

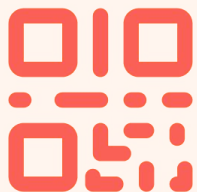
# Putting evidence into practice

3rd September 2023  
London

Trusted evidence.  
Informed decisions.  
Better health.



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# What profession do you work in or what course are you studying?

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# Introduction to evidence-based practice and critical appraisal

Trusted evidence.  
Informed decisions.  
Better health.





# Introduction to evidence-Based practice

Dr Neil O'Connell

Trusted evidence.  
Informed decisions.  
Better health.

# Why?

An introduction to  
evidence-based  
practice



# Me ..... “Rules”





# The health care world is full of nonsense and error

- There are lots of people trying to convince you of rubbish
- There are many people offering treatments everyday that don't help or advising people away from those that do
- There are many people offering treatments that are harmful
- **SADLY MOST OF THEM (?US) DON'T REALISE IT**





The Individual

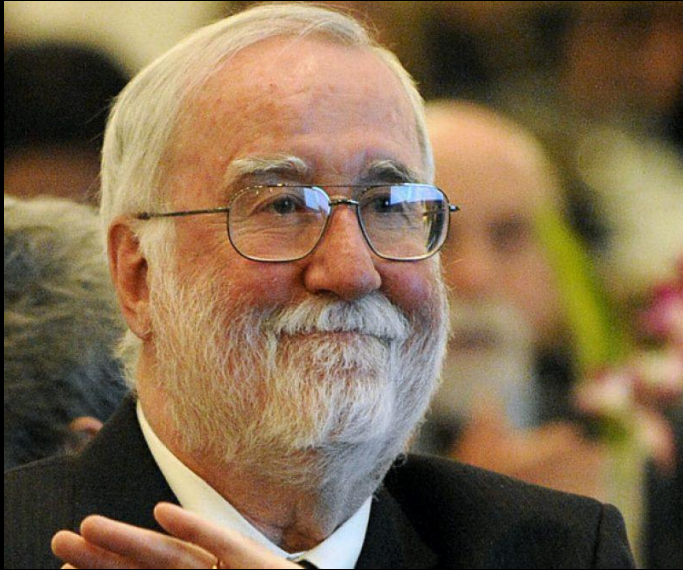
Their Condition, symptoms, natural history

Their Environment

The Intervention

Events

You



"the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient.

It means integrating individual clinical expertise with the best available external clinical evidence from systematic research."

(Sackett D, 1996)

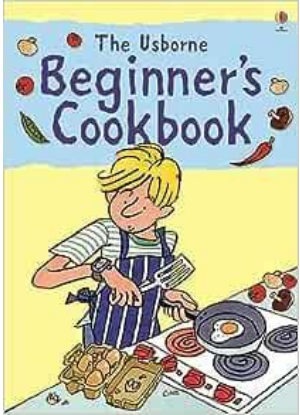
# EBP: What is it not?

