

# Review of Published Studies of the Cost-Effectiveness of Dietary Supplements

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February 23, 2010



# Overview

- Results of systematic review of CAM economic evaluations
- Specifics regarding higher quality CEAs of dietary supplements
- Comments about use of studies in US
- Conclusions



# Comprehensive Systematic Review

- 34 search terms for CAM
- 16 search terms for economics
- Searched all available years in:
  - PubMed
  - CINAHL
  - AMED
  - PsychInfo
  - Web of Science
  - EMBASE



# Results

- Generated about 8,000 references to review after duplicates were removed
- ~1,000 of these were reviewed in more detail (English only)
- ~300 CAM economic evaluations
- 37 of these were of dietary supplements



# Dietary Supplement Studies

	Herbs	Vit/Min	Other
Total	15	11	11
Past 10 yrs	14	9	10
Full evalns	12	6	9
Min. quality	1	3	4
US study	0	1	1

# Minimum Study Quality

- Comparison to usual care
- Must include all relevant costs for one recognized perspective
- Effectiveness from a randomized or matched control trial
- Patient-specific data on both health and economic outcomes (models excluded)
- Sensitivity analysis



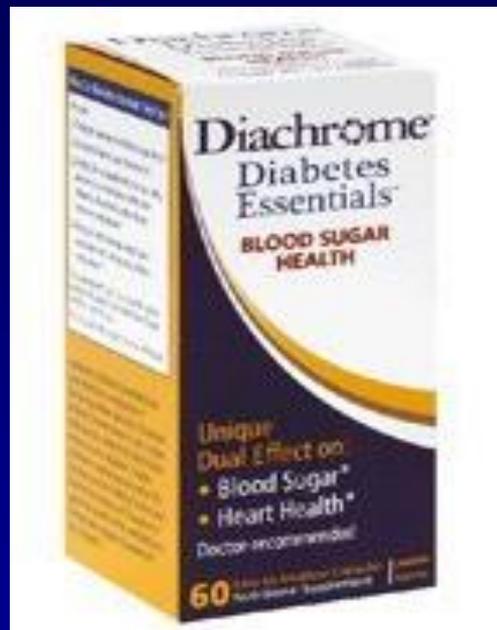
# “Higher” Quality US Studies

Both were modeling studies:

1. Chromium and biotin for uncontrolled DMII Fuhr et al. *Dis Manag* 2005;6:265-75.
2. Omega 3 supplement for men with previous MI Schmier et al. *Manag Care* 2006;15:43-50.



# Chromium & Biotin for DMII



- Effectiveness from several trials
  - Used published estimates of medical cost savings per unit HbA1c reduced
  - Medical cost savings/yr > annual cost of supplement
  - Cost saving to payer
- Funded by a grant from nutritional supplement company (Nutrition 21, Inc).

# Fish Oil Supplements for Men with a History of MI



- Effectiveness only in terms of CV and MI deaths from 4 trials
  - Used Medicare cost of one hospital visit per death plus AHA estimate of productivity losses
  - Cost saving to society
  - “Cost-effective” to payer (\$9,221 per MI death avoided)
- Funded by the Council for Responsible Nutrition

# Other Higher Quality

	Country	Type	Result
Fish oil, 2 <sup>nd</sup> MI prevention	Italy Franzosi '01	RCT (n=5664) 3.5 Yrs	Higher cost-P Better LYS
	UK Quilici '06	Model Lifetime	Higher cost-P Better LYS, QALYs, Deaths
	AU, BE, CA, DE, PL Lamotte '06	Model Lifetime	Higher cost-P Better LYS

# Other Higher Quality

	Country	Type	Result
Vitamin K <sub>1</sub> Osteoporosis	UK Stevenson '09	Model Lifetime	Higher cost-P Better QALYs
Vits C & E, $\beta$ - carotene Cataracts	Canada Trevithick '01	Model 25 years	Cost savings- P
Grass pollen Allergic rhinitis	UK* Nasser '08	RCT (n=151) 9 Yrs	Higher cost-S Better QALYs

# Cost-Effectiveness Decision Matrix

Improved Health	Definitely Adopt Alternative (Alternative Dominates)		Decision: Are benefits worth costs?
No Change		Indifferent	
Worse Health	Decision: Is health loss worth savings?		Definitely Reject Alternative (Base Case Dominates)
	Cost Savings	No Change	Increased Costs

# Why Are CEA Studies Not Used?

- Not many available of dietary supplements
- Little (but possibly growing) demand
- Diffused authority to make allocative decisions
  - Miss out on ethical trade offs, skills & resources to evaluate, standards, data
- US Preventive Services Task Force (USPSTF)



# Conclusions

- Very few CEAs of dietary supplements
- Little demand by US decision makers
- Benefit: more informed decision making
- If costs not included, we won't know

