Conference "Complementary and Alternative Medicine – An investment in health".
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Cost-effectiveness and efficiency of CAM

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European policy: investing in sustainable health systems

- Improving cost-efficiency through innovation of health systems.

- More focus on self-management, prevention and health promotion.

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Assessment of the efficiency of health systems

- Verifying the evidence of efficiency gains and improvements in health obtained through better use of healthcare budgets.

- Measuring also quality of the years of life gained (e.g. QALYs).

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Complementary and Alternative Medicine (CAM)

&

Complementary and Integrative Medicine (CIM)

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CAM and CIM

- Question: is there evidence of efficiency gains and improvements in health by CAM/ CIM?

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Cost-effectiveness and efficiency of CAM/ CIM

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Cost-effectiveness and efficiency of CAM/CIM

- Review of 204 economic studies on CAM/ CIM (2001 -2011) (*Herman et al., 2012)*

- Two additional examples of comparison conventional practices and CAM practices:
  - Cost savings by CAM practice (*Studer & Busato, 2010)*
  - Patients whose GP knows complementary medicine tend to have lower costs and live longer *(Kooreman & Baars, 2012)*

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Review on economic evaluations of CAM/CIM

Table 2 Types of individual complementary and integrative medicine (CIM) therapies studied for various conditions and in various populations: 2001–2010 (reported as the ratio of the total number of economic evaluations to the number of full economic evaluations)

	Manipulative and body-based practices	Acupuncture	Natural products	Other mind-body medicine	Homeopathy	CIM in general	Other CIM therapies*	Totals†
Back pain	28:19	11:10	2:2	–	1:1	3:0	2:2	42:29
Rheumatic disorders	9:5	6:4	6:6	2:2	–	1:0	4:3	27:19
Mixed populations	4:1	6:1	2:1	3:1	9:5	2:1	3:2	24:9
Cardiovascular disease and diabetes	–	1:0	8:6	6:4	1:1	–	3:1	18:12
Infection (various)	–	–	6:4	–	7:4	–	–	13:8
Surgery	1:1	2:2	4:3	5:4	–	–	–	12:10
Members of insurance plans	3:0	2:0	–	–	1:0	7:0	–	12:0
Mental disorders (various)	–	2:2	–	5:3	1:1	1:0	2:0	11:6
Older populations	–	–	6:3	2:0	–	–	3:1	11:4
Headaches	1:0	3:3	–	4:3	1:1	–	–	9:7
Children (various conditions)	1:0	–	–	–	6:4	1:0	1:0	9:4
Cancer	2:1	2:1	1:1	2:2	–	2:0	–	8:4
Pregnancy and women's health	–	5:5	1:0	1:0	–	–	–	7:5
Allergies	–	1:1	–	–	3:1	–	1:1	5:3
Other conditions‡	1:1	1:1	3:3	5:4	2:1	2:0	6:2	19:11
Totals†	45:25	41:29	38:28	27:16	24:13	18:1	25:12	204:114

*Other CIM therapies included aromatherapy, healing touch, Tai Chi, Alexander technique, spa therapy, music therapy, electrodermal screening, clinical holistic medicine, naturopathic medicine, anthroposophic medicine, water-only fasting, Ornish Program for Reversing Heart Disease, use of a corset and use of a traditional mental health practitioner.
†Totals across (down) columns will not add to numbers in the totals column (row) due to individual studies addressing more than one CIM therapy (patients in more than one group).
‡Other conditions studied included patients with multiple chemical sensitivities, respiratory disease, pharyngeal dysphagia, dyspepsia, functional bowel disorders, other functional disorders, venous leg ulcers, major burns and constipation; patients who rated themselves as physically ill or having low quality of life; patients in home hospice or with home nursing; long-term care workers and prisoners.

