Evidence-Based Occupational Medicine: Introducing Cochrane Work

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OEMAC 2015
Disclosures

• Consultancy: Oxford Medical Knowledge

• Advisory Board: Daiichi Sankyo, Inc.
Learning objectives

1. Discuss the evidence or lack of evidence for interventions in Occupational Health
2. Demonstrate knowledge of important recent systematic reviews in Occupational Health
3. Discuss how the Cochrane Collaboration and Cochrane Work can help in the practice of Occupational Medicine
The Cochrane Collaboration

- Independent, non-profit, non-governmental organization
- Over 31,000 volunteers in over 120 countries
- Founded in 1993 under the leadership of Iain Chalmers
- In honor of Archibald Leman Cochrane (1909–1988)
- Cochrane Database of Systematic Reviews, impact factor 6.032
- Over 100 review groups in different subject areas
- Produces literature reviews
  - Reviews of Interventions
  - (Reviews of accuracy of diagnostic tests)
Literature Reviews

- Narrative reviews
- Systematic reviews
- Meta-analyses
- Cochrane reviews
  - Multistep process
  - Publication in Cochrane Database of Systematic Reviews and sometimes in other journals
  - Arguably the ‘gold standard’ for systematic reviews
  - Structured reviews
  - Move towards core outcomes
Cochrane Reviews

• Title registration
• Protocol
  – Submitted
  – Peer-Reviewed
  – Published
• Full review
  – Submitted
  – Peer-Reviewed
  – Published
Systematic Reviews …

• are not perfect
• not even all Cochrane reviews are

• Garbage in, garbage out
• Publication bias; file drawer problem
• Statistical significance, practical relevance
Cochrane Work

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• Jos Verbeek - Coordinating Editor
• Jani Ruotsalainen - Managing Editor
• Trials Search Coordinators
• Statistical Advisor
• Feedback Editor

International Advisory Board

International Editorial Board

http://osh.cochrane.org/

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FI-70101, Kuopio
Finland
Occupational Safety and Health Review Group

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The Dutch Trade Union Federation (FNV), the Netherlands
Cochrane Work

• Founded 2010
  (before that: Cochrane Occupational Health Field)
• Focus on the effectiveness of measures to prevent or treat occupational health outcomes:
  – occupational diseases
  – work disability
  – occupational injuries
• Since 2010:
  – 54 reviews
  – 259 authors (31 countries)
Cochrane Work

• Roles of the editorial base in Finland
  – deciding about new systematic review titles
  – guidance and support to authors of reviews (both on demand and through courses)
  – organizing peer review
  – judging if the quality of submitted protocols and systematic reviews fulfils the Cochrane methodological standards
  – deciding about publication
  – disseminating the results
  – developing review methods
## Cochrane Work

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total requests for title registration received 2010-2015</td>
<td>109</td>
</tr>
<tr>
<td>Rejected straight away</td>
<td>32</td>
</tr>
<tr>
<td>Stalled before registration</td>
<td>19</td>
</tr>
<tr>
<td>Registered</td>
<td>38</td>
</tr>
<tr>
<td>Transferred from other review groups</td>
<td>20</td>
</tr>
<tr>
<td>Stalled after registration, not in process</td>
<td>4</td>
</tr>
<tr>
<td>Currently in process or published as reviews</td>
<td>54</td>
</tr>
</tbody>
</table>
THE ROLE OF PERIODIC EXAMINATION IN THE PREVENTION OF COALWORKERS’ PNEUMOCONIOSIS

BY

A. L. COCHRANE, C. M. FLETCHER, J. C. GILSON, and P. HUGH-JONES

From the Pneumoconiosis Research Unit of the Medical Research Council, Llandough Hospital, Nr. Cardiff

There can be no doubt that coalworkers’ pneumoconiosis presents one of the most serious problems in industrial medicine in Britain, at least in respect of the numbers of men affected. From 1931 up to the end of 1949 some 36,000 men had been officially diagnosed by the Silicosis Medical Board or the Pneumoconiosis Panels of the Ministry of National Insurance as being disabled by the disease. Over 80% of these cases had arisen in the South Wales coalfield. The social consequences of the disease in South Wales have been reviewed by Hugh-Jones and Fletcher (1950). The cost of the disease in terms of compensation has been enormous and in terms of human suffering immeasurable.

