The Evidence Base of Homeopathy:

Basic, Biological and Clinical Research

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  - FRCP, Accredited in rheumatology and homeopathy
- Member, WHO expert panel on Traditional and Complementary Medicine
- Member, Advisory and Editorial Board, Cochrane Collaboration Complementary and Alternative Medicine Field
- Editor-in-Chief, Homeopathy
- Physician to HM The Queen
Homeopathy: *key features*

- Treatment of like with like
  - ‘Similia similbus curentur’
- Minimum dose
  - including ‘ultramolecular’ dilutions
- Holism
  - Constitution, terrain
- Idiosyncracy
  - ‘rare, strange & peculiar’ symptoms
Hormesis in animals

hormesis = stimulatory or beneficial effect of low dose of toxin vs linear threshold/non-threshold model

Stebbing ARD Hormesis - the stimulation of growth by low levels of inhibitors. Sci Tot Environ 1982;22:213-234
Rebound effect: suicidal behaviour and antidepressants

- Rebound, withdrawal, and paradoxical effects including suicidality occur with antidepressant drugs
  - Relatively rare but more intense than the primary action of the drug.

- Influenced by
  - Patient factors
    - Age and diagnosis
  - Drug factors
    - Half-life

Teixera MZ. Antidepressants, suicidality and rebound effect: evidence of similitude? Homp 2009: 98; 114–121
Vital Reaction

- ‘Vital reaction’ is fundamental to homeopathy
  - High dilutions trigger reaction without primary action
- Extensively experimentally verified
  - hormesis, hormoligosis, paradoxical pharmacology, rebound effects, dose-dependent reverse effects etc
  - mechanisms include up/down regulation, enzyme induction, cybernetic feedback
- but often uncertain
- presensitization crucial
Belladonna

Atropa belladonna
Deadly nightshade
Belladonna

- Atropinic, anticholinergic, parasympatholytic
  - Tachycardia
  - hot, dry skin, flushed face
  - decreased secretions
  - dilated pupils
  - confusion, delirium

- Homeopathic clinical uses
  - bright red sore throat
  - Acute otitis media
  - <noise, jarring
This seems to be the reason for this beneficial remarkable fact namely that since the general distribution of Jenner’s Cow-pox vaccination, human small-pox never again appeared as epidemically or virulently as 40-45 years before when one city visited lost at least one-half and often three-quarters of its children by death of this miserable pestilence.

Footnote to para 46 Organon 6th edition
Preparation of homeopathic dilutions

1 part mother tincture

99 parts water/ethanol

Succussion

$10^{-2} \ 1c/\text{cH}$

$10^{-4} \ 2c/\text{cH}$

Lactose or sucrose pills

$10^{-12} \ 6c/\text{cH}$
Avogadro’s Law
(Loschmidt’s constant)

• The number of particles in one gram mole of a pure substance is 6.023 x 10^{23}

• It is extremely unlikely that dilutions beyond 12c/cH or 23x/dH contain any molecule of the starting substance
1

Physical Research
How do ultramolecular dilutions act?

- Presence of nanoparticles of:
  - Original substance
    - contrary to theoretical predictions
  - Gas (nanobubbles)
  - Silicates
  - Dissipative structures
What happened to Avogadro’s Law?

- Market samples of metal medicines
  - Aurum metallicum, Cuprum met, Stannum met, Zincum met, Argentum met, Platinum met
  - 30 & 200c
- Transmission Electron Microscopy (TEM)
- Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
- Presence of nanoparticles of metals and aggregates
An explanation? surface effects

Evidence of very high energies generated by succussion

TEM of nanoparticles in Zinicum met 30c.
Melting point 692K.
Selected Area Electron Diffraction (SAED) pattern inset
Microcavitation

- High-energy pressure waves from succussion generate vapour nanobubbles due to pressure falling below vapour pressure
  - nanoseconds, temperatures ~5000 K, pressures ~1000 atm
  - collapse generates shock waves propel particles at high velocities
- Localized melting followed by extremely rapid cooling (>10^{10} K/s) forming amorphous (not crystalline) aggregates
What happened to Avogadro’s Law 2?

- Langmuir adsorption model
  - Surface monolayer of molecules in dynamic equilibrium with solution
  - Not specific to molecule of the active ingredient or the solvent or container
- Concentrations slightly higher than predicted by Avogadro
  - Implications for type of dilution (Hahnemannian or Korsakov) and multicomponent mixtures

Silicates and succussion

- Activity of Acetylcholine esterase stored for 24h in:
  - Purified deionised water
  - Water 30c made in polypropylene tubes
  - Water 30c made in borosilicate glass tubes
Silicates and succussion

Water 30c has same effect as Na$_2$SiO$_3$ (waterglass) 100µM

Scanning electron micrograph of colloidal silica particle

Thermoluminescence of ultramolecular dilutions of NaCl and LiCl

• **Method**
  - dilutions of LiCl and NaCl in ‘heavy’ water (D₂O)
  - cooled to 77⁰K, bombarded with x- or γ-rays
  - excites electrons, creates +vely charged ‘holes’
  - warmed: +ve holes and excited electrons recombine
  - generates characteristic thermoluminescence ‘glow’

• **Results**
  - high dilutions (15c = 10⁻³⁰) of LiCl and NaCl have similar spectrum to dilutions containing molecules of the same substances, and different from D₂O
  - likely to be due to broken H-bonds
Thermoluminescence signature of ultramolecular dilutions of NaCl and LiCl

Rey L. Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride. Physica A 2003; 323:67-74
Thermoluminescence signature of ultramolecular dilutions of NaCl & LiCl
Influence of atmosphere on thermoluminescence signature

Nuclear Magnetic Resonance
T1/T2 relaxation times in ultramolecular dilutions

- Discriminant analysis
- Stable supramolecular structures
- Nanobubbles of atmospheric gases
- Surrounded by highly ordered water
- Generated by succussion
- Destroyed by heating

Demangeat J-L. Nanosized solvent superstructures in ultramolecular aqueous dilutions: twenty years research using water proton NMR relaxation Homeopathy 2013; 102: 87-105
NMR evidence for formation of superstructures in high dilutions and involvement of air nanobubbles

- Correlation between T1 and T2 is lost due to formation of 4nm superstructures
- Restored due to destruction of superstructures by heating

Demangeat J-L. Gas nanobubbles and aqueous nanostructures: the crucial role of dynamization Homeopathy 2015; 104: 104-115
Dissipative structures in extremely dilute aqueous solutions

- Established physicochemical techniques
- Large changes in physicochemical properties
  - history of solution
  - solute previously dissolved
  - time
  - volume
- Suggest extended, ordered dynamics in liquid water
Dissipative structures in extremely dilute aqueous solutions

Specific conductivity $\nu$ concentration of impurities. Black symbols: homeopathic dilutions. Red line: aqueous solution

Excess specific conductivity $\nu$ age for 6 homeopathic solutions.

