Comparisons of interventions and controls, how to construct?

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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
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

Worker Health Behaviour

Risk factor at work

Disease, Disability

Verbeek, Scand J WEH 2004
Occupational Health Interventions

Risk factor at work

Exposure Change

Behaviour Change

Worker Health Behaviour

Possible interventions:
- Pre-employment exam.
- Work-site visits.
- Organisational changes
- Technical changes.
- Banning

Possible interventions:
- Health promotion.
- Education. Classes.
- CBT

Possible interventions:
- Vaccination,
- Treatment,
- Counselling

Risk factor at work

Disease, Disability

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**

- **Possible interventions:**
  - Pre-employment exam.
  - Noise measurements
  - Technical changes in work-environment
  - Hearing protectors: plugs, muffs. Legislation

- **Exposure Change**

- **Possible interventions:**
  - Health promotion.
  - Education. Classes. Info material. Reward-punishment. Legislation

- **Behaviour Change**

- **Possible interventions:**
  - Counselling.
  - Rehabilitation.
  - Audiometry/Hearing tests

- **Worker Behaviour:**
  - Hearing Protection use

- **Noise > 85 dB(A)**

- **Noise-induced hearing loss**

*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