PM Herman, BL Poindexter, CM Witt, DM Eisenberg (2012). Are complementary therapies and integrative care cost-effective? A systematic review of economic evaluations. BMJ Open;2:5 e001046 doi:10.1136/bmjopen-2012-001046

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Review on economic evaluations of CAM/CIM

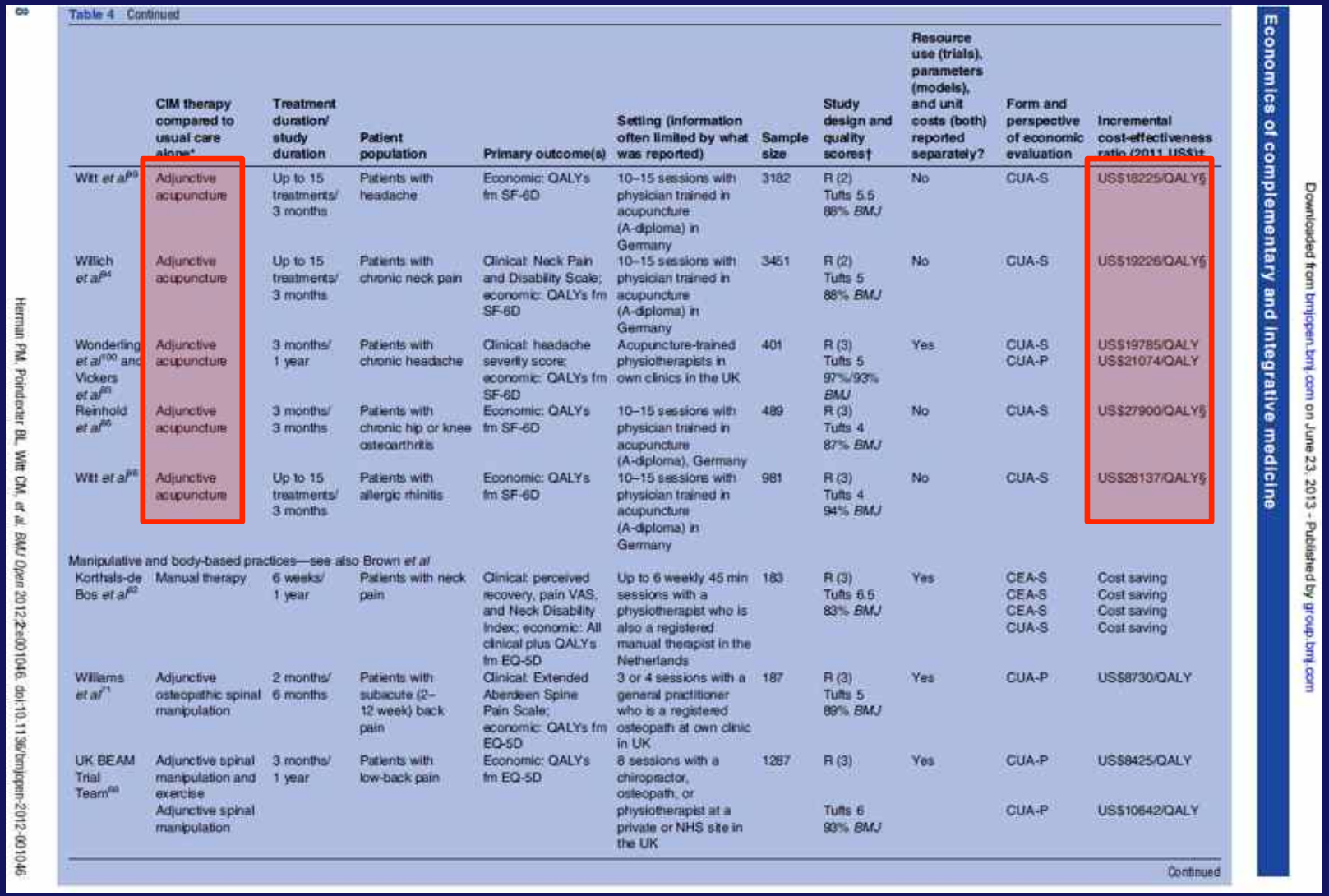

Table 4 Continued

	CIM therapy compared to usual care alone*	Treatment duration/ study duration	Patient population	Primary outcome(s)	Setting (information often limited by what was reported)	Sample size	Study design and quality scores†	Resource use (trials), parameters (models), and unit costs (both) reported separately?	Form and perspective of economic evaluation	Incremental cost-effectiveness ratio (2011 US$)‡
Witt *et al*[69]	Adjunctive acupuncture	Up to 15 treatments/ 3 months	Patients with headache	Economic: QALYs fm SF-6D	10–15 sessions with physician trained in acupuncture (A-diploma) in Germany	3182	R (2) Tufts 5.5 88% *BMJ*	No	CUA-S	US$18225/QALY§
Willich *et al*[84]	Adjunctive acupuncture	Up to 15 treatments/ 3 months	Patients with chronic neck pain	Clinical: Neck Pain and Disability Scale; economic: QALYs fm SF-6D	10–15 sessions with physician trained in acupuncture (A-diploma) in Germany	3451	R (2) Tufts 5 88% *BMJ*	No	CUA-S	US$19226/QALY§
Wonderling *et al*[100] and Vickers *et al*[85]	Adjunctive acupuncture	3 months/ 1 year	Patients with chronic headache	Clinical: headache severity score; economic: QALYs fm SF-6D	Acupuncture-trained physiotherapists in own clinics in the UK	401	R (3) Tufts 5 97%/93% *BMJ*	Yes	CUA-S CUA-P	US$19785/QALY US$21074/QALY
Reinhold *et al*[86]	Adjunctive acupuncture	3 months/ 3 months	Patients with chronic hip or knee osteoarthritis	Economic: QALYs fm SF-6D	10–15 sessions with physician trained in acupuncture (A-diploma), Germany	489	R (3) Tufts 4 87% *BMJ*	No	CUA-S	US$27900/QALY§
Witt *et al*[87]	Adjunctive acupuncture	Up to 15 treatments/ 3 months	Patients with allergic rhinitis	Economic: QALYs fm SF-6D	10–15 sessions with physician trained in acupuncture (A-diploma) in Germany	981	R (3) Tufts 4 94% *BMJ*	No	CUA-S	US$28137/QALY§
Manipulative and body-based practices—see also Brown *et al*										