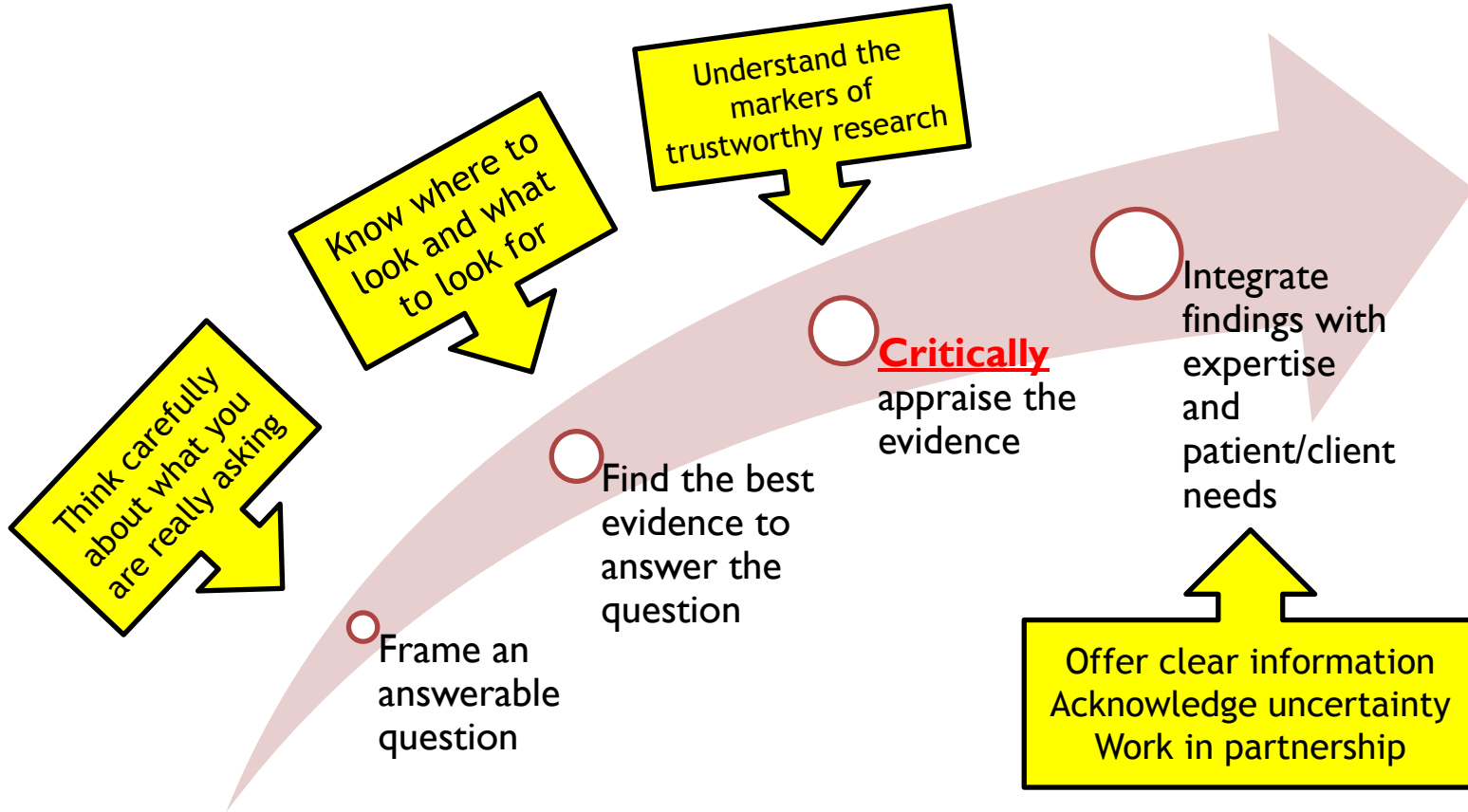


Q "My preferred treatment" AND "works" AND "brilliant" X

Google Search

I'm Feeling Lucky





# Ways of Knowing?

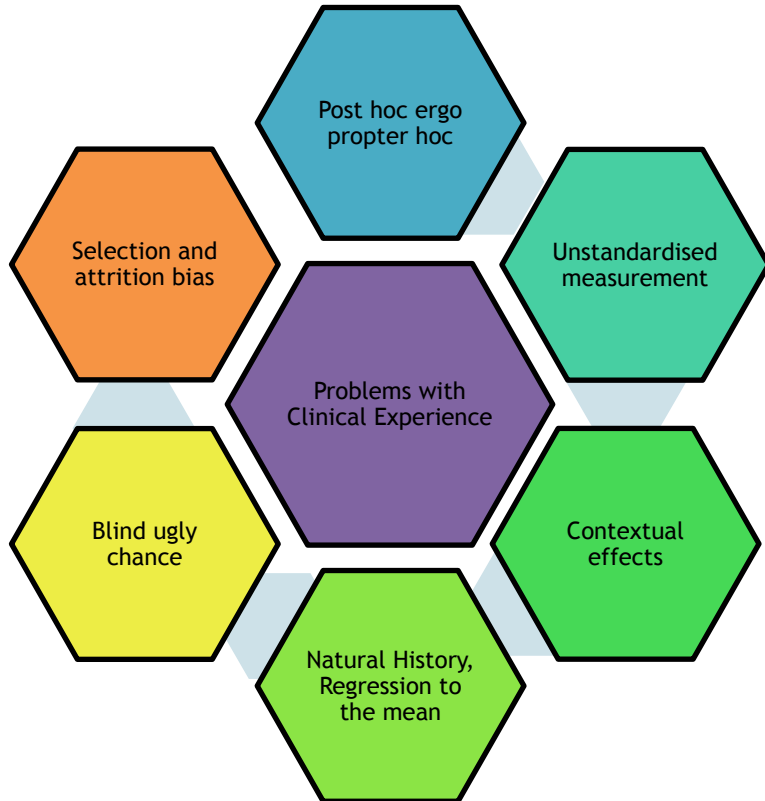
Ancient wisdom

Clinical experience/  
observation

The authority of  
experts

Biological plausibility

# Problems with clinical experience



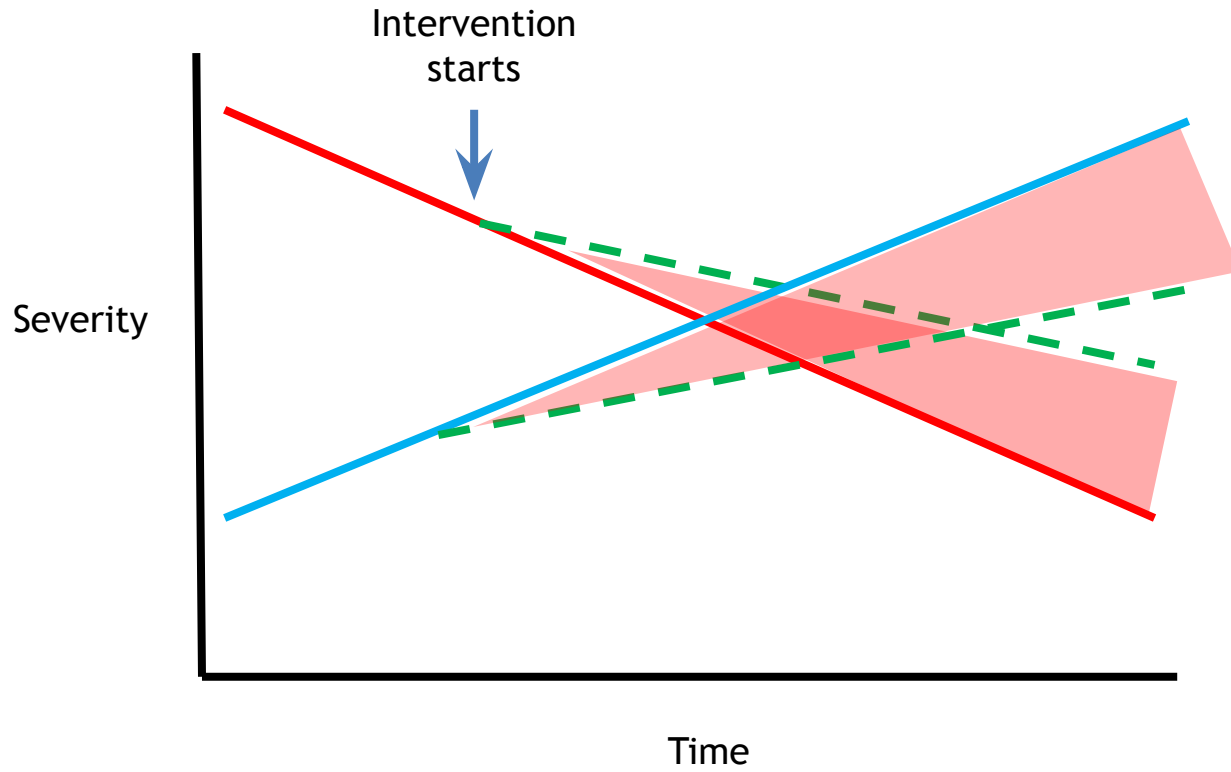
But perhaps the biggest problem is...

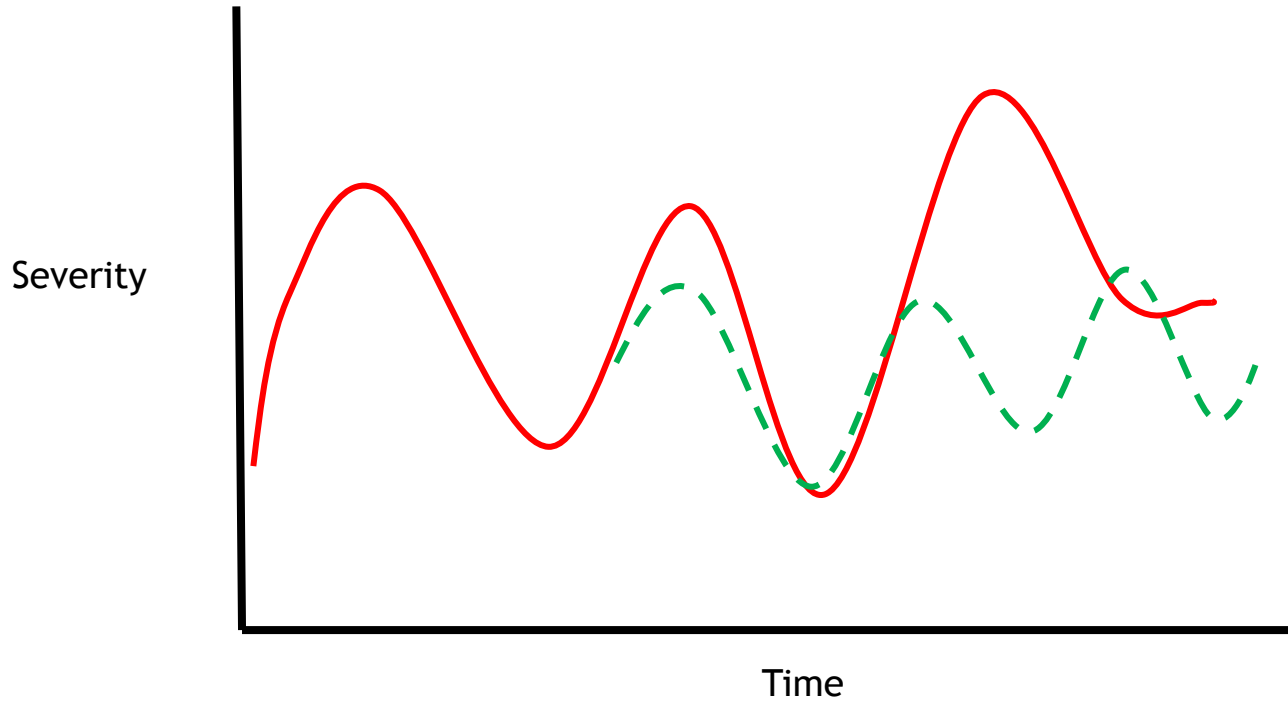


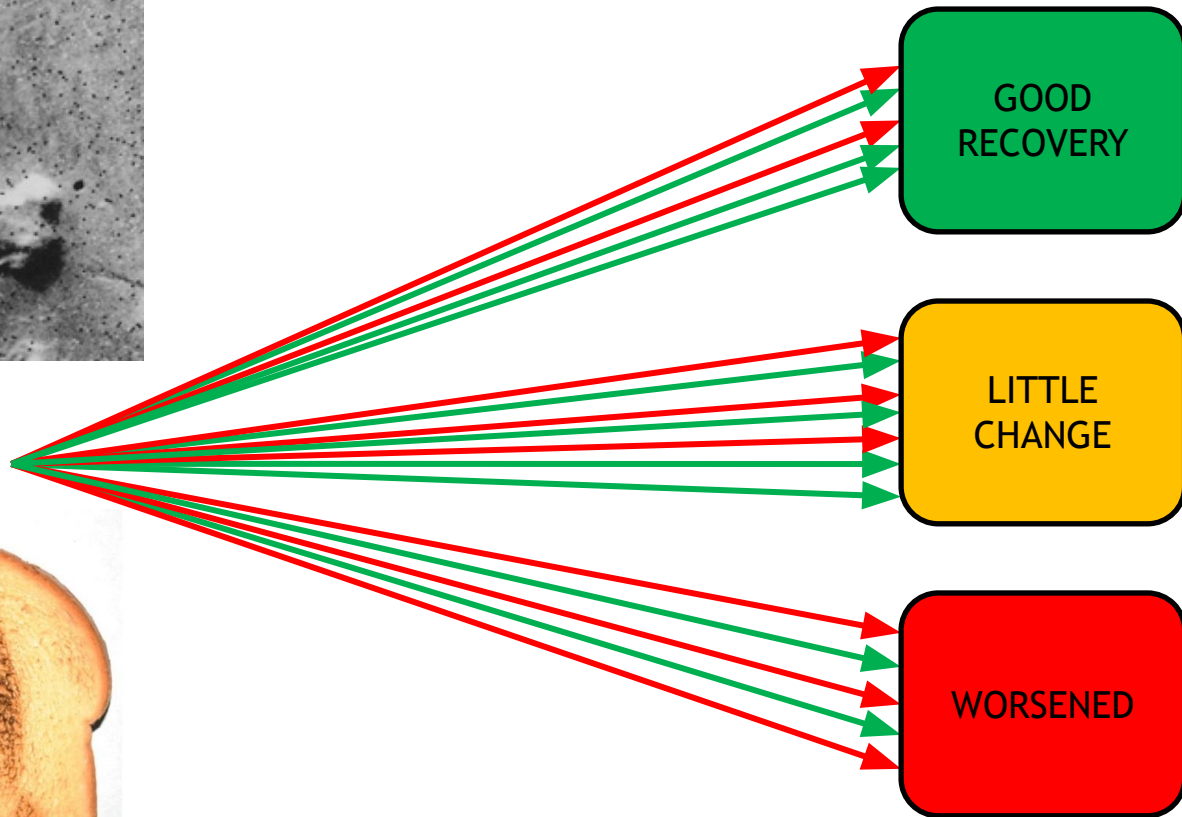
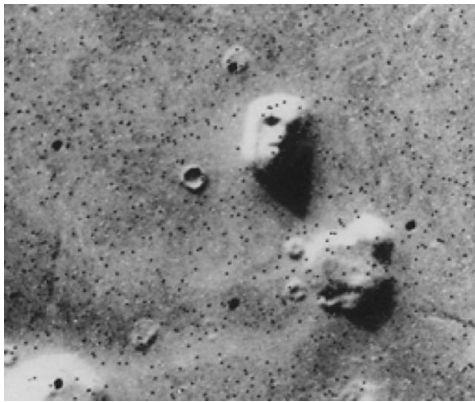
# YOU! (us)

- Confirmation bias
- Cognitive dissonance
- Selective attention and memory (recall bias)
- Professional identity and accepted “truths”
- Respect for authority (seldom helpful)









-  An EFFECTIVE treatment
-  A POINTLESS treatment

# Clinical Experience: An alternative definition



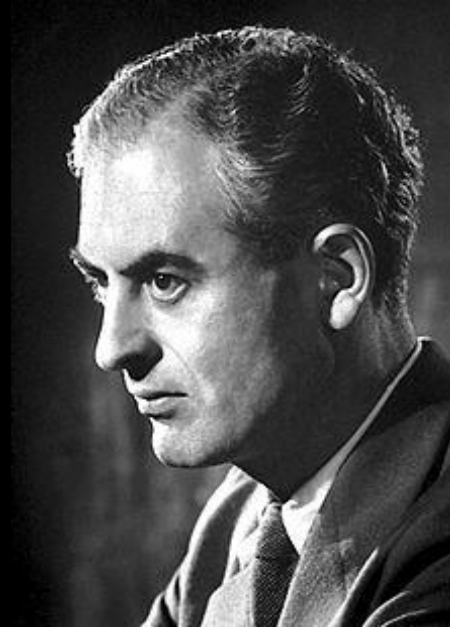
“The art of making the same mistakes with increasing confidence over an impressive number of years.”

