

Better Health, Lower Cost

Bending the Cost Curve:

Examples of wellness, integrative health care and public health promotion practices that could transform the nation's health and reduce costs



The Wellness Initiative for the Nation (WIN)¹ outlines a strategy and steps to move the nation toward health and flourishing at lower cost. To create this value in health care, we must identify those behaviors and practices that are both low cost and that work effectively to prevent and treat chronic

disease. The goal of government health policies is to identify the most promising of those health-promoting and cost-reducing approaches, and to create incentives for adoption of these practices in our nation's culture and industries.

Research has documented hundreds of low-cost, health-producing practices. In this document, we have selected examples from the areas of health promotion, public health, prevention and integrative health care where research has demonstrated their value in producing better health at lower cost. The criteria for selecting these examples and for establishing priority areas to be developed and delivered to the nation are the following:

★ ***They are low cost relative to current practice.*** The examples involve self-care approaches that enhance a person's inherent healing capacities.

★ ***They enhance health across the spectrum of health and illness.*** They have health enhancing “side effects,” impacting multiple functions of the whole person in a positive direction, rather than treatment of a single condition.

★ **They can be widely applied and used.** They are easy to develop and disseminate as they do not require complex infrastructures to deliver.

★ **They are as effective as higher cost approaches.** Research demonstrates that they work and their cost savings would be directly proportional to our system's ability to deliver them.

The examples fall into two categories:

Approaches with broad health and cost impact

- ★ Integrative Health Care
- ★ Lifestyle Prevention
- ★ Lifestyle Treatment
- ★ Clinical Prevention
- ★ Community Approaches
- ★ Worksite Programs

Approaches with specific health and cost impact

- ★ Military Resilience
- ★ Train the Brain
- ★ Acupuncture
- ★ Touch
- ★ Be Still
- ★ Lighten up
- ★ Omega-3s

Definitions:

Wellness: Is an active process of becoming aware of and making choices toward a more successful existence.

Health Promotion: Is the science and art of helping people change their lifestyles to move toward a state of optimal health.

Prevention: Is any individual or public health initiative measure taken to prevent illness or injury, and reduce mortality and morbidity from disease.

Public Health: Is the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private communities and individuals.

Integrative Health Care:

Is a combination of the best products and practices of alternative, complementary, conventional and traditional health care practices in order to maximize the body's natural healing mechanisms.

★★★★★★★★

¹ The Samuels Institute. A Wellness Initiative for the Nation. <http://www.siiib.org/news/news-home/press-releases/112-SIIB.html>. April 20, 2009.

TOUCH THE YOUNG AND OLD

A short daily massage of hospitalized premature infants increases weight gain and could save \$5 billion annually in health care costs if used widely. When depressed elders are taught to deliver this massage their well-being and depression improve.



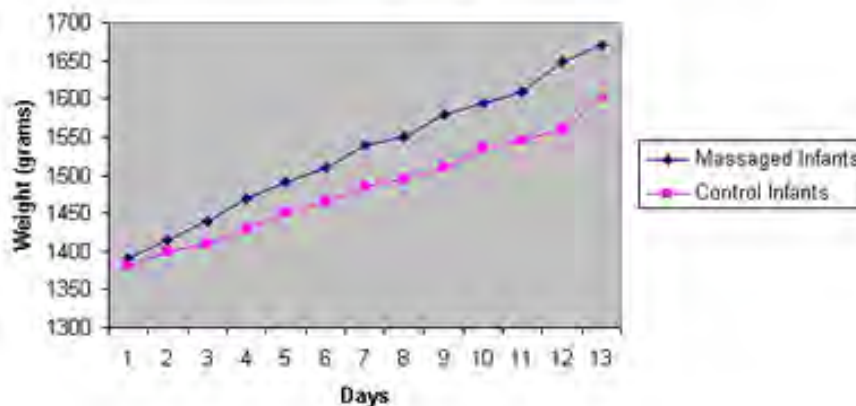
<http://news.nationalgeographic.com/news/2002/11/photogalleries/popup4.html>

Massage is an accessible, easily learned, low cost intervention with wide effects on multiple conditions.

Premature Infant Massage (PIM) has been shown to accelerate weight gain in hospitalized premature babies, resulting in earlier discharge from the hospital as shown in the graph below. If widely applied, PIM would produce an annual reduction of \$5 billion in health care costs.² Depression has been shown to improve in elders when they perform the massage; a double bonus! Massage is also effective in controlling some types of agitation in elders with cognitive impairment and improves

depression.³ Training the elderly in the application of PIM would also reduce their health care costs, and improve health and quality of life on both ends of the lifecycle.

Mean Daily Weight of Massaged Infants vs. Control Infants



Vogel, KA. Infant Massage.

<http://www.bio.davidson.edu/people/midorcas/animalphysiology/websites/2001/Vogel/infantmassage.htm>. Accessed August 17, 2009.

² Scafidi F, Field T, Schanberg S. Factors that predict which preterm infants benefit most from massage therapy. *Journal of Developmental and Behavioral Pediatrics*. 1993; 14(3):176-180.

³ Holliday-Welsh DM, Gessert CE, Renier CM. Massage in the management of agitation in nursing home residents with cognitive impairment. *Geriatr Nurs*. 2009; 30(2):108-117.

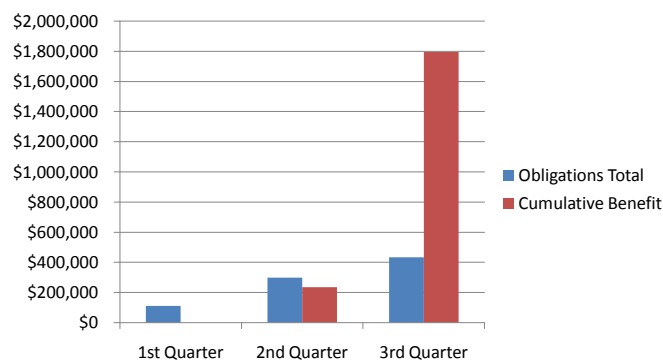
MILITARY RESILIENCE

Innovative resilience and reintegration programs being implemented in the military have increased recovery and return to duty by service members with Trauma Spectrum Disorders. These programs cost between \$14,000 and \$20,000 per member compared to over \$400,000 in health care, disability and replacement costs for those members who do not recover.⁴

The impact of stress, trauma and repeated deployments is taking a major toll on our military members and families. The cost to recruit and train a new soldier and to provide lifelong disability payments and medical care to those who are insured is about \$400,000.⁵ The Department of Defense (DoD) is starting up dozens of innovative programs based on wellness, resilience and integrative health care models in an attempt to address these stresses and traumas of deployment and war. The estimated cost of effective integrative health care and resilience and reintegration programs is between \$14,000 and \$20,000 per member.⁵

A recent cost-analysis of an integrative pain management program at a joint DoD/VA site has shown rapid gains in cost benefit for veterans with chronic pain.⁵ The DoD and VA are developing integrated care programs around the country. A national evaluation effort of these programs would seek out the most effective health and performance enhancements available and translate them into a civilian environment.

Cost-benefit progress of integrative pain management program
Tripler Army Medical Center, Hawaii



This graph represents the cost/benefit progress of the implementation of an integrative pain management program at Tripler Army Medical Center in Hawaii. **Cost-benefit returns were achieved in less than one year.**

Brown, KS, Camara E. Joint Incentive Fund Interim Project Review Presentation – Integrative Pain Program. Hawaii – VA Pacific Islands Health Care System/Tripler Army Medical Center. April, 2009.

⁴ A Soldier's Mind. Fort Bliss Center Using "Holistic" Approach To Treat PTSD. May 14, 2008
<http://soldiersmind.com/2008/05/14/fort-bliss-center-using-holistic-approach-to-treat-ptsd/>.

⁵ Brown, KS, Camara E. Joint Incentive Fund Interim Project Review Presentation – Integrative Pain Program. Hawaii – VA Pacific Islands Health Care System/Tripler Army Medical Center. April, 2009.

