

The Four Domains of Chronic Disease Prevention

Vision for the CDC Chronic Disease Prevention System

Improving community conditions to support healthful behaviors and promote effective management of chronic conditions will deliver:

- Healthier students to schools
- Healthier workers to businesses and employers
- A healthier population to the health care system

**Healthier
People**

**Lower
Health
Care
Costs**

Context for the CDC 4-Domain Chronic Disease Prevention System

A Few Key Risk Factors Cause Most Chronic Disease in United States

- Tobacco use
- Poor diet and physical inactivity
- Excessive alcohol consumption
- High blood pressure
- Hyperlipidemia

Good news: Policy and environmental approaches can reduce these risks at individual and population levels.

The Increasing Chronic Disease Burden

- Growth in incidence and prevalence of some leading chronic conditions and risk factors.
 - These occur individually and in combination.
(Chronic diseases and their risk factors often travel in “flocks.”)
- Expanding older adult population.

Public Health and Health Care: Neither Fully Meets the Challenge

- Public health often focuses on acute problems (e.g., controlling infectious disease outbreaks).
- Health care providers focus on care delivery.

Neither system prioritizes sustained, long-term investments in health promotion and disease prevention.

The Solution: Public Health and Health Care Systems Working Together

- Use integrated approaches that bundle strategies and interventions.
- Address multiple risk factors and conditions simultaneously.
- Create population-wide change.
- Increase reach to population subgroups most affected.
- Engage multiple sectors through public-private partnerships.

CDC's Four Domains of Chronic Disease Prevention

Domain	Scope
1. Epidemiology and surveillance	Monitor trends and track progress.
2. Environmental approaches	Promote health; support and reinforce healthy behaviors.
3. Health care system interventions	Improve the effective delivery and use of clinical and other high-value preventive services.
4. Community programs linked to clinical services	Improve and sustain management of chronic conditions through referral of patients to programs that improve prevention and management of chronic conditions.

1. Epidemiology and Surveillance *Opportunities*

- Augment public health surveillance data.
 - Use health care data more creatively.
 - Develop new tools and methods.
- Use health information technology to improve efficiency and timeliness of public health surveillance.
 - Cancer: Through meaningful-use standards, accelerate reporting to state cancer registries.
 - Result: better understanding of timeliness of care, effective treatments, and disparities in cancer outcomes.
 - Obesity: Use health system and other data for BMI surveillance.
 - Result: More timely and available local information on obesity in children and adults and across population subgroups.

1. Epidemiology and Surveillance Needs

- Some key risk behaviors are poorly captured in public health and health care systems:
 - Diet.
 - Sodium intake.
 - Physical activity.
 - Alcohol use.
- Public health needs more and better biometric data, including data residing in the health care system.

2. Environmental Approaches *Opportunities*

- Policies that change context:
 - Smoke-free air laws protect nonsmokers from secondhand tobacco smoke.
- Environmental approaches that make healthy choices easier, more convenient, affordable, and safe:
 - Community design and zoning standards encourage walking and biking.
 - Bans on flavored cigarettes help combat youth smoking.

2. Environmental Approaches *Needs*

- Less than half of the US population is protected by comprehensive smoke-free air laws that cover all workplaces, restaurants, and bars.
- Access to nutritious foods and safe places for physical activity are lacking in many areas.
 - Full-service groceries and farmers markets.
 - Playgrounds, hiking trails, bike paths.
- Pricing of unhealthy products does not match the costs of adverse health consequences.
 - Tobacco.
 - Alcohol.
 - High-calorie, low-nutrition foods and drinks.

3. Health Care System Interventions *Opportunities*

- Affordable Care Act, meaningful-use regulations, other health reform efforts can speed progress.
 - Expand population coverage.
 - Require coverage of effective clinical preventive services.
 - Improve the organization of and payment for care.
 - Involve more and broader range of health professionals in delivering care.
 - Increase use of health information technology and tools (e.g., reminders and clinical decision support).
 - Increase measurement and reporting of successes and shortfalls.