O'Donnell M. A sceptic's medical dictionary. London: BMJ Books, 1997.

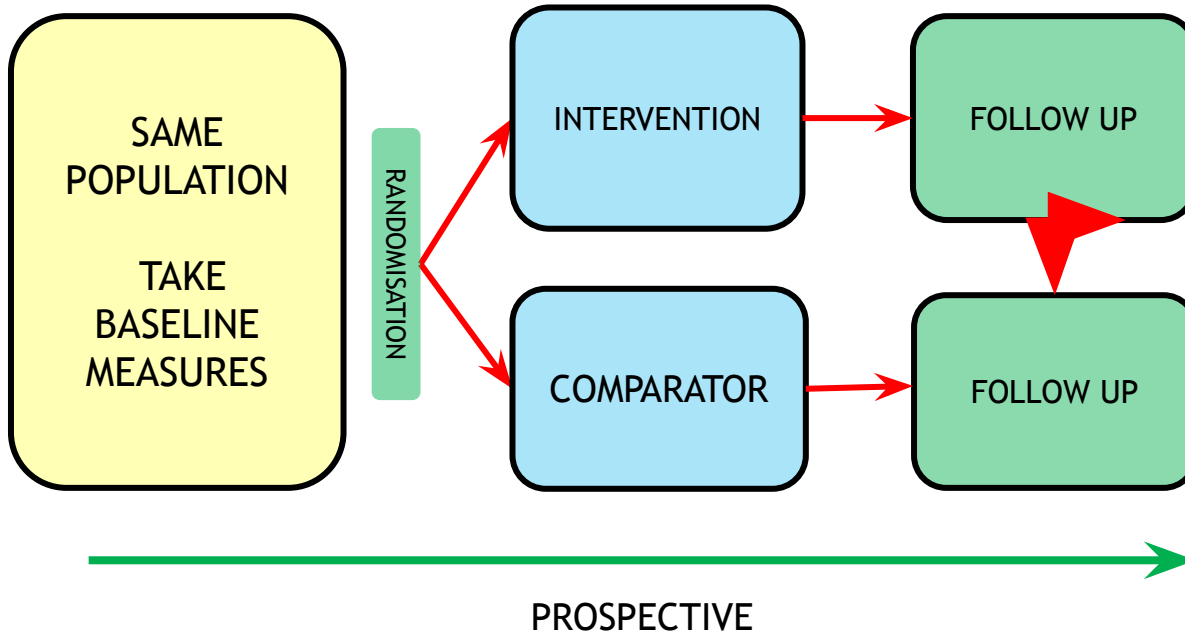
# A “conspiracy of goodwill”

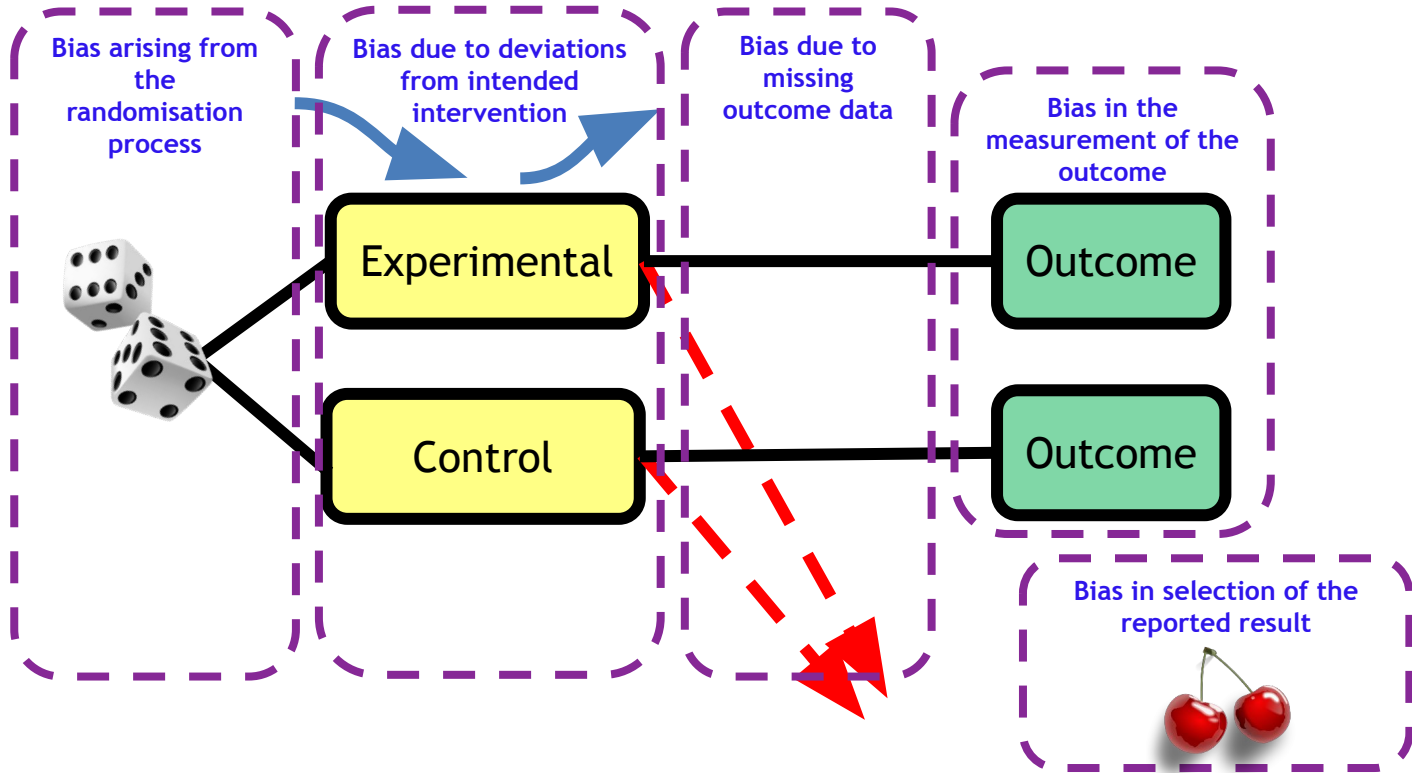
“Exaggerated claims are ...usually the outcome of a kindly conspiracy in which everybody has the very best intentions....”

Sir Peter Medawar



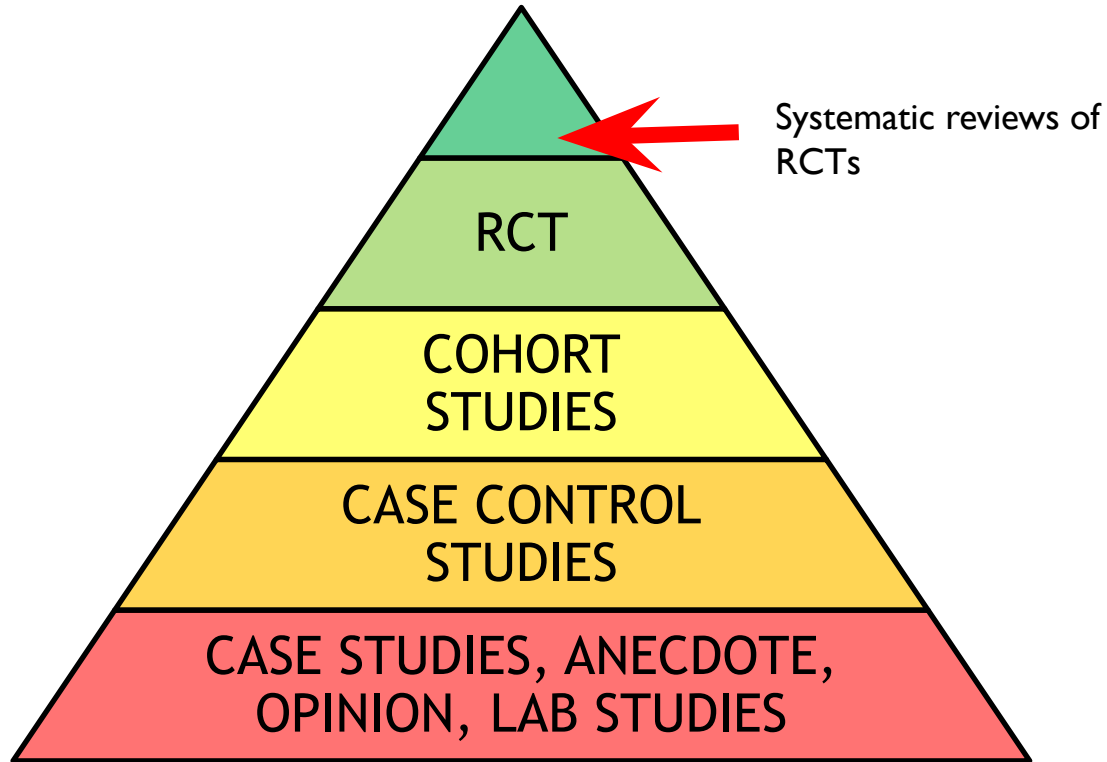
(From Advice to a Young Scientist, published in 1979.)