Dissipative structures in extremely dilute aqueous solutions

- Dissipative systems: self-organising systems, far from thermodynamic equilibrium, exchange energy and matter with environment,
- Complex structures with long-range interaction between particles
  - Include convection, cyclones, lasers...and living organisms
- Ilya Prigogine, Nobel Prize Chemistry 1977
Transduction of DNA information through water and electromagnetic waves

• Luc Montagnier
  • Nobel Laureate 2008 for discovery of HIV

Transduction of DNA information through water and electromagnetic waves 2

- Low frequency electromagnetic signals (EMS) emitted by diluted aqueous solutions of some bacterial and viral DNA
- EMS and nanostructures induced in water carry DNA information
- Shown by retrieval of DNA by PCR amplification
- Observed in living human cells exposed to EMS
- Suggests coherent long-range molecular interaction in water
2
Biological Model Research
Role of similitude:

*Similarity v survival in cell culture*

Reuber H35 Hepatoma cells
% similarity between heat shock proteins triggered by heat shock (primary stimulus) and secondary low dose conditioning response:
1µM arsenite (As)
0.3 µM cadmium (Cd)
0.1µM mercury (Hg)
10 µM lead (Pb)
10 µM copper (Cu)
20 µM menadione (men)
1 µM diethyldithiocarbamate (ddtc)

Wiegant FAC, Van Wijk R. The similia principle; results obtained in a cellular model system. Homp 2009. 98:3-14
In vitro evidence of effect of ultramolecular dilutions: systematic review

- 67 in-vitro experiments
- Stepwise agitated dilutions <10^{-23}
  - 75 publications (33% replications)
- Quality assessed by modified SAPEH score.
- 73% effect with ultramolecular dilutions
  - including 68% of 18 with SAPEH score ≥6
  - 73% replications positive
In vitro evidence of effect of ultramolecular dilutions: *systematic review*

- **Experiment type**
  - indirect healthy cells (37%)
  - direct cell-free systems (27%)
  - indirect pathological cells (19%)
  - direct healthy cells (10%)
  - pathological donors (8%)

- **Cells**
  - basophils (42%)
  - non-cellular systems (27%)
  - cultured cells (19%)
  - Others: lymphocytes (6%), erythrocytes (3%), neutrophils (3%)
In vitro evidence of effect of ultramolecular dilutions: *systematic review*

- Conclusions
- Design and experimental models heterogenous
- High quality experiments can demonstrate effect of ultramolecular dilutions
- No positive result reproduced by all investigators.

Human Basophil Degranulation Test (HBDT)

- Degranulation is a manifestation of basophil activation
- Activation is triggered by cross-linking of IgE on surface, either by specific antigens in sensitive individuals or by anti-IgE (IgG)
- Activation is inhibited by Histamine in supernatant (ie negative feedback)
- Basophils express CD63 & CD203c antigens on cell surface when activated
Human Basophil Degranulation Test and ultramolecular dilutions of histamine
**Bibliometric study:**

*inhibition of basophil activation by ultramolecular histamine*

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<th>Study Type</th>
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Summary: inhibition of basophil activation in 13/17 experiments

Effects of histamine and histidine (inactive analogue) 16c on basophil activation. Mean of 10 experiments in triplicate
Modulation of prothrombotic effect of ultramolecular aspirin

- Previous experiments indicate that ultramolecular dilutions of acetylsalicylic acid (ASA) are prothrombotic
- 120 Wistar rats treated ASA 15c or control and specific COX-1 (SC 560) and COX-2 (NS 398) inhibitors
  - ASA 15c significantly increased the number and duration of emboli vs control
  - ASA 15c + COX-1 inhibitor further increased embolisation and decreased bleeding time
  - ASA 15c + COX-2 inhibitor not different from control
- Prothrombotic activity of ultramolecular ASA may be due to inhibition of COX-2 mediated PGI₂ production in vascular endothelium


Effect of COX-1 and 2 inhibitors on prothrombotic effect of ultramolecular ASA

**Number of emboli**

- ASA 15c control
- ASA 15c Sc-560
- ASA 15c Ns-398

**Duration of embolisation**

- ASA 15c control
- ASA 15c Sc-560
- ASA 15c Ns-398

**Bleeding time**

- ASA 15c control
- ASA 15c Sc-560
- ASA 15c Ns-398

COX-1 inhibitor

COX-2 inhibitor
Gelsemium in mouse model of anxiety

- In Light-Dark test, Gelsemium 5, 9 and 30c were associated with statistically significant increase in number of transitions between compartments
- Indicates anxiolytic activity comparable to buspirone.
- Non-linear
- Includes ultramolecular dilutions.

Gelsemium in mouse model of anxiety

Effect of Gelsemium in rat limbic system

Effect of Gels on production of the neurosteroid allopregnanolone (3α,5α-THP) production in rat hippocampus and amygdala slices

Bibliometric study: ultramolecular thyroxine/thyroidinum and rate of amphibian metamorphosis

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Summary: decreased speed of metamorphosis in 10/11 experiments

Ultramolecular thyroxine & highland amphibian metamorphosis: pooled results

Blue bars transition to 4-leg stage, white bars transition to reduced tail. Letters are different researchers.

Harrer B. Replication of an experiment on extremely diluted thyroxine and highland amphibians. Homp 2013: 102; 25-30
Mechanism of action of T3 in amphibian metamorphosis

- Action of T3 $10^{-24}$M (10cH) on apoptosis induced by T3 100 nM in Rana catesbeiana tadpoles’ tail in vitro.
  - Explants randomized to
  - control: no T3 in pharmacological or ultra high dilution (UHD)
  - test: T3 100 nM and T3 10cH (UHD)
  - positive control: T3 100 nM, unsuccussed ethanol.

JRP Guedes et al UHD T3 modifies apoptosis in R. catesbeiana. Homeopathy (2011) 100, 220-227
Mechanism of action of T3 in amphibian metamorphosis

- Apoptotic index and area of explants compared
  - no difference in area
  - significantly higher index of apoptosis in test group. (p < 0.01)

Apoptosis in epidemal cells
Anti-arthritic action of Toxicodendron pubescens (Rhus toxicodendron)

- Arthritis induced by Complete Freund’s Adjuvant (CFA) injected into rat paws
  - plethysmography, pain (Von Frey), CRP, hematology, body weight, pain score, radiology
  - primary (injected paw) and secondary (non-injected)
- Rhus tox 1M, 10M, CM
Anti-arthritisic of Toxicodendron pubescens (Rhus toxicodendron)

- reduced primary and secondary arthritic lesions
- improved weight gain
- protected against hematological and radiological perturbations


Also:
Hypericum in nerve injury model

- Rat sciatic nerve transected
  - sham operation v silicon tube v silicon tube + Hypericum
  - Hypericum 30c twice daily for 1 week.
  - studied 4, 8, 12 weeks after surgery

- Significantly better function, muscle mass, nerve histology with Hypericum

Hypericum in nerve transection: *mean axon* \(\phi\)

* \(P < 0.05\) Sil/Hypericum v Sil (ANOVA)
Clinical Research:

randomized controlled trials and meta-analyses of RCTs
'No evidence’?