LEARN THE LIFESTYLE

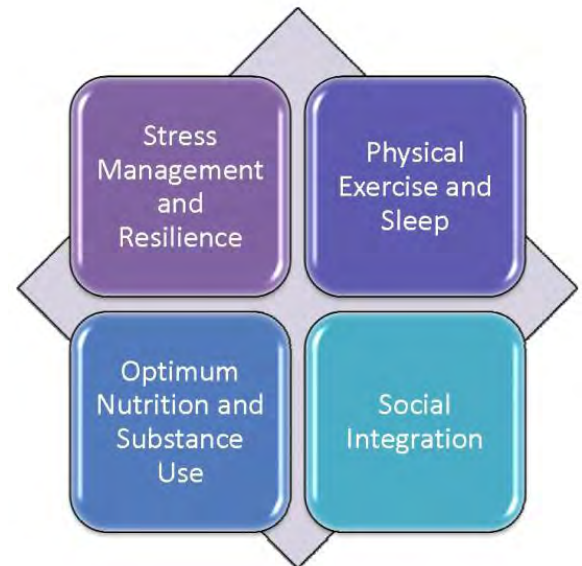
Four behaviors, if broadly implemented – no smoking, maintaining a healthy weight, eating a low-fat diet that includes five fruits and vegetables a day and exercising for 30 minutes five days a week – would save the country over \$200 billion in treatment and \$1.6 trillion in lost productivity costs per year.⁶



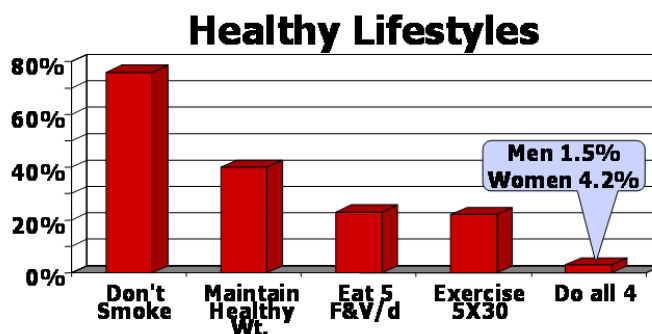
http://thebhf.com/keeping_your_heart_healthy/healthy_eating/eating_tips_for_parents.aspx

Seventy percent of chronic disease is lifestyle related, yet only 2-4% of the US population applies the above-named behaviors to help alleviate the prevalence of chronic disease.¹ In 2006, more than \$100 billion was spent on angioplasties, stents and coronary bypass operations alone. If only 25% of the people requiring these treatments were to change to a healthy lifestyle and

reverse the complications of their diagnosis, Americans could save over \$13 billion per year.⁷



Prevalence of Healthy Behaviors



70% of premature death is lifestyle-related

50% of all illness & injuries in the last third of life can be eliminated by changing lifestyle

The key to health care cost reduction for our economy lies in addressing the challenges to widespread delivery of these lifestyle changes. Culture and industry incentives toward developing a Wellness Industry as innovative as our current Medical Industry could produce these cost savings.

Reeves, MJ, Rafferty AP. Healthy Lifestyle Characteristics Among Adults in the United States, 2000, *Arch Intern Med*, 2005; 165(8): 854-57.

Crowley & Lodge, *Younger Next Year*, Workman Publishing Company, 2004.

⁶ DeVol R, Bedroussian A, Charuworn A, et al. An Unhealthy America: The Economic Burden of Chronic Disease -- Charting a New Course to Save Lives and Increase Productivity and Economic Growth. Santa Monica, CA: Milken Institute; October 2007.

⁷ Ornish D. Intensive lifestyle changes and health reform. *Lancet Oncol*. 2009; 10(7):638-639.

WORKSITE HEALTH PROMOTION

Worksite health promotion statistics show that Employee Health Promotion Programs save anywhere from \$2.30 to \$10.10 per dollar spent on wellness.⁸

These worksite programs include exercise, nutrition, smoking cessation and weight and stress management. Safeway has implemented one such program, called Healthy Measures, which rewards employees for remaining within limits on four common medical risk factors - smoking, obesity, blood pressure and cholesterol.⁹

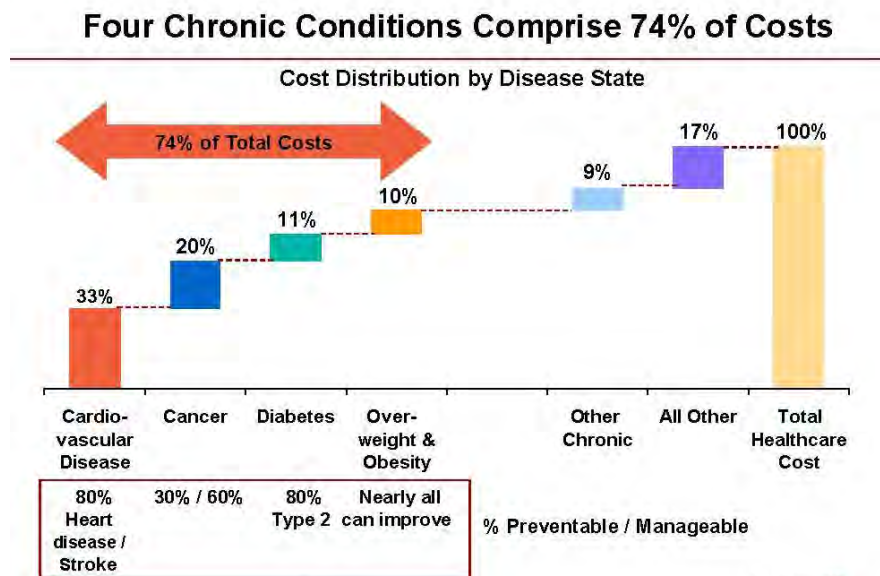


Figure 1: U.S. Senate Republican Policy Committee. *Federal Constraints on Healthy Behavior and Wellness Programs: The Missing Link in Health Care Reform*. April 21, 2009.

The program has kept Safeway's health care expenses, amounting to \$1 billion a year, mostly flat over the past five years.⁹ While Safeway is experiencing minimal increases in health care spending, individual employees enjoy significant decreases in out-of-pocket health care costs. The plan provides financial incentives through health reimbursement and flexible savings accounts and, also, fully covers an array of preventive care such as physicals, cancer screenings and well-baby care. More than 70 percent of eligible employees have signed up for the program, resulting in employees' total health care costs being reduced 15% in the first two years and participating employees experiencing a 25–34% reduction in their annual total health care costs.^{10,11}



<http://www.safeway.com/IFL/Grocery/Our-Story>

⁸ Healthy Workplace. *Employee Health Promotion Programs: Keeping the Resolution*. <http://healthy-workplace.com/employee-health-promotion-programs-keeping-the-resolution/>. Accessed July 1, 2009.

⁹ Burd, SA. *How Safeway Is Cutting Health-Care Costs: Market-based solutions can reduce the national health-care bill by 40%*. June 12, 2009. <http://online.wsj.com/article/SB124476804026308603.html>. Accessed July 1, 2009.

¹⁰ Safeway, "Health Care Solutions that Work," Presentation to the World Healthcare Congress. April 14, 2009. http://www.worldhealthtalks.com/assets/86/resources/1K1130.Steve_Burd.Tues.pdf. Accessed August, 18 2009.

¹¹ Pelletier KR, Herman PM, Metz, RD. *Health and Medical Economics: Applications to Integrative Medicine*. February 2009. <http://www.iom.edu/Object.File/Master/66/606/Health%20and%20Medical%20Economics--Applications%20to%20Integrative%20Medicine.pdf>. Accessed July 20, 2009.