# The (flexible) Hierarchy of evidence\*

\*with caveats...

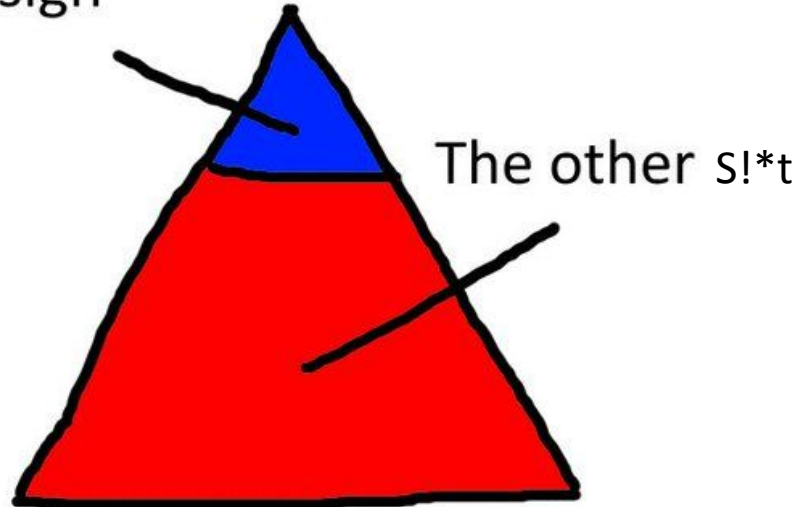




# An alternative hierarchy of evidence?



Thoughtful, well-conducted studies of any design



| My question is...   | Look for this....  |
|---|--|
| Does this intervention work?  | RCT,<br>Systematic review/ meta-analysis of RCTs   |
| Diagnosis/ Screening tests.... <ul style="list-style-type: none"> <li>• Is it accurate?</li> <li>• Does it improve outcomes?</li> </ul> | Cross sectional studies where subjects get the test & a gold standard reference.<br><br>RCTs |
| What is the prognosis/ natural history of a condition?  | Longitudinal cohort study  |
| Is this risk factor important?  | Cohort study<br>Case-control study<br>Cross sectional study (v exploratory)                  |
| Describe this population and the relationships within it.   | Cohort study<br>Cross-sectional study  |

# HONESTY TEST





Some Real World Examples

# Bill Silverman's Babies

Retinopathy of prematurity

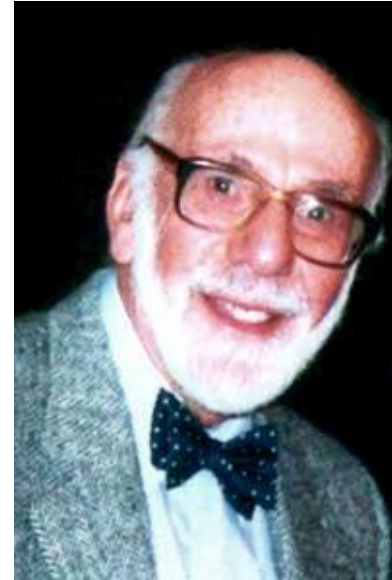
ACTH

The case

The case series

25/31 vs 7 fails

The RCT



1/3 of babies treated  
with ACTH became blind

1/5 of babies with no  
treatment became blind

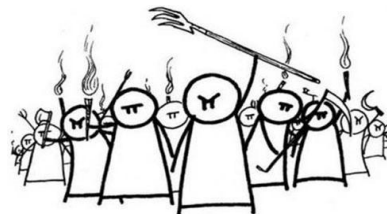
At 2 years mortality was  
significantly higher in the  
treated group



+



=



There was high-quality evidence that stretch did not have clinically important effects on joint mobility in people with or without neurological conditions if performed for less than seven months.

There was moderate- and high-quality evidence that stretch did not have clinically important short-term effects on quality of life or pain in people with non-neurological conditions, respectively.



Cochrane Database of Systematic Reviews

**Stretch for the treatment and prevention of contractures  
(Review)**

Harvey LA, Katalinic OM, Herbert RD, Moseley AM, Lannin NA, Schurr K

49 studies with 2135 participants

48575 Participants  
190 Active sites  
6 Countries  
4 effective treatments  
6 ineffective treatments

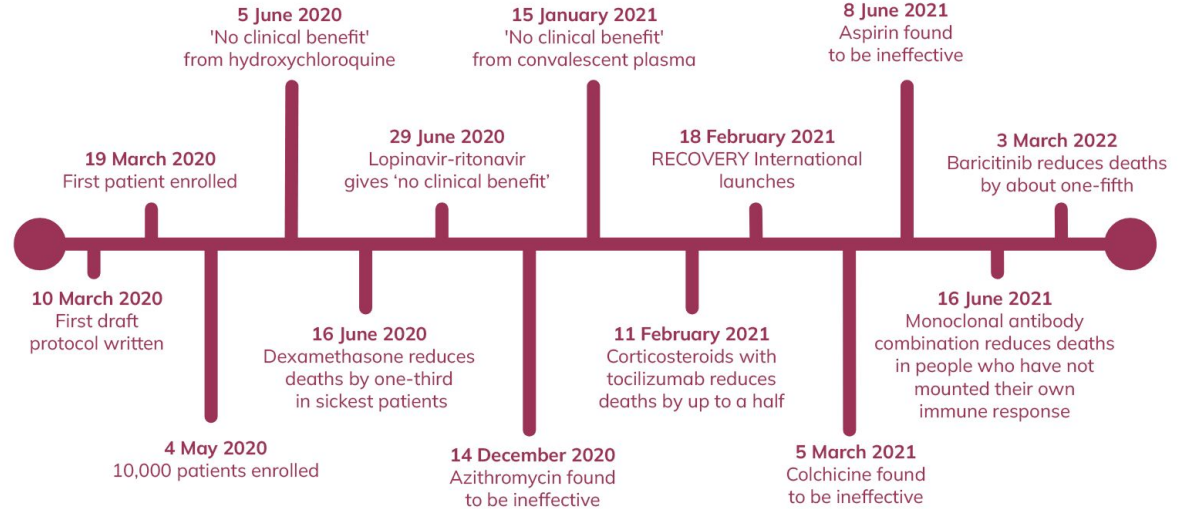
AT LEAST  
THOUSANDS OF  
LIVES SAVED



# RECOVERY

Randomised Evaluation of COVID-19 Therapy

2 years on

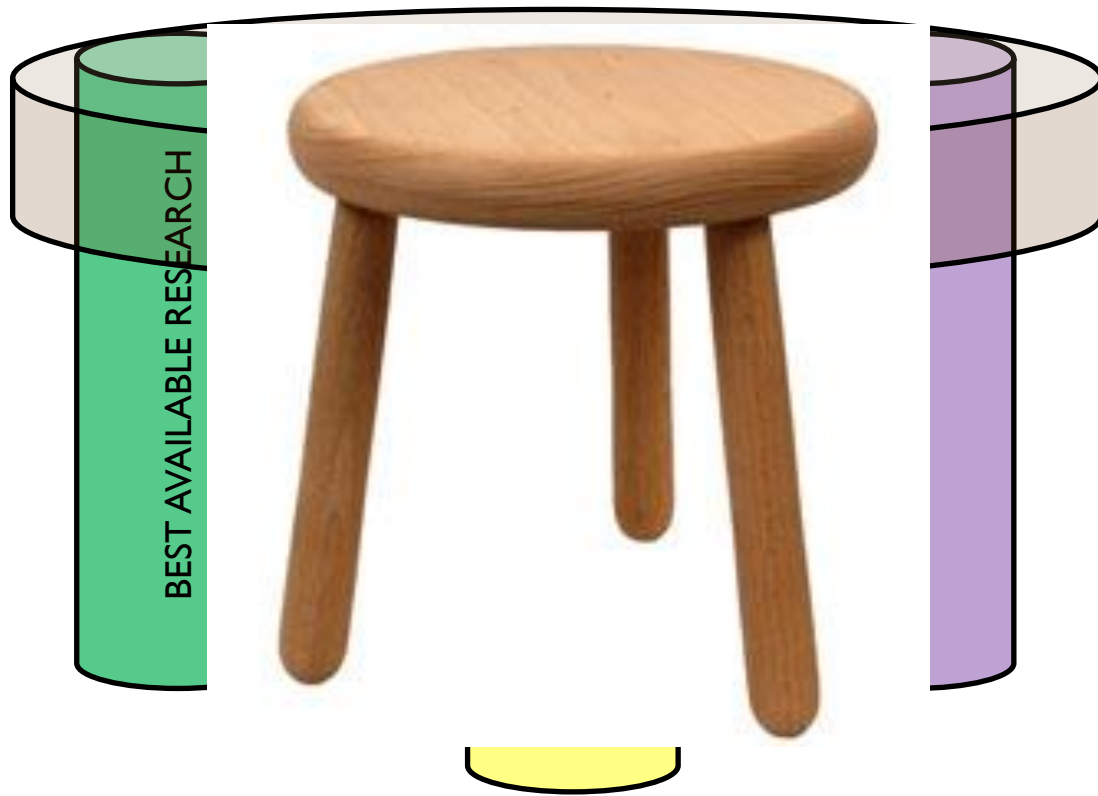


[Image from https://www.recoverytrial.net/](https://www.recoverytrial.net/)











Erik Meira 2017 “The Science PT”

<http://thesciencept.com/flush-your-stool-down-the-funnel/>

# Thanks for Listening

[neil.oconnell@brunel.ac.uk](mailto:neil.oconnell@brunel.ac.uk)



[@neiloconnell](https://twitter.com/neiloconnell)





## Q&A

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Informed decisions.  
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Trusted evidence.  
Informed decisions.  
Better health.

