



Minnesota Heart Disease and Stroke Prevention Plan

2011-2020

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Dear Friends and Colleagues:

Six years ago I was approached to be the Chairperson for a state-wide committee of cardiovascular experts assembled to provide advice to the Minnesota Department of Health and the state on issues related to heart disease and stroke prevention. The Minnesota Heart Disease and Stroke Prevention Steering Committee today consists of volunteer health professionals with impressive amounts of knowledge and experience in cardiovascular disease prevention from the medical and public health perspectives. Partners on this committee include the University of Minnesota's Medical School and School of Public Health, the Mayo Clinic, the Minnesota Medical Association, the Minnesota Council of Health Plans, Stratis Health (Minnesota's Medicare Quality Improvement Organization), local health departments, community clinics, the Minnesota Chapter of the American Heart Association, the Minnesota Department of Health and many other organizations.

The Minnesota Heart Disease and Stroke Prevention Steering Committee had the advantage of already possessing the comprehensive Minnesota Heart Disease and Stroke Prevention Plan 2004-2010. This plan contained numerous strategies for health organizations, health professionals and communities to prevent and treat cardiovascular disease. At its meetings over the years, the Steering Committee prioritized the strategies in the plan and provided guidance on implementation.

Because of the amazing continuing dedication of the volunteers on the Steering Committee, a surprising amount of progress has been made. Members of the Steering Committee supported each other in envisioning and applying for grants to accomplish some of the high priority elements of the State Plan. Thanks to their efforts and with the encouragement of the Minnesota Department of Health staff, more than \$1.5 million in new grant money flowed to Minnesota organizations for the purpose of heart disease and stroke prevention.

More than one year ago, the Steering Committee, along with other community advisors, was enlisted to create a new strategic plan through 2020. This plan covers the next decade and will build on the foundation of its predecessor with the same mission going forward:

“To improve cardiovascular health, with emphasis on populations with the greatest health disparities, through multi-sector efforts and strategies impacting community, organizational and individual actions, environments and policies.”

It also is in alignment with Healthy People 2020: Objectives for the Nation. The members and other volunteers recruited for the effort put in over 16 months worth of intense work in creating this plan. A list of the contributors can be found in the Acknowledgments section. The Minnesota Heart Disease and Stroke Prevention Plan 2011-2020 is now finished and ready for use and implementation.

From my experience as a local county public health medical director, I know how vital it is to develop good plans to implement interventions, practices and policies that have the potential of serving the greatest good and ultimately improving the health of populations, not just individuals. I hope that as you read and use this new plan, you will agree with the members of the Steering Committee that it can do just that and serve as a roadmap to enable Minnesota continued success in preventing heart disease and stroke.

Sincerely yours,

A handwritten signature in black ink, reading "Neal Holtan", with a horizontal line extending to the right from the end of the signature.

Neal R. Holtan, M.D., M.P.H.
Chair
March 2011



Introduction

Heart disease and stroke continue to be leading causes of death for Minnesotans in spite of sophisticated and targeted medical and public health advances. The major risk factors for heart disease and stroke continue to be hypertension, high cholesterol, smoking, lack of physical exercise, poor nutrition, high sodium consumption and obesity. Obesity has risen 55% the last decade in Minnesota. American Indians, immigrants and African-Americans continue to experience significant health disparities and higher risk of cardiovascular disease than other Minnesotans. Even though Minnesota has been identified as the “heart-healthiest” state in the United States, much work still needs to be done.

This Minnesota Heart Disease and Stroke Prevention Plan 2011-2020 aims to leverage the progress made from 2004 to 2010. The success of the plan depends on champions from a wide range of organizations working together to implement various aspects of the plan.. Suggested organizational champions are identified throughout this plan.

In 2008, the initial steps in creating this plan started with assessing the strengths, weaknesses, opportunities and threats of the previous plan. These findings led to the Minnesota Department of Health contracting with the Institute for Clinical Systems Improvement (ICSI) to facilitate an objective plan development process. More than 60 subject-matter experts from the community were convened. Three subcommittees were formed, focusing on prevention, acute treatment and disease management.

Subcommittees recommended objectives, strategies, tactics and potential organizational champions according to guidelines established by a core planning group.

-
- Objectives are: “What” will be done;

 - Strategies are: “How” objectives are going to be accomplished; and,

 - Tactics are: “Actions” to carry out the strategies.

The objectives, strategies and tactics are time-driven as follows:

-
- Short-term – years 2011 through 2013

 - Mid-term – years 2014 through 2016

 - Long-term – years 2017 through 2020

The Minnesota Heart Disease and Stroke Prevention Plan 2011-2020 will require that implementation progress reports be generated in 2013 and 2018, with a Mid-Course Review and final report in 2015 and 2020, respectively. Implementation reports will capture progress of the plan. The mid-course review and the final report will contain comparison data to better quantify progress made.

The intended audiences for this plan are health care professionals in the cardiovascular and primary care fields, policy-makers and all other stakeholders who can help design, implement and sustain initiatives of the plan. The timeframe of the plan is based on heart disease and stroke goals identified in the federal government’s *Healthy People 2020* plan:

<http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=21>

There is explicit alignment between this plan and other Minnesota state prevention plans, such as diabetes, obesity, tobacco and cancer. This plan will continue to emphasize policy and environmental changes, behavior changes, risk factor detection and control, emergency medical services, acute case management and rehabilitation.

A 2011 burden report accompanies this plan, providing data on current mortality rates, hospitalizations, costs, health disparities, prevalence of risk factors and quality of care associated with heart disease and stroke in Minnesota.

Finally, the professionals who worked on the development of this plan were acutely aware of other important considerations associated with cardiovascular disease for the next ten years. These should be considered as we implement the objectives of the plan. Statements are provided in Chapter 5: Other Considerations for Heart Disease and Stroke on each of the following areas:

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- Chronic disease integration

 - Health equity and social determinants of health

 - Heart disease and stroke in context of vascular disease

 - Cardiovascular screening

 - Mental health

 - Health care innovations in technology and practice



State of the State

Burden Preview

Cardiovascular disease comprises the major disorders of the heart and vessels supplying the heart, brain and peripheral tissues. Minnesota has consistently outperformed the rest of the nation by having the lowest death rate due to coronary heart disease. Minnesotans also die from stroke at a lower rate than people in the majority of other states. In the last two decades, Minnesota's heart disease and stroke death rates have declined faster than for the nation as a whole. Minnesota was the first state in which heart disease fell to the second-leading cause of death, behind cancer. As of 2009, heart disease and stroke death rates combined have fallen below cancer, again a first in the nation. Despite these successes, not all groups in Minnesota experience such low mortality. Coronary heart disease death rates are significantly higher in American Indians than in other racial groups in Minnesota. American Indians, African Americans and Asians all die at higher rates from stroke than whites.

Though Minnesota outperforms the nation on measures of mortality, the state does not do quite as well when looking at risk factors for heart disease and stroke. Minnesota does modestly better than the nation on the percentage of individuals who are overweight or obese, the percentage of individuals who currently smoke and the percentage of individuals who are physically active. The percentage of Minnesotans reporting having diabetes, high blood pressure, or high blood cholesterol is lower than in most states. Until recently, Minnesota has lagged behind the rest of the nation in adequate consumption of fruits and vegetables.

While the number of hospitalizations for myocardial infarction continues to decline, hospitalizations for other heart diseases have declined more slowly. Hospitalizations for stroke have leveled off in recent years from large declines earlier in the previous decade. In total, the inpatient hospitalization costs for heart disease and stroke remain higher than for any other disease conditions in Minnesota.

For more details, please see the *Heart Disease and Stroke in Minnesota: 2011 Burden Report*.



Chapter 1 Primary Prevention

The Prevention Subcommittee focused on objectives, strategies and tactics to address primary causes of heart disease and stroke. This was done for populations who are considered healthy, or for those with unhealthy lifestyle behaviors, such as physical inactivity, commercial tobacco use, unhealthy eating, or for those who are overweight or obese but have no clinical diagnoses of cardiovascular disease or a risk factor. In addition, the subcommittee analyzed the existing social and environmental conditions in communities and strongly recommended policies that promote healthy choices for all ages. Many of the tactics can be shared initiatives with other chronic disease entities and their associated plans.

Objective 1.1

Decrease cardiovascular disease and stroke risk by decreasing tobacco use.

Strategy 1.1.1

Decrease rates of initiation of tobacco use.

Tactic 1.1.1.a

Provide consistent messaging in schools, for all age groups, regarding risk of tobacco use and availability of cessation support. Using consistent, accurate tobacco messaging for all age groups will increase the likelihood that users will be motivated to quit or not begin to use tobacco.

Implementation Suggestions, Short-Term and Mid-Term:

- Secure recognition from state agencies and the state legislature for consistent tobacco cessation messaging and targeted outreach to reduce the prevalence of smoking rates.
- Develop focused messages tailored for all ages and education levels, using Centers for Disease Control and Prevention (CDC) and National Cancer Institute (NCI) guidance and from experts on tobacco use/cessation outreach, including campaigns focusing on tobacco-free kids.
- Engage partners to use consistent messages. Partners could include schools; health centers; health plans; clinics; hospitals; treatment programs; treatment contract providers; drug stores; recreation centers; parks; human resources departments; small businesses; cessation-treatment websites; mass media; local public health.

- Utilize brand messages from organizations like the American Heart Association, so that they become recognizable and accepted by the public (all ages) as authoritative.
- Identify no-cost or low-cost mechanisms for disseminating the messages that can be easily accessed by all ages 24 hours a day.

Potential Organizational Champions

- Minnesota Department of Education
- Minnesota Department of Health
- Minnesota Department of Human Services
- Public health advocacy organizations (local public health agencies; American Heart Association; American Cancer Society; American Lung Association)
- Medical, dental and nursing associations
- Insurers and insurance companies; health care clinics
- Employers and employer associations
- Pharmaceutical companies, pharmacies
- Marketing/public relations organizations
- News organizations
- Community education programs; post-secondary schools, including vocational-technical schools; colleges

Tactic 1.1.1.b

Adopt state policies that add financial burden to the purchase of tobacco products.

Increasing the price of tobacco is one of the best ways to reduce tobacco use and discourage children and adults from smoking.

Implementation Suggestions, Short-term

- Organize a statewide coalition to develop a multi-faceted campaign that engages grassroots groups, lobbyists, media experts and public educators to work with the administration and the legislature to pass a tobacco tax increase.
- Enact state policy to significantly increase the price of all tobacco in Minnesota.

Potential Organizational Champions

- American Heart Association
- American Cancer Society
- American Lung Association
- Blue Cross and Blue Shield of Minnesota
- UCare of Minnesota
- Medica
- HealthPartners
- Clearway Minnesota
- Association for Nonsmokers
- Local Public Health Association of Minnesota

Strategy 1.1.2

Increase the utilization of smoking cessation services made available for adolescents and adults.

Tactic 1.1.2.a

Encourage public or private policies that provide payment coverage for comprehensive cessation programs.

Implementation Suggestions, Short-Term

- Engage schools and communities in procuring payment and in sponsoring locally based prevention programs.
- Initiate or enhance workplace health programs to support tobacco prevention and cessation.
- Provide successful, evidence-based cessation programs that include stress management skills in all communities.
- Identify and spread the utilization of tobacco cessation award programs.
- Encourage tobacco cessation coverage from public, private and self-insured policies.
- Educate health care and public health professionals about evidence-based cessation programs.
- Provide innovative methods for the public to become aware of programs.

Potential Organizational Champions

- Worksites
- The Presidents Network
- American Cancer Society
- American Lung Association
- American Heart Association

Tactic 1.1.2.b

Incorporate tobacco cessation into preventive care and into new care delivery and payment models. This could be accomplished in organizations and health care homes.

Minnesota adopted the health care homes (HCH) model to improve management and coordination of care and treatment provided to individuals with chronic diseases. The HCH model is positioned to support the delivery and coordination of clinic-based smoking cessation programs.