INTEGRATIVE MEDICINE

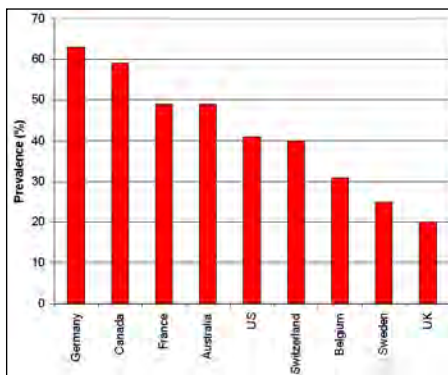
When patients integrate low-cost complementary and alternative medicine into their chronic health care behaviors, they experience sustained improvements in health and lower their use of risky, more expensive medical treatments.

Patients are already integrating complementary and alternative medical (CAM) practices on a massive scale. Out-of-pocket expenditures of over \$34 billion per year in the U.S. suggest that the public believes that CAM therapies have benefits that outweigh their costs.¹² This belief is supported by multiple, large, long-term outcome studies in England, Germany, Switzerland, Ireland, Italy and the United States showing sustained improvement in health for those who choose integrative practices.^{13,14,15,16,17,18}



<http://www.hmiworld.org/hmi/issues/mar-apr08/forum.php>

Recent data from two studies of integrative medicine in the U.S. and Ireland showed significant health benefits for patients and lower costs for the health care system when patients were offered CAM therapies, including holistic nursing, acupuncture, chiropractic therapy and osteopathy along with their conventional health care benefits.



CAM use in 9 countries

Percentage of the population of 9 countries who used CAM during one year, as reported in the *British Medical Journal* in 2000. The data is based on surveys of random or representative samples of those populations.

http://www.dhsspsni.gov.uk/final_report_from_smr_on_the_cam_pilot_project_-_may_2008.pdf. Accessed August 17, 2009.

In the U.S. study, clinical and cost utilization decreases based on 70,274 member-months over a seven-year period showed a 60.2% reduction in hospital admissions, 59% reduction in hospital days, 62% decrease in outpatient surgeries and procedures, and 85% reduction in pharmaceutical costs when compared with conventional medicine alone for the same HMO in the same geography and time frame.¹⁹

In the Ireland study, 81% of patients reported an improvement in their physical health, while 79% reported improvement in their mental health. Medication use among patients was reduced from 75% to 61% after CAM treatment. The study also showed that in 99% of cases General Practitioners (GPs) said they would refer the same or different patients to the scheme again, and in 98% of cases GPs said they would recommend the service to other GPs.²⁰

¹² Herman PM, Craig BM, Caspi O. Is complementary and alternative medicine (CAM) cost-effective? A systematic review. *BMC Complement Altern Med*. 2005; 5:11.

¹³ Weidenhammer W, Streng A, Linde K, et al. Acupuncture for chronic pain within the research program of 10 German Health Insurance Funds—Basic results from an observational study. *Complementary Therapies in Medicine*. 2007; 15: 238–246.

¹⁴ Moebus, S, Lehmann N, Bödeker W, et al. An analysis of sickness absence in chronically ill patients receiving Complementary and Alternative Medicine: A longterm prospective intermittent study. *BMC Public Health*. 2006; 6:28. doi:10.1186/1471-2458-6-28.

¹⁵ Witt, CM, Luedtke R, Baur R. Homeopathic Medical Practice: Long-term results of a Cohort Study with 3981 Patients. *BMC Public Health* 2005; 5:115. doi:10.1186/1471-2458-5-115.

¹⁶ Spence DS, Thompson EA, Barron SJ. Homeopathic Treatment for Chronic Disease: A 6-Year, University-Hospital Outpatient Observational Study. *J Altern Complement Med*. 2005; 11(5): 793–798.

¹⁷ Sarsina, P, Iseppato I. Non-conventional medicine in Italy: the present situation. *Eur J Integrative Med* 2009 doi: 10.1016/j.eujim.2009.04.002.

¹⁸ Bi Sarsina, P. Whole Academy for Health Forum. May 5, 2009. <http://projekte.hs-magdeburg.de/whole/mod/forum/discuss.php?d=428>. Accessed August 17, 2009.

¹⁹ Sarnat RL, Winterstein J, Cambron JA. Clinical utilization and cost outcomes from an integrative medicine independent physician association: an additional 3-year update. *J Manip Physiol Ther*. 2007;30(4):263-269.

²⁰ McDade, D. Evaluation of a CAM Pilot Project in Northern Ireland 2008: Report from the Department of health, Social Services and Public Safety. Social & Market Research (SMR). February 10, 2009. http://www.dhsspsni.gov.uk/final_report_from_smr_on_the_cam_pilot_project_-_may_2008.pdf. Accessed August 17, 2009.

INTENSIVE LIFESTYLE TREATMENT

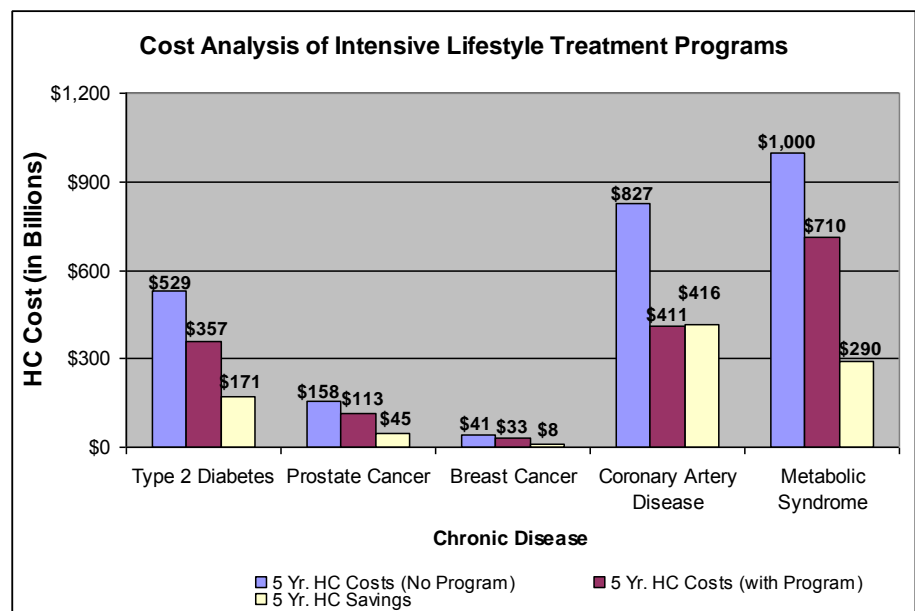
If 25% of patients with the top five most costly lifestyle-related conditions were managed with intensive lifestyle treatment, the health care system would recover over \$230 billion in five years – a quarter of the cost for increased insurance coverage recently discussed in the health care reform debate.²¹



<http://www.proclub.com/default.aspx?tabid=288>

Demonstration projects have shown that comprehensive lifestyle changes can reduce total health care costs in those with coronary heart disease by 50% after only one year, and by an additional 20-30% when compared to a matched control group.²¹ A shift of 25% of patients with these five conditions to lifestyle treatment would save the health care system over \$230 billion in 5 years – a quarter of the current cost estimates for comprehensive health care reform. Lifestyle treatments require a team approach led by an experienced practitioner.

Lifestyle changes empower the individual, emphasize personal responsibility and can be as or more effective than drugs and surgery in *treating* (not just preventing) many chronic diseases – at considerably lower cost. For example, comparative effectiveness research has shown that lifestyle changes beneficially affect the progression of coronary heart disease, diabetes, metabolic syndrome, breast cancer and prostate cancer.²¹ These five chronic diseases account for approximately 75% of the \$2.1 trillion in health care costs, so the potential cost savings are large.



Govil SR, Weidner G, Merritt-Worden T, Ornish D. Socioeconomic status and improvements in lifestyle, coronary risk factors, and quality of life: the Multisite Cardiac Lifestyle Intervention Program. *Am J Public Health*. 2009; Jul;99(7):1263-70.

