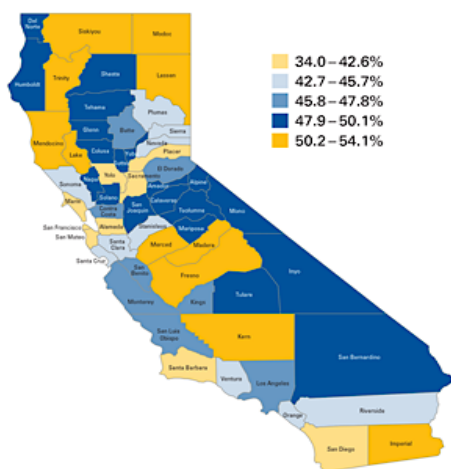


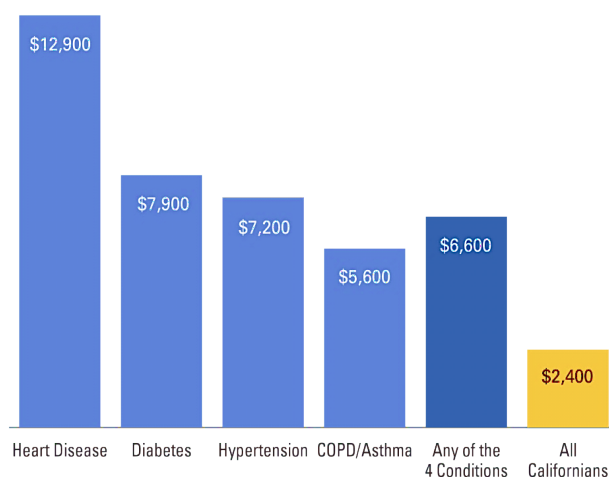
California Naturopathic Doctors: An Effective Solution for Chronic Disease Prevention

Half of all Americans live with a chronic medical condition. In California, 14 million people (38%) live with at least one chronic condition. Nearly 20% of the population has more than one chronic medication condition, **accounting for 60% of the state's health care expenditures.** In 2003, the total cost of managing these conditions was \$133,000,000,000 for California alone. The California Health Care Foundation advises policymakers: *"improving the quality and efficiency of chronic care delivery and effectiveness of prevention programs are crucial to improving the quality of life for millions of people and lowering the costs associated with chronic disease."*¹

Share of Adults with One or More Chronic Condition by County, 2002



California Health Care Spending by Condition, 2002
Annual cost per capita



Currently, Americans receive only half of the nationally recommended preventative services.² The Affordable Care Act addresses this through initiatives and funding to promote preventative medicine; however, without a primary care workforce trained in health promotion and prevention, challenges will remain.³

Studies have shown that cardiovascular disease, diabetes, and cancer are all preventable through lifestyle modification.⁴ Smoking and high blood pressure are responsible for the largest number of deaths in the US. Other dietary, lifestyle, and metabolic risk factors for chronic diseases (such as high blood sugar and cholesterol) for chronic diseases also cause a substantial number of deaths in the US.⁵

Naturopathic doctors (NDs) are experts in prevention: NDs promote behaviors in their patients that foster health and reduce risk factors for chronic disease. Naturopathic doctors consistently encourage and teach the implementation of a healthy diet, regular exercise, health-promoting lifestyle and stress reduction strategies. The Look Ahead trials determined that healthy dietary changes recommended by primary care doctors were more likely to be implemented by **frequent and expert delivery**, which is what a patient can expect when under the care of a naturopathic doctor.⁶ Studies have found that patients are significantly **more likely to discuss health maintenance and optimization** with naturopathic doctors compared to medical doctors.⁷

The four most common causes of death in the US are heart disease, lung cancer, stroke, and chronic obstructive pulmonary diseases. Chronic disease and mortality can largely be attributed to tobacco smoking, high blood pressure, being overweight/obese, physical inactivity, high blood sugar, alcohol use, and consuming a diet low in omega 3 fatty acids, high in trans fatty acids and high in salt.

¹ *Chronic Disease in California: Facts and Figures*. Oakland, CA: California Healthcare Foundation, 2006.

² McGlynn EA, Asch SM, Adams J, et al. *The quality of health care delivered to adults in the United States*.

³ The Patient Protection and Affordable Care Act, P.L., 111-148, 23 March 2010.

⁴ *Preventing Cancer, Cardiovascular Disease and Diabetes: A Common Agenda*. American Cancer Society, American Heart Association, and the American Diabetes Association, Circulation, 2004.

