

As health care costs continue to rise, decision makers must allocate their increasingly scarce resources toward therapies that offer the most benefit per unit of cost. In a recent systematic review of the literature conducted by Dr. Patricia Herman and colleagues at the University of Arizona's Program in Integrative Medicine, there were four studies in which integrative care (CAM therapies in combination with conventional care) was found to be superior to conventional care in terms of cost effectiveness, including some combination of the following: better effects and lower costs, similar effects and lower costs, or better effects and similar costs. Therefore, even though complementary therapies are given in addition to usual care, they can improve clinical outcomes without increasing costs. Additionally, there were five studies in which alternative therapies (those therapies used on a stand-alone basis) showed superior cost effectiveness compared to conventional care.

Source: Herman PM, Craig BM, Caspi O. Is complementary and alternative medicine (CAM) cost-effective? A systematic review. *BMC Complement Altern Med.* 2005 Jun 2;5:11

Additionally, in another recent systematic review, conducted by Stefanie Maxon-Bergemann and colleagues at the University of Zurich in Switzerland, phytotherapy (use of herbals or botanical supplements) proved to be cost-effective. For example, ginkgo biloba was effective in delaying the need for conventional care in patients with dementia; costs for medication with ginkgo were exceeded by the savings due to the later onset of symptoms requiring costly care. Studies showed that costs for homeopathic remedies were about one fifth to one fourth of allopathic medication for the same condition. One study found a reduction of 1.5 days of absenteeism from work in the CAM group compared to conventionally treated patients. Overall, although different patient groups and conditions were investigated, costs for CAM therapies were lower than the average health care expenditure for conventional treatment for the same condition.

Source: Maxon-Bergemann S, Wolf M, Bornhöft G, Matthiessen PF, Wolf U. Complementary and alternative medicine costs - a systematic literature review. *Forsch Komplementmed.* 2006;13 Suppl 2:42-5

Three specific examples of economic evaluations of complementary & alternative therapies:

(1) Cost-identification study: Homeopathics

Frenkel and Hermoni, 2002, performed a retrospective comparison of medication consumption costs from computerized medication charts three months before and three months after a homeopathic intervention for atopic and allergic disorders. The review was performed on 48 consecutive self-referred patients in one clinic over one year with a diagnosis of an atopic condition who agreed to a classical homeopathic treatment in addition to usual conventional care. Of the 31 medication users (prescription and non-prescription allergy-related medications) before the intervention, 27 reduced their use, two increased their use, and two had their medication level unchanged after the intervention. Of the 17 who had not used medication before the intervention, 4 began medication after the

intervention. There was an average drop in 3-month medication costs after homeopathy of \$14 (1998 US\$) or 54% per person.

Source: Frenkel M, Hermoni D. Effects of homeopathic intervention on medication consumption in atopic and allergic disorders. *Alternative Therapies*. 2002;8:76-79

(2) Cost-effectiveness analysis: Omega-3 supplementation

Franzosi and colleagues, 2001, prospectively gathered health and economic outcomes during the 3.5 year follow-up period of a large randomized open-label study (n = 5664) of omega-3 supplementation as secondary prevention for patients with recent myocardial infarction. The perspective was that of a third-party payer; accordingly only direct health care costs (hospital admissions, laboratory and diagnostic tests, and medications) were considered. The incremental number of life-years saved by omega-3 supplementation over the 3.5 years (discounted at 5%) was 0.0332 per patient. The incremental cost-effectiveness ratio was approximately \$25,415 (US dollars) per life-year saved.

Source: Franzosi MG, Brunetti M, Marchioli R, Marfisi RM, Tognoni G, Valagussa F., GISSI-Prevenzione Investigators. Cost-effectiveness analysis of n-3 polyunsaturated fatty acids (PUFA) after myocardial infarction: results from Gruppo Italiano per lo Studio della Sopravvivenza nell'Infarto (GISSI) - Prevenzione Trial. *Pharmacoeconomics*. 2001; 19:411-420

(3) Cost evaluation analysis: Glutamine supplementation

In a randomized, double-blind, prospective clinical trial, researchers from Harvard Medical School evaluated the potential clinical benefits of glutamine-supplemented nutrition in patients with bone marrow transplants. They compared hospital charge and cost data for the two groups of patients at the Bone Marrow Transplant Unit in Brigham and Women's Hospital, Boston, Mass. A total of 43 patients admitted to the Bone Marrow Transplant Unit were assigned randomly to receive either standard nutritional therapy or the same nutritional protocol with additional glutamine starting on day 1 after bone marrow transplant. The study found that nitrogen balance (a reflection of protein losses) improved significantly in the glutamine-supplemented group compared with control subjects, and length of hospitalization was significantly shorter in the glutamine-supplemented group than in the control group (29 versus 36 days, respectively). The incidence of positive microbial cultures and clinical infection was also significantly lower with glutamine supplementation. Hospital charges were \$21,095 per patient less in the glutamine-supplemented group compared with charges for patients who received standard therapy. Room and board charges were significantly improved as well: \$51,484 for the glutamine-supplemented group vs \$61,591 in the control group. This intervention study demonstrates the clinical and

economic benefits of a simple supplementation strategy (L-glutamine), with major cost savings to the hospital.

Source: MacBurney M, Young LS, Ziegler TR, Wilmore DW. A cost-evaluation of glutamine-supplemented parenteral nutrition in adult bone marrow transplant patients. *J Am Diet Assoc.* 1994;94:1263-6.