²¹ Govil SR, Weidner G, Merritt-Worden T, Ornish D. Socioeconomic status and improvements in lifestyle, coronary risk factors, and quality of life: the Multisite Cardiac Lifestyle Intervention Program. *Am J Public Health*. 2009; 99(7):1263-70.

COMMUNITY HEALTH PROMOTION

Community smoking cessation programs could save over \$100 billion per year.²⁵

Each year, more than 440,000 Americans die of tobacco-related disease, and cigarette smoking results in over \$193 billion in medical costs and productivity losses.²² Approximately 70% of the 43.5 million adult smokers in the U.S. want to quit, but fewer than 5% of those who try to quit in a given year are successful. Strategies that target individual tobacco users may be effective but fail to reach most smokers. Evidence suggests that community-based interventions-- such as media campaigns, telephone-counseling programs (quit lines) and increases in tobacco pricing and taxation-- are effective and offer an improved success rate over individually-oriented cessation treatments.²³



If applied successfully, community smoking cessation programs could save over \$100 billion per year. Smoking-attributable expenditures (SAEs), which are the excess personal health care expenditures attributed to diseases for which cigarette smoking is a cause, total \$3,064 per smoker per year.²⁴ There are currently over 43 million smokers in America, so the total economic costs of smoking are approximately \$133 billion per year.²⁵

http://gayrights.change.org/blog/category/lgbt_education

The Centers for Disease Control and Prevention (CDC) has targeted community-based programs as an effective vehicle for delivering other health promotion and disease prevention campaigns. Low-cost, community-based approaches have demonstrated effectiveness for self-management of chronic diseases, such as type 2 diabetes. Through its Diabetes Initiative, the Robert Wood Johnson Foundation conducted 14 demonstration projects using community-clinical partnerships in predominantly indigent populations from diverse geographic settings, as well as cultural and linguistic backgrounds. These demonstration projects relied heavily on community health workers and demonstrated that self management of diabetes is feasible and effective in diverse, real-world settings.²⁶



²² Kahende JW, Loomis BR, Adhikari B, Marshall L. A review of economic evaluations of tobacco control programs. *Int J Environ Res Public Health*. 2009; 6(1):51-68.

²³ NIH State of the Science Panel. National Institutes of Health State-of-the-Science conference statement: tobacco use: prevention, cessation, and control. *Ann Intern Med*. 2006; 145(11): 839-844.

²⁴ Centers for Disease Control and Prevention (CDC). Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) https://apps.nccd.cdc.gov/sammec/about_sammec.asp Accessed August 17, 2009.

²⁵ Centers for Disease Control and Prevention (CDC). Annual smoking-attributable mortality, years of potential life lost, and economic costs-- United States, 1995-1999. *MMWR Morb Mortal Wkly Rep*. 2002; 51(14):300-303.

²⁶ Fisher EB et al. The Robert Wood Johnson Foundation Diabetes Initiative: demonstration projects emphasizing self-management. *Diabetes Educ*. 2007; 33(1):83-84, 86-88, 91-92.

BE STILL

Stress is a major facilitator of chronic illness and contributes to high health care and lost productivity costs. Inducing the relaxation response directly counters the effects of stress at the genetic level across multiple conditions.

The total health and productivity cost to American business as a result of worker stress is estimated at \$50-150 billion annually.²⁷

Stress is a major facilitator of chronic illness and contributes to high health care and lost productivity costs. (The graph at right represents days taken off from work due to stress and stress-related illness.)

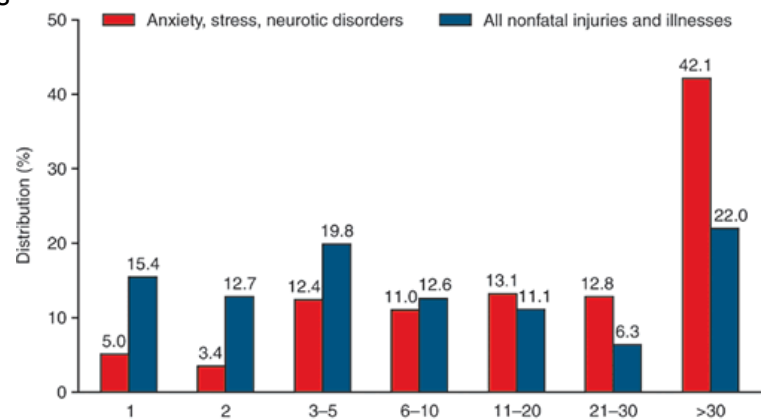
Furthermore, the World Health Organization (WHO) Global Burden of Disease Survey estimates that mental disease, including stress-related disorders, will be the leading cause of disability by the year 2030.²⁸

Under chronic stress, aspects of the stress response that are adaptive during acute stress, may lead to the onset, development or progression of many disease processes.^{29,30} Inducing the relaxation response through various techniques such as mindfulness meditation, yoga, tai chi, breathing training, imagery and various other approaches has been shown to directly counter the genetic and physiological stress response and improve health and well-being.³¹ A 2006 summary of studies examining the usefulness of Mindfulness-Based Stress Reduction (MBSR) concluded that MBSR is a safe, effective and integrative approach for reducing the stress and anxiety that accompanies daily life and chronic illness.³²



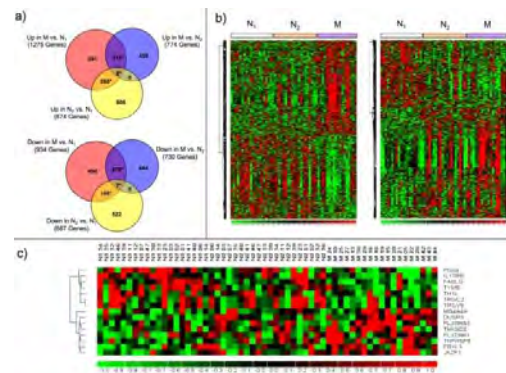
<http://www.selfhelpzone.com/2008/03/>

Days away from work due to stress and stress-related illness



<http://origin.cdc.gov/niosh/programs/workorg/risks.html>

Mind-body practices counteract stress genes



Dusek JA, Otu HH, Wohlhueter AL, et al. Genomic counter-stress changes induced by the relaxation response. *PLoS One*. 2008;3(7):e2576.

²⁷ Sauter SL, Murphy LR, and Hurrell Jr. JJ. Prevention of work-related psychological disorders. *American Psychologist*. 1990; 45(10):1146-1153.

²⁸ World Health Organization (WHO). The Global Burden of Disease: 2004 update. 2008.

http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf. Accessed August, 18 2009.

²⁹ Sternberg E, Gold PW. The mind-body interaction in disease. *Scientific Amer* 1997; 7(1): 8-15.

³⁰ Chrousos GP, Gold PW. The concepts of stress and stress system disorders. Overview of physical and behavioral homeostasis. *JAMA* 1992; 267(9): 1244-1252.

³¹ Dusek JA, Otu HH, Wohlhueter AL, et al. Genomic counter-stress changes induced by the relaxation response. *PLoS One*. 2008;3(7):e2576.

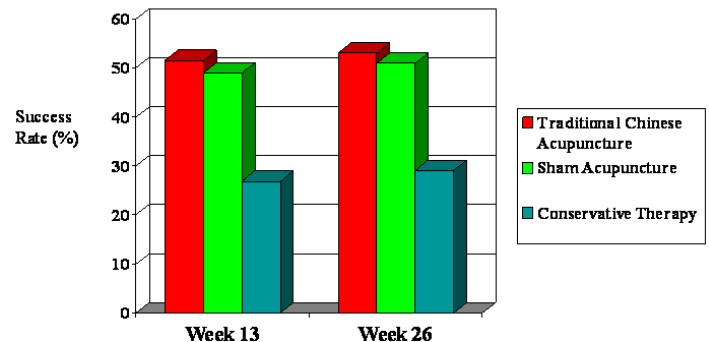
³² Praissman, Sharon. Mindfulness-based stress reduction: A literature review and clinician's guide. 2006. *Journal of the American Academy of Nurse Practitioners*. 2007;20(4):212-216.