The disease is one that has been shown to be due to the inhalation of coal dust (Hart and Aslett, are really no more than a provisional target for engineers engaged on dust suppression.

Since the complete suppression of all airborne dust in the mines is impracticable and safe levels of dustiness are not yet known, we believe that the introduction of a system of periodic medical examination of coal miners would be the procedure which would most quickly and economically lead to the prevention of pneumoconiosis.

All coal miners in France and in New South Wales are given a periodic medical examination, and this system is being introduced into the coal mines of South Africa and Belgium. Since the value of such an examination has recently been questioned by Meiklejohn (1950) we review the advantages it could bring in British coal mines.
Where is the evidence?

http://osh.cochrane.org/our-evidence

1.1 Decreasing or eliminating harmful exposure to prevent occupational disease (16)
1.2 Other preventive measures to prevent occupational disease (8)
2. Management of occupational disease or symptoms (59)
3. Affecting the onset or course of occupational disability (21)
4.1 Reducing occupational injuries by branch of industry (7)
4.2 Reducing occupational injuries by injury mechanism (8)
5. Promoting a healthy lifestyle at the workplace (13)
Do we need evidence?

“It is wrong always, everywhere, and for anyone, to believe anything upon insufficient evidence.”

William Kingdon Clifford, The Ethics of Belief, 1877
Do we need evidence?

“Nearly always people believe willingly that which they wish.”

Julius Caesar, *De Bello Gallico*, Book III, Ch. 18
14 occupational physicians were asked to consult their usual experts for 12 occupational health case vignettes.

Authors had searched the literature for the best available evidence on the 12 problems, coming up with a clear yes or no answer.

Example vignette: Can continuous years of work stress be the cause of a cardiac infarct in a 54-year-old bank employee with only a slightly raised cholesterol level? Evidence based answer: Yes.

The occupational physicians consulted 75 experts (about half were near colleagues).

53% of the advice was not in line with the evidence.
Influence of Blunt Needles on Surgical Glove Perforation and Safety for the Surgeon

Andrea Mingoli, MD, Paolo Sapienza, MD, Giovanna Sgarzini, MD, Giovanni Luciani, MD, Gilberto De Angelis, MD, Claudio Modini, MD, Flavia Ciccarone, MS, Rome, Italy, Richard J. Feldhaus, MD, Omaha, Nebraska

BACKGROUND: Round-tipped blunt needle (BN) may decrease the risk of needlestick injuries and hand contamination. We prospectively determined the incidence of glove perforations in emergency abdominal procedures and the efficacy of BN in increasing the safety for surgeons.

METHODS: Two hundred patients were randomized to undergo closure of the abdominal fascia using sharp needle (SN) or BN. Gloves were tested at the end of the procedure.

RESULTS: Surgeons had 14 needlestick injuries and 76 perforations recorded in 69 pair of gloves. Sharp needles were responsible for all injuries and 58 (76%) perforations ($P < 0.00004$ and $P < 0.00001$, respectively). This difference was still higher when considering the perforations related to the abdominal fascia closure (BN 7% versus SN 30%; $P < 0.00008$).


MATERIALS AND METHODS
The study was conducted from July 1994 to July 1995 at the 1st Department of Surgery, Policlinico Umberto I, “La Sapienza” University, Rome, Italy. Procedures eligible for the study included those performed on adult inpatients, in an emergency setting, that required the closure of a midline incision.
The use of blunt needles does not reduce glove perforations during obstetrical laceration repair

Lisa K. Wilson, MD; Scott Sullivan, MD, MSCR; William Goodnight, MD; Eugene Y. Chang, MD; David Soper, MD

OBJECTIVE: The objective of the study was to compare the rate of glove perforation for blunt and sharp needles used during obstetrical laceration repair. A secondary aim was to assess physician satisfaction with blunt needles.

