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The Benefit of Improved Nutrition and Physical Activity

A healthy diet and regular physical activity can reduce the risk of many chronic diseases for the general population, and improve the quality of life and health in people who have been diagnosed with chronic disease.^{97, 98} Improved nutrition and regular physical activity can lead to significant cost reductions in health care. Studies indicate that, in as little as 18 months, health care costs can be reduced when adults become more physically active, maintain a healthy weight, and do not use tobacco products.⁹⁹ The Maine Dietetic Association compiled data on twelve case studies in which medical nutrition therapy was used during 1993 and demonstrated that the annual cost savings associated with nutrition intervention in these cases alone was \$185,000.¹⁰⁰

In another study, the Maine Dietetic Association found that by making healthy changes in diet and improving levels of physical activity, consumers often could reduce their medication dosages or stop taking the medication. The potential savings are significant, and Maine citizens could save an average of about \$800 per capita as prescription drug use decreases or ceases.¹⁰¹ In addition to cost savings, consumers who are able to safely decrease or cease their medication use will also help minimize and perhaps eliminate potential negative side effects associated with medications.

A recent study found that physically active individuals had lower direct medical costs than those who were inactive. Americans 15 years and older who participated in regular physical activity (at least 30 minutes of moderate activity three or more times a week) had average annual direct medical costs of \$1,019, contrasted to costs of \$1,349 for those who were inactive. This is an annual savings of \$330 per person based on 1987 dollars.¹⁰²

The reduction of health care costs associated with poor nutrition and physical inactivity has become an economic necessity. Nutrition and physical activity are essential components for improving health, and they must be integrated into all aspects of preventive health care. Data from the *National Weight Control Registry for Successes* demonstrate the poor success rate of treating obesity.¹⁰³ Consequently, public health leaders have looked towards changing policies and environments to create an environment where people can make healthy food choices and become more physically active.

97 U.S. Department of Health and Human Services. *Healthy People 2010, Conference Edition*. Washington, D.C. January 2000.

98 McGinnis JM & Foege WH. Actual causes of death in the United States. *Journal of the American Medical Association*. 1993; 270(18):2207-2212.

99 Pronk NP *et al.* Relationship between modifiable health risks and short-term health care charges. *Journal of the American Medical Association*. 1999; 282:2235-2239.

100 Maine Dietetic Association, Nutrition Services Payment System Committee. Nutrition Services Improve Health and Save Money for Maine Citizens, Cost-Effectiveness Case Studies for Maine. 1993.

101 *Maine Dietetic Association Newsletter*. Spring 2000.

102 Pratt M, Macera CA & Wang G. Higher direct medical costs associated with physical inactivity. *The Physician and Sportsmedicine*. 2000; 28(10).

103 http://www.lifespan.org/Services/BMed/Wt_loss/NWCR/Research/default.htm

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Breastfeeding

Breastfeeding provides health benefits to both the infant and the breastfeeding mother, including reduced incidence of several acute and chronic diseases in children. Ideally, breastfeeding should occur for at least a full year. The American Academy of Pediatrics recommends breast milk as the optimal food for infants, a view the U.S. Surgeon General supports.¹⁰⁴ Unfortunately, the lowest rates of breastfeeding are associated with women whose infants are at highest risk of poor health and development. Women age 21 and younger and those with little education have the lowest rates for breastfeeding. Data from the 2003 Maine Pregnancy Risk Assessment Monitoring System (PRAMS) indicate that 78% of mothers surveyed initiated breastfeeding.¹⁰⁵ Maine Women, Infants, and Children Nutrition Program (WIC) data for 2003 indicate that 52% of infants participating in the Program were ever breastfed, 25% of infants were breastfed at least six months, and 17% were breastfed at least one year.¹⁰⁶ Maine breastfeeding rates at hospital discharge are tracked via the newborn screening filter paper forms. During 2003, 60% of the newborns screened were exclusively breastfed.¹⁰⁷ However, Maine has no current data system that provides information on the duration of breastfeeding for all infants from six months to one year. An enhanced data collection system will allow measurement of these indicators. Maine WIC and other organizations continue to collaborate on breastfeeding promotion and support for breastfeeding mothers.