randomized controlled trials of homeopathy

- January 2016: 1117 clinical trials of homeopathy
- 298 randomized controlled trials
  - 65 individualized v placebo
  - 15 individualized v other treatment
  - 177 non-individualised v placebo
  - 41 non-individualized v other treatment
- Approximately 45% positive, 45% inconclusive <10% negative

www.carstens-stiftung.de/core-hom
Systematic reviews & meta-analyses of homeopathy

- 4 systematic reviews/meta-analyses of homeopathy as a whole (all conditions)
  - 3 positive
  - 1 negative (Shang et al)
- Positive for specific conditions
  - Allergies and upper respiratory tract infection (2), seasonal allergic rhinitis (3), childhood diarrhea, post-operative ileus, rheumatic diseases, vertigo
Controversy: Lancet 2005 meta-analysis

- 110 matched trials of homeopathy and conventional medicine
- Reduced to higher quality trials:
  - 21 homeopathy, 9 conventional
- Further reduced to 8 homeopathy, 6 conventional ‘larger higher quality’
  - ‘weak evidence for a specific effect of homoeopathic remedies, but strong evidence for specific effects of conventional interventions. Compatible with the notion that the clinical effects of homoeopathy are placebo effects’.

Shang et al funnel plots: 
*standard error v log odds ratio*

Small SE (lowest quartile) = larger
Shang et al: *criticisms*

- 8 anonymous clinical trials.
  - Not cited, no information (diagnoses, number of patients etc)
  - 93% excluded.
- Data ‘dredged’
  - Why 8/21? ‘larger’ added post-hoc
- No sensitivity analysis
  - What is result for all 110 or 21 trials of ‘higher quality’?
  - What if homeopathy works for some indications, not others?
- Did not comply with QUOROM guidelines
  - No descriptive data for trials, no summary results, no consideration of external validity etc
Comprehensive Systematic Reviews & Meta-analyses of homeopathy 2

- Linde Lancet 1997
- 89/186 trials had interpretable results
  - Not compatible with hypothesis that effects of homeopathy are all placebo effects
  - Not clearly efficacious for any single condition
### Linde et al: Meta-analysis 1

- **89 RCTs**

#### Table: Treatment Outcomes

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<tr>
<th>First author (ref)</th>
<th>n</th>
<th>Jadad/IV score</th>
<th>Condition</th>
<th>Intervention</th>
<th>Outcome</th>
<th>Odds ratio (95% CI)</th>
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<td>Reilly (14)</td>
<td>28</td>
<td>10/5/3</td>
<td>Allergic asthma</td>
<td>Individual node C30</td>
<td>VAS improvement (mm)*</td>
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<td>39</td>
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<td>Poliosis</td>
<td>Pollen C30</td>
<td>Global assessment</td>
<td>favours homeopathy</td>
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<td>Galphimia D4</td>
<td>Improvement ocular symptoms</td>
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**Dermatology**

- **Labrocco (78)**
  - 174 | 86/100 | Warts | Thuya C30, Ant C5, Ac.nitr.C7 | Disappearance of warts | |
- **Leeson (99)**
  - 34 | 40/50 | Minor burns | Canary C200 | Pain (area under curve)* | |
- **Mössinger (88)**
  - 144 | 40/36 | Prokrassae | Heper suthurs D4 | Days to healing (days)* | |
- **Patterson (193)**
  - 40 | 80/64 | Skin lesions | Mustard gas C30 | Depth of lesion | |
- **Patterson (203)**
  - 169 | 40/57 | Skin lesions | Individual treatment | Depth of lesion | |
- **Patterson (90)**
  - 39 | 40/57 | Skin lesions | Rhus tox C30 | Depth of lesion | |
- **Schwab (1102)**
  - 13 | 60/71 | Dermatosis (only patients fitting) | Sulphur | Predicted reactions on remedy | |
- **Schwab (2102)**
  - 16 | 40/71 | Dermatosis (only patients fitting) | Sulphur | Predicted reactions on remedy | |

**Gastroenterology**

- **Bigioni (41)**
  - 31 | 40/64 | Anal fissure | Acidum nitricum C9 | Improvement | |
- **Jacobs (73)**
  - 34 | 60/64 | Diarrhoea | Individual treatment in C30 | Duration of diarrhoea (days)* | |
- **Jacobs (72)**
  - 92 | 10/43 | Diarrhoea | Individual treatment in C30 | Duration of diarrhoea (days)* | |
- **Mössinger (186)**
  - 53 | 20/33 | Gastroitis | Nux vomica D4 | Global assessment, physician | |
- **Mössinger (286)**
  - 16 | 20/29 | Gastroitis | Nux vomica D30 | Global assessment, physician | |
- **Ritter (99)**
  - 147 | 40/50 | Gastroitis | Nux vomica D4 | Global assessment, physician | |
- **Mössinger (50)**
  - 14 | 0/4 | Cheilositis, stomatitis | Absinthium D2 | Global assessment, physician | |
- **Reif (96)**
  - 119 | 40/79 | Intestinal bowel | Asa foetida D3 | Global assessment, patient | |
- **Reif (95)**
  - 72 | 40/79 | Intestinal bowel | Asa foetida D1 | Global assessment, patient | |

**Musculoskeletal complaints**

- **Böhm (44)**
  - 102 | 100/100 | Sprains | Traumeel (complex) | Global assessment, patient | |
- **Zell (114)**
  - 73 | 10/100 | Sprains | Traumeel (complex) | Joint movement | |
- **Thiel (104)**
  - 80 | 40/79 | Haemarthrosis | Traumeel (complex) | Joint movement | |
- **Mössinger (378)**
  - 47 | 20/29 | Cramps | Cuprum C30 | Global assessment, physician | |
- **Mössinger (456)**
  - 34 | 20/29 | Cramps | Cuprum D4 | Global assessment, physician | |
- **Mössinger (546)**
  - 46 | 20/29 | Cramps | Cuprum C200 | Global assessment, physician | |

**Neurology**

- **Albertini (36)**
  - 60 | 20/36 | Dental neurogia | Amice C7, Hypericum C15 | Global assessment, patient | |
- **Brigo (45)**
  - 60 | 40/79 | Migraine | Individual treatment in C30 | Global assessment, patient | |
- **Brigo (55)**
  - 55 | 20/29 | Migraine | Coccus (complex) | Global assessment, physician | |
- **Ponz (94)**
  - 93 | 20/50 | Seizures | Nux vomica C30, Coccus C3, Tab C2 | Global assessment, patient | |
- **Maier (86)**
  - 36 | 40/29 | Apthas | Individual treatment | Global assessment, physician | |
- **Savaga (100)**
  - 40 | 60/64 | Stroke | Arnica C30 | Survival | |
- **Savaga (101)**
  - 40 | 60/79 | Stroke | Arnica M | Survival | |