STUDY DESIGN: This was an institutional review board–approved, randomized, prospective trial. Patients with obstetric lacerations were randomized to repair with either blunt or sharp needles. Patient demographics, operator experience, and other clinical variables were collected. Physicians reported any percutaneous injuries and were surveyed regarding satisfaction with the assigned needles. Glove perforation was determined using a validated water test method.

RESULTS: There were 438 patients enrolled in the trial: 221 in the control group and 217 in the study group. There was no statistical difference between groups in patient demographics, clinical variables, severity of laceration, or experience level of the surgeon. There was no difference in the glove perforation rate between blunt and sharp needles (risk ratio, 0.79; 95% confidence interval, 0.2-2.95). There was poor correlation between reported perforations and those detected by water test ($R^2 = 0.33$). The physicians reported that blunt needles were more difficult to use than sharp needles ($P = .0001$).

CONCLUSION: There was no difference in the rate of surgical glove perforation for blunt, compared with sharp, needles used during vaginal laceration repair. Physicians also reported increased difficulty performing the repair with blunt needles.

Key words: blunt needles, needlestick injuries, obstetric laceration

Blunt versus sharp suture needles for preventing percutaneous exposure incidents in surgical staff (Review)

Parantainen A, Verbeek JH, Lavoie MC, Pahwa M

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2011, Issue 11
Blunt vs. sharp needles

**Figure 4. Forest plot of comparison: Blunt versus sharp suture needles, outcome: Glove perforation rate.**

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>log(Risk Ratio)</th>
<th>SE</th>
<th>Weight</th>
<th>IV, Fixed, 95% CI</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wright 1993</td>
<td>-0.7472144</td>
<td>0.296334</td>
<td>8.6%</td>
<td>0.47 [0.27, 0.85]</td>
<td>1993</td>
</tr>
<tr>
<td>Thomas 1985</td>
<td>-0.35667494</td>
<td>0.348466</td>
<td>6.2%</td>
<td>0.70 [0.53, 1.19]</td>
<td>1985</td>
</tr>
<tr>
<td>Meyer 1996</td>
<td>-0.85131877</td>
<td>0.309844</td>
<td>39.2%</td>
<td>0.43 [0.33, 0.56]</td>
<td>1996</td>
</tr>
<tr>
<td>Rice 1996</td>
<td>-3.11351531</td>
<td>1.449138</td>
<td>0.4%</td>
<td>0.04 [0.00, 0.76]</td>
<td>1996</td>
</tr>
<tr>
<td>Mingoli 1996</td>
<td>-0.73315252</td>
<td>0.173816</td>
<td>25.1%</td>
<td>0.48 [0.34, 0.68]</td>
<td>1996</td>
</tr>
<tr>
<td>Hartley 1996</td>
<td>-1.70562479</td>
<td>0.636209</td>
<td>1.9%</td>
<td>0.18 [0.05, 0.63]</td>
<td>1996</td>
</tr>
<tr>
<td>Atleit 1998</td>
<td>-0.64435702</td>
<td>0.421637</td>
<td>4.3%</td>
<td>0.52 [0.23, 1.20]</td>
<td>1998</td>
</tr>
<tr>
<td>Nordkam 2005</td>
<td>-0.8303483</td>
<td>0.290628</td>
<td>9.0%</td>
<td>0.44 [0.25, 0.77]</td>
<td>2005</td>
</tr>
<tr>
<td>Wilson 2008</td>
<td>-0.2048782</td>
<td>0.67082</td>
<td>1.7%</td>
<td>0.81 [0.22, 3.03]</td>
<td>2008</td>
</tr>
<tr>
<td>Sullivan 2009</td>
<td>-0.8873032</td>
<td>0.449089</td>
<td>3.8%</td>
<td>0.41 [0.17, 0.99]</td>
<td>2009</td>
</tr>
</tbody>
</table>

Total (95% CI): 100.0% 0.46 [0.38, 0.54]

Heterogeneity: $\chi^2 = 7.45$, df = 9 ($P = 0.59$); $I^2 = 0$
Test for overall effect: $Z = 9.03$ ($P < 0.000001$)

Gloves, extra gloves or special types of gloves for preventing percutaneous exposure injuries in healthcare personnel (Review)