Implementation Suggestions, Short-Term

- Incorporate smoking dependence as a qualifying chronic disease in order to implement the program in HCHs and reimburse HCHs accordingly.
- Encourage the Minnesota Department of Health (MDH) to adopt the smoking prevention and cessation approach developed by the Centers for Disease Control and Prevention (CDC) Task Force on Community Preventive Services as the standard of practice for HCHs.
- Develop HCH certification requirements for smoking prevention and cessation care management.
- Seek state funds for HCH-coordinated tobacco cessation program.
- Create an incentive and payment structure for providing smoking prevention and cessation to Minnesota Health Care Program (MHCP) participants.
- Encourage the Minnesota Department of Human Services to build a tobacco cessation strategy and funding mechanism into MHCP managed care organizations and MHCP fee-for-service providers in upcoming MHCP contracts.

- Incorporate new smoking cessation certification requirements in to Health Care Home training.

Implementation Suggestions, Long-Term

- Implement policies
- Gather and analyze data
- Evaluate progress and outcomes

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota Department of Human Services
- Managed care organizations
- Certified Health Care Homes

Strategy 1.1.3

Advance policies that reduce exposure to environmental tobacco smoke.

Tactic 1.1.3.a

Support existing Minnesota tobacco initiatives that serve youth and reduce exposure to secondhand smoke.

Implementation Suggestions, Short-Term

- Monitor and disseminate the best practices that reduce environmental tobacco smoke.
- Promote advocacy training for health care professionals on the effects of environmental tobacco smoke.
- Engage health professionals in initiatives that promote tobacco-free environments.

Tactic 1.1.3.b

Support school campuses, health care sites and worksites, in becoming free of tobacco and smoke.

Potential Organizational Champions

- American Heart Association
- American Cancer Society
- American Lung Society
- Minnesota Department of Health
- Health plans
- Minnesota Hospital Association
- Minnesota Medical Association
- The Presidents Network

Objective 1.2

Decrease all Minnesotans' risk for cardiovascular disease and stroke by reducing obesity rates and improving nutrition and physical activity.

Strategy 1.2.1

Increase the rate of healthy eating by Minnesota children, youth and adults.

Tactic 1.2.1.a

Improve the nutritional value of food for all children, youth and adults in school environments.

Implementation Suggestions, Short-Term and Long-Term

- Advocate for policies to address environmental change in the school food environment.
- Increase access to food that meets dietary guidelines and the Institute of Medicine 2009 recommendations for use in school meal planning and purchasing.
- Increase the core competency skills of the school food service staff through certified food service managers.
- Promote sodium guidelines for processed foods purchased through distributors, vendors and commodity food programs.
- Assist schools to develop and implement nutrition policies that limit fat, sodium and added sugar in all food.
- Support nutrition education and curricula to be placed into existing coursework required to meet graduation standards.
- Increase the number of schools purchasing locally grown fruits and vegetables.

- Implement policies to increase participation in school meal programs.
- Advance state and local policies to strengthen and update health education curricula with emphasis on healthy weight and healthy lifestyles.
- Support the work of school food purchasing collaboratives.

Potential Organizational Champions

- Minnesota Department of Health
- University of Minnesota School of Public Health
- State and/or county-based health improvement programs
- Minnesota Departments of Education and Agriculture
- Minnesota School Nutrition Association
- Minnesota Food Buying Group
- Institute of Agriculture and Trade Policy
- University of Minnesota Extension
- American Heart Association
- American Recovery and Reinvestment Act grantee organizations (through 2013)

Tactic 1.2.1.b

Increase access to affordable and healthy food choices in underserved populations.

Implementation Suggestions, Mid-Term

- Provide incentives for grocery stores in communities with underserved populations to promote healthy food or increase prices for unhealthy food.
- Promote tax incentives for local farmers markets.

Tactic 1.2.1.c

Decrease the percentage of 2-5 year olds in the Women Infant Children (WIC) population classified as obese.

Implementation Suggestions, Short-Term

- Advance the curricula that models healthy behavior to families and disseminate through pre-school parenting programs and community organizations.
- Partner with local community initiatives that promote healthy eating and more physical activity.

Potential Organizational Champions

- Parent and community organizations
- Childcare organizations

Tactic 1.2.1.d

Improve the nutritional value of food in worksites and residential environments.

Implementation Suggestions, Short-term

- Provide technical assistance for employers and heads of residential sites to create policies promoting healthy food availability.
- Support development of corporate and organizational policies aimed at graduated pricing of all foods procured.
- Work to place high prices on high caloric low nutritive foods and low prices on high nutritive foods.
- Incorporate nutrition rankings by color code to assist employees and residents with their food choices.
- Ensure menu labeling in employee cafeterias and other institutional food services.

Potential Organizational Champions

- Minnesota Council of Health Plans
- Business and consumers' health action groups
- Employers
- The Presidents Network
- Residential facilities for the mentally ill
- Group homes for those recovering from drug addictions
- Skilled nursing facilities
- Long-term care facilities
- Supportive housing facilities
- Assisted living facilities
- Hospitals
- Prisons
- Juvenile educational and correctional facilities
- Religious organizations

Tactic 1.2.1.e

Decrease intake of sodium and saturated fat to recommended levels.

Implementation Suggestions, Long-Term

- Support the most current implementation strategies of the Institute of Medicine's Strategies to Reduce Sodium Intake in the United States and the Minnesota Obesity Plan.

Tactic 1.2.1.f

Provide reimbursement for nutritional counseling for persons at elevated risk for developing hypertension.

Implementation Suggestions, Short-Term and Long-Term

- Create programs for clinics to screen and assess for high-risk individuals for hypertension based on family history, elevated body mass index, impaired fasting blood glucose, or elevation of blood pressure (on more than two clinic visits).
- Create programs for clinics to provide either nutritional counseling or a care manager.
- Establish a universal code to be used by clinics for elevated risk for developing hypertension, persons at elevated risk for developing hypertension.
- Collect and analyze data on the effectiveness of nutritional counseling in lowering the rates of individuals who become hypertensive.

Potential Organizational Champions

- Pediatric clinics
- Primary care clinics
- Managed care organizations
- Minnesota Council of Health Plans
- Minnesota Medical Association
- Minnesota Hospital Association
- Neighborhood Health Care Network
- Institute for Clinical Systems Improvement

Tactic 1.2.1.g

Promote healthy food choices for cafeterias, events and vending machines in various community settings.

Implementation Suggestions, Long-Term:

- Implement policies that increase healthier food and beverage options sold in vending machines and at concessions.
- Strategically arrange the order in which food is presented and available in cafeterias, by directing attention to healthy food.

Strategy 1.2.2

Increase the frequency of exposure to effective health messages through multiple media channels.

Tactic 1.2.2.a

Partner with various media sources to communicate effective health messages based on the Healthy People 2020 campaign.

Implementation Suggestions, Long-Term

- Convince media professionals that obesity is a problem and that they have a role to play in addressing the epidemic.
- Encourage media to promote editorials and allowing free air time/ad space for public service announcements, such as “Good Food News.”
- Target work with chronic disease advocacy groups to create consistent messaging across other media outlets.
- Work with health plans to create venues for messaging.
- Cross reference messages developed with those identified in Healthy People 2020.

Potential Organizational Champions

- Minnesota Council of Health Plans
- Health plans and other payers
- Health nonprofits with communications staff
- Media organizations such as radio, television, newspapers

Strategy 1.2.3

Increase physical activity for all in Minnesota.

Tactic 1.2.3.a

Ensure children are given the opportunity to get the recommended 60 minutes of daily physical activity.

Implementation Suggestions, Short-Term

- Adopt by 2013 the National Standards for Physical Education developed by the National Association for Sports and Physical Education.
- Work with schools to:
 - Increase the amount of physical activity in physical education programs.
 - Increase opportunities for extracurricular physical activity.
 - Increase the minutes per week students are required to take physical education to the recommended minimum of 150 minutes per week for elementary students and 225 minutes per week for secondary students.
 - Prioritize physical education in schools by making it a requirement for graduation.

- Encourage policymakers to prioritize school-based physical education by promoting the Centers for Disease Control and Prevention’s School-Based Obesity Prevention Strategies for State Policymakers.
- Work to secure funding to support the implementation of the goals and objectives in the Minnesota Plan to Reduce Obesity and Obesity-Related Chronic Diseases.

Implementation Suggestions, Long-Term

- Continue and expand state and county-based programs across Minnesota.
 - Improve access to outdoor recreational facilities.
 - Enhance infrastructure supporting bicycling.
 - Support locating schools within easy walking distance of residential areas.
 - Enhance personal safety in areas where persons are or could be physically active.

Potential Organizational Champions

- Minnesota Department of Education
- Minnesota Department of Health
- American Heart Association
- Minnesotans for Healthy Kids Coalition
- Minnesota Association for Health, Physical Education, Recreation and Dance (MN AHPERD)
- Schools
- Park and recreational facilities
- Childcare organizations

Tactic 1.2.3.b

Continue and expand state, county-based and tribal initiatives in local communities, to include the development of environments that support physical activity.

Implementation Suggestions for Children, Long-Term

- Improve school wellness environments to support adequate time for physical activity.
- Create safe walking routes to school (sidewalks, crosswalks, bike facilities, traffic calming).

Implementation Suggestions for Adults, Mid-Term

Increase the percentage of adults who meet CDC recommendations for physical activity. Focus on bicycling and walking and implement or enhance:

- Safe Routes to School (sidewalks, crosswalks, bike facilities).
- Complete Streets policies that support an integrated transportation network designed to support all users including walkers and bicyclists.
- Incentive programs for bicycling and walking and for being physically active during the work day (such as paid time to exercise).
- Workplace and community support mechanisms for physical activity (lockers, showers, fitness equipment).
- Public transportation.

Continue to implement campaigns that promote physical activity such as:

- The Blue Cross and Blue Shield of Minnesota ‘Do’ campaign, American Heart Association’s Start! walking campaign, etc.

- The ‘Share the Road’ a statewide bicycle safety campaign.
- Engaging adults in health behavior change campaigns offered through health care providers, employers, congregate living sites and community organizations.

Potential Organizational Champions

- Minnesota Department of Health, Planning and Performance Measurement Reporting (PPMRS)
- Minnesota Department of Education
- Health plans
- Community centers
- American Heart Association
- Schools
- Tribal councils and tribes
- The Presidents Network
- Worksites
- Local public health agencies



Objective 1.3

Advance methods promoting healthy eating and physical activity that are suited to communities at highest risk.

Strategy 1.3.1

Offer culturally sensitive programs that focus on reducing prevalence of obesity by improving dietary behaviors, increasing physical activity levels and reducing sedentary behaviors.

Tactic 1.3.1.a

Launch healthy citizen campaigns and peer education support group models within high-risk communities that advance and encourage healthy lifestyle choices.

Implementation Suggestions, Short-Term

- Work with tribal reservation communities, inner-city and rural communities to reach out to underserved populations.
- Implement peer-to-peer networks, training/certification for peer trainers and mentors.

Potential Organizational Champions

- Children’s Defense Fund
- Minnesota Department of Health
- Indian Health Service offices
- Local public health agencies
- Bridges Out of Poverty
- Schools
- Community agencies
- Health plans

Objective 1.4

Support aspirin use as primary prevention strategy for cardiovascular disease and stroke for individuals with increased risk.

Strategy 1.4.1

Increase the use of aspirin according to evidence-based recommendations for individuals without a history of coronary heart disease or stroke who are at increased risk of ischemic events.

Tactic 1.4.1.a

Include aspirin primary prevention treatment recommendations in health education initiatives for all health care providers, to provide to “at risk” patients and as a component of community education.