⁵ Danaei G, Ding EL, Mozaffarian D, Taylor B, Rehm J, et al. (2009) *The Preventable Causes of Death in the United States: Comparative Risk Assessment of Dietary, Lifestyle, and Metabolic Risk Factors*. PLoS Med 6(4): e1000058. doi:10.1371/journal.pmed.1000058.

⁶ Ryan DH et al. *Look AHEAD: design and methods for a clinical trial of weight loss for the prevention of cardiovascular disease in type 2 diabetes*. Control Clin Trials, 2003 Oct; 24(5):610-28.

⁷ Boon, Heather, et al. "Visiting family physicians and naturopathic practitioners. Comparing patient-practitioner interactions." *Canadian family physician* 49.11 (2003): 1481-1487.

Diabetes Prevention: 33% of males and 39% of females born in California in 2000 are expected to develop diabetes during their lifetimes.⁷

- Research shows that naturopathic medicine improves blood glucose control, patient self-management behaviors, and self-efficacy among patients with diabetes.⁷
- Naturopathic doctors **address lifestyle modification** (dietary recommendations, exercise prescriptions and stress reduction techniques) with 69-100% of their diabetic patients.⁸
- Patients under an ND's care are **17% less likely to develop metabolic syndrome** than those in conventional care.⁹
- **Lifestyle change is superior to early metformin for the prevention of diabetes.** Lifestyle interventions delay the onset of diabetes by 11 years, while metformin therapy delays the onset of diabetes by 3 years in those with impaired glucose tolerance. **Lifestyle modification costs \$8,800; metformin therapy costs \$29,000 for each quality-adjusted life year (QALY) saved.**¹⁰
- Lifestyle modification program is cost-effective in all adults, while metformin is not cost-effective after age 65.¹⁰
- A lifestyle intervention program **prevented 37% of expected cases of diabetes over 15 years** at a cost of \$1288 per QALY. Private insurer investments showed recovery of costs through medical expenses avoided after 3 years.¹⁰

"Active health promotion counseling and an emphasis on self-care form the foundation for naturopathic medicine... Naturopathic doctors identify the individual barriers to change that a patient faces and then emphasize practical solutions for fitting behavior modification techniques into a busy lifestyle."

--Ryan Bradley, ND, MPH

Heart Disease Prevention: 57% of Californians over age 65 have been diagnosed with high blood pressure (BP). Healthcare costs for Californians with heart disease are 6 times greater than average.¹

- High-risk patients receiving naturopathic care **can reverse hypertension without expensive medication**: research shows drops of 26mmHg ($P < 0.0001$) in systolic BP and 11mmHg ($P < 0.0001$) in diastolic BP in 6 months.¹¹
- Less than 50% of conventional care patients with high blood pressure receive lifestyle counseling despite clear industry guidelines, while **97% of patients under the care of a naturopathic doctor receive lifestyle counseling.**¹²
- A randomized clinical trial showed that naturopathic medicine resulted in a 3.3% reduction in the 10-year Framingham cardiovascular event risk, equivalent to **gaining 5.5 years of active life.**¹³
- Lifestyle change is the *only* intervention proven to reverse coronary artery disease.¹⁴

Low Back Pain (LBP) Treatment: One of the most common and challenging problems for both patients and clinicians. LBP cost U.S. employers \$297.4 to \$335.5 billion in lost productivity during 2010.¹⁵

- A randomized controlled trial (RCT) found significant decreases in pain and increases in range of motion in workers who received naturopathic care versus usual care. Quality of life also improved.¹⁶
- An RCT of rotator cuff tendinitis found reduced pain and less disability in naturopathic patients when compared to usual care.¹⁷
- From the perspective of the employer, **\$172/day of lost productivity was avoided** at a cost \$154 per absentee day avoided; this is a **return on investment of 7.9%** for including naturopathic care in an essential benefits package.¹⁷

Asthma Symptom Management and Treatment: Total charges for asthma hospitalizations in 2005 in California were \$763 million. Only 33% percent of adults and 39% of children with asthma received asthma management plans from a health care provider in 2005.¹⁸

- An international study of 50,000 school children found that greater consumption of fruit, vegetables and fish was associated with **lower incidence** of wheeze and asthma symptoms.¹⁹ Another study found that nuts, fresh fruit and vegetable consumption decreased wheeze and rhinitis.²⁰
- A Johns Hopkins epidemiological review found significant evidence that antioxidant vitamins, particularly vitamin C and vitamin E, and omega-3 fatty acids modulate the progression of chronic lung diseases and chronic obstruction pulmonary disease in **both children and adults.**²¹
- **Increasing evidence supports numerous naturopathic treatments** for both the prevention and treatment of chronic lung conditions, including the use of fish oil supplements,^{21, 22} magnesium for acute symptoms,²³ and nebulized glutathione.²⁴
- NDs incorporate both naturopathic and conventional modalities when treating asthma, including prescription inhalers and drugs as appropriate.