### Analysis 1.1. Comparison 1 Double versus single gloves, Outcome 1 Inner glove perforations.

**Review:** Gloves, extra gloves or special types of gloves for preventing percutaneous exposure injuries in healthcare personnel

**Comparison:** 1 Double versus single gloves

**Outcome:** 1 Inner glove perforations

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>log [Rate Ratio] (SE)</th>
<th>Rate Ratio (IV,Fixed,95% CI)</th>
<th>Weight</th>
<th>Rate Ratio (IV,Fixed,95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson 1996c</td>
<td>-1.540445 (0.71)</td>
<td></td>
<td>2.9%</td>
<td>0.21 [0.05, 0.91]</td>
</tr>
<tr>
<td>Wilson 1996b</td>
<td>-1.94591 (0.845)</td>
<td></td>
<td>2.2%</td>
<td>0.14 [0.03, 0.75]</td>
</tr>
<tr>
<td>Wilson 1996a</td>
<td>-1.94591 (0.845)</td>
<td></td>
<td>2.2%</td>
<td>0.14 [0.03, 0.75]</td>
</tr>
<tr>
<td>Kovavisarach 1998</td>
<td>-0.905709 (0.267)</td>
<td></td>
<td>22.4%</td>
<td>0.40 [0.24, 0.68]</td>
</tr>
<tr>
<td>Kovavisarach 1999</td>
<td>-1.673976 (0.629)</td>
<td></td>
<td>4.0%</td>
<td>0.19 [0.05, 0.64]</td>
</tr>
<tr>
<td>Avery 1999a</td>
<td>-0.646 (1.7321)</td>
<td></td>
<td>0.5%</td>
<td>0.52 [0.02, 15.62]</td>
</tr>
<tr>
<td>Thomas 2001</td>
<td>-0.641854 (0.391)</td>
<td></td>
<td>10.4%</td>
<td>0.53 [0.24, 1.13]</td>
</tr>
<tr>
<td>Kovavisarach 2002</td>
<td>-1.315677 (0.5)</td>
<td></td>
<td>6.4%</td>
<td>0.27 [0.10, 0.71]</td>
</tr>
<tr>
<td>Laine 2004b 2R</td>
<td>-0.9888 (0.488)</td>
<td></td>
<td>6.7%</td>
<td>0.37 [0.14, 0.97]</td>
</tr>
<tr>
<td>Punyatanasakchak 2004</td>
<td>-1.349927 (0.424)</td>
<td></td>
<td>8.9%</td>
<td>0.26 [0.11, 0.60]</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td></td>
<td></td>
<td><strong>66.8%</strong></td>
<td><strong>0.33 [0.24, 0.44]</strong></td>
</tr>
</tbody>
</table>

**Heterogeneity:** $\chi^2 = 5.74$, df = 9 ($p = 0.77$); $I^2 = 0.00$

Test for overall effect: $Z = 7.20$ ($P < 0.000001$)
# Double vs. single gloves

## Comparison 1. Double versus single gloves

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inner glove perforations</td>
<td>12</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.29 [0.23, 0.37]</td>
</tr>
<tr>
<td>1.1 Number of perforations</td>
<td>10</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.33 [0.24, 0.44]</td>
</tr>
<tr>
<td>1.2 Number of gloves with perforations</td>
<td>2</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.22 [0.15, 0.34]</td>
</tr>
<tr>
<td>2 Matched inner glove perforations</td>
<td>4</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.11 [0.05, 0.20]</td>
</tr>
<tr>
<td>2.1 Number of perforations</td>
<td>4</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.11 [0.05, 0.20]</td>
</tr>
<tr>
<td>3 Needlestick injuries</td>
<td>2</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.58 [0.21, 1.62]</td>
</tr>
<tr>
<td>3.1 Per pair of gloves</td>
<td>2</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.58 [0.21, 1.62]</td>
</tr>
<tr>
<td>4 Incidences of blood contamination</td>
<td>3</td>
<td>819</td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>0.35 [0.17, 0.70]</td>
</tr>
<tr>
<td>5 Dexterity: VAS score</td>
<td></td>
<td></td>
<td>Other data</td>
<td>No numeric data</td>
</tr>
<tr>
<td>6 Dexterity: outer glove perforations</td>
<td>8</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>1.10 [0.93, 1.31]</td>
</tr>
<tr>
<td>6.1 Number of perforations</td>
<td>6</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>1.05 [0.83, 1.33]</td>
</tr>
<tr>
<td>6.2 Number of gloves with perforations</td>
<td>2</td>
<td></td>
<td>Rate Ratio (Fixed, 95% CI)</td>
<td>1.15 [0.90, 1.48]</td>
</tr>
</tbody>
</table>

