



Finnish Institute of  
Occupational Health



# Comparisons of interventions and controls, how to construct?

Jos Verbeek,  
Finnish Institute of Occupational Health

# A systematic review

1. Well-formulated question (PICO)
2. Thorough search
3. Objective selection of studies
4. Critical assessment of methodological quality
5. Objective data extraction
6. Synthesis of the data
  - a) appropriate comparisons of interventions and controls
  - b) meta-analysis per comparison
7. Conclusions for practice and research

# Scope of a review

- Interventions for.....
  - Cochrane Library
    - intervention\* NOT pharmacological in title
      - 411 reviews and 261 protocols
- Resulting in a variety of interventions
  - non-drug
  - complex interventions
    - multi-faceted
    - multi-component
    - behavioural/mental health
    - team based/rehabilitation
    - public/occupational health

# Example

The screenshot displays the homepage of The Cochrane Library. At the top, there is a navigation bar with links for Home, About Cochrane, Access to Cochrane, For Authors, and Help. The main header features the Cochrane Library logo and the tagline "Evidence for healthcare decision-making". Below the header, there are sections for BROWSE and SEARCH. The BROWSE section includes links for Cochrane Reviews, Clinical Trials, Methods Studies, and Technology Assessments. The SEARCH section has a search box and a dropdown menu for search criteria. The main content area lists several reviews, each with a checkbox, a title, authors, year, and links for Record and Review. The reviews listed are:

- Chemical pleurodesis versus surgical intervention for persistent and recurrent pneumothoraces in cystic fibrosis**  
Reshma Amin, Peadar G Noone, Felix Ratjen  
Year: 2009  
[Record](#) [Review](#)
- Conservative interventions for treating middle third clavicle fractures in adolescents and adults**  
Mário Lenza, Joao Carlos Belloti, Régis B Andriolo, Joao Baptista Gomes dos Santos, Flávio Faloppa  
Year: 2009  
[Record](#) [Review](#)
- Dietary interventions for recurrent abdominal pain (RAP) and irritable bowel syndrome (IBS) in childhood**  
Angela A Huertas-Ceballos, Stuart Logan, Cathy Bennett, Colin Macarthur  
Year: 2009  
[Record](#) [Review](#)
- Dietary interventions for rheumatoid arthritis**  
Kåre Birger Hagen, Marte Gjeitung Byfuglien, Louise Falzon, Sissel Urke Olsen, Geir Smedslund  
Year: 2009  
[Record](#) [Review](#)
- Educational interventions for the prevention of eye injuries**  
Anupa Shah, Karen Blackhall, Katharine Ker, Daksha Patel  
Year: 2009  
[Record](#) [New](#) [Review](#)
- Educational, supportive and behavioural interventions to improve usage of continuous positive airway pressure machines for adults with obstructive sleep apnoea**  
Ian Smith, Vidya Nadig, Toby J Lasserson  
Year: 2009  
[Record](#) [Review](#)
- Effectiveness of vocational rehabilitation intervention on the return to work and employment of persons with multiple sclerosis.**  
Fary Khan, Louisa Ng, Lynne Turner-Stokes  
Year: 2009  
[Record](#) [Review](#)
- Ergonomic and physiotherapeutic interventions for treating work-related complaints of the arm, neck or shoulder in adults**  
Arianne P Verhagen, Celinde C Karels, Sita MA Bierma-Zeinstra, Lex L Burdorf, Anita Feleus, Saede SD Dahaghin, Henrica CW de Vet, Bart W Koes  
Year: 2009  
[Record](#) [Withdrawn](#) [Review](#)
- Homocysteine lowering interventions for preventing cardiovascular events**  
Arturo J Martí-Carvajal, Ivan Solà, Dimitrios Lathyris, Georgia Salanti  
Year: 2009  
[Record](#) [New](#) [Review](#)
- Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes**  
Merrick Zwarenstein, Joanne Goldman, Scott Reeves  
Year: 2009  
[Record](#) [Review](#)
- Interventions for acute non-arteritic central retinal artery occlusion**  
Scott G Fraser, Wendy Adams  
Year: 2009  
[Record](#) [Review](#)

The bottom of the screenshot shows a browser status bar with "Done", "Internet", and "100%" zoom level.

