

Testimony for joint meeting of Oregon Health Policy Board and Oregon Health Insurance Exchange Board

August 14, 2012

Mdm. and Mr. Chair, members of the Boards,

My name is Ted Amann, and I am the Director of Health System Development for Central City Concern (CCC).

I appear before you today to advocate for the inclusion of acupuncture benefits in the Essential Health Benefits package. I do this as a representative of Central City Concern, where, as many of you know, we have used acupuncture and Traditional Chinese Medicine (TCM) for over 20 years to effectively treat addiction, chronic pain, and other diagnoses.

I am also here on behalf of the Oregon College of Oriental Medicine (OCOM) and the National College of Natural Medicine (NCCM), two organizations which have made invaluable contributions to the recognition of acupuncture and TCM as effective and efficacious treatments. Both organizations are located here in Portland, yet their practitioners and students are prevented from fully participating in Oregon's health care systems.

I understand that this issue – whether to include acupuncture and other Complementary and Alternative Medicine (CAM) modalities in the EHB package – was considered previously by the EHB Workgroup, and was the subject of several public testimony comments. I have the utmost respect for the members of the EHB workgroup and I share the workgroup's concern for protecting the low cost of the minimum benefit package so as not to price people out of the Exchange.

However, I respectfully request that you, the joint boards of the Oregon Health Insurance Exchange and Oregon Health Policy Board, adopt an Essential Health Benefits package that does include acupuncture. It is the opinion of CCC, OCOM, NCCM, and many others that the potential cost savings to Oregon's health systems, the potential quality of life improvements for individual buyers on the Exchange, and the potential savings of human lives more than outweigh the marginal cost of adding this benefit. It would also provide continuity of benefits as people move between OHP and the Exchange. I have submitted for your review a statement published by the American Association of Acupuncture and Oriental Medicine that provides detailed justification and references for the inclusion of acupuncture as an Essential Benefit.

Since 2005, more than 6 high quality systematic reviews have concluded that acupuncture is a safe and effective treatment for chronic pain. In the past two years, Oregon's Health Evidence Review Commission has restored acupuncture to several lines on the Prioritized List in acknowledgement of the quality of research supporting the practice and its growing acceptance among health care professionals. To quote a recent study proposal published by researchers from the Kaiser Permanente Center for Health Research, "There is a high potential for acupuncture and chiropractic care to provide safe and effective treatment for chronic pain." The authors report, that, "Americans seek CAM treatments far more often for chronic musculoskeletal pain (CMP) than for any other condition. Among CAM treatments for CMP, acupuncture and chiropractic care are among those with the highest acceptance by physician groups and the best evidence to support their use. Further, recent alarming increases in delivery of opioid treatment and surgical interventions for chronic pain - despite their high costs, potential adverse effects, and modest efficacy - suggests the need to evaluate real world outcomes associated with promising non-pharmacological/non-surgical CAM treatments for CMP, which are often well accepted by patients and increasingly used in the community." [i]

We have seen firsthand in CCC, OCOM, and NCNM clinics the devastating effects of misused and diverted opiate pain medications. Tragically, prescription opiates have risen to become the leading cause of accidental over-dose deaths in Oregon. Our hospital partners tell us that chronic pain is one of the biggest, if not the biggest, driver of avoidable Emergency Department visits, which as you all know translates directly into rising health care costs for everyone in our State.

For all of these reasons, I respectfully request that you include acupuncture benefits in the EHB package for the treatment of chronic pain and addictions as well as other diagnoses. I have submitted the position paper so that you may review all the evidence to support this decision, and would be happy to provide additional documentation and references if any of you would like to see more.

Thank you for your time and consideration.

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[i] DeBar LL, Elder C, Ritenbaug C, Aickin M, Deyo R, Meenan R, Dickerson J, Webster JA, Yarborough BJ. (2011). Acupuncture and chiropractic care for chronic pain in an integrated health plan: a mixed methods study. BMC Complementary and Alternative Medicine 2011, 11:118. Full text retrieved June 10, 2012 from <http://www.biomedcentral.com/1472-6882/11/118>



American Association of Acupuncture and Oriental Medicine (AAAOM) Position Statement in Support of the Designation of Acupuncture Services as an Essential Health Benefit

The American Association of Acupuncture and Oriental Medicine (AAAOM) was formed in 1981 to be the unifying force for American acupuncturists and is dedicated to ethical practice, high educational standards, and the regulation of acupuncture and oriental medicine. The AAAOM is the sole professional organization for licensed acupuncturists in the United States, representing the interests of individual practitioners, their small businesses, physicians, health care professionals, patients and state professional associations.