**Pharmacological Interventions for Sleepiness and Sleep Disturbances Caused by Shift Work**

Juha Liira, MD, PhD; Jos Verbeek, MD, PhD; Jani Ruotsalainen, MSc

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**Figure. The Association of Melatonin With Self-Reported and Objectively Measured Sleep Duration During Days After the Night Shift**

<table>
<thead>
<tr>
<th>Study</th>
<th>Melatonin</th>
<th>Placebo</th>
<th>Sleep Time Mean Difference (95% CI), min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD), min</td>
<td>Total Participants</td>
<td>Mean (SD), min</td>
</tr>
<tr>
<td><strong>Diary-based sleep time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follard, 1993</td>
<td>445 (37)</td>
<td>7</td>
<td>419 (37)</td>
</tr>
<tr>
<td>James, 1998</td>
<td>407 (78)</td>
<td>22</td>
<td>416 (84)</td>
</tr>
<tr>
<td>Jorgensen, 1998</td>
<td>378 (40)</td>
<td>18</td>
<td>355 (40)</td>
</tr>
<tr>
<td>Voon, 2002</td>
<td>436 (50)</td>
<td>12</td>
<td>380 (48)</td>
</tr>
<tr>
<td>Cavall, 2005</td>
<td>390 (114)</td>
<td>38</td>
<td>378 (120)</td>
</tr>
<tr>
<td>Bjorvatn, 2007</td>
<td>405 (47)</td>
<td>17</td>
<td>386 (53)</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>114</td>
<td>111</td>
<td>23.49 (8.49 to 38.49)</td>
</tr>
<tr>
<td>Heterogeneity: P = .66; $I^2 = 0%$</td>
<td>Test for overall effect: P = .002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Actigraphy-based sleep time** |           |         |                                        |               |                |                |           |
| Jockovich, 2000      | 380 (91)  | 19      | 343 (91)                               | 19            | 37.00 (-20.87 to 94.87)  | 6.3         |                |           |
| Total                |            | 133     | 130                                     |               | 24.34 (9.82 to 38.86)    | 100.0       |                |           |
| Heterogeneity: P = .56; $I^2 = 0\%$ | Test for overall effect: P = .001 |         |                                        |               |          |                |           |

Source: Data have been adapted with permission from Wiley. Two studies only reported night sleep after the night shift period and could not be included. The size of the data markers indicate the weight of the study.
Workplace interventions for smoking cessation (Review)

Cahill K, Lancaster T
### Analysis 1.1. Comparison 1 Individual Treatments, Outcome 1 Group behavioural therapy (various endpoints).