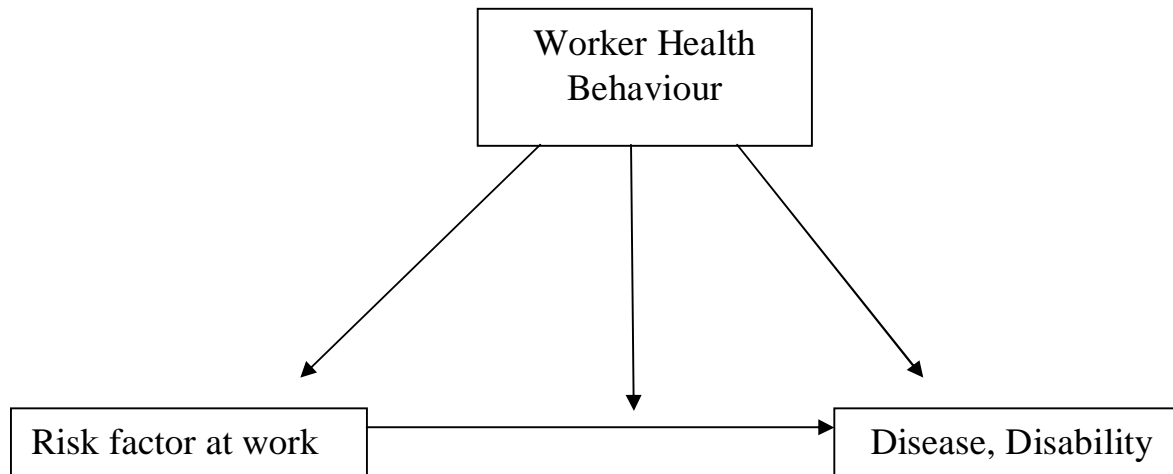
## Lack of comparisons

- Cochrane Systematic Review, Rehabilitation for older people in long-term care, CD004294
- To evaluate physical rehabilitation interventions directed at improving physical function among older people in long-term care.
- "...From these, 49 studies fulfilled the eligibility criteria and are included in this review."
- "...The included studies are heterogeneous. They examine different types of intervention, and evaluate them with a wide battery of outcome measures. *Such variety made a meta-analysis unfeasible.*"

# Need for classification

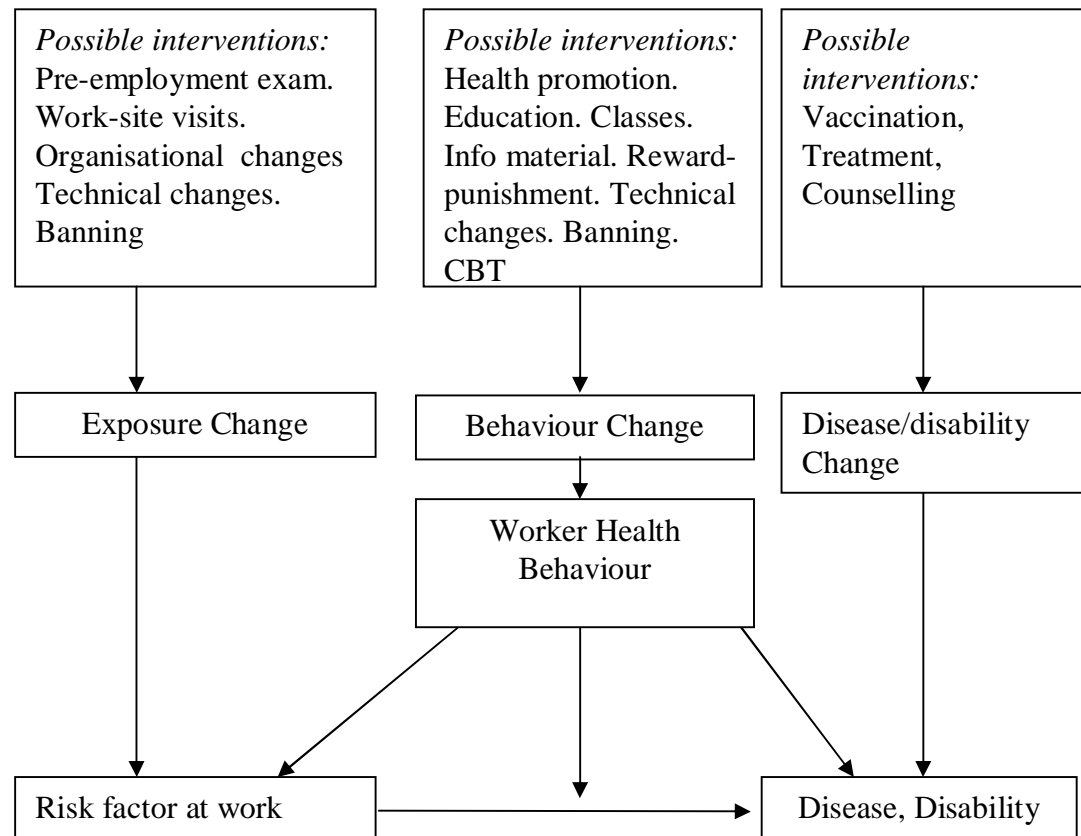
- Preferably classification should have:
  - practical meaning
    - work-directed versus person-directed
  - consequences in resource use
    - group versus individual-directed
  - basis in mechanism
    - double gloving versus single gloves