**Obstetrics & gynaecology**

- **Bekking (40)**
  - 5 | 60/57 | Menopause | Famosan (complex) | Symptom score* | |
- **Gorry (47)**
  - 40 | 40/57 | Menopause | Cantharis C30 | Global assessment, physician | |
- **Chapman (50)**
  - 10 | 80/71 | Premenstrual syndr | Individual treatment | Global assessment, physician | |
- **Goudert (52)**
  - 34 | 40/64 | Childbirth | Caulophyllum C5 | Labour pains | |
- **Dornman (58)**
  - 93 | 60/71 | Childbirth | Complex | Labour pains | |
- **Gauthier (65)**
  - 24 | 60/50 | Menopause compl | Lachesis C30 | Global assessment, patient | |
- **Hofmayr (70)**
  - 122 | 100/100 | Childbirth | Amice C6 (D30) | Perineal pain | |
- **Huber (77)**
  - 119 | 40/57 | Mastodynia | Mancehelly (complex) | Global assessment, physician | |
- **Lepelant (81)**
  - 45 | 60/64 | Premenstrual syndr | Foliculina C9 | Global assessment, physician | |
- **Ustianowski (105)**
  - 200 | 20/29 | Cystitis | Staphisagia C30 | Global assessment, physician | |

* Trials with continuous outcomes (converted to odds ratios)
Linde et al: subgroup analysis

- Odds ratios 1.66-5.04
Systematic reviews & meta-analyses of homeopathy

‘The most believable of the meta-analyses is still Linde et al.’s work from 1997... as the authors appear to maintain a reasonable balance between exclusion and statistical power. Analyses by Cucherat and Shang... are based on only a tiny fraction of the published studies... having a negative result is most likely when making conclusions based on as little material as possible.’

Recent meta-analysis of best randomized controlled trials of individualized homeopathy

• 32 RCTs, 24 medical conditions
• 22 trials analysable
  • 95% confidence interval 1.22 - 1.91
• 3 most reliable trials OR = 1.98
  • 95% CI 1.16 - 3.38

Recent meta-analysis of best randomized controlled trials: all trials

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<td>1.36</td>
<td>[0.45; 4.10]</td>
<td></td>
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<tr>
<td>Rastogi(b) (1999)</td>
<td>0.53</td>
<td>[0.17; 1.69]</td>
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<tr>
<td>Straumsheim (2000)</td>
<td>0.80</td>
<td>[0.34; 1.90]</td>
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<td>Yakir (2001)</td>
<td>5.50</td>
<td>[0.96; 31.62]</td>
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<tr>
<td>Bonne (2003)</td>
<td>0.87</td>
<td>[0.28; 2.72]</td>
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<td>Bell (2004)</td>
<td>1.77</td>
<td>[0.66; 4.72]</td>
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<tr>
<td>Jacobs(a) (2005)</td>
<td>0.80</td>
<td>[0.25; 2.57]</td>
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<tr>
<td>Jacobs(b) (2005)</td>
<td>3.84</td>
<td>[1.06; 13.90]</td>
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<td>Thompson (2005)</td>
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<td>[0.66; 5.64]</td>
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<td>Fisher (2006)</td>
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<td>[0.34; 5.30]</td>
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<td>Sajedi (2008)</td>
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<td>[0.09; 3.34]</td>
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<td>Siefenwirth (2009)</td>
<td>0.49</td>
<td>[0.07; 3.65]</td>
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<td><strong>RE Model</strong></td>
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<tr>
<td></td>
<td>1.45</td>
<td>[1.12; 1.89]</td>
<td></td>
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<td><strong>Dichotomous Outcomes</strong></td>
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<td>Kainz (1996)</td>
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<td>[0.45; 4.45]</td>
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<td>Jacobs (2001)</td>
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<td>[0.63; 5.36]</td>
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<td>Cavalcanti (2003)</td>
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<td>[0.55; 22.30]</td>
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<td>Weatherley-Jones (2004)</td>
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<td>[0.62; 3.47]</td>
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<td>Frass (2005)</td>
<td>3.13</td>
<td>[1.10; 8.80]</td>
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<td>Brien (2010)</td>
<td>0.86</td>
<td>[0.16; 4.47]</td>
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<td><strong>RE Model</strong></td>
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<tr>
<td></td>
<td>1.80</td>
<td>[1.12; 2.87]</td>
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</table>

Favours placebo  Favours homeopathy

Royal London Hospital for Integrated Medicine
Recent meta-analysis of best randomized controlled trials: effect of focusing on best trials
Focussed systematic reviews and meta-analyses: *positive*

- Adverse effects of cancer management (Kassab et al. 2009)
- Fibromyalgia (Perry et al. 2010)
- Childhood diarrhoea (Jacobs et al., 2003)
- HIV/AIDS (Ullman, 2003)
- Osteoarthritis (Long & Ernst, 2001)
- Post-operative ileus (Barnes, Resch & Ernst, 1997)
- Rheumatic diseases (Jonas, Linde & Ramirez, 2000)
- Vertigo (Schneider 2006)
Focussed systematic reviews and meta-analyses: positive 2

- Seasonal allergic rhinitis (Lüdtke & Wiesenauer, 1997)
- Seasonal allergic rhinitis (Taylor et al., 2000)
- Upper respiratory tract infections & allergy (Bornhöft et al, 2011)
- Upper respiratory tract diseases, including otitis media (Bellavite et al, 20)
Focussed systematic reviews and meta-analyses: negative

- *Arnica* (Ernst & Pittler, 1998)
- Delayed-onset muscle soreness (Ernst & Barnes, 1998)
- Headache and migraine prevention (Ernst, 1999)
- Insomnia (Cooper 2010)
Focussed systematic reviews and meta-analyses: *inconclusive*

- Anxiety (Pilkington et al. 2006)
- Arnica (Lüdtke & Hacke 2005)
- Attention deficit hyperactivity disorder (Coulter & Dean 2007)
- Cancer (Milazzo, Russell & Ernst 2006)
- Childhood and adolescence ailments (Altunç et al 2007)
- Chronic asthma (McCarney, Linde & Lasserson, 2004)
- Dementia (McCarney et al 2004)
- Depression (Pilkington et al 2005)
- Headache and migraine treatment (Owen & Green 2004)
- Induction of labour (Smith 2004)
Isopathy for respiratory allergy: *meta-analysis*

- **Isopathy** = treatment of ‘same with same’
  - eg homeopathic dilutions of pollen for hayfever
- **4 RCTs**
  - 2 hayfever (mixed pollen 30c)
  - 1 asthma (individualised allergen, mostly house dust mite 30c)
  - 1 perennial rhinitis (individualised, mostly house dust mite 30c)
  - Total n=253
- **Highly statistically significant**
  - P=0.0007, 95% CI 4.2-15.4

Isopathy in respiratory allergy: summary of results
Meta-analysis of homeopathy for childhood diarrhea

Homeopathy for prophylaxis diarrhoea - *in piglets*

- Biological Farming Systems Group, Wageningen University, Netherlands
- Commercial pig farm
- Randomised, observer blind placebo-controlled
- 52 sows last month of gestation
- Coli 30K (Unda) or placebo sprayed on vulva x2/week
- 525 piglets followed for 1 week
Homeopathy for prophylaxis of diarrhoea in piglets: results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Sows</th>
<th>Piglets</th>
<th>Diarrhoea (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo</td>
<td>26</td>
<td>265</td>
<td>63 (23.8)</td>
</tr>
<tr>
<td>Coli 30k</td>
<td>24</td>
<td>260</td>
<td>10 (3.8)**</td>
</tr>
</tbody>
</table>