# Systematic reviews and critical appraisal

Dr Rebecca Gould, Cochrane UK Fellow

Dr Robert Walton, Senior Fellow Cochrane UK

# Learning aims

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**01** What is a systematic review?

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**02** What makes a good systematic review?

---

**03** Improve knowledge and confidence in critical appraisal

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## What is a systematic review?

Systematic reviews aim to  
**IDENTIFY,**  
**APPRAISE,**  
**SYNTHESIZE**  
and **APPLY**  
the results of primary research  
to answer a specific question





## Different types of systematic review

- **Intervention reviews** assess the effectiveness/safety of a treatment, vaccine, device, preventative measure, procedure or policy.
- **Diagnostic test accuracy reviews** assess the accuracy of a test, device or scale to aid diagnosis.
- **Prognosis reviews** describe and predict the course of individuals with a disease or health condition.
- **Qualitative evidence syntheses** investigate perspectives and experiences of an intervention or health condition.
- **Overviews of reviews** synthesize information from multiple systematic reviews on related research questions.
- **Rapid reviews** are systematic reviews accelerated through streamlining or omitting specific methods.

# Key stages

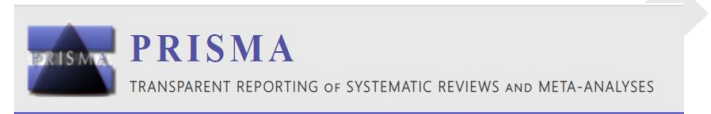
1. Prioritise
2. Define the question - PICO(S)
3. Search the literature
4. Select studies
5. Extract data
6. Assess risk of bias
7. Combine study findings
8. Interpret results
9. Assess certainty of findings
10. Formulate implications for practice and research
11. Dissemination



# Key quality markers

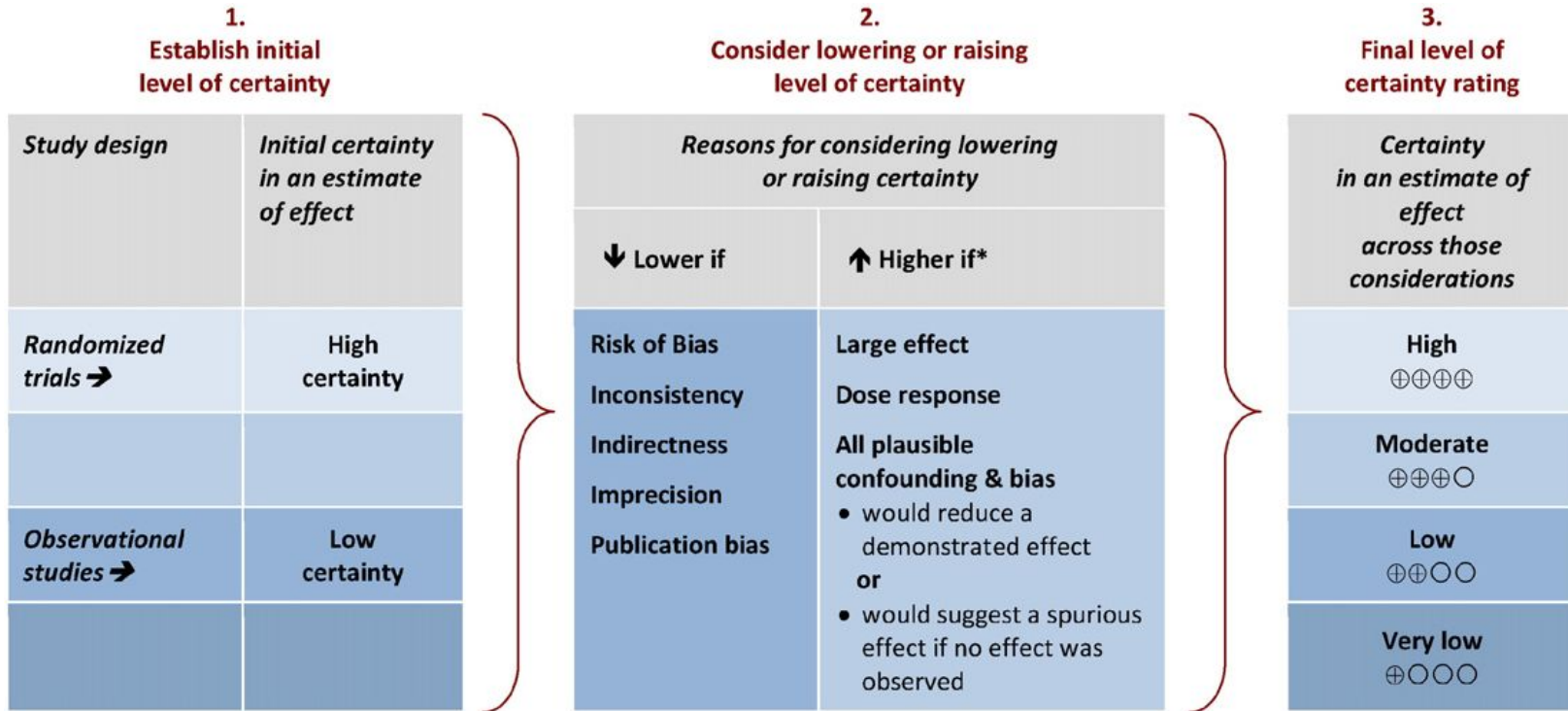
- Pre-published protocol
- Well-defined question
- Clear inclusion and exclusion criteria
- Comprehensive search strategy
- Dual study selection, data extraction and risk of bias assessment
- Study characteristics well-defined
- Appropriate data analysis and presentation of results
- Conclusions based on review findings
- Minimal well-justified protocol deviations

**How to make sense of a Cochrane systematic review** <https://breathe.ersjournals.com/content/10/2/134>



# Certainty of evidence

# GRADE



\*upgrading criteria are usually applicable to observational studies only.

# Can I use this review?

- Is it sufficiently up to date?
- Is it answering the question I'm asking?
- Does it meet most/ all of the quality markers?
- Can I apply the findings to my patient population?
- Does it present findings in an accessible way?
- Does it reach useful conclusions for end users?



## The bottom line...

- A good review will:
  - Follow a pre-published protocol
  - Report methods transparently
  - Provide a quality assessment of included studies
  - Present findings accessibly
  - Base conclusions on review findings

### Remember:

- A review is only as good as the studies included
- Author eminence, place of publication and number of citations do not guarantee quality



# Critical Appraisal tools

- Help you appraise the reliability, importance and applicability of clinical evidence
- Specific for study type
- Move away from generating overall score



Checklists



CASP



Centre for  
Evidence-Based Medicine

RESEARCH METHODS AND REPORTING

**AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both**

Beverley J Shea,<sup>1,2,3</sup> Barnaby C Reeves,<sup>4</sup> George Wells,<sup>3,5</sup> Micere Thuku<sup>1,2</sup> Candyce Hamel,<sup>1</sup> Julian Moran,<sup>6</sup> David Moher,<sup>1,3</sup> Peter Tugwell<sup>1,2,3,7</sup> Vivian Welch,<sup>2,3</sup> Elizabeth Kristjansson,<sup>8</sup> David A Henry<sup>9,10,11</sup>

**ROBIS tool**

# CASP Systematic Review Checklist

- 10 questions – cover validity, results and clinical validity
- Most questions “yes”, “no” or “can’t tell”
- Prompts for what to consider for each question





## Section A – are the results of the study valid?

1. Did the review address a clearly focused question?
2. Did the authors look for the right type of papers?
3. Do you think all the important, relevant studies were included?
4. Did the review's authors do enough to assess quality of the included studies?
5. If the results of the review have been combined, was it reasonable to do so?



## Section B – what are the results?

6. What are the overall results of the review?
7. How precise are the results?



## Section C – will the results help locally?

8. Can the results be applied to the local population?
9. Were all important outcomes considered?
10. Are the benefits worth the harms and costs?





**Cochrane**  
**Library**

Cochrane Database of Systematic Reviews

## Exercise for preventing falls in older people living in the community (Review)

Sherrington C, Fairhall NJ, Wallbank GK, Tiedemann A, Michaleff ZA, Howard K, Clemson L, Hopewell S, Lamb SE

Sherrington C, Fairhall NJ, Wallbank GK, Tiedemann A, Michaleff ZA, Howard K, Clemson L, Hopewell S, Lamb SE.  
Exercise for preventing falls in older people living in the community.  
*Cochrane Database of Systematic Reviews* 2019, Issue 1. Art. No.: CD012424.  
DOI: [10.1002/14651858.CD012424.pub2](https://doi.org/10.1002/14651858.CD012424.pub2).