ACUPUNCTURE AND PAIN

Acupuncture could double the amount of relief from chronic pain achieved from current health care practices at the same or reduced costs.

Americans spend at least \$50 billion each year on low back pain, the most common cause of job-related disability and a leading contributor to missed work.³⁴ Lost productivity costs alone from chronic back pain, headache, neck pain, arthritis and other musculoskeletal pain total more than \$61 billion per year, making chronic pain one of the most costly conditions in all health care.³⁵ The NIH has verified that acupuncture works for treating pain - acute and chronic - and large, randomized, placebo-controlled, comparative studies have shown that acupuncture is almost twice as effective as conventional treatments for chronic pain conditions such as headache, back and neck pain and arthritis.^{36, 37, 38, 39}

Acupuncture Reduces Pain More Than Biomedicine



Scharf HP, Mansmann U, Streitberger K, et al. Acupuncture and knee osteoarthritis: a three-armed randomized trial. *Ann Intern Med.* Jul 4 2006;145(1):12-20.



Recent studies in the military have demonstrated that simplified, semi-standardized acupuncture methods may be both effective and widely applicable as a substitute for pain medications.⁴⁰ With sufficient comparative effectiveness research, acupuncture could become a major reducer of health care costs. Above is an example showing that the addition of traditional Chinese acupuncture or sham acupuncture leads to greater improvement in overall chronic knee pain scores over time compared to the best current conventional therapy.³⁸

<http://www.telegraph.co.uk/health/healthnews/5308415/Acupuncture-may-reduce-help-back-pain-research-finds.html>

³⁴ National Institute of Neurological Disorders and Stroke. National Institutes of Health. Low Back Pain Fact Sheet. http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm. April 24, 2009. Accessed June 29, 2009.

³⁵ Roy S. Loss of productive time due to pain. *JAMA.* 2004; 291(6):694.

³⁶ Haake M, Muller HH, Schade-Brittinger C, et al. German Acupuncture Trials (GERAC) for chronic low back pain: randomized, multicenter, blinded, parallel-group trial with 3 groups. *Arch Intern Med.* 2007; 167(17):1892-1898.

³⁷ Lee SW, Liong ML, Yuen KH, et al. Acupuncture versus sham acupuncture for chronic prostatitis/chronic pelvic pain. *Am J Med.* 2008; 121(1):79 e71-77.

³⁸ Scharf HP, Mansmann U, Streitberger K, et al. Acupuncture and knee osteoarthritis: a three-armed randomized trial. *Ann Intern Med.* 2006; 145(1):12-20.

³⁹ Thomas KJ, MacPherson H, Ratcliffe J, et al. Longer term clinical and economic benefits of offering acupuncture care to patients with chronic low back pain. *Health Technol Assess.* 2005; 9(32):iii-iv, ix-x, 1-109.

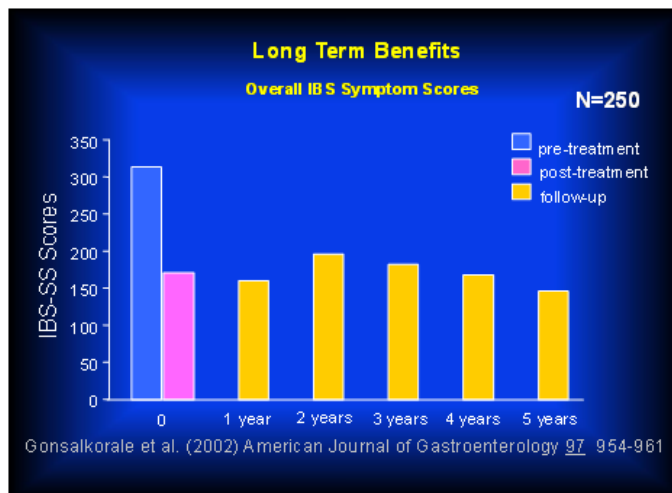
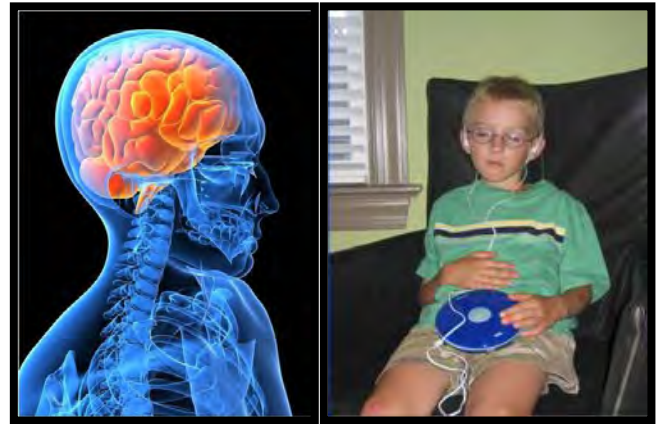
⁴⁰ Goertz CM, Niemtow R, Burns SM, Fritts M J, Crawford CC, Jonas WB Auricular acupuncture in the treatment of acute pain syndromes: A pilot study. *Military Medicine.* 2006; 171(10):1010-1014.



TRAIN THE BRAIN

Simple, inexpensive approaches to training the mind in the management of medically unexplained conditions could reduce costs in 25-50% of all primary care visits.⁴¹

Recurrent abdominal pain (RAP) is an example of a medically unexplained or “functional” condition in children. RAP is a long-lasting, intermittent or constant pain affecting 15-30% of children aged 6-18 and presents a diagnostic and treatment challenge to the physician.⁴² Many children often miss school and also go on to have other related chronic health issues as adults, such as irritable bowel syndrome (IBS) and non-cardiac chest pain – also major causes of increased health care costs. Currently, family members who miss work to take care of their children who are suffering from RAP or IBS lose \$626 in potential earnings every year.⁴³



A simple, cost-efficient self-hypnosis and imagery CD that was recently developed at the University of North Carolina has reduced abdominal pain in children by nearly 80% in eight home sessions. The effect of the self-hypnosis CD appears to be permanent since the children learn quickly how to cope with and manage their pain. A study on IBS in adults demonstrated that hypnotherapy is an extremely effective treatment and should prove more cost-effective than new, more expensive drugs that emerge on the market.⁴⁴

⁴¹ Hartman TC, Lucassen PLBJ, van de Lisdonk EH, et al. Chronic functional somatic symptoms: a single syndrome? *British Journal of General Practice*. 2004; 54:922-927.

⁴² Galili O, Shaoul R, Mogilner J. Treatment of chronic recurrent abdominal pain: laparoscopy or hypnosis? *Journal of Laparoendoscopic & Advanced Surgical Techniques*. 2009; 19(1): 93-96. doi:10.1089/lap.2008.0059.

⁴³ Saps M, Seshadri R, Sztainberg M, et al. A Prospective School-based Study of Abdominal Pain and Other Common Somatic Complaints in Children. *J Pediatr*. 2009;154:322-6.

⁴⁴ Gonsalkorale WM, Houghton LA, Whorwell PJ. Hypnotherapy in irritable bowel syndrome: A large-scale audit of a clinical service with examination of factors influencing responsiveness. *Am. Coll. of Gastroenterology*. 2002;97(4):954-61

TELL YOUR STORY

Deep listening to a person's story about past traumas is a simple, self-care approach proven to reduce suffering, improve immune function and reduce health care utilization. Effectiveness data indicates that its potential for cost reduction is up to \$81.7 billion per year in patients with asthma and rheumatoid arthritis alone.