Utilize United States Preventive Services Task Force (USPSTF) aspirin recommendations for the primary prevention of cardiovascular disease:

- Encourage men age 45 to 79 years to use aspirin when the potential benefit of a reduction in myocardial infarctions outweighs the potential harm of an increase in gastrointestinal hemorrhage. (USPSTF “A” recommendation)
- Encourage women age 55 to 79 years to use aspirin when the potential benefit of reduction in ischemic strokes outweighs the potential harm of an increase in gastrointestinal hemorrhage. (USPSTF “A” recommendation)

Implementation Suggestions, Short-Term

- Create a clear primary prevention aspirin message for health care professionals to help clarify the rationale (benefit and risk) for patients who would benefit from its use.

- Create a clear primary prevention aspirin message for the public and consumers to clarify the rationale (benefit and risk) of its use.
- Document aspirin recommendations used consistently in patient records through the use of electronic medical records.
- Use health care medical records to identify the target population at risk and verify daily aspirin use and contraindications such as bleeding risk or use of anti-thrombotic medications.
- Sponsor provider educational interventions to achieve medical record charting goals.

Potential Organizational Champions

- Provider groups
- University of Minnesota School of Public Health
- Minnesota Medical Association
- Minnesota Council of Health Plans
- Minnesota Stroke Association
- American Heart Association
- Minnesota Department of Health
- Indian Health Service
- Health Plans



Chapter 2

Acute Treatment

The Acute Treatment Subcommittee focused on strategies addressing acute cardiac and stroke events – for which time is of the essence. Therefore, the domains addressed were acute myocardial infarction, sudden cardiac arrest and acute cerebrovascular, primarily stroke events. The strategies and tactics developed address the need to develop policies and statewide systems of care. In addition, the subcommittee recommended strategies to increase knowledge of the signs and symptoms of cardiac and stroke events and the importance of calling 9-1-1 emergency services for the general public and health care professionals.

Objective 2.1

Provide consistent, evidence-based and timely acute care for Minnesotans experiencing:

- Acute cardiac events
 - ST-elevation myocardial infarction (STEMI)
 - Sudden cardiac arrest (SCA)
- Stroke

Strategy 2.1.1

Develop and implement a statewide system of care for ST-elevation myocardial infarction (STEMI).

Tactic 2.1.1.a

Determine and implement standardized, evidence-based protocols for diagnosis and treatment of STEMI and a coordinated care plan for transport within regional STEMI systems.

Implementation Suggestions, Short-Term and Mid-Term

- Form a Minnesota Heart/Stroke Emergency Council to set standards and monitor performance.
- Adopt new innovations using consensus-based decision making through the American Heart Association and the Minnesota Department of Health.
- Form a work group to identify the existing protocols and further develop them for implementation throughout the state. Members of this group should include Public Service Answering Points (PSAPs) and emergency medical services (EMS) providers.

- Provide EMS responders throughout the state with surveys to assess their knowledge of interventions, response timelines, EMS response, hospital designation and hospital capabilities. Analyze results to identify, develop and implement educational opportunities and best EMS protocols.
- Complete and disseminate protocols, noting what is being used and differences among them, and enhance the level of uniformity.
- Establish and maintain an inventory of acute care and other health facilities listing their minimum capabilities to care for cardiovascular and stroke patients. Provide EMS providers with ready access to this care/flow directory.
- Promote the use of the physician orders for life-sustaining treatment (POLST) form.

Potential Organizational Champions

- Minnesota Ambulance Association
- Emergency Medical Services regional programs
- Public Service Answering Points
- Emergency Medical Services agencies
- Minnesota Emergency Medical Services Regulatory Board
- Minnesota Hospital Association
- Minnesota Department of Health
- Minnesota Heart/Stroke Emergency Council committees on EMT
- Hospitals
- Law enforcement (sheriffs)
- State 9-1-1
- Mission: Lifeline Steering Committee

Tactic 2.1.1.b

Collect, analyze and report data to a central registry to monitor successful outcome indicators and facilitate performance improvement activities statewide.

Implementation Suggestions, Short-Term and Mid-Term

- Collect data on all hospital admissions to assess short-term patient outcomes.
- Use facility electronic health records to inventory clinical programs and service lines.
- Provide incentives for both large/integrated systems and small/rural hospitals to track patient outcomes.
- Publish results of an annual questionnaire to determine acute care and emergency medical system’s technical capabilities.
- Establish a process to capture new recommendations and integrate them into routine care delivery and data collection processes.

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota Chapters of the American College of Cardiology, American Academy of Neurology
- Minnesota Heart/Stroke Emergency Council committees on quality
- Mission: Lifeline Steering Committee
- American Heart Association
- Stratis Health

Tactic 2.1.1.c

Implement evidence-based protocols and data-driven performance improvement activities.

**Implementation Suggestions,
Short-Term and Mid-Term**

- Review baseline performance with ongoing comparative measures through the Minnesota Heart/Stroke Emergency Council (referenced in tactic 2.1.1.a)

Potential Organizational Champions

- American Heart Association
- Mission: Lifeline Steering Committee

Strategy 2.1.2

Develop and implement a statewide sudden cardiac arrest system.

Tactic 2.1.2.a

Implement standardized evidence-based protocols for diagnosis and treatment of sudden cardiac arrest (SCA) as a coordinated approach to transport patients within regional SCA systems.

**Implementation Suggestions,
Short-Term and Mid-Term**

- Implement methods used in communities with the highest survival rates with procedures known to improve survival.
- Identify available protocols and further develop them for implementation throughout the state.
- Establish and maintain an inventory of acute care and other health facilities of their minimum capabilities to care for cardiovascular and stroke patients.
- Form a Sudden Cardiac Arrest Emergency Council to set standards and monitor performance, in collaboration with the STEMI Council. Adopt new innovations as necessary.

- Promote the physician orders for life-sustaining treatment (POLST) form.
- Establish programs to help communities/agencies purchase automated external defibrillators and assure their functionality.

Potential Organizational Champions

- Minnesota Ambulance Association
- Emergency medical services regional programs
- Public Service Answering Points
- Emergency medical services agencies
- Minnesota Emergency Medical Services Regulatory Board
- Law enforcement (sheriffs)
- State 9-1-1
- Minnesota Hospital Association
- Fire departments
- American Heart Association

Tactic 2.1.2.b

Develop a central registry to collect and report data that monitors and tracks established outcome indicators.

**Implementation Suggestions,
Short-Term and Mid-Term**

- Create a comprehensive pre-hospital care report to serve as the basis for the registry elements.
- Establish a cardiac arrest registry and a plan for evaluation of the registry data to ensure continuous measurement and improvement of care. The registry should contain the following elements:
 - Information about the event location and emergency medical services (EMS) response times
 - The victim's demographic information
 - Pre-hospital treatment and response data for the destination hospital
 - Hospital treatment variables
 - Survival to hospital discharge
- Collect Registry data from individual EMS agencies, metropolitan areas or geographic regions.
- Survey EMS responders throughout the state to assess their knowledge of interventions, EMS response, hospital designation and capabilities.

Potential Organizational Champions

- Minnesota Heart/Stroke Emergency Council committees on standards/quality
- Minnesota Department of Health
- Health plans

Tactic 2.1.2.c

Implement evidence-based, data-driven performance improvement activities.

**Implementation Suggestions,
Short-Term and Mid-Term**

- Review baseline performance with ongoing comparative measures by the Minnesota Sudden Cardiac Arrest Emergency Council (referenced in tactic 2.1.2.a)

Potential Organizational Champions

- Hospitals
- Minnesota Hospital Association
- Minnesota Department of Health

Strategy 2.1.3

Develop and implement a statewide acute stroke system.

Tactic 2.1.3.a

Implement standardized evidence-based protocols for diagnosis, treatment and post-stroke education and counseling for acute stroke patients as a coordinated approach to transport patients in emergency medical service (EMS) agencies and hospitals statewide.

**Implementation Suggestions,
Short-Term and Mid-Term**

- Form a Minnesota Heart/Stroke Emergency Council to set standards and monitor performance. Adopt new innovations as necessary.
- Form a work group to identify the existing protocols and further develop them for implementation throughout the state. Members of this group should include Public Service Answering Point (PSAP) staff and emergency medical service (EMS) providers

- Conduct and analyze a statewide survey of dispatch, PSAP and EMS personnel to assess their knowledge of assessment, management and transport protocols and hospital capabilities for acute stroke treatment. Survey results should be analyzed to identify, develop and implement educational opportunities and best EMS protocols.
- Conduct and analyze a statewide survey of emergency departments/hospitals to assess existence and use of protocols consistent with guidelines and acute stroke management capabilities.
- Complete and disseminate new protocols, taking into account what is already in use.
- Provide support through the Minnesota Stroke Registry to improve acute stroke management.
- Encourage adherence to and assist with implementing quality of care standards.
- Establish and maintain an inventory of acute care facilities with minimum capabilities to provide acute stroke care (including thrombolytic therapy).
- Create a mechanism for ready access of the inventory by EMS providers.
- Integrate the Minnesota Stroke Registry Advisory Committee into the Minnesota Stroke Partnership.

Potential Organizational Champions

- Minnesota Stroke Partnership
- Minnesota Ambulance Association
- Emergency medical services regional programs
- Emergency medical services agencies
- Public Service Answering Points

- Minnesota Emergency Medical Services Regulatory Board
- Law enforcement (sheriffs)
- State 9-1-1
- American Heart Association/American Stroke Association

Tactic 2.1.3.b

Collect, analyze and report data to a central registry in order to monitor and track successful outcome indicators and facilitate performance improvement activities statewide.

Implementation Suggestions, Short-Term and Mid-Term

- Collect data on all admissions for stroke to assess short-term outcomes.
- Increase participation in the Minnesota Stroke Registry.
- Identify opportunities for data abstraction via electronic health record/electronic medical record upload.
- Obtain yearly questionnaire to establish each facility's capabilities.

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota Stroke Registry
- Minnesota Stroke Partnership
- American Heart Association/American Stroke Association

Tactic 2.1.3.c

Implement evidence-based, data-driven performance improvement activities.

Implementation Suggestions, Mid-Term

- Support performance improvement activities via the Minnesota Stroke Registry.
- Facilitate mentor/mentee relationships between comprehensive stroke programs and less experienced hospitals.

Potential Organizational Champions

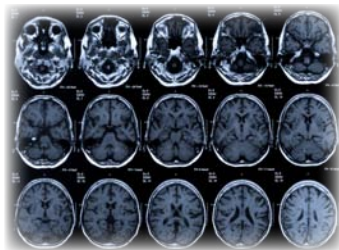
- Minnesota Stroke Registry
- Minnesota Stroke Partnership
- Hospitals
- Minnesota Department of Health
- Minnesota Hospital Association
- American Heart Association/American Stroke Association
- Minnesota Rural Health Association

Strategy 2.1.4

Collect long-term patient outcomes data to use in analysis for ongoing quality improvement efforts.

Implementation Suggestions, Mid-Term

- Encourage hospitals to record post-discharge follow-up information for stroke patients.



Objective 2.2

Create an informed Minnesota population that recognizes acute signs and symptoms and understands the need for timely, evidence-based emergency response:

- Stroke
- Acute cardiac events

Strategy 2.2.1

Disseminate consistent, evidence-based educational materials to all Minnesotans on the signs, symptoms and emergency response to vascular disease events including myocardial infarction and stroke.

Tactic 2.2.1.a

Adopt and disseminate consistent core messages for acute cardiac and stroke signs and symptoms awareness in multiple languages with a focus on calling 9-1-1 in the case of an acute event.

Implementation Suggestions for Stroke, Short-Term and Mid-Term

- Conduct focus groups to gain understanding of the public's knowledge of stroke symptoms.
- Develop materials based on focus groups for effective stroke signs, symptoms and emergency response awareness.
- Utilize multiple educational approaches with emphasis on calling 9-1-1.
- Develop clear, concise information at appropriate reading levels in a variety of formats. These should include separate messages for each disease entity.