1. Did the review address a clearly focused question?

HINT: An issue can be 'focused' in terms of: the population studied; the intervention given; and the outcome considered

|                      |   |
|----------------------|---|
| <b>Population:</b>   | <ul style="list-style-type: none"> <li>- &gt; 60 years</li> <li>- Majority of participants living in community</li> <li>- Recently discharged from hospital (separate group)</li> </ul> <p>Excluded: studies that only included participants affected by a particular clinical condition e.g. Stroke, Parkinson's disease</p> |
| <b>Intervention:</b> | <ul style="list-style-type: none"> <li>- All exercise interventions +/- additional low contact intervention (e.g. information on falls prevention)</li> <li>- ProFaNE taxonomy used to classify exercise programs</li> </ul>  |
| <b>Comparison:</b>   | <ul style="list-style-type: none"> <li>- Usual care or control intervention (e.g. general health education)</li> </ul>  |
| <b>Outcome:</b>      | <ul style="list-style-type: none"> <li>- Primary: Rate of falls</li> <li>- Secondary: number of people experiencing falls, number of people experiencing falls resulting in admission or medical attention, HRQoL, adverse events</li> </ul>  |
| <b>Studies</b>       | <ul style="list-style-type: none"> <li>- RCTs; either individual or cluster randomised</li> </ul>   |

1. Did the review address a clearly focused question?

HINT: An issue can be 'focused' in terms of: the population studied; the intervention given; and the outcome considered





# Did the review address a clearly focused question?

① Click **Present with Slido** or install our [Chrome extension](#) to activate this poll while presenting.

## 2. Did the authors look for the right type of papers?

HINT: 'The best sort of studies' would address the review's question, have an appropriate study design (usually RCTs for papers evaluating interventions)

## 3. Do you think all the important, relevant studies were included?

HINT: look for which bibliographic databases were used, follow up from reference list, personal contact with experts, unpublished as well as published studies, non-English language studies

### **Electronic searches**

Our search extended the searches performed up to February 2012 in [Gillespie 2012](#). We searched: the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (February 2012 to 2 May 2018); the Cochrane Central Register of Controlled Trials (CENTRAL) (Cochrane Register of Studies Online) (2012 Issue 2 to 2018 Issue 5); MEDLINE (including Epub Ahead of Print, In-Process & Other Non-Indexed Citations and MEDLINE Daily) (January 2012 to 30 April 2018); Embase (March 2012 to 2018 Week 18); the Cumulative Index to Nursing and Allied Health Literature (CINAHL) (February 2012 to 2 May 2018); and the Physiotherapy Evidence Database (PEDro) (2012 to 2 May 2018), using tailored search strategies. We did not apply any language restrictions.

### **Searching other resources**

We checked reference lists of other systematic reviews as well as contacting researchers in the field to assist in the identification of ongoing and recently completed trials.

We also searched the [World Health Organisation International Clinical Trials Registry Platform](#) (WHO ICTRP) and [ClinicalTrials.gov](#) for ongoing and recently completed trials (May 2018) (see [Appendix 2](#)).



#### 4. Did the review's authors do enough to assess quality of the included studies?

**HINT:** The authors need to consider the rigour of the studies they have identified. Lack of rigour may affect the studies' results.

##### **Assessment of risk of bias in included studies**

Pairs of two review authors (CS, AT, NJF, ZAM, GW) independently assessed risk of bias using Cochrane's 'Risk of bias' tool as described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). Review authors were not blinded to authors and sources. Review authors did not assess their own trials. Disagreement was resolved by consensus or third party adjudication (CS).

##### **Assessment of reporting biases**

We constructed and visually inspected funnel plots for outcomes that included more than 10 data points.

##### ***Assessing the certainty of evidence and 'Summary of findings' tables***

We used the GRADE approach to assess the quality of evidence related to all outcomes listed in the [Types of outcome measures](#) (Schünemann 2017). Using GRADEpro GDT (GRADEPro GDT 2015), we assessed the certainty of the evidence as 'high', 'moderate', 'low' or 'very low' depending on the presence and extent of five factors: risk of bias; inconsistency of effect; indirectness; imprecision; and publication bias. We prepared 'Summary of finding' tables



# Did the review's authors do enough to assess quality of the included studies?

① Click **Present with Slido** or install our [Chrome extension](#) to activate this poll while presenting.

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5. If the results of the review have been combined, was it reasonable to do so?

**HINT:** consider whether: results were similar from study to study; results of all included studies were clearly displayed; results of different studies are similar; reasons for any variations in results are discussed

## **Results**

- 108 trials, 23 407 participants
- 56% studies specified history of falling, or one or more risk factors
- 85 studies had active control intervention
  - other exercise used as comparison in remaining studies
- 52% studies group exercise, 29% individual, 27% combination
- 46% studies exercise delivered by health professional
- Duration 5 to 130 weeks

1. Exercise (all types) versus control: 81 RCTs (9 cluster-RCTs).
2. Balance and functional exercises versus control: 48 RCTs (6 cluster-RCTs).
3. Resistance exercises versus control: 7 RCTs.
4. Flexibility versus control: 0 RCTs.
5. 3D exercise (Tai Chi) versus control: 10 RCTs (2 cluster-RCTs).
6. 3D exercise (dance) versus control: 1 RCTs (1 cluster-RCT).
7. General physical activity (walking programme) versus control: 3 RCTs.
8. Endurance training versus control: 0 RCTs.
9. Other kinds of exercise versus control: 0 RCTs.
10. Multiple categories of exercise versus control: 21 RCTs.



**If the results of the review  
have been combined, was it  
reasonable to do so?**

① Click **Present with Slido** or install our [Chrome extension](#) to activate this poll while presenting.

|               |  |
|---------------|--|
| Methods       | Study design: RCT<br>Number of study arms: 2<br>Length of follow-up: 3 months  |
| Participants  | Setting: 3 different municipalities, Sweden<br><br>Number of participants: 45<br>Number analysed: 40<br>Number lost to follow-up: 5<br><br>Sample: community-dwelling<br><br>Age (years): mean 83 (range 75 - 103)<br><br>Sex: 71% female<br><br>Inclusion criteria: ≥ 75 yrs, walk independently in home, understand written and oral information in Swedish language<br><br>Exclusion criteria: < 25 MMSE, ongoing regular physical therapy due to injury ± illness, terminal care   |
| Interventions | Randomised into 3 groups: 2 intervention groups (1 Individual Otago Exercise Programme, 1 Otago Exercise Programme + Motivational Interview group) and 1 control group. The Individual Otago Exercise Programme and Otago Exercise Programme + Motivational Interviewing groups were combined in this review<br><br>1. Individual Otago Exercise Programme: home-based programme 3 a week, walking programme 4 a week, for 12 weeks, received written recommendations for falls prevention<br><br>2. Control group: no intervention, received written recommendations for falls prevention |
| Outcomes      | 1. Rate of falls<br><br>2. Number of people who experienced 1 or more falls (risk of falling)  |

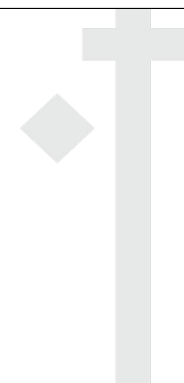
Unsure if reasonable to combine?

## Characteristics of included studies

=> Good place to look for more details on included studies

**Table 2. Key characteristics of participants and intervention approach**

| Study ID <sup>a</sup>                         | Age (mean) | % Women | High risk of falls | Duration of intervention (weeks) | Intervention delivered by health professional | Group exercise | Intervention progressed |
|---|------------|---------|--------------------|----------------------------------|---|----------------|-------------------------|
| <b>Gait, balance, and functional training</b> |            |         |                    |                                  |   |                |                         |
| Almeida 2013                                  | 79         | 83%     | Yes                | 16                               | Yes   | Yes            | NR                      |
| Arantes 2015                                  | 73         | 100%    | Yes                | 12                               | Yes   | Yes            | Yes                     |
| Arkkukangas 2015                              | 83         | 71%     | No                 | 12                               | Yes   | No             | Yes                     |
| Barnett 2003                                  | 75         | 67%     | Yes                | 52                               | No  | Yes            | Yes                     |



6. What are the overall results of the review?

HINT: Consider: if you are clear about the 'bottom line' results; what these are (numerically if appropriate); how were the results expressed? (NNT, odds ratio etc.)

7. How precise are the results?

HINT: Look at the confidence intervals, if given

**Summary of findings for the main comparison. Summary of findings: exercise (all types) versus control (e.g. usual activities)**

**Exercise (all types) versus control (e.g. usual activities) for preventing falls in older people living in the community**

**Patient or population:** Older people living in the community (trials focusing on people recently discharged from hospital were not included)

**Settings:** Community, either at home or in places of residence that, on the whole, do not provide residential health-related care