The AAAOM supports designating acupuncture as an Essential Healthcare Benefit (EHB) under the Affordable Care Act for the following reasons:

- *acupuncture is safely and effectively practiced nationally by state licensed and regulated health care professionals who are trained in institutions whose accreditation is recognized by the U.S. Department of Education;*
- *acupuncture is a cost-effective, comparatively-effective, low-tech, and minimally-invasive system of care that has been found to be highly effective in commonly occurring medical conditions as enumerated by the World Health Organization (WHO);*
- *acupuncture has demonstrated significant effects on both the central and peripheral nervous system, immune system functioning, and modulation of the stress response among others*
- *acupuncture is an important component of an emerging integrative model of care whereby thousands of licensed acupuncturists and physicians are practicing acupuncture in clinics, hospitals, universities, military and veterans' care facilities;*
- *acupuncture reimbursement for treatment by licensed acupuncturists and physicians is available through federal, state, and private third party payers;*
- *acupuncture, has an unparalleled safety record with a minimal risk of side effects, and has demonstrated consistent and meaningful improvement outcomes;*
- *acupuncture has demonstrated a high level of patient satisfaction, as evident by the steadily increasing use of acupuncture and highlighting the need for increased patient access to acupuncture care;*
- *acupuncture meets the EHB criteria and services, at minimum, five of the EHB categories of care.*

The Patient Protection and Affordable Care Act (ACA) of 2010 was enacted to ensure that Americans have access to quality, affordable health care. Starting in 2014, plans offered in the new ACA Health Insurance Exchanges, Medicaid state plans, and individual and small group plans will be required to provide a package of essential health benefits EHB. Under the ACA,¹ the Secretary of the Department of Health and Human Services (HHS) is charged with defining EHB categories through regulation, ensuring that the EHB floor “is equal to the scope of benefits provided under a typical employer plan.”² HHS requested that the Institutes of Medicine (IOM) make recommendations on the criteria and methods for determining and updating the essential health benefits package.³

The ACA requires that the EHB include at least ten general categories of health services, and have benefits similar to those currently provided by a typical employer. Plans can modify coverage within a benefit category so long as they do not reduce the value of coverage. The ten categories include: (1) ambulatory patient services; (2) emergency services; (3) hospitalization; (4) maternity and newborn care; (5) mental health and substance use disorder services, including behavioral health treatment; (6) prescription drugs; (7) rehabilitative and habilitative services and devices; (8) laboratory services; (9) preventive and wellness services and chronic disease management; and (10) pediatric services, including oral and vision care.

For a particular service to be eligible, the IOM criteria state that it must (1) be safe; (2) be medically effective; (3) demonstrate meaningful improvement; (4) be a medical service; and (5) be cost effective.⁴

Acupuncture fits all of the criteria for an eligible EHB service, and has demonstrated meaningful improvement in outcomes over current effective services and treatments for conditions in at least five of the ten general categories of health care outlined by HHS and IOM.

Acupuncture is a standardized,^{5,6} licensed and regulated health care profession that conducts training in accredited institutions,⁷ and provides safe,⁸ low cost^{9,10} and comparatively effective^{11,12} health care services. Over 3.1 million adults visited an acupuncturist in 2006,¹³ a figure that has risen sharply over the past decade; in 2007 there were 79.2 visits to an acupuncturist per 1,000 adults compared to 27.2 visits in 1997.¹⁴ Visits to a health care practitioner of any kind totaled \$61.5 billion, of which \$11.9 billion was spent on complementary and alternative medicine (CAM) providers such as acupuncturists.