⁸ Bradley R. Adjunctive naturopathic care for type 2 diabetes: patient-reported & clinical outcomes after 1 year. BMC Complementary & Alternative Medicine 2012; 12:44

⁹ Bradley R, Shen E, Buckle H, Kaltunas J, Tais S, Standish LJ. Description of clinical risk factor changes during naturopathic care for type 2 diabetes. J Altern Complement Med 2009;15:633-8.

¹⁰ Herman WH, Hoerger TJ, Brandle M, Hicks K, Sorensen S, Zhang P, Hamman RF, Ackermann RT, Engelgau MM, Ratner RE; Diabetes Prevention Program Research Group. The cost-effectiveness of lifestyle modification or metformin in preventing type 2 diabetes in adults with impaired glucose tolerance. Ann Intern Med. 2005 Mar; 142(5):323-32.

¹¹ Bradley R. Observed changes in risk during naturopathic treatment of hypertension. eCAM 2010, p1-8.

¹² Heaton PC, Frede SM. Patients' need for more counseling on diet, exercise, and smoking cessation: results from the National Ambulatory Medical Care Survey. J Am Pharm Assoc 2006; 46:364-9.

¹³ Chobanian A, Bakris et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA 2003; 289:2560-72.

¹⁴ Bradley R, Oberg EB. Naturopathic medicine and type 2 diabetes: a retrospective analysis from an academic clinic. Alt Med Rev 2006;11:30-9.

¹⁵ Herman PM, Szczurko O, Cooley K, Seely D. A naturopathic approach to the prevention of cardiovascular disease: A cost-effectiveness analysis of a pragmatic multi-worksites randomized clinical trial.

¹⁶ Seely et al. Naturopathic medicine for the prevention of cardiovascular disease: a randomized clinical trial. CMAJ 2013. DOI:10.1503/cmaj.120567

¹⁷ The Health Professionals Follow-up Study. Circulation 2006; 114:160-167. Ornish et al., JAMA, 1998

¹⁸ Institute of Medicine of the National Academies Report. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research, 2011. The National Academies Press, Washington DC. (page 260). http://books.nap.edu/openbook.php?record_id=13172&page=260.

¹⁹ Szczurko O, Cooley K, Busse JW, Seely D, Bernhardt B, et al (2007) Naturopathic Care for Low Back Pain: A Randomized Trial. PLoS ONE 2(9): e919. Doi:10.1371/journal.pone.0000919.

²⁰ Naturopathic Treatment of Rotator Cuff Tendinitis Among Canadian Postal Workers: A Randomized Controlled Trial. Arthritis & Rheumatism (Arthritis Care & Research) Vol. 61, No. 8, August 15, 2009, pp 1037-1045; Herman PM, Szczurko O, Cooley K, Mills EJ. Cost-Effectiveness of naturopathic care for chronic low back pain. Altern Ther Health Med 2008; 14(2): 32-39.

²¹ Milat, Meredith et al. The Burden of Asthma in California: A Surveillance Report. California Department of Health Services: June, 2007.

²² Chatzi, Leda, et al. "Protective effect of fruits, vegetables and the Mediterranean diet on asthma and allergies among children in Crete." Thorax 62.8 (2007): 677-683.

²³ Nagel, Gabriele, et al. "Effect of diet on asthma and allergic sensitisation in the International Study on Allergies and Asthma in Childhood (ISAAC) Phase Two." Thorax 65.6 (2010): 516-522.

²⁴ Romieu, Isabelle, and Carol Trenga. "Diet and obstructive lung diseases." Epidemiologic reviews 23.2 (2001): 268.

²⁵ Dry, J., and D. Vincent. "Effect of a fish oil diet on asthma: results of a 1-year double-blind study." International Archives of Allergy and Immunology 95.2-3 (2009): 156-157.

²⁶ Hill, J., et al. "Investigation of the effect of short-term change in dietary magnesium intake in asthma." European Respiratory Journal 10.10 (1997): 2225-2229.

²⁷ Bishop, Clark, et al. "A pilot study of the effect of inhaled buffered reduced glutathione on the clinical status of patients with cystic fibrosis." CHEST Journal 127.1 (2005): 308-317.