**Intervention:** Exercise of all types<sup>a</sup>

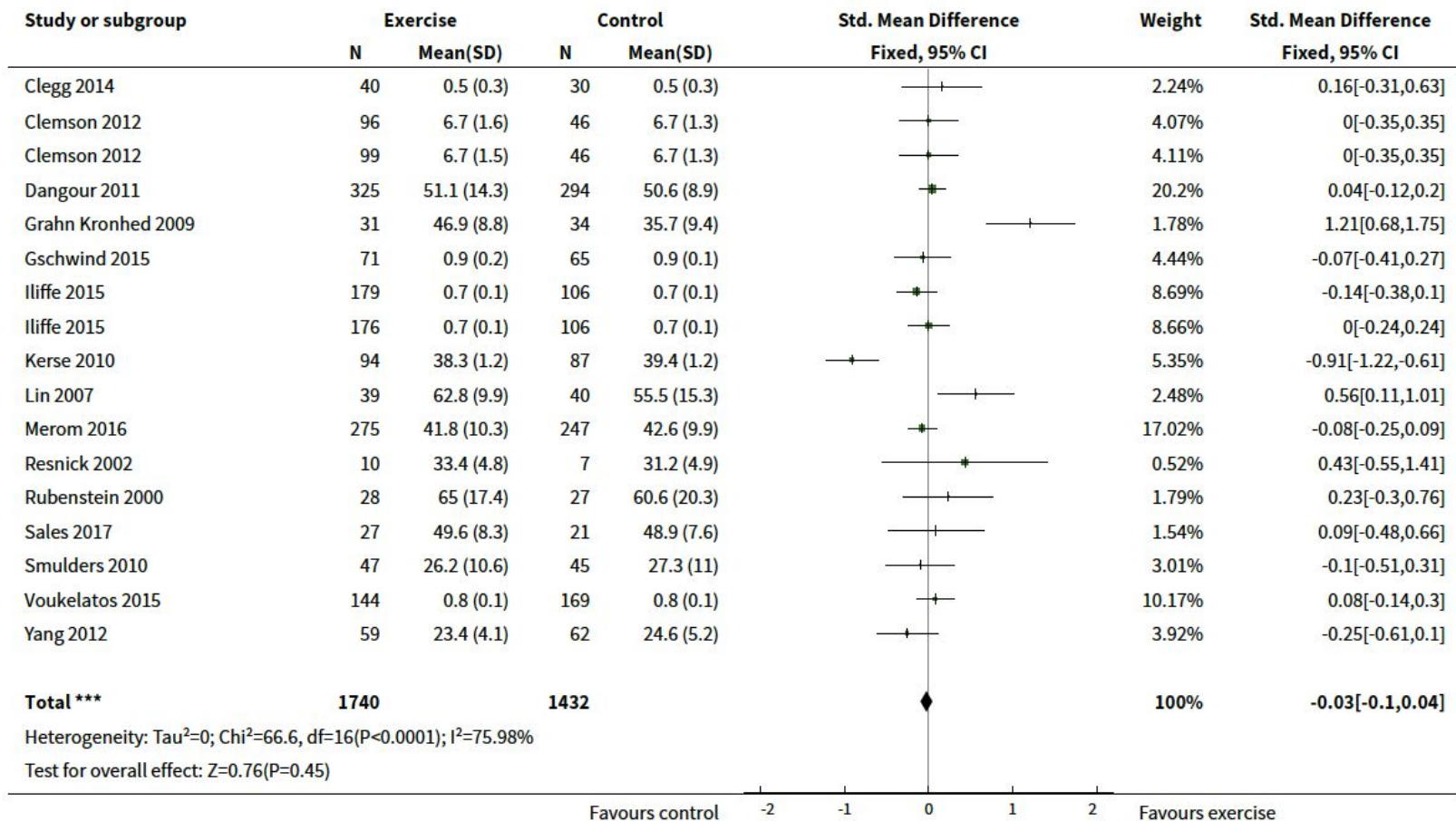
**Comparison:** Usual care (no change in usual activities) or a control (non-active) intervention<sup>b</sup>

| Outcomes  | Illustrative comparative risks* (95% CI)     |                           | Relative effect (95% CI)  | No of participants (studies) | Certainty of the evidence (GRADE) | Comments  |
|---|--|---------------------------|---|------------------------------|-----------------------------------|---|
|   | Assumed risk                                 | Corresponding risk        |   |                              |                                   |   |
|   | Control                                      | Exercise (all types)      |   |                              |                                   |   |
| Rate of falls (falls per person-years)<br><br>Follow-up: range 3 to 30 months | <b>All studies population</b>                |                           | <b>Rate ratio 0.77</b><br><br><b>(0.71 to 0.83)<sup>d</sup></b> | 12,981<br>(59 RCTs)          | ⊕⊕⊕⊕<br><b>high<sup>e</sup></b>   | Overall, there is a reduction of 23% (95% CI 17% to 29%) in the number of falls<br><br>Guide to the data:<br><br>If 1000 people were followed over 1 year, the number of falls in the overall population would be 655 (95% CI 604 to 706) compared with 850 in the group receiving usual care or attention control.<br>In the unselected population, the corresponding data are 466 (95% CI 430 to 503) compared with 605 in the group receiving usual care or attention control.<br>In the selected higher-risk population, the corresponding data are 924 (95% CI 852 to 996) compared with 1200 in the control group |
|   | 850 per 1000 <sup>c</sup>                    | 655 per 1000 (604 to 706) |   |                              |                                   |   |
|   | <b>Not selected for high risk population</b> |                           |   |                              |                                   |   |
|   | 605 per 1000 <sup>c</sup>                    | 466 per 1000 (430 to 503) |   |                              |                                   |   |
|   | <b>Selected for high risk population</b>     |                           |   |                              |                                   |   |
|   | 1200 per 1000 <sup>c</sup>                   | 924 per 1000 (852 to 996) |   |                              |                                   |   |

|  |  |   |   |                     |                                      |  |
|--|--|---|---|---------------------|--------------------------------------|--|
| Number of people who experienced one or more falls<br><br>Follow-up: range 3 to 25 months                                      | <b>All studies population</b>                |   | <b>RR 0.85</b><br><b>(0.81 to 0.89)<sup>g</sup></b> | 13,518<br>(63 RCTs) | ⊕⊕⊕⊕<br><b>high<sup>e</sup></b>      | Overall, there is a reduction of 15% (95% CI 11% to 19%) in the number of people who experienced one or more falls<br><br>Guide to the data:<br>If 1000 people were followed over 1 year, the number of people who experienced one or more falls in the unselected population would be 408 (95% CI 389 to 428) compared with 480 in the group receiving usual care or attention control.<br>In the unselected population, the corresponding data are 323 (95% CI 308 to 339) compared with 380 in the group receiving usual care or attention control.<br>In the selected higher-risk population, the corresponding data are 425 (95% CI 405 to 445) compared with 500 in the control group. |
|  | <b>480 per 1000<sup>f</sup></b>              | <b>408 per 1000</b><br>(389 to 428)   |   |                     |                                      |  |
|  | <b>Not selected for high risk population</b> |   |   |                     |                                      |  |
|  | <b>380 per 1000<sup>f</sup></b>              | <b>323 per 1000</b><br>(308 to 339)   |   |                     |                                      |  |
|  | <b>Selected for high risk population</b>     |   |   |                     |                                      |  |
|  | <b>500 per 1000<sup>f</sup></b>              | <b>425 per 1000</b><br>(405 to 445)   |   |                     |                                      |  |
| Health-related quality of life<br><br>Follow-up: range 3 to 24 months<br><br>(A higher score indicates better quality of life) | -  | The mean health-related quality of life score in the intervention groups was 0.03 standard deviations lower (0.10 lower to 0.04 higher) | -   | 3172<br>(15 RCTs)   | ⊕⊕○○<br><b>low<sup>l</sup></b>       | SMD was calculated from 4 trials with EQ-5D, 5 trials with SF-36, 3 trials with SF12, 1 trial with QUALEFFO-41, 1 trial with WHOQOL-BREF, and 1 with Assessment of QOL<br><br>EQ-5D: Mean difference = -0.0026 (95% CI -0.0086 to 0.0034). SMD was converted back to MD using EQ-5D scale (0 to 1), based on data for 4 trials (6 comparisons) reporting endpoint scores. <sup>m</sup> MID for the EQ-5D is typically 0.074 (Walters 2005)<br><br>SF36: Mean difference = -0.36 (95% CI -1.20 to 0.48). SMD was converted back to MD using SF-36 scale, based on data for 5 trials. <sup>m</sup> MID for the SF-36 is typically 3 to 5 (Walters 2003)  |
| Adverse events   | See comment                                  |   | Not estimable                                       | 6019<br>(27 RCTs)   | ⊕○○○ <sup>n</sup><br><b>very low</b> | Adverse events were reported to various degrees, but predominantly in the intervention groups, in the 27 RCTs, 14 of which reported no adverse events. Aside from 2 serious adverse events (1 pelvic stress fracture and 1 inguinal hernia surgery) reported in 1 trial, the rest were non-serious adverse events, primarily of a musculoskeletal nature. There was a median of 3 events (range 1 to 26) in the exercise groups  |



### Analysis 6.1. Comparison 6 Exercise versus control (health-related quality of life), Outcome 1 Health-related quality of life- overall analysis.





## 8. Can the results be applied to the local population?

**HINT:** Consider if: the patients covered by the review could be sufficiently different to your population to cause concern; your local setting is likely to differ much from that of the review

### Participants

There were 23,407 participants randomised and 20,007 with full data at follow-up. Overall, 77% of included participants were women. All participants were women in 28 trials (see Appendix 4), and men in one trial (Rubenstein 2000). The average participant age in the included trials was 76 years.

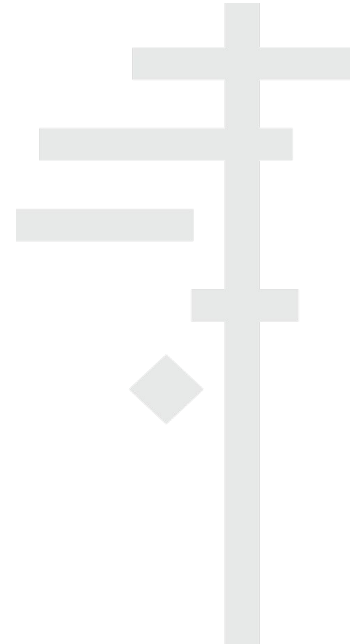
The inclusion/exclusion criteria and other participant details are listed for each study in the Characteristics of included studies.

Sixteen trials (15%) would have been excluded if the review inclusion criteria had been set at 65+ years of age (see Appendix 4).

Sixty included studies (56%) specified a history of falling or evidence of one or more risk factors for falling in their inclusion criteria (see Appendix 4).

Seventy-two trials (67%) excluded participants with cognitive impairment, either defined as an exclusion criterion or implied by the stated requirement to be able to give informed consent and/or to follow instructions (see Appendix 4).