**p<0.001 GLM corrected for parity, season, group

Homeopathy in life-threatening sepsis in ICU

• RCT in University of Vienna, Intensive Care Unit
  • Individualized homeopathy v placebo, double-blind
  • 70 patients with severe sepsis
    • standard criteria, mortality ~ 50%
  • Outcome survival at 30 & 180 d

• Baseline characteristics well matched:
  • age, sex, BMI, prior conditions, APACHE II score, signs of sepsis, number of organ failures, mechanical ventilation, vasopressors, hemofiltration, laboratory parameters
Homeopathy in life-threatening sepsis in ICU

- **Results**
  - Day 30 survival: homeopathy 81.8%, placebo 67.7%, $p = 0.19$. Day 180 survival: homeopathy 75.8%, placebo 50.0%, $p = 0.043$.
  - No adverse effects
  - NNT = 4
    - 1 patient saved for every 4 treated
    - Recombinant activated protein C NNT = 16, bleeding event 1:665.

- **Conclusions**
  - Homeopathy may be an useful addition with long-term benefit for severely septic patients.
  - Limited number of homeopaths a constraint

Arnica for knee surgery

- 3 RCTs double blind, *Arnica montana 30x v placebo*
  - Arthroscopy (n=227), total arthroplasty (n=35) cruciate ligament reconstruction (n=57).
  - Postoperative swelling and pain
  - Before surgery 1 x 5 globules
  - After surgery, 3×5 globules 8-11 days

- **Results Overall** (*p* = 0.040)
  - Arthroscopy (*p* = 0.204)
  - Total arthroplasty (*p* = 0.184)
  - Cruciate ligament (*p* = 0.019).

- **Overall positive treatment effect**
  - no strong evidence that the effectiveness of Arnica depends on the type of surgery

Arnica for knee surgery

Effects on swelling over time (standardised effects and 95% CIs). 0 = no between group difference, positive favours Arnica.

ART = Arthroscopy
CLR = Cruciate ligament reconstruction
AKJ = Total arthroplasty
Homeopathy and ADHD: RCT of treatment withdrawal

- 83 children 6-16 years, ADHD (DSM-IV).
- Double blind, placebo controlled crossover RCT of individualised homeopathy
  - 62 responders (50% improvement in CGI), participated in the trial.
  - 13 non-responders
- Responders received verum and placebo for 6 weeks, random sequence
  - Cognition had improved significantly with open treatment (P<0.0001).
- During trial CGI better on verum than placebo (P<0.05).
  - Long-term CGI improvement 12 points (63%, P <0.0001).
- Suggests effectiveness of homeopathy in ADHD particularly behavioural and cognitive.

Homeopathy and ADHD 2: RCT negative result

- Double-blind, RCT, private homeopathic clinic, Seattle WA
  - 43 children 6–12 y DSM-IV criteria for ADHD.
  - Homeopathic consultation and individualized treatment or placebo. Follow up every 6 weeks for 18 weeks.
  - CGI parent and teacher; Brief performance test
- No statistically significant differences homeopathy v placebo
- Statistically and clinically significant improvements both groups
- No evidence of effect of individualised homeopathy.
  - Future studies should be longer and include a control group not receiving homeopathic consultation.
  - Comparison to conventional stimulant?

Homeopathy and ADHD: treatment comparison

- Frei et al
  - Lycopodium
  - Calcarea carbonica
  - Sulphur
  - Belladonna
  - Causticum
  - Phosphorus

  Total 24 medicines
  LM3-30, every 1-2 days

- Jacobs et al
  - Medorrhinum
  - Saccharum officinalis
  - Calcarea carbonica
  - Calcarea phosphorica
  - China officinalis
  - Stramonium

  Total 41 medicines
  Dilutions, regime not given

Frei randomised after optimal homeopathic medicine found
Mean 3 attempts (now 1.5 - Polarity Analysis)
Jacobs randomised before 1st prescription

Or Dopamine muriaticum and Serotonin?
Homeopathy in the ‘real world’

averting Ritalin® for ADHD

- Homeopathy to avert Methylphenidate (Ritalin®) in ADHD
  - Attention Deficit Hyperactivity Disorder DSM-IV criteria
  - 115 children 3-17y, mean 8.3y. 92♂, 23♀.
  - One withdrawal
  - Conners Global Index (CGI) ≥14, mean 20.63 at entry
  - University Pediatric Clinic, Berne

- Results
  - 86 (75%) improved sufficiently not to require Methylphenidate
    - Mean improvement (parent ratings) 73%, Conners 55%
    - Mean treatment period 3.5m
  - 25 (22%) eventually required methylphenidate
    - Mean treatment period 22m

Homeopathy v conventional treatment in Acute Otitis Media: randomised controlled trial

- Jaipur, India
  - Regional Research Institute
- 81 entered, 2-6 years
- Randomised to homeopathy or conventional
  - 80 completed follow up
- Measures
  - AOM-SOS questionnaire (parent)
  - TEMS (ENT specialist)
Homeopathy v conventional treatment in AOM: *results*

- Cure at 21 days
- Conventional 100%, Homeopathy 95%
- Antibiotics:
  - Conventional 97.5%, Homeopathy 0%
Homeopathy v conventional treatment in AOM: results

Sinha MN et al Randomized controlled pilot study to compare homeopathy to conventional therapy in acute otitis media. Homeopathy 2012
Homeopathy in AOM: *homeopathic prescribing*

85% prescribed 6 homeopathic medicines

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pulsatilla nigricans</em></td>
<td>14</td>
</tr>
<tr>
<td><em>Mercurius solubilis</em></td>
<td>7</td>
</tr>
<tr>
<td><em>Silicea</em></td>
<td>6</td>
</tr>
<tr>
<td><em>Chamomilla</em></td>
<td>4</td>
</tr>
<tr>
<td><em>Lycopodium clavatum</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Sulphur</em></td>
<td>2</td>
</tr>
<tr>
<td><em>Arsenicum album</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Calcarea carbonica</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Cina</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Hepar sulph</em></td>
<td>1</td>
</tr>
</tbody>
</table>
Sinfrontal: low potency complex

- Cinnabaris D4 Ferrum phosphoricum D3 Mercurius solubilis D6 all triturations
- Multi centre double-blind, placebo-controlled RCT in Ukraine
- Acute maxillary sinusitis
- 113 patients, 22 days
- Outcomes
  - Sinus severity score D0 – D7: Sinfrontal reduction 5.8 placebo 2.3 p<0.0001
  - Complete remission D21: Sinfrontal 39 (68.4%) placebo 5 (8.9%)

**Sinfrontal: economic analysis**

- Same RCT, extended follow up
- 113 patients with AMS 11 weeks
- Economic data collected
  - indirect comparison to placebo-controlled trials of antibacterials
- Sinfrontal associated with significant cost savings compared to placebo, mostly due to reduced work absence
  - Indirect comparison with antibacterials suggested significantly higher cure rate at similar or lower cost.
- Sinfrontal may be a cost-effective treatment for AMS.