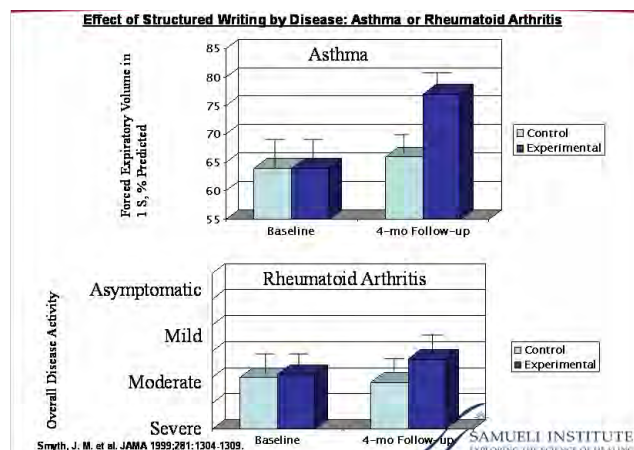
Childhood and adult trauma keeps us from being whole humans and creates smoldering, long-term suffering, reduced productivity and increased health care utilization. Providing the opportunity to resolve past conflicts through story telling can reduce suffering, improve immune function, improve chronic disease and reduce health care utilization. The approach is simple, available to everyone and requires little professional help, but has been largely untapped.⁴⁵



http://www.123rf.com/photo_2572249.html

Deep listening to a person's story about past traumas has been shown to improve health and ameliorate disease in asthma and arthritis. The average annual cost of medical care for an asthma patient is \$4,912.⁴⁶ There are over 25 million adults and children with asthma in the U.S., totaling more than \$124 billion in direct and indirect medical costs.⁴⁷ Rheumatoid arthritis is a disease that costs Americans close to \$9 billion per year.⁴⁸ Below is an example showing that writing about stressful experiences improves mild to moderate asthma by 63.9% and pain in rheumatoid arthritis by 28% compared to conventional therapy alone.⁴⁹ If applied to these two conditions only, storytelling could potentially save \$81.7 billion annually in health care costs.

Work with veterans indicates that story telling improves function and well-being in a variety of conditions caused by past war trauma. Thus, multiple other conditions might respond to this approach with potentially widespread savings in chronic disease management.



Smyth, JM, Stone AA, Hurewitz A, et. Al. Effects of Writing About Stressful Experiences on Symptom Reduction in Patients With Asthma or Rheumatoid Arthritis: A Randomized Trial. *JAMA*. 1999;281(14):1304-1309. doi:10.1001/jama.281.14.1304.

⁴⁵ Pennebaker JW. *Opening Up – The Healing Power of Confiding in Others*. 1st ed. New York: William Morrow and Company, Inc.; 1990.

⁴⁶ Hilton, L. Revolution Health Group. Covering — and Cutting — the High Cost of Asthma Care. July, 2007.

<http://www.revolutionhealth.com/conditions/asthma/treatments/payment/covering-high-cost>. Accessed June 29, 2009.

⁴⁷ CDC. Asthma Overview. <http://www.cdc.gov/asthma/faqs.htm>. Accessed July 7, 2009.

⁴⁸ CDC. Arthritis Types – Overview – Rheumatoid Arthritis. <http://www.cdc.gov/arthritis/arthritis/rheumatoid.htm>. Accessed July 7, 2009.

⁴⁹ Smyth, JM, Stone AA, Hurewitz A, et. Al. Effects of Writing About Stressful Experiences on Symptom Reduction in Patients With Asthma or Rheumatoid Arthritis: A Randomized Trial. *JAMA*. 1999;281(14):1304-1309. doi:10.1001/jama.281.14.1304.

NATURAL DRUGS

Natural products, such as elderberry extract, have been shown to effectively treat influenza and related viruses with minimal side effects and could save billions in treatment and lost productivity costs if they were fully developed and tested.⁵⁰



<http://www.indianawildlife.org/habitatPlants.htm>

There are hundreds of natural substances with health-enhancing and disease-mitigating effects that remain underused because current policies inhibit research and development on these products. Natural substances are likely effective for infection, lung diseases, pain and inflammation, depression and anxiety, heart disease and cancer, diabetes, high blood pressure, stroke and other conditions.

One salient example may be in the ability of natural products to mitigate and treat influenza. Annual direct medical costs (hospitalization, doctors' office visits, medications, etc.) of influenza are estimated at up to \$4.6 billion, and up to 111 million workdays are lost which costs American businesses more than \$7 billion a year in sick days and lost productivity.⁵⁰ The potential use of elderberry extracts for the treatment of influenza is an example. Standardized elderberry extract has been shown in randomized placebo-controlled trials to reduce the severity and duration of influenza by several days.⁵¹ Laboratory research has also shown that the extract is effective against Avian Flu (H5N1) and other viral infections.⁵² Policies that create industry investment in quality research and development of these products could have a major impact on health care costs and provide new approaches to global threats such as influenza pandemics.

Sambucol® is effective for influenza⁵¹

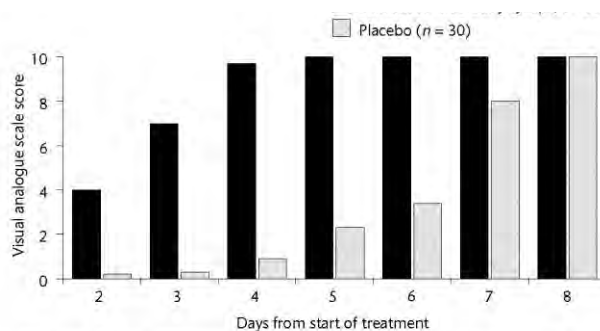


FIGURE 1: The development of self-evaluation scores in global well-being in the 60 patients with influenza who received either elderberry syrup or placebo (15 ml, four times daily with meals, for 5 days)

Sambucol® inhibits Avian influenza virus⁵²

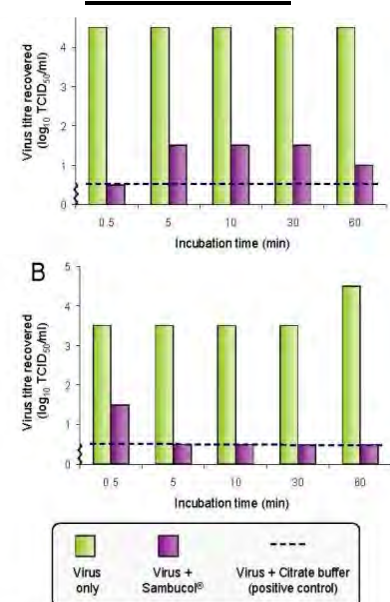


Fig 2. Sambucol® dramatically reduces NIBRG-14 titre.

⁵⁰ Solvay SA. *Cost of Influenza*. February 5, 2009. www.solvay-influenza.com/aboutinfluenza/costofinfluenza/0,,2655-2-0,00.htm. Accessed June 30, 2009.

⁵¹ Zakay-Rones Z, Thom E, Wollan T, et.al. Randomized Study of the Efficacy and Safety of Oral Elderberry Extract in the Treatment of Influenza A and B Virus Infections. *The Journal of International Medical Research*. 2004; 32: 132-140.

⁵² Balasingam S, Lambkin R, Safirman D, et. Al. Neutralizing activity of SAMBUCOL® against avian NIBRG-14 (H5N1) influenza virus. 2006. <http://www.mivelle.hu/sambucol/Avian%20Flu.pdf>. Accessed July 20, 2009.