- Develop age appropriate education materials and incorporate into curriculum for health education at all levels of public education, including:
 - Cardiopulmonary resuscitation
 - Signs and symptoms of acute cardiac and stroke events.
- Explore and implement community-level marketing strategies, including:
 - Public awareness campaigns
 - Public service announcements, local media and sponsored events
 - National assistance to increase awareness
 - High profile mass training events
- Provide materials to populations at high risk and for limited English proficiency audiences.
- Provide health professionals with consistent education and training on the signs and symptoms of acute vascular and cardiac events.
- Develop presentations for public media.
- Create presentations that can be used by health care providers to conduct patient and public education in clinics and in the community.

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota Stroke Partnership
- Public health leaders
- Community leaders/organizations
- Volunteers
- Emergency medical services
- Faith communities

- American Heart Association/American Stroke Association
- Hospitals
- Health care providers
- Public health agencies
- Schools
- Employees
- Health plans
- Media

Tactic 2.2.1.b

Provide, through various venues and methods, educational materials on signs and symptoms of acute cardiac and stroke events. Encourage training in cardiopulmonary resuscitation and the use of automated external defibrillators.

Implementation Suggestions, Short-Term

- Develop reward or incentive programs to increase use of awareness materials and programs.
- Provide communities with leeway and support to design programs that are unique and well suited to their population.
- Provide lists of funding sources for health promotion/awareness activities.
- Provide templates for stroke, acute coronary syndrome, sudden cardiac arrest survivor stories for communities.
- Provide recognition for community efforts (e.g., governor proclamation)
- Engage graphic designers to create designs based on consumer input. Convert to usable formats for the general public and organizations to obtain from an internet library site.

- Develop scripts for use with radio and television public service announcements.
- Develop template presentations for public media and health care providers to conduct patient and public education in clinics and in the community.

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota Stroke Partnership
- American Heart Association/American Stroke Association

Tactic 2.2.1.c

Teach cardiopulmonary resuscitation (CPR) and signs and symptoms of acute cardiac and stroke events in school and worksite settings.

Implementation Suggestions, Short-Term

- Establish quality school-based automated external defibrillator (AED)/CPR programs.
- Teach 7th - 10th grade students to recognize common signs and symptoms of a heart attack, what to do if someone is having one or has collapsed (i.e., call 9-1-1) and how to perform cardiopulmonary resuscitation (CPR) using the American Heart Association (AHA) CPR Anytime kit or a similar approach.
- Educate 7th - 10th grade students that the most important aspect of CPR is to start chest compressions right away and how to perform ventilation (per AHA).
- Teach 7th – 10th grade students how to avoid a heart attack and cardiac arrest with emphasis on healthy living and exercise.
- Promote public policy regarding the placement of automated external defibrillators (AEDs) in schools.

- Incorporate training and medical emergency response plans in schools.
- Incorporate CPR training into driver’s education curricula.
- Require CPR training as a graduation requirement for public and private high schools
- Establish worksite-based AED/CPR programs and how to perform cardiopulmonary resuscitation using the American Heart Association CPR Anytime Kit or a similar approach.
- Promote CPR and AED training for both professionals and lay rescuers.
- Require CPR and AED training for licensure/certification of professionals that may need to respond to medical emergencies.
- Work to assure that nationally recognized CPR training is used by licensing agencies that regulate professions that are required to have CPR training for licensure/certification.



Strategy 2.2.2:

Identify for health care professionals, evidence-based education materials and programs related to signs and symptoms of acute cardiac and stroke events.

Tactic 2.2.2.a

Create and market an electronic resource list of reliable, evidence-based materials, program resources, level of care capabilities and best practices.

Implementation Suggestions, Short-Term

- Create resource lists for stroke, acute coronary syndrome and sudden cardiac arrest (SCA) that link to established organizations such as American Heart Association, American Stroke Association, National Stroke Association, Institute for Clinical Systems Improvement and the National Guideline Clearinghouse.
- Establish a health care professional advisory committee to identify appropriate evidence-based resources.

Potential Organizational Champions

- Minnesota Department of Health - Heart Disease and Stroke Prevention Unit
- Minnesota Stroke Partnership
- American Heart Association/American Stroke Association
- National Stroke Association
- Institute for Clinical Systems Improvement

Tactic 2.2.2.b

Provide health professionals with consistent education and training on the signs and symptoms of acute cardiac and stroke events.

Implementation Suggestions, Short-term

- Develop template presentations that can be used to provide education to various types of health care providers and members of the health care system.
- Offer or partner with other organizations that offer Minnesota-based conferences focused on acute coronary syndrome (ACS), sudden cardiac arrest (SCA) and stroke.
- Promote intervention education training. Provide health professionals with consistent education and training regarding signs and symptoms of acute vascular and cardiac events (stroke, ACS, SCA, ST-elevation myocardial infarction).

Potential Organizational Champions

- Minnesota Department of Health
- Minnesota State Colleges and Universities
- Nursing schools
- Medical schools
- Health care systems
- American Heart Association/American Stroke Association



Chapter 3 Disease Management

The Disease Management Subcommittee focused on strategies addressing ongoing clinical care delivery and coordination to reduce preventable heart attack or stroke and decrease hospitalizations. This included ensuring rehabilitation, secondary disease prevention, risk factor management (such as high blood pressure and high cholesterol) and efforts to support optimal functionality and quality of life. Cardiovascular disease is multi-factorial, requiring an active and coordinated response from a multidisciplinary health care team in effective partnership with an activated patient. The strategies and tactics developed address systems change in the areas of care transitions, care coordination and chronic disease self-management.

Objective 3.1

Provide disease risk management interventions to prevent secondary cardiovascular or stroke events and progression of disease.

Strategy 3.1.1

Implement patient activation and self-management interventions for artery disease, stroke, peripheral artery disease and venous thromboembolism that are consistent with patients' preferences and values.

Tactic 3.1.1.a

Establish linkages between primary care clinics and community-based organizations to support patients in managing all relevant aspects of their lives.

Implementation Suggestions, Short-term and Long-term

- Leverage and integrate new care delivery and payment models, such as health care home and accountable care organizations.
- Integrate chronic disease management programs for care of the patient.
- Establish a referral process to create linkages across health care delivery organizations and community programs to support patient participation in health self-management.
- Establish a referral process to create linkages between health care delivery organizations and community programs to support life management needs including adequate housing and transportation.

Potential Organizational Champions

- Primary care clinics
- Community-based organizations
- Health plans
- State and county-based health improvement programs

Tactic 3.1.1.b

Educate employer groups and employees on the importance of implementing health risk assessments to identify individuals with disease and introduce health self-management strategies.

Implementation Suggestions, Short-Term

- Distribute information about risk assessments e.g., American Heart Association’s My Life Check free online risk assessment: <http://mylifecheck.heart.org/>.
- Establish programs to implement health risk assessments.
- Offer evidence-based self-management education programs for employees addressing physical activity, healthy eating and self-management of ongoing health conditions.

Potential Organizational Champions

- Employers
- Payers
- Local chambers of commerce
- American Heart Association/American Stroke Association
- The Presidents Network

Tactic 3.1.1.c

Promote the use of evidence-based resources for health care providers with patients using chronic disease self-management methods.

Implementation Suggestions, Short-Term

- Provide training to primary care providers, other health care professionals and community-based staff on evidence-based self-management.
- Inform health care providers on self-management support programs and refer patients to them.
- Collaborate with the Minnesota Department of Health in implementing evidence-based chronic disease self-management education programs.
- Provide ongoing contact with patients through care managers/coordinators to assist in management of health care provider visits and information needs.

Potential Organizational Champions

- Primary care clinics
- Community-based organizations
- Employers
- Minnesota Department of Health
- Minnesota Department of Human Services

Tactic 3.1.1.d

Implement reporting measures for interventions used (e.g., use of statins in a patient with coronary artery disease, peripheral artery disease or cardiovascular disease).

Implementation Suggestions, Short-Term

- Identify standard of care interventions for cardiovascular diseases to be measured.

Potential Organizational Champions

- Health plans
- Health systems
- Minnesota Community Measurement
- Minnesota Department of Health
- American Heart Association
- American College of Cardiology
- American Medical Association
- Physician Consortium for Performance Improvement
- National Quality Forum
- Agency for Health Research and Quality

Strategy 3.1.2

Utilize evidence-based models and advanced care planning to support care coordination in preventing disease complications.

Tactic 3.1.2.a

Implement standardized protocols, innovative methods and care models to coordinate excellent patient care.

Implementation Suggestions, Short, Mid and Long- Term

- Catalog the lessons learned from existing pilots of health care homes, accountable care organizations and other care delivery activities.

- Utilize Minnesota Department of Health website to house resources, literature and reports related to care delivery and payment model pilots.
- Create common measures to assess impact and value of the new payment and care delivery models.
- Offer provider education opportunities or evidence-based care and care management into a primary care practice.
- Implement use of advanced care planning for all patients with risk or diagnosis of heart disease, vascular disease or stroke.

Potential Organizational Champions

- Health care provider organizations
- Minnesota Department of Health
- American Heart Association

Tactic 3.1.2.b

Implement outpatient medication management programs including, but not limited to, cardiovascular medications and medications for risk factor management (blood pressure, cholesterol, glucose).

Program focus should include:

- Cost
- Medication reconciliation
- Self-management/adherence
- Patient preference
- Individuals on medications for risk factor management (blood pressure, cholesterol).

Implementation Suggestions, Mid-Term

- Utilize evidence-based protocols for secondary management of risk factors such as elevated blood pressure, elevated cholesterol and elevated glucose.
- Utilize evidence-based medications for secondary prevention of heart and stroke events and for all vascular diseases.
- Implement non-physician (pharmacist or nurse) led initiatives to improve self-management and adherence.
- Establish systems to ensure safe and appropriate medication at transition points in the patient's care.
- Make aspirin more readily available. See Chapter 1: Primary Prevention for Heart Disease and Stroke, for aspirin strategies.
- Suggest providing all chronic management medications without co-payment.
- Use electronic medical records as a monitoring tool across health providers.

Potential Organizational Champions

- Health plans
- Minnesota Council of Health Plans
- Minnesota Society of Health Systems Pharmacists
- Minnesota Medical Association
- Institute for Clinical Systems Improvement
- Federal Qualified Health Centers and community clinics

Objective 3.2

Prevent avoidable hospital readmissions within 30 days post-hospitalization for cardiovascular disease and stroke patients.

Strategy 3.2.1

Redesign patients' care transitions by assuring timely, consistent and complete communication between care sites (hospital, clinic, long-term care, home health, hospice) and the associated health care professionals.

Tactic 3.2.1.a

Utilize electronic health records and advanced care plans to improve communication during transitions between settings of care. The settings include health care homes, clinics, hospitals and community agencies.

Implementation Suggestions, Short-Term

- Integrate improved care transition tools for provider communication and patient transitions between care providers.
- Utilize the electronic health record to queue appropriate referrals.
- Support policy of interoperable health information technology to allow efficient and reliable communication across the care continuum. The information should include communication of advanced care planning and physician orders for life-sustaining treatment orders.
- Use electronic health records to flag particular programs for appropriate care of patients.

Potential Organizational Champions

- Hospital Readmissions Collaborative
- Minnesota Council of Health Plans
- Minnesota Medical Association
- Institute for Clinical Systems Improvement

Tactic 3.2.1.b

Develop policies, protocols and advanced care plans for strong discharge planning. These serve as mechanisms to ensure referrals to cardiovascular disease and stroke rehabilitation.

Implementation Suggestions, Short-Term and Long-Term Rehabilitation

- Create or enhance a rehabilitation package that includes the employer, insurance, hospital and clinic all supporting patient success.
- Implement standing discharge orders for referral to cardiac or vascular rehabilitation.
- Design and implement programs for providers to educate the family and the patient to address treatment and rehabilitation plans.
- Include in medical school curriculum the concept of rehabilitation as a life-long event.
- Implement a follow-up system for patients who do not keep outpatient therapy appointments.