Homeopathy in the ‘real world’: averting antibiotics for AOM

- Observational study of homeopathy in primary care
  - 230 consecutive consultations
  - Homeopathic treatment, if not pain free in 6 h, 2nd homeopathic medicine, if not pain free at 12h, antibiotic
  - University Pediatric Clinic, Berne
- Results
  - 39% pain free in 6h, further 33% at 12h
    - 28% antibiotics
    - Resolution considerably faster than in reported series
  - 14% cost savings

Homeopathic eardrops v standard care in AOM: 
*randomised controlled trial*

- 119 children 6m-11y, 94 (79%) followed up
- Symptom scores lower with homeopathic eardrops than standard treatment
  - significant at 2\(^{nd}\) & 3\(^{rd}\) assessments
- rate of improvement faster in ear drop group
  - \(p = 0.002\)
- no significant side effects

Taylor JA, Jacobs J. Homeopathic ear drops as an adjunct to standard therapy in children with acute otitis media.
Homeopathy (2011) 100, 109-115
Homeopathic eardrops v standard care in AOM

Days         1           2           3           4           5

Hylands Earache Drops: Pulsatilla, Chamomilla, Sulphur, Calcarea carbonica, Belladonna, Lycopodium all 30c
Clinical Research: 

*comparative effectiveness studies*
Comparative effectiveness of homeopathy in French family practice: *EPI-3*

- EPI3-laser largest cohort study of homeopathic care ever
  - compared conventional, mixed and homeopathic General Practitioners
  - representative sample of patients consulting for MSDs
- Cohorts for
  - Musculoskeletal disease
  - upper respiratory tract infections
  - sleep disorders, anxiety and depression
- Clinical benefit, medical care and medication, adverse effects, loss of therapeutic opportunity

EPI-3 flowchart

17,206 physicians solicited by mail from random list
Recruitment stopped at 804 practices surveyed*

Patients solicited to participate  n=11,701

Patients refused to participate  n=3,142

Patients accepted to participate  n=8,559

Patients did not identify MD as their regular physician  n=2,180

Regular patients in this practice  n=6,379

Conventional medicine practice  n=1,691
Mixed medical practice  n=3,187
Homeopathic medical practice  n=1,501
Diagnoses of patients attending primary care physicians: EPI-3

Conventional, mixed, homeopathy
n=6379

<table>
<thead>
<tr>
<th>Diagnoses at the consultation</th>
<th>Type of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GP-CM N = 1691 (%)</td>
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<tr>
<td>Cardiovascular disorders</td>
<td>27.3</td>
</tr>
<tr>
<td>Anxiety-depressive disorders</td>
<td>15.8</td>
</tr>
<tr>
<td>Osteoarthritis and joint diseases</td>
<td>13.4</td>
</tr>
<tr>
<td>Upper respiratory tract infections</td>
<td>12.3</td>
</tr>
<tr>
<td>Gastrointestinal disorders</td>
<td>11.0</td>
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<tr>
<td>Back pain and back disorders</td>
<td>10.3</td>
</tr>
<tr>
<td>Obesity and hypercholesterolaemia</td>
<td>10.7</td>
</tr>
<tr>
<td>Other acute respiratory diseases (bronchitis, pneumonia, flu-like)</td>
<td>6.5</td>
</tr>
<tr>
<td>Neurological and Head &amp; Neck disorders</td>
<td>6.4</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>6.0</td>
</tr>
<tr>
<td>Thyroid and other endocrine diseases (except diabetes)</td>
<td>5.7</td>
</tr>
<tr>
<td>Sleep disorders, fatigue and general symptoms</td>
<td>5.1</td>
</tr>
<tr>
<td>Urological and genital disorders</td>
<td>5.5</td>
</tr>
<tr>
<td>COPD &amp; non-asthmatic chronic respiratory diseases</td>
<td>4.4</td>
</tr>
<tr>
<td>Asthma &amp; allergic rhinitis</td>
<td>3.5</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>3.5</td>
</tr>
<tr>
<td>Other bacterial, viral, parasitic infectious diseases</td>
<td>3.4</td>
</tr>
<tr>
<td>Trauma</td>
<td>3.5</td>
</tr>
<tr>
<td>Dermatological diseases</td>
<td>3.4</td>
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<tr>
<td>Allergies to drugs and intoxications</td>
<td>1.2</td>
</tr>
<tr>
<td>Others (including cancer)</td>
<td>5.6</td>
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<tr>
<td>Other motives for consultation</td>
<td></td>
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<tr>
<td>General examination and test results</td>
<td>8.4</td>
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<tr>
<td>Formularies and other administrative reasons</td>
<td>7.4</td>
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<tr>
<td>Vaccinations</td>
<td>3.9</td>
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<tr>
<td>Pregnancy and childcare</td>
<td>2.8</td>
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</tbody>
</table>
Demographics & patient attitudes: EPI-3

- Patients of homeopathic vs conventional primary care physicians
  - slightly more female
  - higher education
  - no big difference in comorbidities or quality of life

- Large differences
  - healthier lifestyle
  - belief in holistic and natural treatments
  - attitude to participating in own care

Lert F et al. Characteristics of patients consulting their regular primary care physician according to their prescribing preferences for homeopathy and complementary medicine. Homp 2014:103, 51-57
# EPI-3 Musculoskeletal Disease

N=1153  
CM=conventional medicine, MP= Mixed practice, Ho=homeopathy

<table>
<thead>
<tr>
<th></th>
<th>CM</th>
<th>Mx</th>
<th>Ho</th>
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<tr>
<td></td>
<td>N = 272</td>
<td>N = 510</td>
<td>N = 371</td>
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<td>Female gender</td>
<td></td>
<td></td>
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<tr>
<td>18–39</td>
<td>64.0</td>
<td>64.1</td>
<td>77.4*</td>
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<tr>
<td>40–59</td>
<td>21.8</td>
<td>22.5</td>
<td>15.1</td>
</tr>
<tr>
<td>60+</td>
<td>39.8</td>
<td>39.8</td>
<td>38.8</td>
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<tr>
<td></td>
<td>38.4</td>
<td>37.7</td>
<td>46.1</td>
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<tr>
<td>Body Mass Index (kg/m²)</td>
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<tr>
<td>&lt;25</td>
<td>48.3</td>
<td>50.0</td>
<td>56.2</td>
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<td>25–29</td>
<td>32.2</td>
<td>32.7</td>
<td>31.9</td>
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<tr>
<td>30+</td>
<td>19.5</td>
<td>17.3</td>
<td>11.0*</td>
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<tr>
<td>Smoking</td>
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<tr>
<td>Never smoked</td>
<td>50.4</td>
<td>53.3</td>
<td>64.2</td>
</tr>
<tr>
<td>Past smoker</td>
<td>23.5</td>
<td>26.1</td>
<td>20.5</td>
</tr>
<tr>
<td>Smoker</td>
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<td>20.6</td>
<td>15.3</td>
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<tr>
<td>Alcohol consumption</td>
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<td>Rarely / never</td>
<td>33.8</td>
<td>32.6</td>
<td>31.9</td>
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<tr>
<td>Once a week</td>
<td>54.1</td>
<td>56.4</td>
<td>55.6</td>
</tr>
<tr>
<td>Daily</td>
<td>12.1</td>
<td>11.2</td>
<td>12.5</td>
</tr>
<tr>
<td>Physical activity</td>
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<tr>
<td>30 minutes +</td>
<td>33.6</td>
<td>37.7</td>
<td>37.1</td>
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<tr>
<td>Education</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>High school +</td>
<td>37.6</td>
<td>35.7</td>
<td>46.9*</td>
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<tr>
<td>Occupational status</td>
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<tr>
<td>Employed</td>
<td>49.6</td>
<td>47.7</td>
<td>42.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>7.5</td>
<td>10.5</td>
<td>9.8</td>
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<tr>
<td>Retired</td>
<td>42.9</td>
<td>41.8</td>
<td>48.2</td>
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<tr>
<td>Complementary medical insurance</td>
<td>4.2</td>
<td>5.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Physician declared regular physician</td>
<td>85.1</td>
<td>83.3</td>
<td>58.3*</td>
</tr>
<tr>
<td>Hospitalization in previous year</td>
<td>23.4</td>
<td>17.8</td>
<td>17.7</td>
</tr>
<tr>
<td>Absence from work in previous year</td>
<td>12.1</td>
<td>13.8</td>
<td>7.2</td>
</tr>
</tbody>
</table>
EPI-3 MSD: results