Korthals-de Bos *et al*[82]	Manual therapy	6 weeks/ 1 year	Patients with neck pain	Clinical: perceived recovery, pain VAS, and Neck Disability Index; economic: All clinical plus QALYs fm EQ-5D	Up to 6 weekly 45 min sessions with a physiotherapist who is also a registered manual therapist in the Netherlands	183	R (3) Tufts 6.5 83% *BMJ*	Yes	CEA-S CEA-S CEA-S CUA-S	Cost saving Cost saving Cost saving Cost saving
Williams *et al*[71]	Adjunctive osteopathic spinal manipulation	2 months/ 6 months	Patients with subacute (2–12 week) back pain	Clinical: Extended Aberdeen Spine Pain Scale; economic: QALYs fm EQ-5D	3 or 4 sessions with a general practitioner who is a registered osteopath at own clinic in UK	187	R (3) Tufts 5 89% *BMJ*	Yes	CUA-P	US$8730/QALY
UK BEAM Trial Team[88]	Adjunctive spinal manipulation and exercise Adjunctive spinal manipulation	3 months/ 1 year	Patients with low-back pain	Economic: QALYs fm EQ-5D	6 sessions with a chiropractor, osteopath, or physiotherapist at a private or NHS site in the UK	1257	R (3) Tufts 6 93% *BMJ*	Yes	CUA-P CUA-P	US$8425/QALY US$10642/QALY

Continued

PM Herman, BL Poindexter, CM Witt, DM Eisenberg (2012). Are complementary therapies and integrative care cost-effective? A systematic review of economic evaluations. BMJ Open;2:5 e001046 doi:10.1136/bmjopen-2012-001046

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Review on economic evaluations of CAM/CIM

- **Results:**
  - 338 economic evaluations of CIM.
  - 204 evaluations, covering a wide variety of CIM for different populations, were published in 2001–2010.
  - 114 full economic evaluations.
  - 90% of these 114 articles covered studies of single CIM therapies and only one compared usual care to usual care plus access to multiple licensed CIM practitioners.

PM Herman, BL Poindexter, CM Witt, DM Eisenberg (2012). Are complementary therapies and integrative care cost-effective? A systematic review of economic evaluations. BMJ Open;2:5 e001046 doi:10.1136/bmjopen-2012-001046

Review of the scientific literature

- **Results:**
  - 16 of the 56 comparisons (29%) made in the higher-quality studies show a health improvement with cost savings for the CIM therapy versus usual care.
  - Study quality is overall good and comparable to studies in conventional medicine.