Discharge Planning

- Work with clinics to develop treatment continuity plans with home care agencies, hospitals and support organizations that can assist patient support.
- Promote program models to support care transitions.
- Integrate discharge orders into the electronic medical record and provide primary care physician with reports and recommendations.
- Provide reimbursement for transitional care, home care or a one-time home care visit 2-3 days post hospital discharge to assess the individuals' needs.

- Set up systems for hospitals to do follow-up calls to discharged patients to answer questions and check patient status.
- Create an assessment to identify patients and conditions that are at higher risk for readmission. Maintain a registry or create a "flag" to denote these patients.
- Create an assessment for cardiovascular and stroke patients during their inpatient stay to identify vulnerable patients. Transition these patients to appropriate levels of care (i.e., transitional care or home care).
- Leverage statewide multi-stakeholder collaborative to reduce hospital readmissions and implement lessons learned.

Potential Organizational Champions

- Hospitals
- Minnesota Hospital Association
- Electronic medical records leadership within care systems
- Minnesota Department of Health
- Institute for Clinical Systems Improvement
- Minnesota Community Measurement
- Minnesota Council of Health Plans

Tactic 3.2.1.c

Provide education to patients and family on the signs and symptoms of acute cardiac (heart attack, sudden cardiac arrest), stroke and vascular events (limb ischemia).

Implementation Suggestions, Short-Term

- Develop a method to educate patients and family on signs and symptoms of acute cardiac and vascular events and assure appropriate response prior to hospital discharge.
- Develop a protocol for primary care providers to educate patients and families on signs and symptoms of acute cardiac and vascular events and assure appropriate response.
- Develop standardized patient materials that address signs and symptoms of acute cardiac and vascular events that assure appropriate patient and family response.
- Utilize the electronic health record to document that the education methods were followed.

Potential Organizational Champions

- Hospital stroke teams
- Minnesota Department of Health
- American Heart Association
- Primary care providers

**Strategy 3.2.2**

Improve medication management and reconciliation for patients upon hospital discharge, through patient education.

Tactic 3.2.2.a

Identify organizations that have been successful with medication reconciliation. Leverage and share their strategies through the multi-stakeholder collaborative to reduce hospital readmissions.

Tactic 3.2.2.b

Leverage programs to assist patients with medication management to meet their preferences and lifestyle (i.e., medication instructions using time of day/colors etc.).

Implementation Suggestions, Short-term and Long-term

- Implement provider and non-provider (pharmacist, nurse) initiatives to educate patients about initiating modifications to their own medication regime.
- Work with Pharmacy Benefit Management organizations to generate compliance reports that are available to the patient's health plan to identify medication compliance and non-compliance.
- Create a system to provide feedback on medication compliance to providers.
- Create incentives that reward all stakeholders to increase collaboration and remove barriers to medication management.

Potential Organizational Champions

- Pharmacy Benefit Management organizations
- Health Plans
- Pharmacies

Tactic 3.2.2.c

Promote programs that lower medication costs to enhance patient adherence.

Implementation Suggestions, Short-Term

- Offer generic medications as options to patients when appropriate.
- Offer contact phone numbers and information on drug companies that offer a subsidy for low-income persons.
- Set up systems to monitor the use of generics and effects on patient adherence.

Potential Organizational Champions

- Providers
- Pharmacists
- Nurses



Chapter 4 Evaluating Progress

As we move through the decade and work to address the objectives described in this plan, we need metrics to appropriately describe progress toward reducing the burden of heart disease and stroke in Minnesota. Indicators, or outcome measures, are largely quantitative in that they describe the number of events, the prevalence of a risk factor, the rate of death, or the cumulative cost. These differ from many process measures, which can be quantitative or qualitative. Process measures can describe the number of worksites engaged in a risk reduction program, or the number of contacts made with primary care physicians (both quantitative), or they can describe whether an intervention has been initiated, how guidelines have been implemented, or which strategies can help overcome barriers in communities. Indicators and process measures are both necessary to evaluate our progress toward meeting the objectives set forth in the plan. As new data sets become available, we will employ additional indicators to measure our progress.

This chapter is organized in the following manner.

Indicators

to evaluate progress on:

- *Global objectives* to reduce the burden of cardiovascular disease and stroke;
- *Prevention* of cardiovascular disease and stroke;
- *Acute treatment* of cardiovascular disease and stroke;
- *Disease management* of individuals with cardiovascular disease and stroke.

Process measures

to evaluate progress on the:

- *Prevention* of cardiovascular disease and stroke;
- *Acute treatment* of cardiovascular disease and stroke;
- *Disease management* of individuals with cardiovascular disease and stroke.

Data sources for the selected indicators are listed after each indicator. The indicators and process measures described are not intended to be comprehensive. New indicators from emerging data sources are likely to become available in the coming decade and new process measures will be needed to evaluate progress on objectives not explicitly identified in this plan. As these new indicators and process measures are created, they will be available online and will remain continuously updated to clearly demonstrate our progress toward meeting the objectives described of the plan. These indicators and process measures will also form the core of the implementation reports and the mid-course review that evaluate our progress toward meeting the objectives set forth in the plan.

Indicators for Global Objectives Prevention, Acute Treatment and Disease Management

Global Objectives

Select Indicators

- Coronary heart disease death rate of Minnesota residents. (Minnesota Vital Statistics)
- Cerebrovascular disease (stroke) death rate of Minnesota residents. (Minnesota Vital Statistics)
- Coronary heart disease hospitalizations of Minnesota residents. (Minnesota Hospital Discharge Data)
- Cerebrovascular disease (stroke) hospitalizations of Minnesota residents. (Minnesota Hospital Discharge Data)
- Lower limb ischemic amputations of Minnesota residents. (Minnesota Hospital Discharge Data)
- Inpatient hospitalization costs for coronary heart disease in Minnesota residents. (Minnesota Hospital Discharge Data)
- Inpatient hospitalization costs for cerebrovascular disease (stroke) in Minnesota residents. (Minnesota Hospital Discharge Data)
- Inpatient hospitalization costs for lower limb ischemic amputations in Minnesota residents. (Minnesota Hospital Discharge Data)

- Percentage of adults aged 18 years and older who report being diagnosed with coronary heart disease or angina. (Behavioral Risk Factor Surveillance Survey (BRFSS))
- Percentage of adults aged 18 years and older who report having had a heart attack (myocardial infarction). (BRFSS)
- Percentage of adults aged 18 years and older who report having had a stroke. (BRFSS)

Prevention Objective 1

Decrease cardiovascular disease and stroke risk by decreasing tobacco use.

Select Indicators

- Percentage of adults aged 18 years and older who smoke cigarettes. (Minnesota Adult Tobacco Survey, BRFSS)
- Percentage of adolescents who smoke cigarettes. (Minnesota Youth Tobacco Survey, Minnesota Student Survey)
- Percentage of nonsmokers exposed to environmental tobacco smoke. (Minnesota Adult Tobacco Survey, Minnesota Youth Tobacco Survey)
- Percentage of adults aged 18 years and older who have banned smoking inside their home. (Minnesota Adult Tobacco Survey)
- Tobacco use rates by adults. (HEDIS measure)
- The number of physicians counseling at-risk patients about tobacco use

cessation. (HEDIS measure)

Prevention Objective 2

Decrease all Minnesotans' risk for cardiovascular disease and stroke by reducing obesity rates and improving nutrition and physical activity.

Select Indicators

- Percentage of adults aged 18 years and older who are overweight or obese. (BRFSS)
- Percentage of adolescents who are overweight or obese. (Minnesota Student Survey)
- Percentage of young children who are overweight or obese. (Pediatric Nutrition Surveillance Survey (PEDNSS))
- Percentage of adults aged 18 years and older who consume at least 5 daily servings of fruits and/or vegetables. (BRFSS)
- Percentage of adolescents who consume at least 5 daily servings of fruits and/or vegetables. (Minnesota Student Survey)
- Percentage of adults aged 18 years and older who engage in no leisure-time physical activity. (BRFSS)
- Percentage of adolescents who engage in no leisure-time physical activity. (Minnesota Student Survey)
- Percentage of adults aged 18 years and older who engage in physical activity for at least 30 minutes per day 5 days per week. (BRFSS)
- Percentage of adolescents who engage in physical activity for at least 30 minutes

per day 5 days per week. (Minnesota Student Survey)

Prevention Objective 3

Advance methods promoting healthy eating and physical activity that are suited to communities at highest risk.

Select Indicators

- Indicators listed in Objective 2 above to be monitored by race and sex.

Prevention Objective 4

Support aspirin use as primary prevention strategy for cardiovascular disease and stroke for individuals with increased risk.

Select Indicators

- Percentage of adults aged 18 years and older who are taking aspirin every day. (BRFSS)



Acute Treatment Objective 1

Provide consistent, evidence-based and timely acute care for Minnesotans experiencing:

- Acute Cardiac Events
 - ST-Elevation Myocardial Infarction
 - Sudden Cardiac Arrest
- Stroke

Select Indicators

- Percentage of hospital patients with heart attack who received percutaneous coronary intervention (PCI) within 90 minutes of arrival. (State Quality Improvement Organization (QIO), AHRQ State Snapshot)
- Percentage of hospital patients with heart attack who received fibrinolytic medication within 30 minutes of arrival. (QIO, AHRQ State Snapshot)
- Percentage of eligible hospital patients with acute ischemic stroke receiving thrombolytic therapy within 3 hrs of symptom onset. (Minnesota Stroke Registry)
- Hospital use of emergency or urgent PCI for patients hospitalized with STEMI. (Minnesota Hospital Discharge Data)
- Hospital use of thrombolytic therapy for patients hospitalized with ischemic stroke. (Minnesota Hospital Discharge Data)
- Use of drip and ship code for transferred ischemic stroke patients receiving thrombolytic therapy. (Minnesota Hospital

Discharge Data)

- Deaths per 1,000 adult admissions ages 40 and over with percutaneous transluminal coronary angioplasty (PTCA). (HCUP, AHRQ State Snapshot)
- Deaths per 1,000 adult admissions ages 40 and over with coronary artery bypass graft (CABG). (HCUP, AHRQ State Snapshot)

Acute Treatment Objective 2

Create an informed Minnesota population that recognizes acute signs and symptoms and understands the need for timely, evidence-based emergency response:

- Acute Cardiac Events
 - ST-Elevation Myocardial Infarction
 - Sudden Cardiac Arrest
- Stroke

Select Indicators

- Percentage of adults aged 18 years and older who are aware of the signs and symptoms of heart attack. (BRFSS)
- Percentage of adults aged 18 years and older who are aware of the signs and symptoms of stroke. (BRFSS)
- Percentage of adults aged 18 years and older who indicate they will activate 9-1-1 if they think someone is having a heart attack or a stroke. (BRFSS)

Disease Management Objective 1

Provide disease risk management interventions to prevent secondary cardiovascular or stroke events and progression of disease.

Select Indicators

- Percentage of adults aged 18 and older who report that they have been diagnosed with high blood pressure. (BRFSS)
- Percentage of adults aged 18 and older with high blood pressure who report taking action to reduce their blood pressure. (BRFSS)
- Percentage of adults aged 18 and older with high blood pressure who report that they are being appropriately treated. (BRFSS)
- Percentage of adults aged 18 and older who have had their blood cholesterol checked in the last five years. (BRFSS)
- Percentage of adults aged 18 and older who report that they have been diagnosed with high blood cholesterol. (BRFSS)
- Percentage of adults aged 18-75 who have vascular disease and have reached all four treatment goals to reduce the risk of cardiovascular disease (Blood Pressure less than 130/80 mm Hg, LDL-cholesterol less than 100 mg/dl, documented tobacco-free status, daily aspirin use) AKA Optimal Vascular Care Measure. (Minnesota Community Measurement)
- Percentage of adults aged 18-75 with a diagnosis of high blood pressure whose blood pressure was adequately controlled

at less than 140/90 mmHg during the measurement year. The representative blood pressure is the most recent blood pressure reading during the measurement year (as long as the blood pressure reading occurred after the diagnosis of hypertension was made). AKA Controlling Blood Pressure Measure. (Minnesota Community Measurement)

- Percentage of hospital patients with heart attack and left ventricular systolic dysfunction who were prescribed ACE inhibitor or ARB at discharge. (Health care Cost Utilization Project, Agency for Health care Research and Quality (HCUP, AHRQ) State Snapshot)

Disease Management Objective 2

Prevent avoidable hospital readmissions within 30 days post-hospitalization for cardiovascular disease and stroke patients.