Several publications provide guidance for implementing breastfeeding policy and environmental support. *The CDC Guide to Breastfeeding Interventions* provides guidance in selecting a breastfeeding intervention. Intervention descriptions include program examples, resources for further information, and simple action steps to get a program started.¹⁰⁸ *The Blueprint for Action* promotes a plan for breastfeeding based on education, training, awareness, support, and research. The plan lays out a framework based on the recommendation that infants be exclusively breastfed during the first four to six months of life, preferably for a full six months and ideally through the first year of life.¹⁰⁹ *Breastfeeding in the United States: A National Agenda* is a strategic plan for promoting and supporting breastfeeding in the nation. The U.S. Breastfeeding Committee's vision is that breastfeeding is the norm for infants and child feeding throughout the United States. Recommendations are made to reach the breastfeeding goals of *Healthy People 2010*.¹¹⁰

104 American Academy of Pediatrics. Breastfeeding and the use of human milk. AAP. 1997; 100(6):1035–1039.

105 Maine Department of Human Services. Office of Data, Research and Vital Statistics. Pregnancy Risk Assessment Monitoring System (PRAMS) Survey Data. 2003.

106 U.S. Department of Health and Human Services. Pediatric Nutrition Surveillance System. Centers for Disease Control and Prevention. 2003.

107 Maine Department of Health and Human Services, Maine Newborn Breastfeeding Surveillance System. 2003.

108 Shealy KR, Li R, Benton-Davis S, Grummer-Strawn LM. *The CDC Guide to Breastfeeding Interventions*. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005. <http://www.cdc.gov/breastfeeding>.

109 U.S. Department of Health and Human Services, HHS Blueprint for Action on Breastfeeding. Washington, D.C., Office on Women's Health. 2002. <http://www.4woman.gov/Breastfeeding/index.htm>.

110 United States Breastfeeding Committee. *Breastfeeding in the United States: a national agenda*. Rockville, MD: Health Resources and Services Administration, Maternal and Child Health Bureau. 2001. <http://www.usbreastfeeding.org>.

Food Safety

The proper handling of food is another factor critical to ensuring good health and nutrition. Food-borne illnesses may become more of a problem in the future. Factors that may contribute to this trend include emerging pathogens, a more global food supply, and an increase in the elderly population, who may have limited capacity to resist food-borne illness. Studies have shown that consumers have limited knowledge about the proper way to safely prepare, thaw, and store food.^{111, 112} Food safety is an important component of nutrition education that should be incorporated into the health curriculum using the comprehensive school health education framework.

Guidance for implementing food safety policies can be obtained from the U.S. Food and Drug Administration's Center for Food Safety and Applied Nutrition. This Web site provides links to food safety advice from the Food and Drug Administration, the U.S. Department of Agriculture, the Centers for Disease Control and Prevention, and some State and local health agencies.¹¹³ The Maine Department of Agriculture, Food, and Rural Resources and the Maine Department of Health and Human Services have adopted the Maine Food Code to help improve food safety at the retail level.¹¹⁴ In addition, the University of Maine Cooperative Extension (www.umext.maine.edu) provides access to educational resources on various topics including food safety.

Food Security

Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes the ready availability of nutritionally adequate and safe foods and an assured ability to acquire acceptable foods in socially acceptable ways; that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies. Nutritionally vulnerable groups such as pregnant women, children, and the elderly, who all have increased nutrient needs when compared to healthy adults, are at risk of food insecurity and hunger.¹¹⁵ Food security is a concern for Maine as well as the world. Indeed, hunger and the risk of hunger are widespread among Maine's low-income families with children.

111 Altekruze SF *et al.* Consumer knowledge of foodborne microbial hazards and food-handling practices. *Journal of Food Protection*. 1996; 59:287-294.

112 National Center for Health Statistics (NCHS). Report of Final Mortality Statistics, 1997. *Monthly Vital Statistics Report* 47(19). Centers for Disease Control and Prevention, 1999.

113 U.S. Food and Drug Administration, <http://www.foodsafety.gov>.

114 Maine Department of Health and Human Services and Maine Department of Agriculture, Food, and Rural Resources. State of Maine Food Code 2001. <http://www.maine.gov/dhs/mhhs>.

115 U.S. Department of Agriculture. *Guide to Measuring Household Food Security, Revised 2000*. Alexandria, VA: Food & Nutrition Service. March 2000.

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Four in ten Maine children under 12 years of age are hungry or at risk of hunger. A national study of childhood hunger, the Community Childhood Hunger Identification Project, found 20,000 children in Maine under age 12 living in homes where hunger is a constant concern and another 64,000 children under age 12 at risk of hunger.¹¹⁶ There is compelling evidence that malnutrition during any period of childhood can have detrimental effects on the cognitive development of children and their later productivity as adults.¹¹⁷ Inadequate food intake limits the ability of children to learn even before the effects of hunger are severe.

Research shows that youngsters from food-insecure and hungry homes have poorer overall health status. They are sick more often, are much more likely to have ear infections, have higher rates of iron deficiency anemia, and are hospitalized more frequently. In short, going hungry makes kids sick. As a result, they miss more days of school and are less prepared to learn when they are able to attend, making the relationship between hunger, health, and learning of far greater importance than was previously realized. At-risk children are more likely to have poorer mental health, be withdrawn or socially disruptive, and suffer greater rates of behavioral disorders.