<table>
<thead>
<tr>
<th>Number of drugs declared per 100 patient – years (95% confidence interval)</th>
<th>CM</th>
<th>MP</th>
<th>Ho</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Chronic MSD</strong></td>
<td></td>
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</tr>
<tr>
<td>NSAID</td>
<td>102.4</td>
<td>120.5</td>
<td>63.1*</td>
</tr>
<tr>
<td>78.7–126.1</td>
<td>95.4–145.6</td>
<td>32.5–93.7</td>
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<tr>
<td>Analgesics</td>
<td>309.7</td>
<td>385.2*</td>
<td>256.4</td>
</tr>
<tr>
<td>265.8–353.5</td>
<td>351.8–418.6</td>
<td>209.4–303.4</td>
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<tr>
<td><strong>Chronic MSD</strong></td>
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<tr>
<td>NSAID</td>
<td>117.6</td>
<td>113.7</td>
<td>59.0*</td>
</tr>
<tr>
<td>89.6–145.6</td>
<td>91.3–136.1</td>
<td>34.5–83.5</td>
<td></td>
</tr>
<tr>
<td>Analgesics</td>
<td>335.2</td>
<td>357.0</td>
<td>250.5*</td>
</tr>
<tr>
<td>292.9–377.5</td>
<td>322.0–392</td>
<td>211.5–289.5</td>
<td></td>
</tr>
</tbody>
</table>
EPI-3 sleep disorder cohort

- 346 patients
- Homeopathy group more severe
  - 41.3 v 24.3%
- Homeopathy much less psychotropic drugs
  - OR 0.25, CI 0.14 - 0.42
  - 12 months adjusted multivariate analyses
- Same improvement in sleep disorders

http://dx.doi.org/10.1016/j.homp.2015.05.002
### EPI-3 sleep disorder cohort

<table>
<thead>
<tr>
<th></th>
<th>GP-CM</th>
<th>GP-Mx</th>
<th>GP-Ho</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($N = 84$)</td>
<td>($N = 119$)</td>
<td>($N = 143$)</td>
</tr>
<tr>
<td>Evolution of sleeping disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients reporting none (%) at:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-month follow up</td>
<td>30.6</td>
<td>38.6</td>
<td>34.1</td>
</tr>
<tr>
<td>3-month follow up</td>
<td>51.6</td>
<td>45.5</td>
<td>37.9</td>
</tr>
<tr>
<td>Odds ratio (95% CI) vs GP-CM</td>
<td>1.0</td>
<td>0.94</td>
<td>0.72</td>
</tr>
<tr>
<td>Sleeping disorder persisting at 3 months</td>
<td></td>
<td>(0.56–1.57)</td>
<td>(0.42–1.22)</td>
</tr>
<tr>
<td>Occurrence of any injury †</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients reporting at least one in the 12-month follow up (%)</td>
<td>15.9</td>
<td>6.9</td>
<td>9.5</td>
</tr>
<tr>
<td>Odds ratio (95% CI) † vs GP-CM</td>
<td>1.0</td>
<td>0.33</td>
<td>0.57</td>
</tr>
<tr>
<td>Injury at 12 months</td>
<td></td>
<td>(0.10–1.03)</td>
<td>(0.21–1.52)</td>
</tr>
<tr>
<td>Psychotropic drug for sleeping disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients reporting at least one utilization (%) at:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>76.8</td>
<td>71.1</td>
<td>40.3</td>
</tr>
<tr>
<td>1-month follow up</td>
<td>80.8</td>
<td>67.3</td>
<td>41.1</td>
</tr>
<tr>
<td>3-month follow up</td>
<td>71.0</td>
<td>63.3</td>
<td>41.9</td>
</tr>
<tr>
<td>12-month follow up</td>
<td>66.7</td>
<td>65.5</td>
<td>42.9</td>
</tr>
<tr>
<td>Odds ratio (95% CI) † vs GP-CM</td>
<td>1.0</td>
<td>0.67</td>
<td>0.25</td>
</tr>
<tr>
<td>12-month utilization</td>
<td></td>
<td>(0.39–1.16)</td>
<td>(0.14–0.42)</td>
</tr>
</tbody>
</table>

|                           |       |       |       |
| GP declared as the regular treating physician | 79.8  | 84.0  | 42.0 † |
| Sleeping disorder † |       |       |       |
| Primary                 | 80.9  | 77.3  | 83.9  |
| Severe                  | 24.3  | 34.4  | 41.3  |
Comparative effectiveness of homeopathy in primary care in Germany

- **Comparative cohort study**
  - Selected chronic diagnoses
    - Adults: headache, low back pain, depression, insomnia, sinusitis
    - Children: atopic asthma, dermatitis, rhinitis
  - Homeopathic vs. conventional GPs in Germany

- **Outcomes at 6 & 12 months**
  - Severity of symptoms (numerical scale 0-10)
    - Patient
    - Doctor
  - Quality of life (SF-36)
  - Cost
    - Consultations, medication, physiotherapy, hospitalisation,
    - sick pay, medical devices/appliances
    - Conventional and homeopathic medication
Comparative effectiveness of homeopathy in primary care in Germany

- 493 patients (315 adults, 178 children)
- Greater improvement in patients’ assessments after homeopathic vs conventional
  - adults: homeopathy 5.7 to 3.2; conventional 5.9 to 4.4 ($p = 0.002$)
  - children 5.1 to 2.6; 4.5 to 3.2
- Physician assessments more favourable for children with homeopathy
  - 4.6 to 2.0 and 3.9 - 2.7; $p < 0.001$).
- Costs no significant differences between groups
  - adults: €2155 v €2013 $p = 0.856$
  - children, €1471 versus €786, $p = 0.137$
Comparative effectiveness of homeopathy in primary care in Germany: results patient assessment