Select Indicators

- Percentage of patients readmitted within 30 days after discharge for myocardial infarction. (Medicare Hospital Compare, Minnesota Community Measurement)
- Percentage of patients readmitted within 30 days after discharge for congestive heart failure. (Medicare Hospital Compare, Minnesota Community Measurement)

Process Measures for Prevention, Acute Treatment and Disease Management

Prevention Objective 1

Decrease cardiovascular disease and stroke risk by decreasing tobacco use.

Suggested Process Measures

- Identified champions must obtain buy-in from identifiable population groups for use of consistent messaging and to reach agreement regarding branding messages for widespread recognition and acceptance.
- Documentation of consistent messaging for smoking risk and availability of cessation support.
- Assessment of smoking cessation message impact.
- Success of each staged step re: preparation for launch of message.
- Saturation levels reached among age groups after branded messages are launched.
- Impact on consumer knowledge and motivation to seek treatment.
- Impact on consumer demand, number of adults and youth who seek treatment.
- Impact on successful quits.
- Impact on prevalence rates of smoking (overall and broken out by populations at risk).
- Legislation to encourage smoking cessation.

- Passage of tobacco tax bill
- Monitor progress made toward its eventual passage.
- Expansion of the secondhand smoke legislation.
- Expansion of public policy/practice of no smoking in public areas.
- Number of Minnesota payers that provide or cover evidence-based tobacco-use, treatment/cessation programs.
- Number of health care home patients using tobacco cessation programs.

Prevention Objective 2

Decrease all Minnesotans' risk for cardiovascular disease and stroke by reducing obesity rates and improving nutrition and physical activity.

Suggested Process Measures

- Number of school districts and charter, public, private and home schools that adopt and implement the most current federal, Institute of Medicine's nutrition standards for school meals.
- Number of schools with healthy food policies for high school students in grades 9-12 during all hours of operation, including application of standards to afterschool activities and environments.
- Assessment of nutrition-related health behaviors for those at highest risk by gender, age, race, socioeconomic class, education, ability and geographical region.
- Participation rate by high school students in school meals programs.

- Assess awareness level of students in grades 9-12 who recognize the importance of a balanced diet and a healthy weight and their contribution to overall health.
- Levels of fruit and vegetable consumption among 9-12 graders.
- Overweight and obesity (i.e., BMI) rates by gender, age (include Women, Infant and Children program data), race, socio-economic class, education, ability and geographical region.
- Number of school districts, charter, public, private and home schools that adopt and implement daily, quality physical education (PE) and physical activity (PA) standards for high school students in grades 9-12, in keeping with NASPE standards.
- Number of trained high school nurses, teachers and administrators regarding healthy weight, healthy eating and quality PE and PA.
- Purchasing Collaborative data to assess purchasing patterns and menus in employer and school settings. Employer data of cafeteria and vending service purchases, offerings, ordering patterns.
- Rates of hypertensive patients who have undergone this counseling.
- Data from major television and radio stations about changes in public service announcements related to healthy behaviors.
- Self-reported data of public media campaign budgets and services from health insurers, advocacy groups, public health, etc.
- Number of K-12 schools offering PE classes.
- Number of K-12 schools increasing PE classes or time.
- Number of K-12 schools documenting students exercising 20 minutes 3 out of 7 days a week.
- Number of employers offering on-site opportunities for physical activity or offer health club membership reimbursement.
- Data from county and city agencies about number of:
 - Parks
 - Walking and bike trails
 - Community bike rental
 - Community-sponsored activities
 - Local grocery and other shopping within walking distance of neighborhoods

Prevention Objective 3

Advance methods promoting healthy eating and physical activity, especially suited to communities at highest risk.

Suggested Process Measures

- Number of trainings delivered using the Physical Activity Kit (PAK).
- Number of social marketing campaigns offered. Data includes community health worker contacts with clients, volume of public service announcements, health literacy levels in specific high-risk communities, utilization of primary care and preventive services.
- Website tracking

Prevention Objective 4

Support aspirin use as primary prevention strategy for cardiovascular disease and stroke for individuals with increased risk.

Suggested Process Measures

- Inclusion of aspirin recommendations in patient education materials.
- Documentation in medical records of daily aspirin ordered or assessed by provider.
- Auditing of provider medical records to verify achievement of educational interventions in spurring and meeting aspirin charting goals.
- Documentation of the number of at-risk patients whose medical records include a recommendation for daily aspirin use or note about contra indications..



Acute Treatment Objective 1

Provide consistent, evidence-based and timely acute care for Minnesotans experiencing:

- Acute Cardiac Events
 - ST-Elevation Myocardial Infarction
 - Sudden Cardiac Arrest
- Stroke

Suggested Process Measures

- Documentation of the establishment of:
 - Minnesota Heart/Stroke Emergency Council
 - Work group for Public Service Answering Points (PSAPs) and emergency medical services providers
 - Comprehensive inventory of facility capabilities for emergency medical services providers.
 - Central registry for statewide stroke work group to design, implement, monitor and evaluate a stroke system.
- Survey emergency medical service providers regarding knowledge of:
 - Interventions
 - Response time lines
 - EMS response
 - Hospital designation
 - Hospital capabilities
- Rate of use by EMS providers of the comprehensive inventory of facility capabilities.
- Collection of time-sensitive measures such as door-to-needle time.

-
- Rate of use of a standard “hand-off” check list and physician orders for life-sustaining treatment (POLST) form.

 - Review/documentation of level of pre-hospital CPR instructions issued by 9-1-1 operators.

 - Rate of use by public of training on external defibrillators (enrollment in community education classes, etc.).

 - Measure of care coordination that results in better patient outcomes.

 - Rate of survival to hospital discharge for patients who have witnessed, out-of-hospital cardiac arrest (OHCA) prior to the arrival of EMS and for whom the first recorded cardiac rhythm is ventricular fibrillation.

 - Rate of use of pre-hospital protocol for assessment, management and transport by dispatch, PSAP and EMS personnel.

 - Rate of adoption of emergency department stroke protocols among acute care facilities that includes intravenous tPA administration or rapid transfer for intravenous tPA in all emergency departments statewide.

 - Percentage of hospitals reporting quality of care data to the Minnesota Department of Health through the Minnesota Stroke Registry.

 - Report on hospital capacity and care practices questionnaire, including factors related to data abstraction and quality improvement barriers.

 - Percent of rural and/or critical access hospitals formally connected to knowledge experts and stroke centers.
- Risk-adjusted measures of system indicators, to be determined by statewide stroke work group (e.g., door-to-imaging time; percent of eligible patients receiving thrombolytic therapy; door-to-transfer times; return of cognitive function measures; hospital length of stay).

 - Number of bystander cardiopulmonary resuscitation (CPR) training and sudden cardiac arrest (SCA) awareness initiatives are supported at the community level.

 - In the pre-hospital setting, efforts to improve 9-1-1 dispatcher-assisted CPR instructions and to shorten emergency medical systems response times and the time to the first defibrillation.

 - Programs to train the public to use automated external defibrillators (AEDs) have been implemented.

 - Ongoing quality improvement programs and evidence-based treatment protocols are followed.

 - State-of-the-art post-resuscitation care is available in the hospitals that care for SCA survivors.
-

Acute Treatment

Objective 2

Create an informed Minnesota population that recognizes acute signs and the need for timely, evidence-based emergency response:

- Acute Cardiac Events
- Stroke

Suggested Process Measures

- Use of consistent education materials (electronic, hard copy, multi-media) for various populations, locations, etc.
- Documentation of incorporation of educational materials into school curriculums, community education programs, etc.
- Reports of education and training activities of communities and work sites.
- Hospital admission stroke arrival rates.
- Participation in the Minnesota Stroke Registry.
- Trends of 9-1-1 calls made.
- Data on web hits on resources available.
- Survey of health care professionals on knowledge of resources available.
- Rate of public and private high schools requiring cardiopulmonary resuscitation (CPR) training as a graduation requirement.
- Number of graduating seniors who complete CPR training.
- Rate of driver's education programs that require CPR training.

- Survey those getting a driver's license to determine whether they know how to perform CPR; and if they know the correct Basic Life Support compression to ventilation ratio (30:2).

Disease Management

Objective 1

Provide disease risk management interventions to prevent secondary cardiovascular or stroke events and progression of disease.

Suggested Process Measures

- Rate of referrals for management of cardiovascular and stroke patients from health care organizations and venues (e.g., hospitals, long term care, etc.).
- Percentage of employers who provide health risk assessments for their employees.
- Rates of participation in employer self-management education programs.
- Number of health care organizations providing self-management support training for their providers.
- Number of providers that attend a training.
- Rate of discharged patients with stroke or cardiovascular disease, whose primary care physicians were identified and received a discharge summary from care coordinator or care team.
- Patient compliance with medication regime for risk factor management (e.g., cholesterol, aspirin, blood pressure, etc.).
- Rate of filled prescriptions for blood pressure, cholesterol and diabetes medications based on pharmacy or insurance records.

- Patient self-scoring of ability to self-manage medications.
- Number of insurers, hospitals and clinics that offer outpatient medication management programs.

Disease Management Objective 2

Prevent avoidable hospital readmissions within 30 days post-hospitalization for cardiovascular disease and stroke patients.

Suggested Process Measures

- Patient satisfaction with care transitions (primary care clinic, community-based organizations and patients and families).
- Rates of referrals to cardiac or stroke rehabilitation.
- Rate of 30-day all cause readmissions, by diagnosis.
- Number of patients who meet stroke and other vascular rehabilitation performance measures.
- Rate of women's entry and completion of cardiac and/or stroke rehab programs.
- Percent of patients receiving home care visits.
- Total costs of care for patients with care management and advanced care plan.
- Number of organizations using standard assessments of patient understanding of care plans.
- Patients' self-rating of competence in self-management.
- Rate of generic prescriptions, if not contraindicated, by pharmacists or physicians.
- Number of patients who have a care plan that is available outside the acute care setting.
- Number of hospitals with discharge orders and reports that are sent to the ambulatory care setting.



Chapter 5 Other Considerations for Heart Disease and Stroke

Chronic Disease Integration

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Three major chronic disease entities (heart disease/stroke, diabetes and cancer) have new Minnesota state plans starting in 2011. Across the country, state public health departments and their community partners are increasingly taking action to integrate activities across programmatic efforts. Federally, the Centers for Disease Control and Prevention is moving towards integrating chronic disease public health initiatives as well. Simply defined, chronic disease integration is the process that brings together efforts to identify common goals and the work to jointly achieve them. Ideally, by integrating plans, we better align and maximize resources, promote shared learning and problem solving, limit duplication of efforts and facilitate coordinated approaches to increasing the impact on chronic disease.

As the work for the various chronic disease plans unfolded it became clear that there are objectives specific to each disease entity in the prevention, acute treatment, or disease management arenas that “cut across” all plans. This crossover focuses on addressing common risk factors, certain disease management modalities, working with populations/communities in various settings (e.g., schools, worksites) and data collection for evaluation. This requires a focus on coordinated implementation. To accomplish this means combining our strategic planning efforts and working with common partners to implement policy changes, effective “messaging,” and appropriate levels of funding and staffing.