There is considerable evidence that acupuncture can influence both central and peripheral nervous system, stimulate the releases of brain chemicals such as endorphins, increase immune system functioning, improve circulating system, decrease muscle tightness, and bring about significant improvement for a variety of diseases. A recent research report from the National Center for Complementary and Alternative Medicine (NCCAM) shows that acupuncture effectively treats chronic migraine headaches.¹⁵

The number of health insurance plans that cover acupuncture and other complementary and alternative therapies has been steadily increasing. The Kaiser Family Foundation 2004 annual survey of employer-sponsored health plans found that 50% of larger firms (with 200 or more employees) offered coverage for acupuncture.¹⁶ Acupuncture has been included in California's

worker's compensation model since 2007. Currently, there are several veterans' affairs and active military treatment facilities that utilize acupuncture for pain management, post-traumatic stress disorder (PTSD), and compassion fatigue for health care providers.

An analysis of over 18,000 claims in New York found that "expenditures on acupuncture may be offset through reductions in other health care utilization."¹⁷ Acupuncture was found to be a less costly alternative than for some medical services and pharmaceuticals. Acupuncture use was associated with decreased spending in primary care, outpatient services, surgery and pharmaceuticals (specifically gastrointestinal and pain medications).

A 2009 report by AAAOM entitled "Economic Evaluation in Acupuncture: Past and Future"¹⁸ summarizes research assessing the cost-benefit and cost-effectiveness of acupuncture as compared with common treatment modalities. While the research in this area continues, existing evidence suggests cost savings in the use of acupuncture for treating some common health problems.

Medical- and Comparative-Effectiveness of Acupuncture

Acupuncture has been found to provide meaningful improvement in outcomes over current effective services and treatments. Acupuncture has been found to be highly effective in several medical conditions, including the management of chronic pain^{19,20}, increasing conception rates in couples experiencing infertility²¹, in controlling chemotherapy induced nausea and vomiting^{19,22}, in the treatment of migraine headaches^{23,24} to name a few. Specifically, in relation to the EHB health service categories, acupuncture has been found to be an effective treatment for: ambulatory patient services, maternity/infertility, mental health and substance use disorder services, rehabilitative services, preventative wellness, and chronic disease management as discussed and referenced below.

1) Ambulatory patient services: Throughout the country, the majority of licensed acupuncturists provide care on an outpatient basis for a wide array of disorders. Among the most common conditions for which patients seek acupuncture is pain. A 2010 article in *Nature Neuroscience*, one of the world's leading scientific journals, confirmed acupuncture's role in triggering the release of adenosine – a neuromodulator with anti-nociceptive properties.²⁵

Knee pain due to osteoarthritis is an example of a condition commonly treated by acupuncture. One study found that when acupuncture was added to the standard treatment protocol for arthroplasty of the knee, over one-third of patients were able to avoid surgery, resulting in a savings of \$9,000 per patient.²⁶ The *Journal of Bone and Joint Surgery* estimates that by 2030, the demand for primary total knee arthroplasties is projected to grow by 673% to 3.48 million procedures due to an increase in the aging U.S. population. If one-third of those patients could avoid surgery through acupuncture care, this could generate a total savings of \$10.44 billion.

2) Maternity and newborn care: For pregnant women, acupuncture is widely used in the management of pain (during and after pregnancy), and in the treatment of allergies, nausea, stress and anxiety, and migraines. A study at a maternity teaching hospital in Adelaide,

Australia, of women in early pregnancy (N=593) with symptoms of nausea or vomiting concluded that acupuncture is an effective treatment for nausea and dry retching.²⁷ Findings from a randomized single-blind controlled trial (n=386) published in the *British Medical Journal* in 2005 found that acupuncture and certain stabilizing exercises constitute efficient complements to standard treatment for the management of pelvic girdle pain (PGP) during pregnancy. Acupuncture was found to be superior to stabilizing exercises in relieving PGP.²⁸ Hospital maternity wards world-wide are among the settings most familiar with the positive health outcomes acupuncturists help provide.