PM Herman, BL Poindexter, CM Witt, DM Eisenberg (2012). Are complementary therapies and integrative care cost-effective? A systematic review of economic evaluations. BMJ Open;2:5 e001046 doi:10.1136/bmjopen-2012-001046

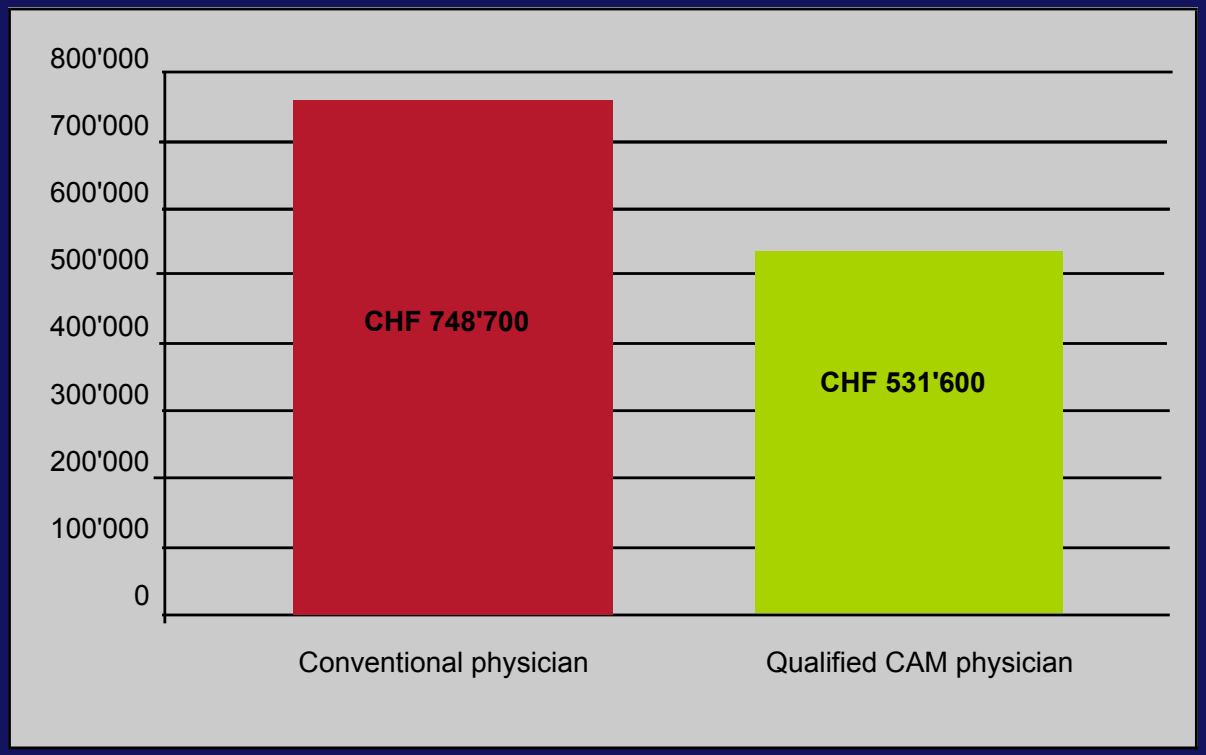
Review of the scientific literature

- **Conclusions:**
  - Many CIM economic evaluations were missed by previous reviews.
  - There is emerging evidence of cost-effectiveness and possible cost savings in at least a few clinical populations.

PM Herman, BL Poindexter, CM Witt, DM Eisenberg (2012). Are complementary therapies and integrative care cost-effective? A systematic review of economic evaluations. BMJ Open;2:5 e001046 doi:10.1136/bmjopen-2012-001046