Review: Workplace interventions for smoking cessation

Comparison: 1 Individual Treatments

Outcome 1 Group behavioural therapy (various endpoints)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Programme N</th>
<th>No programme N</th>
<th>log [Odds Ratio] (SE)</th>
<th>Odds Ratio IV,Fixed,95% CI</th>
<th>Weight</th>
<th>Odds Ratio IV,Fixed,95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cessation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glasgow 1984</td>
<td>12</td>
<td>13</td>
<td>2.65956 (1.55374427)</td>
<td>14.29 [0.68, 300.32]</td>
<td>2.6 %</td>
<td></td>
</tr>
<tr>
<td>Frank 1986</td>
<td>45</td>
<td>0.350657 (0.72843252)</td>
<td>20</td>
<td>1.42 [0.34, 5.92]</td>
<td>11.9 %</td>
<td></td>
</tr>
<tr>
<td>Klesges 1987</td>
<td>66</td>
<td>61</td>
<td>0.0621 (0.5923)</td>
<td>1.06 [0.33, 3.40]</td>
<td>18.0 %</td>
<td></td>
</tr>
<tr>
<td>Ormenn 1988</td>
<td>51</td>
<td>0.783902 (0.64945221)</td>
<td>51</td>
<td>2.19 [0.61, 7.82]</td>
<td>14.9 %</td>
<td></td>
</tr>
<tr>
<td>DePaul 1994</td>
<td>281</td>
<td>280</td>
<td>0.9346 (0.6353)</td>
<td>2.55 [0.73, 8.84]</td>
<td>15.6 %</td>
<td></td>
</tr>
<tr>
<td>Schröter 2006</td>
<td>41</td>
<td>-0.65393 (0.62817189)</td>
<td>38</td>
<td>0.52 [0.15, 1.78]</td>
<td>16.0 %</td>
<td></td>
</tr>
<tr>
<td>Gunes 2007</td>
<td>100</td>
<td>100</td>
<td>1.141033 (0.82748107)</td>
<td>3.13 [0.62, 15.85]</td>
<td>9.2 %</td>
<td></td>
</tr>
<tr>
<td>Mishra 2010</td>
<td>87</td>
<td>63</td>
<td>1.276 (0.7315)</td>
<td>3.58 [0.85, 15.02]</td>
<td>11.8 %</td>
<td></td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td><strong>683</strong></td>
<td><strong>626</strong></td>
<td></td>
<td></td>
<td>100.0 %</td>
<td><strong>1.71 [1.05, 2.80]</strong></td>
</tr>
</tbody>
</table>
Analysis 1.2. Comparison 1 Individual Treatments, Outcome 2 Individual counselling (various endpoints).

Review: Workplace interventions for smoking cessation

Comparison: 1 Individual Treatments

Outcome 2 Individual counselling (various endpoints)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Programme N</th>
<th>No programme N</th>
<th>log [Odds Ratio] (SE)</th>
<th>Odds Ratio IVFixed,95% CI</th>
<th>Weight</th>
<th>Odds Ratio IVFixed,95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambien 1981</td>
<td>304</td>
<td>306</td>
<td>0.565314 (0.217727)</td>
<td>1.76 [1.15, 2.70]</td>
<td>37.3 %</td>
<td></td>
</tr>
<tr>
<td>Li 1984</td>
<td>215</td>
<td>361</td>
<td>0.896088 (0.37557061)</td>
<td>2.45 [1.17, 5.12]</td>
<td>12.5 %</td>
<td></td>
</tr>
<tr>
<td>Windsor 1988</td>
<td>188</td>
<td>190</td>
<td>1.004302 (0.37421533)</td>
<td>2.73 [1.31, 5.68]</td>
<td>12.6 %</td>
<td></td>
</tr>
<tr>
<td>Gomel 1993a (1)</td>
<td>60</td>
<td>68</td>
<td>2.38968 (1.49934846)</td>
<td>10.91 [0.58, 206.10]</td>
<td>0.8 %</td>
<td></td>
</tr>
<tr>
<td>Lang 2000</td>
<td>591</td>
<td>504</td>
<td>0.3049 (0.3235)</td>
<td>1.36 [0.72, 2.56]</td>
<td>16.9 %</td>
<td></td>
</tr>
<tr>
<td>Kadowaki 2000</td>
<td>132</td>
<td>131</td>
<td>1.545433 (0.57121909)</td>
<td>4.69 [1.53, 14.37]</td>
<td>5.4 %</td>
<td></td>
</tr>
<tr>
<td>Terazawa 2001</td>
<td>117</td>
<td>111</td>
<td>2.088153 (1.06995806)</td>
<td>8.07 [0.99, 65.71]</td>
<td>1.5 %</td>
<td></td>
</tr>
<tr>
<td>Groeneveld 2011</td>
<td>115</td>
<td>123</td>
<td>0.277632 (0.36911199)</td>
<td>1.32 [0.64, 2.72]</td>
<td>13.0 %</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>1722</strong></td>
<td><strong>1794</strong></td>
<td></td>
<td><strong>100.0 % 1.96 [1.51, 2.54]</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: Chi² = 9.22, df = 7 (P = 0.24); I² = 24%
Test for overall effect: Z = 5.05 (P < 0.00001)
Test for subgroup differences: Not applicable
Analysis 2.2. Comparison 2 Worksite Treatments, Outcome 2 Incentives (various endpoints).