3) Mental health and substance use disorder services including behavioral health treatment: The military and the Veteran's Administration use acupuncture to combat the symptoms of PTSD and pain management in facilities across the country (including Camp Pendleton, Ft. Hood, Ft. Bliss, Ft. Carson, Seattle VA, Salt Lake City VA, the Air Force and Walter Reed Army Medical Center). One active military clinic reported weekly cost savings to be \$18.76 per patient by replacing pharmacotherapy with acupuncture care – representing an annual cost savings of \$129,000 in 2009.²⁹

Acupuncture has been found to be effective in the treatment of post-stroke depression (PSD). A 2011 randomized, double-blind controlled trial concluded that acupuncture for PSD is as effective as fluoxetine but without obvious drug-induced adverse reaction involved.³⁰ The Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. HHS identifies acupuncture as a complementary treatment for detoxification, recognizing that it can be included as part of a comprehensive management program for treatment for addictions.³¹

4) Rehabilitative and habilitative services and devices: According to NIH, an estimated three of every 10,000 workers lost time from work in 1998 because of carpal tunnel syndrome (CTS). One case of CTS treatment without surgical intervention costs \$5,246 versus an estimated \$1,000 in acupuncture treatments (based on 15 visits at \$65 per visit)³². Conservatively assuming 54,000 impacted workers per year, this equals an annual savings of \$216 million for CTS treatment alone. Dutch researchers at the Erasmus University Medical Center Rotterdam observed that musculoskeletal complaints are associated with a large medical and societal burden. They concluded that the observed improvements in health-related quality of life (HRQoL) suggest a subjective, clinically relevant, benefit of routine acupuncture therapy in treating musculoskeletal complaints.³³

5) Preventive and wellness services and chronic disease management: As part of ACA, the HHS and the IOM have recognized pain as a public health problem. The IOM reports that chronic pain affects at least 116 million American adults – more than the total affected by heart disease, cancer, and diabetes combined – and costs the nation up to \$635 billion each year in medical treatment and lost productivity. The IOM's review recommended offering incentives to support the delivery by primary care providers of coordinated, evidence-based, interdisciplinary pain assessment and care for persons with complex pain.³⁴

The research evidence supports the benefit of acupuncture for pain relief in chronic neck pain and improved range of motion.^{35,36,37} Acupuncture has also been found to be an effective treatment for migraine and tension-type headaches.³⁸ Research on the use of acupuncture to treat

lower back pain, peripheral joint pain and osteoarthritis is limited, however there is growing evidence to suggest its effectiveness.^{39, 40, 41, 42, 43, 44}

Many hospitals and clinics deploy acupuncturists for preventive and wellness care, and for the management of chronic disease. Specifically, acupuncture is used to reduce post-operative pain, alleviate pain and other side effects of treatment of cancer patients, and improve recovery times for stroke patients. Research indicates that acupuncture can be used for pre-surgical care to reduce the amount of post-operative morphine consumption. This is significant as post-operative pain is a strong predictor of subsequent chronic pain.⁴⁵ Cancer Treatment Centers of America (CTCA) employs acupuncturists in its five nationwide hospitals, providing thousands of acupuncture treatments in a truly integrative setting.⁴⁶ Stroke patients who received adjunctive acupuncture treatment decreased their hospital stays by about half and saved \$26,000 per patient.⁴⁷ In California alone, with a reported 641,000 stroke patients in 2005, this would represent savings of \$16.6 billion.⁴⁸

Summary Statement

Acupuncture coverage expands patient choice and healthcare access. Acupuncture is already an important part of the fabric of American healthcare, and is safely and effectively practiced throughout the country. There is wide acceptance of acupuncture by health insurance carriers, health care providers and the US health care consumer - who often pays out-of-pocket, a measure of patient value.⁴⁹

Licensed acupuncturists provide quality care in close collaboration with other providers. The Association of American Medical Colleges predicts a nationwide shortage of 91,500 primary care physicians by 2020. Acupuncturists have the potential to help fill this gap in the absence of other primary care providers (PCPs) in many parts of the country.⁵⁰ Nationwide, hospitals and clinics have hired acupuncturists to provide care in areas such as pain management, gynecology, and oncology.

The inclusion of acupuncture in the Essential Health Benefits package will increase patient access to safe, cost-effective and comparatively-effective health care, improve outcomes, and reduce adverse events of conventional therapies, and provide an overall increase in cost-savings for American health care.

¹ Section 1302(b)(2) of the Affordable Care Act.

² Centers for Medicare & Medicaid. (2011, December 16). Essential health benefits bulletin. *The Center for Consumer Information & Insurance Oversight*. Retrieved January 27, 2012, from http://www.cciio.cms.gov/resources/files/Files2/12162011/essential_health_benefits_bulletin.pdf.