Health Equity and Social Determinants of Health

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Heart-healthy and stroke-free communities cannot be achieved through traditional skills-based behavior change or health education strategies alone. This approach alone does not take into account the impact of forces within the larger environment in which a person lives. These external forces include income distribution, educational opportunities, racism and the characteristics of the neighborhood or place in which people live. Such characteristics in a community readily influence the prevalence of the major risk factors for heart disease and stroke, i.e., hypertension, high blood cholesterol, obesity, poor diet, physical inactivity and smoking tobacco. In some instances programmatic initiation can be directed to specific population groups.

The power of “social determinants” and social inequalities to influence health outcomes over a lifetime was shown dramatically in the report: *The Unequal Distribution of Health in the Twin Cities*. (Wilder Research, October, 2010). Additionally, data from the CDC BRFSS survey clearly shows a strong inverse relationship in Minnesota between income and education and risk factors for heart disease and stroke.

To address these forces, a more complete model of health promotion that includes direct intervention on the social environment through policy and systems change must be adopted. Examples include: policy changes to reduce public exposure to tobacco smoke and water to replace sweetened beverages in school vending machines. However, some of the most significant factors impacting health, i.e., the opportunity to obtain an education and a living wage, have either declined or seen little progress for disadvantaged groups in recent decades. High school dropout rates are two to

three times higher in some population groups than for the majority population in Minnesota. Annual incomes across population groups remain very divergent, which affects where a family can live, opportunities for gainful employment, access to grocery stores, playgrounds and well-equipped schools and access to medical care.

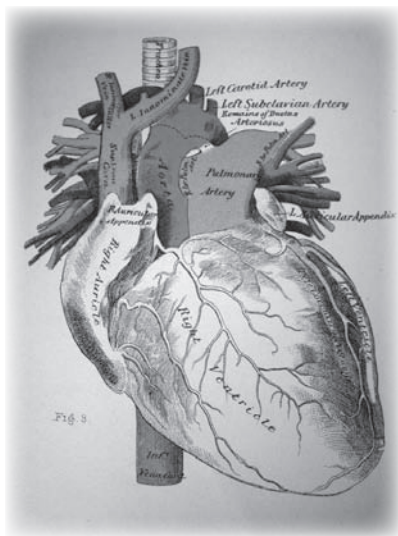
Health equity and social determinants must be considered as organizations implement the strategies and tactics in this plan.



Heart Disease and Stroke In Context of Vascular Disease

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Many common atherosclerotic vascular diseases occur in Minnesotans, in response to genetic and lifestyle risk factors without regard to gender, ethnicity, or urban/rural status. A person cannot control whether a first clinical presentation will occur in the brain, heart, aorta, or leg arteries. Regardless of whether vascular disease first manifests as coronary heart disease, stroke, peripheral artery disease, or an aortic aneurysm, such Minnesotans face a comparable risk of heart attack, stroke, or death. Thus, all cardiovascular (CVD) risk stakeholders (physicians, other clinicians, health systems, government agencies and community stakeholders, etc.) should consider the impact of all atherosclerotic syndromes as co-equal contributors to coronary heart disease risk. This plan urges awareness of this broader CVD risk so that clinically effective and cost-effective interventions are available to all.



Cardiovascular Screening

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The goal to reduce the community prevalence of cardiovascular events, mainly heart attack and stroke, involves both public health and personalized patient care efforts. Since cardiovascular morbidity and mortality are a consequence of both genetic and environmental factors, an effective program must address both. Risk factors modifiable by public health efforts have been the focus of community programs, including efforts to address smoking, obesity, nutrition, excessive salt intake and physical inactivity.

Personalized preventive efforts in the health care community have been limited to the risk factors of blood pressure, cholesterol and blood sugar, with guidelines that encourage treatment when levels exceed certain thresholds. Data indicate that this risk factor approach fails to capture a majority of individuals destined to suffer from cardiovascular morbidity, since genetic predisposition independent of environmentally-modifiable risk factors drives disease progression.

Screening for early stages of cardiovascular disease in asymptomatic adults has demonstrated an improved sensitivity and specificity of early disease detection compared to risk factor assessment.

Based on early experience in Minnesota, opportunities exist to call for further research, including cost-effectiveness of such screening to identify individuals who are in need of personalized interventions to reduce risk of cardiovascular events is recommended. A possible dual approach – public health efforts and individualized patient care efforts – is essential to an effective strategy to reduce the morbidity and health care costs of cardiovascular disease.

Mental Health

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Minnesota data shows that for adults with serious mental illnesses (SMI) (e.g., schizophrenia, bipolar affective disorder and schizoaffective disorder) the median number of years of life lost to heart disease is 27 years. Key risk factors and behaviors which contribute to this include the following:

- 75- 88% of people with schizophrenia use tobacco (compared to 24% of general adult population).
- For people with depression and bipolar affective disorder the rate is 2-3 times the general population.
- 68% are heavy smokers (compared to 11% of general adult population).
- Poor nutrition, inadequate exercise and obesity (26 % for bipolar and 45-55% for schizophrenia).
- Antipsychotic medications contribute to higher rates of obesity, hyperlipidemia and diabetes.
- Segments of this population are periodically less articulate, organized and reliable in follow-up.
- Post MI survival decreases by 34% for schizophrenia and is 2-4 times worse for depression.

The data highlights the need for those with SMI to also try to quit smoking (and potentially increase the percentage initiating tobacco cessation by 10%). There is a collaborative, which includes DHS and some health plans, that are trying to increase the life span of adults with SMI by getting them into primary care.

Given the large numbers of those with SMI who reside in long term and permanent facilities, such as group homes, Intensive Residential Treatment Centers and state hospitals consideration should be given to implement healthy behavior interventions. Certain state plan strategies and tactics directly apply: increasing the nutritional value of meals, decreasing sodium and fat percentages, increasing physical activity, aspirin recommendations and decreasing obesity.



Health Care Innovations in Technology and Practice

Edward Ehlinger, MD, MsPH

Commissioner of Health

Minnesota Department of Health

Current trends suggest that Americans will be routinely using technology which doesn't exist today. This will require planning for innovation to maximize likelihood of achieving meaningful success with the Minnesota Heart Disease and Stroke Prevention Plan 2011-2020.

While the world is rapidly moving toward increased use of social media, networks, smart phones and tablets an enormous portion of the health care system seems locked in attempting to identify how to incorporate the electronic medical record into these new technologies. Certain institutions will need to explore how to leverage technology and social media to further support our objectives of reducing heart disease and stroke risk in Minnesota.

Health care researchers and quality improvement staff continue to explore new mechanisms for the translation of evolving evidence into practice more quickly. There should be ongoing integration of these new strategies into the care of patients to decrease the risk of heart disease and stroke. Some promising and high leverage strategies being explored and piloted in Minnesota include patient and family-centered care, use of shared decision making and reducing avoidable hospital readmissions.

In planning 10 years forward, these and other factors will be important considerations and it is clear that collaboration among all stakeholders is essential. Assessing new innovations, re-assessing this plan and integrating high-leverage innovations to prevent stroke and improve the cardiovascular health is paramount to the well-being of Minnesotans.



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References and Resources

- Action for Healthy Kids, Minnesota, web site
http://take.actionforhealthykids.org/site/Clubs?club_id=1151&pg=main

- Students Taking Charge web site
<http://www.studentstakingcharge.org/>

- Action for Healthy Kids, Minnesota, Healthy Foods for Kids:
Guidelines for Good Nutrition at School, revised November 2006
<http://afhk.pub30.convio.net/assets/clubs/mn1-nutritionatschool.pdf>

- Aldana SG, Greenlaw RL, Diehl HA, et al.
The effects of a worksite chronic disease prevention program.
J Occup Environ Med 2005;47:558-64.

- Brownson RC, Haire-Joshu D, Luke DA. Shaping the context of health:
a review of environmental and policy approaches in the prevention of chronic diseases.
Ann Rev Public Health 2006;27:341-70.

- The American Heart Association and the William J. Clinton Foundation,
Alliance for a Healthier Generation web site
<http://www.healthiergeneration.org/default.aspx>

- American Lung Association, State of Tobacco Control, Report Card for Minnesota
<http://www.stateoftobaccocontrol.org/2009/states/state-summary.html?state=mn#spending>

- Bair MJ, Robinson RL, Katon W, Kroenke K. Depression and pain comorbidity.
Arch Intern Med 2003;163:2433-45.

- Ballenger JC, Davidson JRT, Lecrubier Y, et al.
Consensus statement on depression, anxiety and cardiovascular disease.
J Clin Psychiatry 2001;62:24-27.

- Bibbins-Domingo K, et al.
Projected Effect of Dietary Salt Reductions on Future Cardiovascular Disease.
N Engl J Med 2010; 362:590-599.

- Blumenthal JA, Babyak MA, Moore KA, et al.
Effects of exercise training on older patients with major depression.
Arch Intern Med 1999;159:2349-56.

- Blumenthal JA, Lett HS, Babyak MA, et al.
Depression as a risk factor for mortality after coronary artery bypass surgery.
Lancet 2003;362:604-09.

- The Campaign for Tobacco Free Kids has a great online resource that explains the benefits of raising the cigarette tax.
http://www.tobaccofreekids.org/reports/state_tax_report/

 - CDC, The Biggest Generation:
<http://www.cdc.gov/HealthyYouth/healthtopics/connect.htm>

 - CDC, Community health worker's sourcebook and additional resources:
http://www.cdc.gov/dhdsp/library/chw_sourcebook/pdfs/sourcebook.pdf
http://www.cdc.gov/dhdsp/library/chw_sourcebook/index.htm

 - CDC, Division of Nutrition, Physical Activity and Obesity:
<http://www.cdc.gov/nccdphp/dnpao/index.html>

 - CDC, Division for Heart Disease and Stroke Prevention, state-based heart/stroke prevention plans:
http://www.cdc.gov/DHDSP/state_program/index.htm

 - CDC, Healthy Schools Healthy Youth:
<http://www.cdc.gov/HealthyYouth/index.htm>

 - CDC, Guide to Community Preventive Services. Reducing tobacco use initiation: mass media campaigns when combined with other interventions:
<http://www.thecommunityguide.org/tobacco/initiation/massmediaeducation.html>

 - CDC School Health Index, a self-assessment tool for schools:
<http://www.cdc.gov/HealthyYouth/index.htm>

 - CDC Morbidity and Mortality Weekly Report (MMWR) sodium intake among adults... United States, 2005-2006, June 25, 2010/ 59(24);746-749.
[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5924a4htm.
?s_cid=mm5924a4_e%0D%0A](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5924a4htm.?s_cid=mm5924a4_e%0D%0A)

 - Center for Science in the Public Interest, School Foods Tool Kit:
<http://cspinet.org/schoolfood/index.html>

 - Clearway Minnesota:
<http://www.weallpaytheprice.com/the-cause/unfiltered-the-report.html>

 - Colton CW et al "Congruencies in increased Mortality Rates, Years of Potential Life Lost and Causes of Death Among Public Mental Health Clients in Eight States"
Prev Chronic Disease 2006; 3(2):A42.

 - Coulter A, Ellins J. Effectiveness of strategies for informing, educating and involving patients. *BMJ* 2007;335:24-27.