Maine's Millennium Commission on Hunger and Food Security was established in 1999 to address the issues of food security in the State. The Commission proposed strategies focusing on long-term food security that require changes in society's attitude toward hunger, in public policy, and in the social and economic systems as well as the food-producing and delivery systems. The recommendations are outlined in the Commission's final report, *Ending Hunger in Maine*, available via the Web site of the State Planning Office.¹¹⁸ Other resources published by the U.S. Department of Agriculture include the *U.S. Action Plan on Food Security: Solutions to Hunger* and the *National Nutrition Safety Net: Tools for Community Food Security*.^{119, 120}

Eating Disorders

Eating disorders represent significant health concerns for youth, especially girls, as well as women. Anorexia nervosa is a severe eating disorder, characterized by extreme and often life-threatening weight loss associated with a distorted body image and a pathological fear of gaining weight. Bulimia nervosa is an eating disorder that involves a cycle of binge eating and purging using vomiting, diuretics,

116 Maine Millennium Commission on Hunger and Food Security. *Ending Hunger in Maine*. Final Report, April 2002.

117 Tufts University, School of Nutrition Science and Policy, Center on Hunger, Poverty and Nutrition Policy. Statement on the link between nutrition and cognitive development in children. 1998.

118 Maine Millennium Commission on Hunger and Food Security. *Ending Hunger in Maine*. Final Report, April 2002. <http://www.state.me.us/spo>.

119 U.S. Department of Agriculture. *U.S. Action Plan on Food Security: Solutions to Hunger*. Foreign Agricultural Service. March 1999.

120 U.S. Department of Agriculture. *The National Nutrition Safety Net: Tools for Community Food Security*. Food and Nutrition Service. August 2003.

or laxatives.¹²¹ Maine has limited Statewide data on the prevalence of eating disorders, and some related information exists. In 2003, seven percent of Maine's middle school students and six percent of Maine high school students reported that they vomited or took laxatives to lose weight.¹²² These numbers have decreased significantly since 1997, but the issue of eating disorders continues to demand attention.

Several national resources provide guidance for implementing policy and environmental change to address eating disorders. The BodyWise Eating Disorders Initiative is a component of the U.S. Department of Health and Human Services *Girl Power!* Campaign. The BodyWise initiative provides information for school personnel and other adults to help create environments, policies, and programs that discourage disordered eating for girls ages 9–12.¹²³ The National Eating Disorders Association (NEDA, www.nationaleatingdisorders.org) and the National Association of Anorexia Nervosa and Associated Disorders (ANAD, www.anad.org) work to prevent eating disorders; valuable resources are available via the respective Web sites. In addition, the American Academy of Pediatrics has issued a policy statement regarding the physician's role in identifying and treating eating disorders.¹²⁴

Selected Populations

Priority populations for addressing overweight and obesity in the PAN Plan are children, youth, and adults who are vulnerable to poor nutrition and lack of physical activity and their adverse effects on health. Four primary settings are identified to reach these populations: schools, communities, worksites, and health care.

Where possible, resources are primarily focused on children, adolescents, and adults who experience disparities in health status, morbidity and life expectancy, and quality of life. Maine data are limited on the impact of race, ethnicity, and sexual minority status on overweight and obesity. Some data indicate that there are lower rates of overweight and obese adults among racial minorities in Maine, but these sample sizes are small. Further data and analyses are important to understand the impact of health disparities on overweight and obesity in Maine. Also, more data is needed to assess the impact of rural versus urban residence on overweight and obesity. There appear to be differences in the rates of overweight and obese adults among geographical regions in Maine, with lower rates in southern Maine. When these rates are adjusted for income and age, these regional variations disappear. We do know that rural counties in Maine tend to have higher rates of poverty and an older population.¹²⁵ *Healthy Maine 2010* and other sources of data are the basis of stratifying measurements toward meeting long-term and intermediate

121 U.S. Department of Health and Human Services. *Healthy People 2010, Conference Edition*. Washington, D.C. January 2000.

122 Maine Youth Risk Behavior Surveillance System, Maine Department of Education, 2003.

123 U.S. Department of Health and Human Services. *BodyWise Handbook, Eating Disorders Information for Middle School Personnel*. Washington, D.C. September 1999.

124 American Academy of Pediatrics. Identifying and treating eating disorders. *Pediatrics*. 2003; 111(1):204–211.

125 Maine Department of Human Services, Bureau of Health. *Healthy Maine 2010: Opportunities For All*. December 2002.

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objectives for populations. Potential stratifications for Maine citizens include age, gender, income, education, ethnicity, rural versus urban, and sexual orientation.