³ *Institute of Medicine of the National Academies*. (2011, October 6). Essential health benefits: Balancing coverage and cost. Retrieved January 27, 2012, from <http://www.iom.edu/Reports/2011/Essential-Health-Benefits-Balancing-Coverage-and-Cost.aspx>

⁴ *Institute of Medicine of the National Academies*. (2011, October 6). Essential health benefits criteria. Retrieved January 27, 2012, from http://www.iom.edu/~media/Files/Report%20Files/2011/Essential-Health-Benefits-Balancing-Coverage-and-Cost/EHB_insert.pdf

⁵ Astin J.A., Marie A., Pelletier K.R., Hansen E., & Haskell W.L.. (1998). A review of the incorporation of complementary and alternative medicine by mainstream physicians. *Arch Intern Med*, 158(21), 2303-2310.

⁶ Wahner-Roedler D.L., Vincent A., Elkin P.L., Loehrer L.L., Cha S.S., & Bauer B.A.. (2006). Physicians' attitudes toward complementary and alternative medicine and their knowledge of specific therapies: a survey at an academic medical center. *Evid Based Complement Alternat Med*,3(4), 495-501.

⁷ *The Accreditation Commission for Acupuncture and Oriental Medicine*. (2011). About us. Retrieved January 27, 2012, from <http://acaom.org/about/>

⁸ Lao L., Hamilton G.R., Fu J., & Berman, B.M. (2003). Is acupuncture safe? A systematic review of case reports. *Altern Ther Health Med*, 9(1), 72-83.

⁹ Witt C.M., Reinhold T., Jena S., Brinkhaus B., & Willich S.N. (2008). Cost-effectiveness of acupuncture treatment in patients with headache. *Cephalalgia*,28(4), 334-345.

¹⁰ Reinhold T., Witt C.M., Jena S., Brinkhaus B., & Willich S.N. (2008). Quality of life and cost-effectiveness of acupuncture treatment in patients with osteoarthritis pain. *Eur J Health Econ*,9(3), 209-219.

¹¹ Witt C.M., Jena S., Brinkhaus B., Liecker B., Wegscheider K., & Willich S.N. (2006). Acupuncture in patients with osteoarthritis of the knee or hip: a randomized, controlled trial with an additional nonrandomized arm. *Arthritis Rheum*,54(11), 3485-393.

¹²Cherkin D.C., Sherman K.J., Avins A.L., Erro J.H., Ichikawa L., Barlow W.E.,...Deyo R.A. (2009). A randomized trial comparing acupuncture, simulated acupuncture, and usual care for chronic low back pain. *Arch Intern Med*,169(9),858-866.

¹³ *National Center for Complementary and Alternative Medicine*. Acupuncture use in the united states. Retrieved January 27, 2012, from <http://nccam.nih.gov/health/acupuncture/introduction.htm#use>

¹⁴ Wolsko P.M., Eisenberg D.M., Davis R.B., Ettner S.L., & Phillips R.S. (2002). Insurance coverage, medical conditions, and visits to alternative medicine providers: Results of a national survey. *Arch Intern Med*,162(3), 281-287.

¹⁵ *National Center for Complementary and Alternative Medicine*. (2011, November). Get the facts: Headaches and CAM. Retrieved January 27, 2012, from <http://nccam.nih.gov/health/pain/headachefacts.htm>

¹⁶ Kaiser Family Foundation/Health Research and Educational Trust. (2004, September). Employer health benefits: 2004 annual survey. Exhibit 8.2, p. 106. *The Henry J. Kaiser Family Foundation*. Retrieved January 27, 2012 from <http://www.kff.org/insurance/7148/sections/ehbs04-8-2.cfm>