LIGHTEN UP

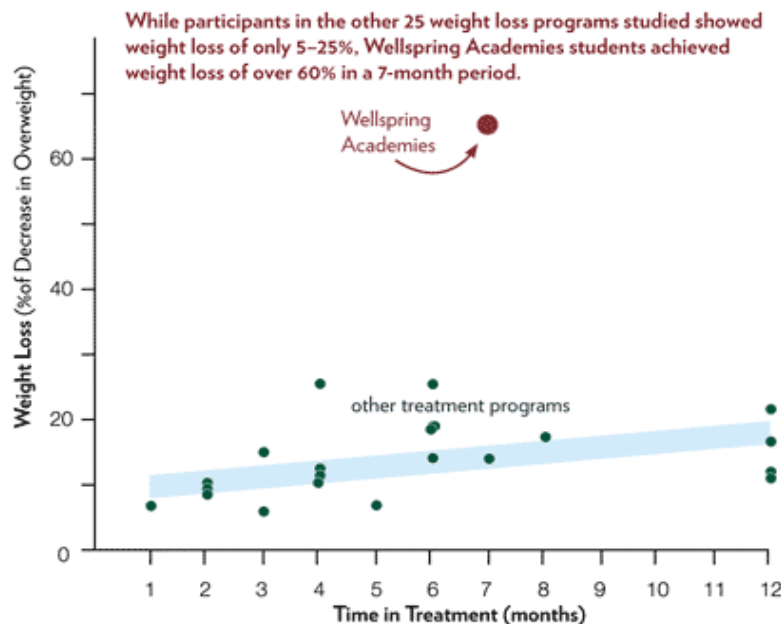
Teaching our children healthy habits, specifically not smoking and managing a healthy weight, would save up to \$100 billion in treatment costs and would add from \$340-500 billion to the GDP in the next 15 years.⁵³

Obesity and smoking are reducing the national average life expectancy for the first time in over 100 years. Our children are not learning healthy habits or how to create environments that will enable them to lead lives of optimal health. Several school and education-based programs, such as Wellspring, have demonstrated remarkable success in reducing weight and improving health habits of our children.⁵⁴ The table below shows current weight loss for this comprehensive, education-based program compared to other treatment programs. The long-term benefits of incorporating such health and productivity training into our schools are priceless. Health education programs should be instituted in schools across the nation as an obligation to our children and their future.



<http://bluemooncandles.wordpress.com/2009/06/22/make-a-difference-monday/>

Weight Loss During Treatment (Years of Studies: 1960–2003)



<http://www.wellspringacademies.com/outcomes.html>

⁵³ DeVol R, Bedroussian A, Charuworn A, et al. *An Unhealthy America: The Economic Burden of Chronic Disease -- Charting a New Course to Save Lives and Increase Productivity and Economic Growth*. Santa Monica, CA: Milken Institute; October 2007.

⁵⁴ Wellspring Academies. <http://www.wellspringacademies.com/>. Accessed December 5, 2008.

CLINICAL PREVENTION

Application of the top 20 proven clinical preventative services (CPS) nationwide would save \$4 billion in treatment costs and increase quality of life years by over 2 million.⁵⁵

The health policies steps outlined in the Wellness Initiative for the Nation (WIN) focus on effective delivery of the 10 CPS recommendations that address core primary prevention and lifestyle change factors.⁵⁵ In the table below, five CPS recommendations are listed, showing the percent population currently receiving the preventative services as compared to the lives that could be saved if utilization increased to 90%.



http://www.savainsurance.com/sava_review.php

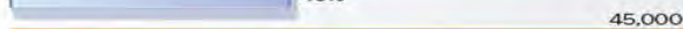
Cost Effective Preventative Services Can Save Lives

Daily aspirin use in men over 40 and women over 50

Percentage receiving services in 2005:



Lives saved per year if utilization increased to 90%:



Smokers offered assistance to quit

Percentage receiving services in 2005:

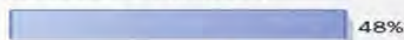


Lives saved per year if utilization increased to 90%:



Colorectal cancer screening of adults 50 and older

Percentage receiving services in 2005:



Lives saved per year if utilization increased to 90%:



Adult influenza immunization

Percentage receiving services in 2005:



Lives saved per year if utilization increased to 90%:

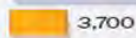


Breast Cancer Screening

Percentage receiving services in 2005:



Lives saved per year if utilization increased to 90%:



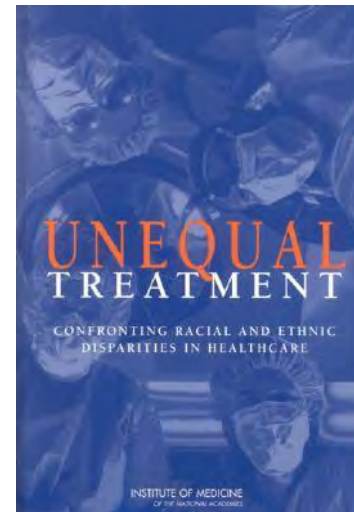
<http://www.prevent.org/images/stories/PolicyPapers/health%20reform%20recommendations.pdf>

⁵⁵ Partnership for Prevention. *Real Health Reform Starts with Prevention* December 2008. www.prevent.org/HealthReform Accessed January 2, 2009.

LEVEL THE PLAYING FIELD

Eliminating diabetes-related health disparities could save nearly \$7 billion annually.⁶²

In a landmark report, the Institute of Medicine (IOM) stated unequivocally that “Racial and ethnic disparities in healthcare exist and, because they are associated with worse outcomes in many cases, are unacceptable.” The IOM made a formal recommendation to support the use of community health workers to serve as liaisons between patients and providers, provide patient education, and help to increase the use of preventive and primary care services.⁵⁶ Community health workers can help improve hypertension and tobacco control programs and reduce costs of primary health care.⁵⁷ The inclusion of evidence based CAM practices—many of which have important cultural, historic and ethnic ties to underserved populations-- may significantly reduce health disparities by making care more accessible, culturally appropriate and affordable.⁵⁸



<http://www.prevent.org/images/stories/PolicyPapers/health%20ref>

Diabetes in Colorado Adult Minorities	Annual Cost for Additional Cases, 2002 Dollars
Caucasian	\$0
African American	\$33,283,313
Latino	\$37,246,462
Other	\$9,666,371
Total	\$80,196,146

Office of Health Disparities. “The Cost of Health Disparities in Colorado.” In *Racial and Ethnic Health Disparities in Colorado 2005*. Colorado Department of Public Health and Environment, Denver CO, 2005.

HRSA began the Health Disparities Collaboratives (HDC) to expand access to high quality, culturally competent primary and preventive care for underserved and underinsured Americans in community health centers (CHCs) nationwide. Diabetes care and outcomes, including hemoglobin A1c and LDL cholesterol, improved significantly in 34 CHCs within the HDC over a four year period.⁵⁹ ARHQ and NIH presented results of a formal evaluation of the HDC at an AHRQ Research Summit in 2007, including improvement in clinical processes of care and health outcomes, and concluded that the HDC are cost-effective for society.⁶⁰ The North Carolina Medicaid program could save an estimated \$225 million in diabetes-related expenditures each year if both racial and economic disparities in diabetes prevalence were eliminated.⁶¹ The Colorado Department of Public Health and Environment has estimated that eliminating the diabetes health disparity between ethnic groups would save over \$80 million annually.⁶² Extrapolated to the 2002 U.S. population, the cost savings would be \$6.9 billion.⁶³

⁵⁶ Smedley B, Stith A, Nelson A. Unequal treatment: confronting racial and ethnic disparities in health care. IOM Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. Washington DC, 2002.

⁵⁷ Witmer A, Seifer SD, Finocchio L, Leslie J, O'Neil EH. Community health workers: Integral members of the health care work force. *American Journal of Public Health*. 1995; 85(8): 1055-1058.

⁵⁸ Fritts M, Calvo A, Jonas W, Bezold C. Integrative medicine and health disparities: a scoping meeting. *Explore (NY)*. 2009; 5(4):228-241.

⁵⁹ Chin MH, Drum ML, Guillen M, et al. Improving and sustaining diabetes care in community health centers with the health disparities collaboratives. *Med Care*. 2007; 45(12):1135-1143.

⁶⁰ Huang ES, Brown SE, Zhang JX, et al. The cost consequences of improving diabetes care: the community health center experience. *Jt Comm J Qual Patient Saf*. 2008; 34(3):138-46.

⁶¹ Buescher P, Whitmire JT, and Pullen-Smith B.. Medical Care Costs for Diabetes Associated with Health Disparities Among Adults Enrolled in Medicaid in North Carolina. NC State Center for Health Statistics Report #160, August 2009.