Review: Workplace interventions for smoking cessation

Comparison: 2 Worksite Treatments

Outcome: 2 Incentives (various endpoints)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Programme N</th>
<th>No programme N</th>
<th>log [Odds Ratio] SE</th>
<th>Odds Ratio 95% CI</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windsor 1988</td>
<td>95</td>
<td>95</td>
<td>-0.19845 (0.62671831)</td>
<td>95</td>
<td>8.7 %</td>
</tr>
<tr>
<td>Rand 1989</td>
<td>16</td>
<td>14</td>
<td>1.033148 (1.66297936)</td>
<td>14</td>
<td>1.2 %</td>
</tr>
<tr>
<td>Gormel 1993a</td>
<td>30</td>
<td>30</td>
<td>-1.1701 (1.221)</td>
<td></td>
<td>2.3 %</td>
</tr>
<tr>
<td>Glasgow 1993</td>
<td>344</td>
<td>426</td>
<td>0.2453 (0.2596)</td>
<td></td>
<td>50.5 %</td>
</tr>
<tr>
<td>Volpp 2009</td>
<td>436</td>
<td>442</td>
<td>1.015231 (0.30208423)</td>
<td></td>
<td>37.3 %</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>921</strong></td>
<td><strong>1007</strong></td>
<td></td>
<td><strong>100.0 %</strong></td>
<td>1.60 [1.12, 2.30]</td>
</tr>
</tbody>
</table>

Heterogeneity: Chi² = 7.06, df = 4 (P = 0.13); I² = 43%
Test for overall effect: Z = 2.56 (P = 0.011)
Test for subgroup differences: Not applicable

Manual material handling advice and assistive devices for preventing and treating back pain in workers: a Cochrane Systematic Review

J Verbeek, K P Martimo, J Karppinen, P P Kuijer, E P Takala, E Viikari-Juntura

**Figure 1** MMH advice versus no advice, meta-analysis of four studies. FU, follow-up; MMH, manual material handling; M-H, Mantel–Haenszel test.
Interventions to prevent injuries in construction workers

(Review)

### Analysis 1.1. Comparison | Introduction of regulation, Outcome | Level.

Review: Interventions to prevent injuries in construction workers

Comparison: Introduction of regulation

Outcome: Level

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Effect Size (SE)</th>
<th>Weight</th>
<th>Effect Size (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV/Random, 95% CI</td>
<td></td>
<td>IV/Random, 95% CI</td>
</tr>
<tr>
<td>1 Fatal Injuries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beal 2007</td>
<td>0.27 (0.43)</td>
<td>17.2%</td>
<td>0.27 [-0.57, 1.11]</td>
</tr>
<tr>
<td>Dell 2001</td>
<td>2.38 (0.6374)</td>
<td>13.9%</td>
<td>2.39 [1.14, 3.64]</td>
</tr>
<tr>
<td>Suruda 2002</td>
<td>-1.04 (0.5598)</td>
<td>15.1%</td>
<td>-1.04 [-2.14, 0.05]</td>
</tr>
</tbody>
</table>

**Subtotal (95% CI)**

Heterogeneity: $\tau^2 = 2.08$, $\chi^2 = 16.43$, df = 2 ($P = 0.0027$); $I^2 = 88$

Test for overall effect: $Z = 0.57$ ($P = 0.57$)