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- ¹⁷ Bonafede, M., Dick A., Noyes K., Klein J.D. & Brown T. (2008). The effect of acupuncture utilization on healthcare utilization. *Med Care*, 46, 41-48.
- ¹⁸ Jabbour, M., Sapko, M.T., Miller, D.W., Weiss, L.M. & Gross, M. (2009). Economic evaluation in acupuncture: Past and future. *American Acupuncturist*, 49, 11.
- ¹⁹ Ezzo J., Vickers A.J., Richardson M.A., Allen C., Dibble S.L., Issell B.,...Zhang, G. (2006). Acupuncture-point stimulation for chemotherapy-induced nausea and vomiting. *Cochrane Database Syst Rev*, (2).
- ²⁰ Hopton A. & MacPherson H. (2010, March-April). Acupuncture for chronic pain: Is acupuncture more than an effective placebo? A systematic review of pooled data from meta-analyses. *Pain Pract*, 10(2):94-102.
- ²¹ Franconi G., Manni L., Aloe L., Mazzilli F., Giambalvo Dal Ben G., Lenzi A., & Fabbri A.J. (2011, April). Acupuncture in clinical and experimental reproductive medicine: a review. *Endocrinol Invest*, 34(4), 307-311.
- ²² Chao L.F., Zhang A.L., Liu H.E., Cheng M.H., Lam H.B. & Lo S.K. (2009, November). The efficacy of acupoint stimulation for the management of therapy-related adverse events in patients with breast cancer: a systematic review. *Breast Cancer Res Treat*, 18(2), 255-267.
- ²³ Linde K., Allais G., Brinkhaus B., Manheimer E., Vickers A. & White A.R. (2009, January). Acupuncture for migraine prophylaxis. *Cochrane Database Syst Rev*, 21;(1)..
- ²⁴ Li Y., Zheng H., Witt C.M., Roll S., Yu S.G., Yan J.,...Liang F.R. (2012, January). Acupuncture for migraine prophylaxis: A randomized controlled trial. *Canadian Medical Association Journal*.
- ²⁵ Goldman, N., Chen, M., Fujita, T., Xu Q., Peng W., Liu W....& Nedergaard, M. (2010, May). Adenosine A1 receptors mediate local anti-nociceptive effects of acupuncture. *Nature Neuroscience*. Retrieved January 27, 2012, from <http://www.readcube.com/reader/10.1038/nn.2562>
- ²⁶ Christensen B.V., Iuhl I.U., Vilbek H., Bulow H.H., Dreijer N.C., & Rasmussen H.F. (1992). Acupuncture treatment of severe knee osteoarthritis. A long-term study. *Acta Anaesthesiol Scand*, 36(6), 519-525.
- ²⁷ Smith C., Crowther C., & Beilby J. (2002). Acupuncture to treat nausea and vomiting in early pregnancy: a randomized controlled trial. *Birth*, 29(1), 1-9.
- ²⁸ Elden L., Ladfors L., Olsen M.F., Ostgaard H.C., & Hagberg H. (2005). Effects of acupuncture and stabilising exercises as adjunct to standard treatment in pregnant women with pelvic girdle pain: Randomised single blind controlled trial. *BMJ*, 330(7494), 761.
- ²⁹ Spira A. (2008). Acupuncture: A useful tool for health care in and operational medicine environment. *Mil Med*, 173(7), 629-634.
- ³⁰ Li H.J., Zhong B.L., Fan Y.P., Hu H.T. (2011, January). [Acupuncture for post-stroke depression: a randomized controlled trial]. *Zhongguo Zhen Jiu* 31(1). Retrieved January 27, 2012, from <http://www.ncbi.nlm.nih.gov/pubmed/21355143>
- ³¹ Substance Abuse and Mental Health Services Administration, Detoxification and substance abuse treatment, treatment improvement protocol (TIP) series 45. *California Society of Addiction Medicine*. Retrieved January 27, 2012, from http://www.csam-asam.org/sites/default/files/pdf/misc/TIP_45.pdf
- ³² Clairmont A.C., (1997). Economic aspects of carpal tunnel syndrome. In *Carpal Tunnel Syndrome*. Edited by EW Johnson. Philadelphia, PA, US: WB Saunders.