Adults:
Conv 5.9 → 4.4
Homp 5.7 → 3.2
P=0.002

Patient assessment of severity
(0-10, 10 = worst possible) adjusted for gender, age, educational level, symptom duration and gender/age interaction
Comparative effectiveness of homeopathy in primary care in Germany: results SF-36

Quality of Life scores

SF-36 adjusted for gender, age, educational level, symptom duration and gender/age interaction

PCS
1st 6m
p=0.0.016
2nd 6m
P=0.649

MCS
p=0.273
Comparative effectiveness of homeopathy in primary care in Germany: conclusion

- Patients seeking homeopathic treatment had a better outcome overall compared to patients on conventional treatment at similar total cost

EPI-3 upper respiratory tract infections

- 518 adults and children with URTI
  - conventional and homeopathic GPs in France
- Homeopathic patients less antibiotics
  - OR = 0.43, 95% CI: 0.27-0.68
- antipyretic/anti-inflammatory drugs
  - OR = 1.16, 95% CI: 0.64-2.10
- Similar evolution
- Non-significant excess of potentially-associated infections in homeopathy group.

Comparative effectiveness of homeopathy in recurrent URTIs

- ‘Antibiotic’ v ‘homeopathic’ strategy
  - Non-randomised, pragmatic cost-effectiveness study
  - Children 18m-5y, ≥ 5 episodes/year
  - French GPs, with and without ‘homeopathic orientation’
  - 529 recruited, 499 followed at 6m
    - 231 children treated by 62 non-homeopathic GPs
    - 268 by 73 homeopathic GPs

- Outcomes episodes of URTI, complications, side-effects, quality of life (Par-Ent-Qol), direct and indirect medical costs, parents time off work to care for sick children
Comparative effectiveness of homeopathy in recurrent URTIs

• Results
  • Homeopathic strategy superior:
    • medical effectiveness (p<0.001)
    • complications (p<0.001)
    • number of consultations (p<0.001)
    • quality of life (p<0.001)
    • parental time off work (p<0.001)

• Equivalent direct medical costs

• Confounders include smoking & day care

Multinational comparative effectiveness study: homeopathy v conventional in acute respiratory disease

- 30 doctors, 6 clinical sites, 4 countries
  - 456 patients with acute respiratory problems
  - 281 homeopathy, 175 conventional
- Response at 14 days
  - 82.6% homeopathy, 68% conventional
- Adverse events
  - 7.8% homeopathy, 22.3% conventional

Replication comparative effectiveness study: *homeopathy v conventional in acute respiratory disease*

- 1577 patients, 57 primary care sites, 8 countries
  - 10 sites in UK
- Complete recovery or major improvement at 14d
- H: 86.9%; C: 86.0% \((p = 0.0003)\)
  - no differences children v adults
  - improvement within 7d faster with homeopathy
  - children \((p = 0.0488)\) and adults \((p = 0.0001)\).
- Adverse drug reactions more frequent in adults with conventional, not children

Swiss Health Technology Assessment: Homeopathy for upper respiratory tract infections and allergies (URTI/A)
Homeopathy for URTI/A
types of homeopathy

- 11; 38% individualised
- 7; 24% complex remedy
- 5; 17% clinical
- 6; 21% isopathy
Homeopathy for URTI/A: results

- 6/7 trials comparing to standard treatment, showed equivalence
  - 1 (penicillin vs. homeopathy for streptococcal tonsillitis) inferior
- 8/16 placebo-controlled significant result in favour of homeopathy
  - none individualized
  - 4 trend, 4 no advantage
Swiss HTA
Homeopathy for URTI/A: conclusions

- 24/29 trials positive
  - significance or trend favouring homeopathy compared with placebo or standard treatment
- ‘. . .the trial results showed probable effectiveness of homeopathy for allergies and infectious diseases of the upper respiratory tract.’

Homeopathy reduces drug use in chronic respiratory disease (Italy)

Asthma: change in prescribing costs (%)

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>homeopathy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>specific</td>
<td>-71</td>
<td>-54</td>
</tr>
<tr>
<td>general</td>
<td>-64</td>
<td>-50</td>
</tr>
<tr>
<td><strong>control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>specific</td>
<td>+11</td>
<td>+4</td>
</tr>
<tr>
<td>general</td>
<td>+31</td>
<td>+16</td>
</tr>
</tbody>
</table>

** p<0.01 v baseline

Homeopathy in long term conditions: observational study

- Prospective, multicentre cohort study 103 homeopathic primary care practices Germany and Switzerland
  - All new patients age >1 year
- Outcomes: Patients' perceived change in complaint severity (1-10) QoL SF-36 at 0, 2 & 8 years.
  - 3,709 patients 73% 8-year follow-up.
- Diagnoses
  - Adults: allergic rhinitis, headache
  - Children atopic dermatitis, recurrent infections
- Significantly improvement disease and QoL (p < 0.001)
Change in QoL scores

Normalised

Baseline 2 years 8 years

Effect size
Physical 0.39 p<0.001
Mental 0.54 p<0.001

Witt C et al. How healthy are chronically ill patients after eight years of homeopathic treatment? BMC Public Health 2008, 8:413
WHO Traditional Medicine Strategy
2014-2023

Adopted by World Health Assembly
Geneva May 2014
WHO Traditional & Complementary Medicine Strategy 2014-2023

Director-General’s Key Points

• T&CM important and often underestimated part of health care.

• Need for a cohesive and integrative approach allows governments, practitioners and users to access T&CM in a safe, respectful, cost-efficient and effective manner.

• Proactive policy towards this important often vibrant and expanding part of health care.
Homeopathy is popular

- France >50% of population
- Germany, other west European countries 30-40%
- Poland 30% (0% 25 years ago!)
- India >250,000 homeopathic doctors, >300 homeopathic medical colleges
- EU wide simplified registration
- 50% US plastic surgeons use Arnica for nose jobs
Summary: Physical Research

Several methods show presence of nanoparticles and effects on surrounding water

- Gas nanobubbles, Silicates
- NMR, thermoluminscence
- High very localised energy releases by succussion

Dissipative structures
Summary: Biological Models

- Reproducible models
- Human Basophil Degranulation
- Also amphibian metamorphosis, aspirin prothrombotic, Gelsemium anxiety
- Growing insight into mechanisms
Summary: Clinical trials and meta-analyses

There is evidence

- ~1000 clinical trials, ~300 RCTS
- Meta-analyses and systematic reviews mostly positive
  - Negative selected samples
- RCTs: URTIs, allergy, diarrhea
Summary: Comparative Effectiveness

- All positive
  - Acute
    - better outcomes, quicker resolution
    - Better outcomes safety, equivalent cost
  - Chronic
    - fewer dangerous drugs, equivalent outcomes
    - including antibiotics, NSAIDs, hypnotics
  - Associated with
    - higher educational level
    - healthier lifestyle
    - more self-care
...and if you really want to know what’s going on...

www.homeopathyjournal.net