2 Non-fatal injuries

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Effect Size (SE)</th>
<th>Weight</th>
<th>Effect Size (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV/Random, 95% CI</td>
<td></td>
<td>IV/Random, 95% CI</td>
</tr>
<tr>
<td>Aires 2010 Austria</td>
<td>0.64 (0.41)</td>
<td>17.5%</td>
<td>0.64 [-0.16, 1.44]</td>
</tr>
<tr>
<td>Aires 2010 Belgium</td>
<td>1.24 (0.6)</td>
<td>14.5%</td>
<td>1.24 [0.06, 2.42]</td>
</tr>
<tr>
<td>Aires 2010 Germany</td>
<td>1.56 (0.62)</td>
<td>14.2%</td>
<td>1.56 [0.34, 2.78]</td>
</tr>
<tr>
<td>Lipshock 2003</td>
<td>0.79 (1.1633)</td>
<td>7.7%</td>
<td>0.80 [-1.48, 3.08]</td>
</tr>
</tbody>
</table>

**Subtotal (95% CI)**

Heterogeneity: $\tau^2 = 0.00$, $\chi^2 = 1.78$, df = 3 ($P = 0.62$); $I^2 = 0.0$

Test for overall effect: $Z = 3.43$ ($P = 0.000061$)

**Total (95% CI)**

Heterogeneity: $\tau^2 = 0.76$, $\chi^2 = 20.45$, df = 6 ($P = 0.002$); $I^2 = 71$

Test for overall effect: $Z = 1.97$ ($P = 0.049$)

Test for subgroup differences $\chi^2 = 0.26$, df = 1 ($P = 0.61$), $I^2 = 0.0$

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If it doesn’t work, stop it
AUTHORS’ CONCLUSIONS

Implications for practice

Based on the seven included regulatory studies, there is insufficient evidence for or against the effectiveness of regulations to reduce fatal and non-fatal injuries among construction workers. Neither is there sufficient evidence in the included studies that regionally oriented safety interventions such as campaigning, training, inspections or the introduction of occupational health services are effective at reducing non-fatal injuries in construction workers. There is a need for additional strategies to maximise the compliance of employers and workers to the safety measures as prescribed by regulation or advocated through regionally oriented interventions. Multifaceted and continuing interventions, such as a targeted safety campaign at company level or a drug-free workplace programme, may be effective for reducing injuries in the longer term. Trying to influence the safety culture and the enforcement of the implementation of safety measures at work sites among management and construction workers is important. However, lack of evidence for safety interventions does not mean that these interventions do not work, but that better evaluation is necessary.
Are systematic reviews (Cochrane reviews) in occupational medicine different?

- Randomization
  - Interventions conducted at group level
- Blinding
- Study size
- Type of Interventions
- Lack of evidence
  - Perceived or real
Making use of Cochrane Work

• Look for evidence online (link from website)
• Subscribe to newsletter (link from website)
• twitter: @CochraneWork
• Contribute ideas for interventions to be assessed in Cochrane reviews
• Get involved in writing a review?!
  – Best to team up with experienced authors
  – Substantial time commitment
Beyond Cochrane Work …

• … work related outcomes in clinical trials
Prevalence chronic noncancer or neuropathic pain, defined as moderate or severe pain lasting 3 months or longer.

Percent of patients experiencing loss of employment or an inability to undertake paid employment in chronic painful conditions.
Four RCTs with 2,757 fibromyalgia patients - analysis of 1,858 completers

“How many days in the past week did you miss work, including housework, because of fibromyalgia?”

Pain improvement (% relative to baseline)

 Straube et al. BMC Musculoskelet Disord. 2011 12:125
Work-related outcomes in randomised placebo-controlled pain trials: a systematic review and meta-analysis

Ingmar Wolf, Tim Friede, Ernst Hallier and Sebastian Straube

Figure 3: Study selection.
Figure 5 Regression analysis. Regression analysis of the improvement in interference with work from study beginning to end and 30% pain responders, expressed as risk ratios (RR, red colour) or risk differences (RD, blue colour). Interference with work was measured on a scale of 0–10 points. The size of the symbols represents the weights of the individual studies in the regression analysis (inverse variance). Regression lines are solid; broken lines mark the 95% confidence intervals.
Summary

- Discussed (lack of) evidence for some interventions in Occupational Health summarized in...
- ...important recent systematic reviews
- Discussed how the Cochrane Collaboration and Cochrane Work can help in the practice of Occupational Medicine
- *(Considered work-related outcomes in clinical trials)*