Cost savings by CAM practices

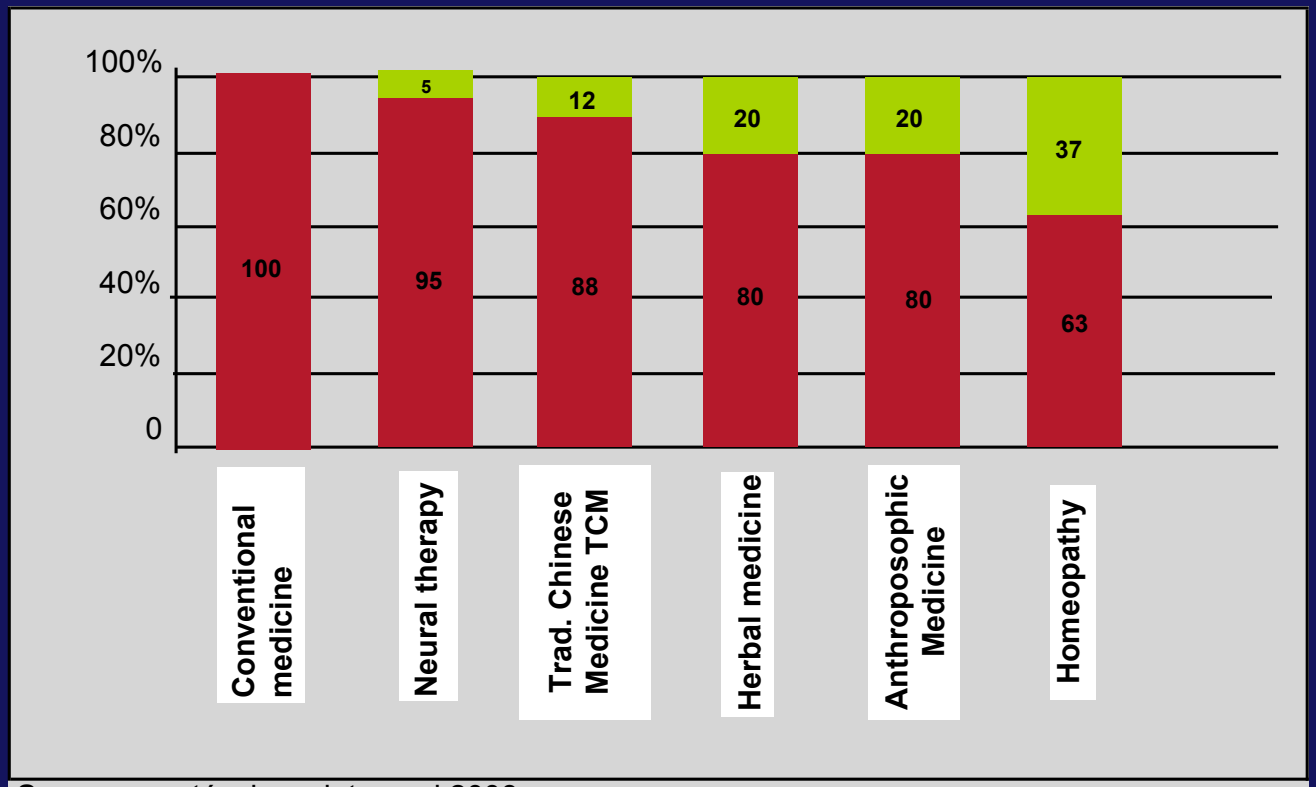
Annual costs (in CHF) at the expense of the compulsory health insurance of qualified CAM physicians and conventional physicians.



HP Studer, A Busato (2010). Ist ärztliche Komplementärmedizin wirtschaftlich? Schweizerische Ärztezeitung, 5 May.

Cost savings by CAM practices

Average costs per patient for each CAM modality / savings potential (2008)



Source: santésuisse data pool 2008

HP Studer, A Busato (2010). Ist ärztliche Komplementärmedizin wirtschaftlich? Schweizerische Ärztezeitung, 5 May.

Patients whose GP knows complementary medicine tend to have lower costs and live longer

- Dataset analysis:
  - A dataset from a Dutch health insurer was used containing quarterly information on:
    - healthcare costs (care by general practitioner (GP), hospital care, pharmaceutical care and paramedic care)
    - dates of birth and death, gender and 6-digit postcode of all approximately 150,000 insurees
    - for the years 2006–2009.
  - 1913 conventional GPs compared to 79 GPs with additional CAM training in acupuncture (25), homeopathy (28), and anthroposophic medicine (26).

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P Kooreman, EW Baars (2012). Patients whose GP knows complementary medicine tend to have lower costs and live longer. The European Journal of Health Economics. Volume 13, Issue 6, pp 769-776.