 - American College of Sports Medicine, Exercise is Medicine™ Task Force, media resources.
<http://exerciseismedicine.org/media.htm>
-

- Dirmaier J, Watzke B, Koch U, et al. Diabetes in primary care: prospective associations between depression, nonadherence and glycemic control. *Psychother Psychosom*. 2010;79(3):172-178.
- Eliminating Health Disparities Initiative Grantees (EHDI) Minnesota 2011 fiscal year <http://www.health.state.mn.us/ommh/grants/ehdi/ehdigrantees/index.cfm?a=ALL>
- Eyre H, Kahn R, Robertson RM, ACS/ADA/AHA Collaborative Writing Committee. Preventing cancer, cardiovascular disease and diabetes: a common agenda for the American Cancer Society, the American Diabetes Association and the American Heart Association. *CA Cancer J Clin* 2004;54:190-207.
- Fiore MC, Jaén CR, Baker TB, et al. Treating tobacco use and dependence: 2008 update. Available at: <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat2.chapter.28163>. Accessed March 10, 2009.
- Fraguas R Jr, Iosifescu DV, Alpert J, et al. Major depressive disorder and comorbid cardiac disease: is there a depressive subtype with greater cardiovascular morbidity? Results from the STAR*D study. *Psychosomatics* 2007;48:418-25.
- Frasure-Smith N, Lespérance F, Talajic M. Depression in 18-month prognosis after myocardial infarction. *Circulation* 1995;91:999-1005.
- Gitlin LN, Chernett NL, Harris LF, et al. Harvest health: translation of CDSMP for older African Americans in a senior setting. *The Gerontologist* 2008;48(5):698-705.
- Haskell WL, Lee IM, Pate RR, et al. Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Med Sci Exerc* 2007;39:1423-34.
- Hernandez A, Greiner M, Fonarow G, et al. Relationship between early physician follow-up and 30-day readmission among Medicare beneficiaries hospitalized for heart failure. *JAMA*. 2010;303(17):1716-1722.
- Hirsch AT, Haskal ZJ, Hertzner NR, et al. ACC/AHA guidelines for the management of patients with peripheral arterial disease (lower extremity, renal, mesenteric and abdominal aortic): a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Develop Guidelines for the Management of Patients with Peripheral Arterial Disease [Lower Extremity, renal, Mesenteric and Abdominal Aortic]). *Circulation* 2006;113:1474-1547.
- Institute for Clinical Systems Improvement, Preventive Services for Adults guideline, 16th edition/September 2010: http://www.icsi.org/guidelines_and_more/gl_os_prot/preventive_health_maintenance/preventive_services_for_adults/preventive_services_for_adults__11.html

- Institute for Clinical Systems Improvement, Preventive Services for Children and Adolescents guideline, 16th edition/September 2010: http://www.icsi.org/guidelines_and_more/gl_os_prot/preventive_health_maintenance/preventive_services_for_children_guideline_/preventive_services_for_children_and_adolescents_762.html
 - Institute for Clinical Systems Improvement, Primary Prevention of Chronic Disease Risk Factors guideline, 3rd edition/May 2010: http://www.icsi.org/chronic_disease_risk_factors_primary_prevention_of_guideline__23506/chronic_disease_risk_factors_primary_prevention_of_guideline__23508.html
 - Kottke TE, Faith DA, Jordan CO, et al. The comparative effectiveness of heart disease prevention and treatment strategies. *Am J Prev Med.* Jan 2009;36(1):82-88 e85.
 - Krueter MW, Strecher VJ. Do tailored behavior change measures enhance the effectiveness of health risk appraisal? Results from a randomized trial. *Theory & Prac* 1996;11:97-105.
 - Kuklina EV, Yoon PW, Keenan NL. Prevalence of Coronary Heart Disease Risk Factors and Screening for High Cholesterol Levels Among Young Adults, United States, 1999–2006. *Annals of Family Medicine* www.annfam.org. Vol 8, No 4, July/Aug 2010.
 - Jiang W, Davidson JRT. Antidepressant therapy in patients with ischemic heart disease. *Am Heart J* 2005;150:871-81.
 - Liburd L, Giles H, Mensah G. Looking through a glass, darkly: eliminating health disparities. *Prev Chronic Dis.* Jul 2006;3(3):
 - Lichtman JH, Bigger Jr JT, Blumenthal JA, et al. Depression and coronary heart disease: recommendations for screening, referral and treatment: a science advisory from the American heart association prevention committee of the council on cardiovascular nursing, council on clinical cardiology, council on epidemiology and prevention and interdisciplinary council on quality of care and outcomes research: endorsed by the American psychiatric association. *Circulation* 2008;118:1768-75.
 - Lick C, Aufderheide T, Niskanen R, et al: Take heart America: a comprehensive, community-wide, systems-based approach to the treatment of cardiac arrest. *Crit Care Med* 2011; 39:26–33
 - Lin EH, Rutter CM, Katon W, et al. Depression and advanced complications of diabetes: a prospective cohort study. *Diabetes Care.* Feb 2010;33(2):264-269.
 - O'Donnell MJ, Xavier D, Liu L, et al. Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study. *Lancet* 376; 9735:112-123.
 - McCarty CA, Scheuer D. Lessons learned from employee fitness programs at the Marshfield clinic. *WMJ* 2005;104:61-65.
 - Minnesota Plan to Reduce Obesity and Obesity-Related Chronic Diseases 2008-2013: Promoting Healthy Eating, Physical Activity and Healthy Weight.
-

- Minnesota quality improvement:
<http://www.health.state.mn.us/healthreform/measurement/qips.html>

- Minnesota Cardiovascular Disease Program Directory

- Minnesota Obesity Plan 2008-2013 Executive Summary:
<http://www.health.state.mn.us/obesity/pdfdocs/obesityexecutivesummary.pdf>

- State of Minnesota Tobacco Control Plan

- NHLBI Stay in Circulation: Take Steps to Learn About PAD:
<http://www.aboutpad.org>

- National Association of Chronic Disease Directors, web site and links to state plans, burden reports and additional documents:
<http://www.chronicdisease.org/i4a/pages/index.cfm?pageid=1> <http://www.chronicdisease.org/i4a/pages/Index.cfm?pageID=3680>

- National Association of School Boards of Education, Fit, Healthy and Ready to Learn: Part I- Physical Activity, Healthy Eating and Tobacco Use Prevention:
http://www.nasbe.org/healthy_schools

- National Heart Lung and Blood Institute Peripheral Artery Disease home page.
<http://www.nhlbi.nih.gov/health/public/heart/pad/>

- Nelson ME, Rejeski WJ, Blair SN, et al. Physical activity and public health in older adults: recommendation from the American college of sports medicine and the American heart association. *Circulation* 2007;116:1094-1105.

- Olin JW, Allie DE, Belkin M, Bonow RW, Casey DE, Creager MA, Gerber TC, Hirsch AT, Jaff MR, Kaufman JA, Lewis CA, Martin ET, Martin LG, Sheehan P, Stewart KJ, Treat-Jacobson D, White CJ, Zheng ZJ. ACCF/AHA/ACR/SCAI/SIR/SVM/SVN/SVS 2010 Clinical Performance Measures for Adults With Peripheral Artery Disease. A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Clinical Performance Measures for Peripheral Artery Disease). *Circulation* 2010, Dec 14;122(24):2583-618. Epub 2010 Nov 29.

- Parks et al. “Morbidity and Mortality in People with Serious Mental Illness” Alexandra VA: National Association of State Mental health Program Directors; Medical Directors Council Oct 2006.

- Peripheral Arterial Disease Coalition:
<http://www.padcoalition.org/>

- Rugulies R. Depression as a predictor for coronary heart disease: a review and meta-analysis. *Am J Prev Med* 2002;23:51-61.

- Rush WA, Whitebird RR, Rush MR, Solberg LI, O'Connor PJ. Depression in patients with diabetes: does it impact clinical goals? *J Am Board Fam Med.* Sep-Oct 2008;21(5):392-397.
- Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention (SAMHSA/CSAP) Preventing problems related to alcohol availability: environmental approaches. DHHS Publication No. (SMA)99-3298. Accessed October 10, 2007.
- Task Force on Community Preventive Services. Preventive services: what works to promote health? Oxford University Press. 2005.
- Task Force on Community Preventive Services. The Guide to Community Preventive Services. 2005.
- Stanford University Patient Education Research Center
<http://patienteducation.stanford.edu/>
- Surgeon General Exercise is Medicine campaign:
<http://www.medscape.com/viewarticle/723325?src=mp&spon=17&uac=140536DT>
- Regina M. Benjamin, MD, MBA; Surgeon General of the United States, US Department of Health and Human Services, Washington, DC. Surgeon General Urges Exercise for Optimal Health. Link to video and text:
<http://www.medscape.com/viewarticle/723325?src=mp&spon=17&uac=140536DT>
- Surgeon General's Call to Action to Prevent Deep Vein Thrombosis and Pulmonary Embolism:
<http://www.surgeongeneral.gov/topics/deepvein/calltoaction/call-to-action-on-dvt-2008.pdf>
- Task Force on Community Preventive Services. Preventive services: what works to promote health? *Oxford University Press.* 2005.
- Task Force on Community Preventive Services. The Guide to Community Preventive Services. 2005.
- Trangle et al. "Mn 10 By 10 Reducing Morbidity and Mortality in People with Serious Mental Illnesses" *Minnesota Medicine* May 2010, pp. 38-41.
- U.S. Committee for Refugees and Immigrants, (USCRI) Healthy Refugee Toolkit Downloads. Translated into multiple languages for nutrition diseases, obesity, quit smoking, respiratory diseases:
<http://refugees.org/article.aspx?id=2044&rid=2086&subm=178&area=Participate>
- USDA Team Nutrition, Changing the Scene Kit, Improving the School Nutrition Environment:
<http://www.fns.usda.gov/tn/Healthy/changing.html>
- USDA Changing the Scene: Improving the School Nutrition Environment. Team Nutrition:
<http://www.fns.usda.gov/tn/Resources/changing.html>

-
- USDA, Dietary Guidelines for Americans,: Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010
<http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/DGAC/Report/2010DGACReport-camera-ready-Jan11-11.pdf>

 - U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans. 2008. <http://www.health.gov/paguidelines/>

 - U.S. Department of Health and Human Services. DASH eating plan, 2006. Available at: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/how_plan.html

 - U.S. Department of Health and Human Services. Helping patients who drink too much: a clinician's guide. 2008. <http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/DocumentsPrescribingMeds.pdf>

 - U.S. Department of Health and Human Services, Readmission Tables (indicators by disease or condition):
[http://www.hospitalcompare.hhs.gov/\(S\(0212xk45andtuijl3qfe1a55\)\)/tables/hospital-00cQualityTable.aspx?hid=240004%2c240080%2c240057&lat=44.9799654&lng=-93.2638361&stype=MEDICAL&mcid=GRP_1&stateSearched=MN&measureCD=&MTorAM=READM&stateSearched=MN&AspxAutoDetectCookieSupport=1](http://www.hospitalcompare.hhs.gov/(S(0212xk45andtuijl3qfe1a55))/tables/hospital-00cQualityTable.aspx?hid=240004%2c240080%2c240057&lat=44.9799654&lng=-93.2638361&stype=MEDICAL&mcid=GRP_1&stateSearched=MN&measureCD=&MTorAM=READM&stateSearched=MN&AspxAutoDetectCookieSupport=1)

 - U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, Healthy People Campaign: <http://www.healthypeople.gov/2020/default.aspx>

 - U.S. Preventive Services Task Force, 2010-2011 Guide to Clinical Preventive Services Recommendations.
<http://www.uspreventiveservicestaskforce.org/recommendations.htm>

 - U.S. Preventive Services Task Force. Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: recommendation statement. *Ann Intern Med* 2004;140:554-56.

 - University of California, Berkeley, Center for Weight and Health, implementation tools and evaluation resources: http://cwh.berkeley.edu/center/evaluation_tools

 - Vascular Disease Foundation: <http://www.vdf.org>

 - Vasse R, Nijhuis F, Kok G. Effectiveness of a personalized health profile for blue-collar workers. *J Occup Environ Med* 1998;40:69-75.

 - Venous Disease Coalition: <http://www.venousdiseasecoalition.org>

 - Whooley MA, de Jonge P, Vittinghoff E, et al. Depressive symptoms, health behaviors and risk of cardiovascular events in patients with coronary heart disease. *JAMA* 2008;300:2379-88.

 - Wulsin LR, Singal BM. Do depressive symptoms increase the risk for the onset of coronary disease? A systematic quantitative review. *Psychosom Med* 2003;65:201-10.
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