# Occupational Health Interventions



Verbeek, Scand J WEH 2004

# Occupational Health Interventions



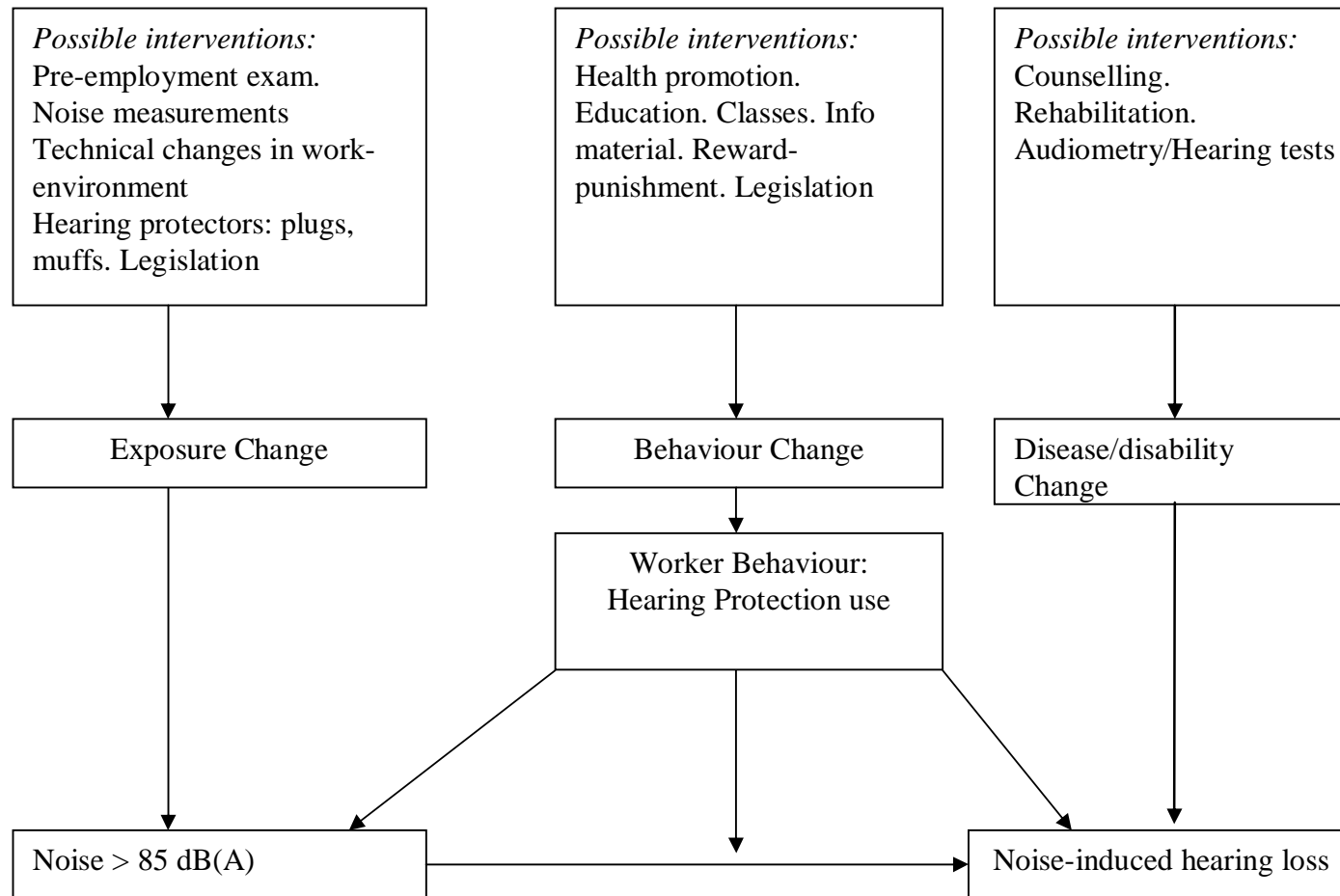
Verbeek, Scand J WEH 2004



# Criteria for classification

- Outcome
  - exposure, worker behaviour, occupational disease, disability, injury
- Mode of action
  - e.g. exposure reduction
    - technical measures, behavioural measures, organisational measures
- Level or point of action
  - individual, group, societal level (legal)
- Complexity
  - simple, multi-component, multi-actor
- Target Group
  - workers, students, specific occupations
- Place of delivery or setting
  - hospital, primary care, workplace
- Moment of application
  - preventive (without request for help), treatment
- Mode of delivery
  - verbal, written, web-based, media

# Occupational Health Interventions



Verbeek, Scand J WEH 2004

## Exercise: Classify

- Interventions to decrease noise induced hearing loss versus no intervention:
  1. Ear muffs reduce *noise levels* with 20 dB(A)
  2. EAR plugs reduce *hearing loss* with 10 dB
  3. Legislation reduces *noise levels* with 5 dB(A)
  4. Worker training in plug use reduces *hearing loss* with 15 dB
  5. Subsidies for employers reduce *noise levels* with 10 dB(A)
  6. Information campaign for workers reduces *hearing loss* with 10 dB
  7. Magnesium for noise-exposed workers reduces *hearing loss* with 5 dB

## Exercise: classify

- Take the 'Rehabilitation for older people in long-term care' review
- Look at the description of interventions and the list of included studies
- Try to find out if there are any matching PICO's based on which the authors could make appropriate comparisons
- We will feed this back to the review authors through the formal feedback system