⁶² Office of Health Disparities. “The Cost of Health Disparities in Colorado.” In *Racial and Ethnic Health Disparities in Colorado 2005*. Colorado Department of Public Health and Environment, Denver CO, 2005.

⁶³ U.S. Census Bureau. Population Estimates. <http://www.census.gov/popest/estimates.html>. Accessed August 17, 2009.

OMEGA-3 DIETARY SUPPLEMENTS

Omega-3 fatty acid supplements are a low-cost, preventive approach to coronary heart disease (CHD) that could save Americans more than \$1.1 billion annually in hospital expenditures and physician charges.⁶⁴



<http://primev.com/images/products/general/omega%203.jpg>

According to the American Heart Association, coronary heart disease (CHD) is the leading cause of death in both men and women in the United States, resulting in almost 500,000 deaths annually, and costing Americans more than \$368 billion each year in direct and indirect costs.⁶⁵ Patients that take 850 mg of omega-3 fatty acids daily have been shown to reduce their risk of sudden death from heart failure by 45 percent.⁶⁶ This easily accessible and low-cost dietary supplement is found in fish, fish oil, vegetable oils, certain nuts and dietary supplements. A wealth of research spanning over 30 years, including both observational studies and clinical trials, shows that there is sufficient consistent, valid and effective evidence that omega-3s significantly lower the instance of CHD and improve overall health, especially in those patients 65 and older. As shown in the table below, if all adults over the age of 65 started taking omega-3 supplements daily, savings would total more than \$950 million in 2010 resulting from reduced CHD hospitalizations alone.⁶⁷

Table 1:

Costs & Potential Savings Resulting From Reduced CHD Hospitalizations

	2006	2007	2008	2009	2010	Total
Gross Cost of Providing Daily Omega-3 for Adults over 65 (in millions)						
Total cost of daily omega-3 for new users (adults over 65 not currently taking omega-3)	\$229	\$321	\$449	\$620	\$842	\$2,462
Potential Savings from Reduced Cases of CHD (in millions)						
Cost offset due to avoided CHD hospitalizations and physician services	\$421	\$599	\$862	\$1,242	\$1,794	\$4,919
Net Cost (Savings) of Providing Daily Omega-3 for Adults over 65, Before Premiums (in millions)						
Net cost (savings) of daily omega-3 for adults over 65	(\$192)	(\$278)	(\$412)	(\$622)	(\$952)	(\$2,456)
Premium Offset (in millions)						
Premium offset (25% of additional program spending)	\$57	\$80	\$112	\$155	\$211	\$616
Total Cost (Savings) to Payers, After Premiums (in millions)						
Total potential cost offset from avoided CHD hospitalizations (savings)	(\$250)	(\$357)	(\$525)	(\$780)	(\$1,166)	(\$3,078)

DaVanzo JE, Dobson A, Tannamor M, Dollard J. An Evidence-Based Study of the Role of Dietary Supplements in Helping Seniors Maintain their Independence. The Lewin Group. January 20, 2006. (Table 1 is reproduced as it appeared in the original publication.)

⁶⁴ DaVanzo JE, Dobson A, Tannamor M, Dollard J. An Evidence-Based Study of the Role of Dietary Supplements in Helping Seniors Maintain their Independence. The Lewin Group. Pg.3. January 20, 2006.

⁶⁵ American Heart Association. 1999-2000 Heart and stroke statistical update. Dallas, TX: American Heart Association.

⁶⁶ Dietary supplementation with n3 polyunsaturated fatty acids and vitamin E after myocardial infarction: results of the GISSI Prevention trial. Gruppo Italiano per lo Studio della Sopravvivenza nell'Infarto miocardico. *Lancet*. 1999;354(9177):447-455.

⁶⁷ DaVanzo JE, Dobson A, Tannamor M, Dollard J. An Evidence-Based Study of the Role of Dietary Supplements in Helping Seniors Maintain their Independence. The Lewin Group. Pg. 2. January 20, 2006.

National Medical Care Savings through Prevention

The Nation would enjoy approximately \$24.7 billion in medium-term annual medical care savings from just a 5% reduction in the incidence of diabetes, hypertension and some related diseases, accomplished through preventive practices such as diet, exercise and reduced smoking.³³

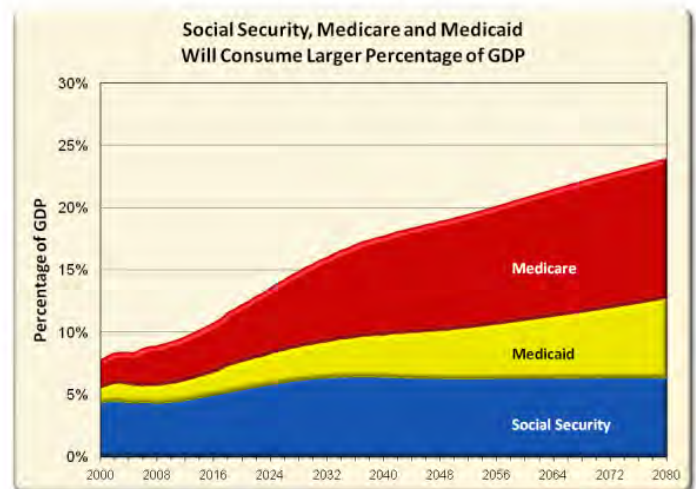
The United States spends an excess \$494 billion on conditions that could be greatly affected by primary prevention practices, such as a healthier diet, exercising and reducing smoking.³⁴ In the short term, 1-2 years, the positive effects of prevention can be seen on the primary diseases being studied: diabetes and hypertension. At around 5 years, the lifestyle intervention effects of complications and related diseases, for example, heart disease, stroke and kidney disease, are measurably seen.³⁵



<http://boomeryearbook.com/blog/2008/12/14/positive-thinking-to-keep-a-boomer%E2%80%99s-heart-healthy/>

Further, when the above-named lifestyle modifications are coupled with stress management practices, the risk of supplementary cardiac events in those with heart disease is reduced by up to 75% as compared to those that manage their disease with usual medical care and medications.^{36 37} This infers that psychosocial interventions cannot be divorced from the current definition of health care in treating illness.

Should these prevention practices be instituted nation-wide, the national Medicare expense could reduce by up to 46%, while Medicare and private insurers combined with out-of-pocket payers would, respectively, enjoy up to 26% and 31% reductions in their annual costs.³⁸ Individual states that would benefit most from these potential savings from combined payers are California, New York, Florida, Texas and Illinois, the most populous states in the country.



Source: Government Accountability Office
U.S. Financial Condition and Fiscal Future Briefing, January 2008

³³ Ormond BA, Spillman BC, Waidmann TA, Caswell, KJ, Tereshchenko B. Potential National and State Medical Care Savings from Primary Care Prevention. *American Journal of Public Health*. 2011;101(1):157-164.

³⁴ Ormond BA, Spillman BC, Waidmann TA, Caswell, KJ, Tereshchenko B. Potential National and State Medical Care Savings from Primary Care Prevention. *American Journal of Public Health*. 2011;101(1):157-164.

³⁵ Ormond BA, Spillman BC, Waidmann TA, Caswell, KJ, Tereshchenko B. Potential National and State Medical Care Savings from Primary Care Prevention. *American Journal of Public Health*. 2011;101(1):157-164.

³⁶ Sobel DS. Mind Matters, Money Matters: The Cost-effectiveness of Mind/Body Medicine. *JAMA*. 2000;284(13):1705.

³⁷ Blumenthal JA, Jiang W, Babyak M, et al. Stress management and exercise training in cardiac patients with myocardial ischemia: effects on prognosis and evaluation of mechanisms. *Arch Intern Med*. 1997;157:2213-2223.

³⁸ Ormond BA, Spillman BC, Waidmann TA, Caswell, KJ, Tereshchenko B. Potential National and State Medical Care Savings from Primary Care Prevention. *American Journal of Public Health*. 2011;101(1):157-164.