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Patients whose GP knows complementary medicine tend to have lower costs and live longer

- Results:
  - Patients whose GP has additional CAM training have 0–30% lower healthcare costs and mortality rates, depending on age groups and type of CAM.
  - The lower costs result from:
    - fewer hospital stays
    - fewer prescription drugs

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Patients whose GP knows complementary medicine tend to have lower costs and live longer

- Cost-effects

Table 3 Effects of complementary care on costs per insuree age category

	Linear			Log-linear		
	Dummy for GP-CAM anthroposophy	Dummy for GP-CAM homeopathy	Dummy for GP-CAM acupuncture	Dummy for GP-CAM anthroposophy	Dummy for GP-CAM homeopathy	Dummy for GP-CAM acupuncture
Age 0–24						
Total	6*	100	−32	0.016	−0.138**	−0.052
GP	1	−2*	1	0.015	−0.043*	0.019
Hospital	3	76	−5	0.064	−0.153*	−0.034
Pharmaceutical	1	25	−27	−0.078*	−0.250***	−0.108
Paramedic	2	0	−1	0.048	−0.006	−0.008
Age 25–49						
Total	14	−50	−66*	0.022	−0.160**	−0.106**
GP	2***	−3***	0	0.030**	−0.045**	−0.004
Hospital	3	4	−47**	0.008	−0.161**	−0.135**
Pharmaceutical	8	−51**	−17	−0.035	−0.365***	−0.136*
Paramedic	1	−1	−2***	0.032	−0.029	−0.060***
Age 50–74						
Total	63	−48	−2	−0.030	−0.153**	−0.084
GP	4***	0	0	0.040*	−0.001	0.017
Hospital	60	−121	−64	0.032	−0.145	−0.073
Pharmaceutical	−7	69	61	−0.204***	−0.352***	−0.162
Paramedic	6*	4	1	0.080	0.016	−0.009
Age 75+						
Total	−405**	81	214	−0.130	0.077	0.184
GP	−2	6	7	−0.030	0.058	0.111
Hospital	−263**	52	87	−0.029	0.069	0.171
Pharmaceutical	−125*	31	127	−0.169	0.048	0.196
Paramedic	−15	−8	−7	−0.106	−0.085	0.034

***, **, * indicate a statistically significant difference with conventional GP at the 1, 5, and 10% level, respectively

* Costs of healthcare are in Euros per quarter. Each row is based on two regressions with either costs (left panel) or the natural logarithm of costs (right panel) as the dependent variable. Explanatory variables are gender, age (linear, within each age category), dummies for each quarter, dummies for anthroposophy, homeopathy, and acupuncture; the table reports the coefficients on the latter dummies. All regressions control for 6-digit insuree postcode fixed effects; standard errors clustered at the insuree level

P Kooreman, EW Baars (2012). Patients whose GP knows complementary medicine tend to have lower costs and live longer. The European Journal of Health Economics. Volume 13, Issue 6, pp 769-776.

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Patients whose GP knows complementary medicine tend to have lower costs and live longer

- Healthy ageing

Table 4 Effects of complementary care on mortality

	Dummy for GP-CAM anthroposophy	Dummy for GP-CAM homeopathy	Dummy for GP-CAM acupuncture	Combined
Logit with fixed effects	0.031	−0.198	−0.333*	−0.128
LPM with fixed effects	−0.005*	−0.004	−0.009**	−0.006***
Women				
Logit with fixed effects	0.034	0.010	−0.203	−0.031
LPM with fixed effects	−0.007*	0.004	−0.008	−0.005*
Men				
Logit with fixed effects	0.020	−0.627*	−0.493	−0.291*
LPM with fixed effects	−0.003	−0.014	−0.013**	−0.008**

Dependent variable: death in 2006, 2007, 2008, or 2009

The table is based on models with the following explanatory variables: gender, age, dummies for anthroposophy, homeopathy, and acupuncture (dummy for complementary in the last column); the table reports the coefficients on the latter dummies

LPM regression controls for 4-digit insuree postcode fixed effects

***, **, * indicate a statistical significance at the 1, 5, and 10% level, respectively

P Kooreman, EW Baars (2012). Patients whose GP knows complementary medicine tend to have lower costs and live longer. The European Journal of Health Economics. Volume 13, Issue 6, pp 769-776.

Conclusions

- Europe wants to improve cost-efficiency through innovation of health systems, with more focus on self-management, prevention and health promotion.

- Investing in implementation and economic evaluation of CAM/CIM as a cost-efficient innovation of healthcare systems might be worthwhile since:

  - CAM/CIM is aiming at increasing self-management, prevention and health promotion (theoretical working principle)

  - There is emerging evidence of cost-effectiveness and possible cost savings in at least a few clinical populations (empirical evidence)

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Thank you for your attention!

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  - http://www.louisbolk.org/nl/home/

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