- ³³ Van den berg I., Tan L., van Brero H., Tan K.T., Janssens A.C., & Hunink M.G. (2010). Health-related quality of life in patients with musculoskeletal complaints in a general acupuncture practice: an observational study. *Acupunct Med*,28(3), 130-135.
- ³⁴ *Institute of Medicine of the National Academies*. (2011, June 29). Relieving pain in america: A blueprint for transforming prevention, care, education, and research. Retrieved January 27, 2012, from <http://iom.edu/~media/Files/Report%20Files/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research/Pain%20Research%202011%20Report%20Brief.pdf>
- ³⁵ Trinh K., Graham N., Gross A., Goldsmith C., Wang E., Cameron I., & Kay T. (2006). Acupuncture for neck disorders. *Cochrane Database Syst Rev*, 19;3:CD004870.
- ³⁶ Fu L.M., Li J.T., & Wu W.S. (2009). Randomized controlled trials of acupuncture for neck pain: Systematic review and meta-analysis. *J Altern Complement Med*, 15(2), 133-145.
- ³⁷ Witt C.M., Jena S., Brinkhaus B., Liecker B., Wegscheider K., & Willich S.N. (2006). Acupuncture for patients with chronic neck pain. *Pain*, 125(1-2), 98-106.
- ³⁸ Linde, K., Allais G., Brinkhaus B., Manheimer E., Vickers A., & White A.R. (2009). Acupuncture for migraine prophylaxis. *Cochrane Database Syst Rev*,21;(1):CD001218.
- ³⁹ Rubinstein S.M., van Middelkoop M., Kuijpers T., Ostelo R., Verhagen A.P., de Boer M.R.,... van Tulder M.W. (2010). A systematic review on the effectiveness of complementary and alternative medicine for chronic non-specific low-back pain. *Eur Spine J*,19(8), 1213-1228.
- ⁴⁰ Trigkilidas D. (2010). Acupuncture therapy for chronic lower back pain: A systematic review. *Ann R Coll Surg Engl*,92(7), 595-598.
- ⁴¹ White A., Foster N.E., Cummings M., & Barlas P. (2007). Acupuncture treatment for chronic knee pain: a systematic review. *Rheumatology (Oxford)*, 46(3), 384-90.
- ⁴² Bjordal J.M., Johnson M.I., Lopes-Martins R.A., Bogen B., Chow R., & Ljunggren A.E. (2007). Short-term efficacy of physical interventions in osteoarthritic knee pain. A systematic review and meta-analysis of randomised placebo-controlled trials. *BMC Musculoskeletal Disorders*, 8:51.
- ⁴³ Manheimer E., Linde K., Lao L., Buter L.M., & Berman B.M. (2007). Meta-analysis: acupuncture for osteoarthritis of the knee. *Ann Intern Med*,146(12), 868-877.
- ⁴⁴ Kwon, Y.D., Pitter, M.H., & Ernst, E (2006). Acupuncture for peripheral joint osteoarthritis: A systematic review and meta-analysis. *Rheumatology. (Oxford)*, 45, 1331-1337.
- ⁴⁵ Kotani N., Hashimoto H., Sato Y., Sessler D.I., Yoshioka H., Kitayama M.,... Matsuki A. (2001). Preoperative intradermal acupuncture reduces postoperative pain, nausea and vomiting, analgesic requirement, and sympathoadrenal responses. *Anesthesiology*,95(2), 349-356.
- ⁴⁶ *Cancer Treatment Centers of America*. Acupuncture, Retrieved January 27, 2012, from <http://www.cancercenter.com/complementary-alternative-medicine/acupuncture.cfm>
- ⁴⁷ Johansson K., Lindgren I., Widner H., Wiklung I., Johansson B.B. (1993). Can sensory stimulation improve the functional outcome in stroke patients? *Neurology*,43, 2189-2192
- ⁴⁸ *Centers for Disease Control and Prevention*. (2007, May 18). Prevalence of stroke --- United states, 2005. MMWR: 56(19). Retrieved January 27, 2012, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5619a2.htm>

⁴⁹ Barnes P. & Bloom B. (2008, December 10). Complementary and alternative medicine use among adults and children: United states, 2007. *National Center for Complementary and Alternative Medicine*. Retrieved January 27, 2012, from <http://nccam.nih.gov/news/2008/nhsr12.pdf>

⁵⁰ Mann, S (2011, April). Addressing the physician shortage under reform. *Association of American Medical Colleges*. Retrieved January 27, 2012, from https://www.aamc.org/newsroom/reporter/april11/184178/addressing_the_physician_shortage_under_reform.html