3. Health Care System Interventions *Opportunities (cont'd)*

- Governmental and community public health organizations can foster better use of health care system.
 - Define high-impact services and priorities.
 - Conduct surveillance of high-priority health outcomes.
 - Remove barriers to access to ensure that hardest-to-reach populations receive needed care.
 - Use education and outreach to more fully engage the public in its own health care.

Projects That Link Health Care and Community Approaches

Project	Description
Million Hearts^a	Million Hearts is a large national effort that aims to prevent 1 million heart attacks and strokes from 2012 to 2017 by making heart-healthy lifestyle choices easier and by improving care for people needing treatment.
The National Diabetes Prevention Program^b	The National Diabetes Prevention Program links people at high risk of developing diabetes to community-delivered, evidence-based lifestyle interventions that can greatly reduce their risk of developing diabetes and, because it is delivered by lay people in community settings, can be more convenient and cost-effective than similar interventions delivered in health care settings.

Projects That Link Health Care and Community Approaches (cont.)

Project	Description
Partnership for a Healthy Durham^a	The Partnership for a Healthy Durham has pulled together many stakeholders to improve health among the most vulnerable residents of Durham County, North Carolina. The project has expanded over time from interventions to improve access to high-quality health care to include environmental approaches to promoting physical activity and efforts to improve primary education.
Truman Medical Centers Healthy Harvest Produce Market^b	Truman Medical Centers, an acute care hospital system located in an urban food desert, has established a farmers market to enhance access to fresh and healthy fruits and vegetables for its patients and staff.

4. Community Programs Linked to Clinical Services

- Proven community programs offer considerable savings over clinician-delivered models.
 - National Diabetes Prevention Program.
 - Chronic Disease Self-Management Program.
- They address key health problems (e.g., heart disease, diabetes, arthritis, falls in older people).
- They provide tools and skill-building to help people manage their chronic conditions.
 - Weeks to months of structured lifestyle interventions.
 - Standard protocols customized to particular communities.

Aligning Needs, Resources, and the Prevention System

- More than ever, CDC programs use **multiple synergistic strategies** that address **multiple chronic diseases and risk factors**.
 - Community environments + health systems.
 - General population + high-risk strategies.
- Examples: Million Hearts[®] and FY14 Funding Opportunity Announcements.
 - State and Local Public Health Actions.
 - Partnerships to Improve Community Health.
 - Racial and Ethnic Approaches to Community Health.
 - Health and Wellness in Indian Country.

Putting it all together: The Prevention System and Million Hearts[®] Initiative

- Aims to prevent 1 million heart attacks and strokes from 2012 to 2017
- Deploys all four domains to address and improve heart health.
 - At multiple levels.
 - In multiple settings.
 - In collaboration with multiple sectors.



Domain

Strategies and Interventions

1. Epidemiology and Surveillance

Monitor behaviors and environments

- Sodium consumption and sodium in food supply
- Smoking prevalence and proportion of population protected from secondhand smoke exposure
- Use of blood pressure medications
- Proportion of patients with blood pressure under control

2. Environmental Approaches

- Reduce sodium in food supply, including prepared foods served in schools, work sites, hospitals
- Increase access to affordable fruits and vegetables and opportunities for safe physical activity
- Decrease secondhand smoke exposure in public places, work sites, multiunit housing
- Promote smoking cessation

Domain

Strategies and Interventions

3. Health System Interventions

Increase appropriate aspirin use, blood pressure control, cholesterol management

- Strengthen reporting of outcomes
- Provide feedback and tools to physicians on performance
- Implement team-based approaches (physicians, pharmacists, nurses, allied health professionals)

4. Community Programs Linked to Clinical Services

- Provide self-management education and tools in structured lifestyle programs
 - National Diabetes Prevention Program
 - Chronic Disease Self-Management Program
- Link programs to supportive community environments

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Suggested reference: Bauer UE, Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. *Lancet*. 2014;384(9937):45-52. [PubMed abstract](#).