn more about how to improve cardiovascular health.
THE COMMUNITY GUIDE IN ACTION

Kaiser Permanente Colorado Implements Hypertension Management Program

With more than 85,000 adult patients diagnosed with high blood pressure in the Denver metropolitan area alone, Kaiser Permanente Colorado implemented several evidence-based strategies aimed at increasing the hypertension control rate within its patient population. The Hypertension Management Program emphasizes a team-based, integrated approach to care for patients with high blood pressure, utilizing some of the strategies recommended in The Community Guide. As a result of these changes, hypertension control rates rose from just over 61 percent in January 2008 to nearly 83 percent by fall 2012.

West End Medical Centers Implements Patient-Centered Medical Home Model

West End Medical Centers, Inc. (WEMC) provides comprehensive primary healthcare services in seven locations throughout Georgia’s Fulton and Cobb counties. WEMC is a patient-centered medical home and a nonprofit organization of federally qualified health centers. WEMC’s patient population is predominantly African American, female and nearly half are uninsured. WEMC’s care model utilizes many of the strategies recommended by The Community Guide, including a focus on physician-led provider teams who work with patients to develop and manage their hypertension. Referrals for additional care and support services include medications, access to a dietician, and fitness instruction as part of a health education program. As a result of these changes, 63 percent of WEMC’s 4,000 hypertensive patients had controlled blood pressure by 2012.

Read more on these stories and others at www.thecommunityguide.org/content/the-community-guide-in-action.

FOR MORE INFORMATION

Division of Heart Disease and Stroke Prevention, CDC
www.cdc.gov/dhdsp

CDC Prevention Status Report—Heart Disease and Stroke
www.cdc.gov/stltpublichealth/psr/heartandstroke/index

National Heart, Lung, and Blood Institute, NIH
www.nhlbi.nih.gov

Million Hearts Campaign
millionhearts.hhs.gov

American Heart Association
www.heart.org/HEARTORG

World Health Organization
www.who.int/topics/cardiovascular_diseases/en

REFERENCES

The Community Preventive Services Task Force (CPSTF) has released the following findings on what works in public health to prevent cardiovascular disease. These findings are compiled in The Guide to Community Preventive Services (The Community Guide) and listed in the table below. Use the findings to identify strategies and interventions you could use for your community.

Legend for CPSTF Findings:  
- **Recommended**  
- **Insufficient Evidence**  
- **Recommended Against**  
(See reverse for detailed descriptions.)

For each intervention, a summary of the systematic review, included studies, evidence gaps, and journal publications can be found in the Cardiovascular Disease section of the website at [www.thecommunityguide.org/topic/cardiovascular-disease](http://www.thecommunityguide.org/topic/cardiovascular-disease). Other related resources include one pagers and Community Guide in Action stories.

### Intervention | CPSTF Finding
--- | ---
Clinical decision-support systems | 🟢
Interactive digital interventions for blood pressure self-management | 🟢
Interventions engaging community health workers | 🟢
Mobile health (mhealth) interventions for treatment adherence among newly diagnosed patients | 🟢
Reducing out-of-pocket costs for cardiovascular disease preventive services for patients with high blood pressure and high cholesterol | 🟢
Team-based care to improve blood pressure control | 🟢
**Self-measured blood pressure monitoring interventions for improved blood pressure control** | 
When used alone | 🟢
When combined with additional support | 🟢
UNDERSTANDING THE FINDINGS

The CPSTF bases its findings and recommendations on systematic reviews of the scientific literature. With oversight from the CPSTF, scientists and subject matter experts from the Centers for Disease Control and Prevention conduct these reviews in collaboration with a wide range of government, academic, policy, and practice-based partners. Based on the strength of the evidence, the CPSTF assigns each intervention to one of the categories below.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended</td>
<td>There is strong or sufficient evidence that the intervention strategy is <strong>effective</strong>. This finding is based on the number of studies, how well the studies were designed and carried out, and the consistency and strength of the results.</td>
<td>![Green Circle]</td>
</tr>
<tr>
<td>Insufficient Evidence</td>
<td>There is <strong>not enough evidence</strong> to determine whether the intervention strategy is effective. This does not mean the intervention does not work. There is not enough research available or the results are too inconsistent to make a firm conclusion about the intervention strategy’s effectiveness. The CPSTF encourages those who use interventions with insufficient evidence to evaluate their efforts.</td>
<td>![Diamond]</td>
</tr>
<tr>
<td>Recommended Against</td>
<td>There is strong or sufficient evidence that the intervention strategy is <strong>harmful or not effective</strong>.</td>
<td>![Red Triangle]</td>
</tr>
</tbody>
</table>

EVALUATING THE EVIDENCE

- CPSTF findings are based on systematic reviews of all relevant, high-quality evidence. Systematic reviews are conducted in accordance with the highest international standards, using a transparent and replicable methodology that accounts for the complexities of real-world public health interventions.

- Systematic review science teams, coordinated by CDC scientists, evaluate the strengths and limitations of all relevant high-quality evidence to assess whether programs, services, and other interventions are effective in improving health at the population level.

- Review teams determine whether findings are applicable to different U.S. population groups and settings; highlights possible harms, potential benefits, and implementation considerations; and identifies evidence gaps and areas for future research.

- A separate team of economists conducts systematic economic analyses for recommended intervention approaches. They look at cost, cost effectiveness, and cost-benefit analyses to provide public health professionals with information they need to make decisions and allocate funding.

Visit the “Our Methodology” page on The Community Guide website at www.thecommunityguide.org/about/our-methodology for more information about the methods used to conduct the systematic reviews and the criteria the CPSTF uses to make findings and recommendations.