Four trials (4%) only included people who had recently been discharged from hospital (Haines 2009; Latham 2003; Sherrington 2014; Vogler 2009). It is possible other trials also included some participants who had been recently discharged from hospital or the emergency department, however this was not quantified.



## 9. Were all the important outcomes considered?

HINT: consider whether there is other information you would like to have seen

- Primary:
  - Rate of falls
- Secondary:
  - Number of people experiencing falls
  - Number of people experiencing falls resulting in admission or medical attention
  - HRQoL
  - Adverse events





# Were all the important outcomes considered?

① Click **Present with Slido** or install our [Chrome extension](#) to activate this poll while presenting.



# What other outcomes would you like to see?

- ① Click **Present with Slido** or install our [Chrome extension](#) to activate this poll while presenting.

## 10. Are the benefits worth the harms and costs?

**HINT:** even if this is not addressed by the review, what do you think?

### **Authors' conclusions**

Exercise programmes reduce the rate of falls and the number of people experiencing falls in older people living in the community (high-certainty evidence). The effects of such exercise programmes are uncertain for other non-falls outcomes. Where reported, adverse events were predominantly non-serious.

Exercise programmes that reduce falls primarily involve balance and functional exercises, while programmes that probably reduce falls include multiple exercise categories (typically balance and functional exercises plus resistance exercises). Tai Chi may also prevent falls but we are uncertain of the effect of resistance exercise (without balance and functional exercises), dance, or walking on the rate of falls.



Q&A

Trusted evidence.  
Informed decisions.  
Better health.



*Coffee Break*





Trusted evidence.  
Informed decisions.  
Better health.

# Too good to be true? Pitfalls in health information

Jack Wilkinson

# Too good to be true? Pitfalls in health information

Jack Wilkinson, Centre for Biostatistics, University of Manchester.  @jd\_wilko


Some of the research discussed in this presentation is funded by the NIHR Research for Patient Benefit programme (NIHR203568). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

# For the lawyers

- I'm not accusing anyone of fraud, data fabrication/falsification, or any other form of research misconduct here.
- I will say that some trials are unlikely to be authentic or are not trustworthy. The data or results do not appear to be compatible with a genuine RCT.
- I make no claims that this is due to deliberate action on behalf of investigators/ authors (vs catastrophic errors in data management, for example).

# Ivermectin for COVID-19

## Ivermectin for Prevention and Treatment of COVID-19 Infection: A Systematic Review, Meta-analysis, and Trial Sequential Analysis to Inform Clinical Guidelines

 Bryant, Andrew MSc<sup>1,\*</sup>; Lawrie, Theresa A. MBBCh, PhD<sup>2</sup>; Dowswell, Therese PhD<sup>2</sup>; Fordham, Edmund J. PhD<sup>2</sup>; Mitchell, Scott MBChB, MRCS<sup>3</sup>; Hill, Sarah R. PhD<sup>1</sup>; Tham, Tony C. MD, FRCP<sup>4</sup>

[Bryant et al., 2021](#)

Risk ratio for death:

0.38 (95% CI 0.19 to 0.73)

15 trials

**Evidence of benefit**

## Meta-analysis of Randomized Trials of Ivermectin to Treat SARS-CoV-2 Infection

Andrew Hill,<sup>1</sup> Anna Garratt,<sup>2</sup> Jacob Levi,<sup>3</sup> Jonathan Falconer,<sup>4</sup> Leah Ellis,<sup>5</sup> Kaitlyn McCann,<sup>5</sup> Victoria Pilkington,<sup>6</sup> Ambar Qavi,<sup>5</sup> Junzheng Wang,<sup>5</sup> and Hannah Wentzel<sup>5</sup>

[Hill et al., 2021](#)

Risk ratio for death:

0.49 (95% CI 0.28 to 0.86)

12 trials

**Evidence of benefit**

# Ivermectin for COVID-19

- SRs widely covered in media and social media.
- Used by antivax groups

## Our Systematic Review...

Our peer-reviewed study clearly shows that ivermectin prevents and treats Covid-19 and has the potential to save and improve countless lives.

- 2.6 million views
- Ranked 7<sup>th</sup> of 20 million articles of a similar age.



[Read More](#)

**A just-published, peer-reviewed study already clearly shows that ivermectin prevents and treats Covid-19 and has the **potential to save and improve countless lives in the UK and worldwide right now.****

The strength of evidence for ivermectin has this week been supercharged by publication of a gold standard review of 24 randomised trials conducted in 15 countries among more than 3400 people worldwide proving infections fall and deaths are dramatically reduced when ivermectin is administered. Published in the American Journal of Therapeutics the most rigorous statistical standards were applied by world-leading researchers biostatistician Mr Andrew Bryant and medical doctor and researcher Dr. Tess Lawrie.



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**Picked up by 102 news outlets**

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Conditional Formatting Table

|     | A            | B   | C   | D     | E       | F       | G         | H                         | I      | J           | K                    | L              | M      | N             | O      | P                |          |
|-----|--------------|-----|-----|-------|---------|---------|-----------|---------------------------|--------|-------------|----------------------|----------------|--------|---------------|--------|------------------|----------|
| 1   | Name initial | Sex | Age | Fever | Fatigue | Dyspnea | Sore thro | other symptoms            |        | HGB (gm/dl) | CRP before           | CT description | CO-RAD | symptoms date | ve PCR | CRP at discharge | GRADE    |
| 149 | AZM          | M   | 65  | yes   | yes     | no      | no        | no                        | 12.40% | 44          | UN GGO               |                | 4      | 08/06/2020    |        | 8                | moderate |
| 150 | AAE          | F   | 49  | yes   | no      | yes     | yes       | cough                     | 9.70%  | 32          | SCATTERED CON        |                | 4      | 11/06/2020    |        | 8                | moderate |
| 151 | AEG          | M   | 54  | yes   | no      | no      | yes       | cough                     | 12.50% | 44          | NAD                  |                | 1      | 07/06/2020    |        | 5                | mild     |
| 152 | DES          | M   | 24  | yes   | no      | no      | no        | myalgia                   | 15.00% | 32          | NAD                  |                | 1      | 23/5/2020     |        | 5                | mild     |
| 153 | FFA          | F   | 39  | yes   | no      | no      | yes       | cough                     | 11.80% | 44          | GGO+CON              |                | 5      | 11/06/2020    |        | 8                | moderate |
| 154 | FHA          | F   | 38  | yes   | no      | no      | no        | cough, diarrhea           | 13.90% | 44          | SEGMENTAL CON        |                | 3      | 15/5/2020     |        | 10               | moderate |
| 155 | FMM          | F   | 54  | yes   | yes     | yes     | yes       | cough                     | 12.50% | 44          | GGO                  |                | 5      | 18/6/2020     |        | 12               | moderate |
| 156 | FT           | M   | 60  | no    | no      | yes     | no        | no                        | 14.40% | 44          | GGO                  |                | 5      | 08/06/2020    |        | 6                | moderate |
| 157 | FMM          | M   | 67  | yes   | no      | no      | yes       | no                        | 13.50% | 42          | GGO+SEGMENTAL CON    |                | 4      | 02/06/2020    |        | 6                | moderate |
| 158 | MES          | M   | 62  | yes   | yes     | yes     | no        | cough                     | 12.60% | 45          | GGO                  |                | 5      | 16/6/2020     |        | 6                | moderate |
| 159 | MHS          | F   | 60  | yes   | no      | no      | yes       | cough                     | 12.70% | 46          | GGO+CP               |                | 5      | 18/5/2020     |        | 8                | moderate |
| 160 | MAE          | M   | 25  | yes   | no      | yes     | yes       | cough                     | 14.60% | 12          | NAD                  |                | 1      | 26/5/2020     |        | 5                | mild     |
| 161 | MSA          | M   | 28  | yes   | yes     | no      | yes       | cough                     | 13.50% | 23          | NAD                  |                | 1      | 22/5/2020     |        | 5                | mild     |
| 162 | FSA          | M   | 30  | no    | no      | no      | no        | cough                     | 13.30% | 48          | GGO                  |                | 5      | 20/6/2020     |        | 10               | moderate |
| 163 | MAE          | M   | 27  | yes   | no      | no      | yes       | joint pain                | 14.70% | 33          | GGO                  |                | 4      | 30/5/2020     |        | 12               | moderate |
| 164 | MAA          | M   | 68  | no    | yes     | no      | yes       | cough, diarrhea           | 14.00% | 44          | GGO                  |                | 5      | 14/5/2020     |        | 10               | moderate |
| 165 | MAN          | M   | 42  | yes   | no      | no      | yes       | cough                     | 13.00% | 42          | GGO                  |                | 5      | 18/6/2020     |        | 6                | moderate |
| 166 | MK           | M   | 48  | yes   | yes     | no      | yes       | no                        | 14.60% | 44          | GGO+CP+HEAL          |                | 5      | 03/06/2020    |        | 8                | moderate |
| 167 | MMA          | M   | 26  | yes   | no      | no      | yes       | cough                     | 13.50% | 24          | UN SEGMENTAL CON+GGO |                | 3      | 18/5/2020     |        | 8                | moderate |
| 168 | MMR          | M   | 28  | yes   | yes     | no      | yes       | headache, chest pain      | 14.20% | 38          | NAD                  |                | 1      | 12/05/2020    |        | 5                | mild     |
| 169 | HAA          | F   | 52  | yes   | no      | yes     | yes       | cough                     | 9.20%  | 43          | CON WITH CAVITATION  |                | 2      | 05/06/2020    |        | 8                | moderate |
| 170 | WES          | M   | 42  | yes   | no      | yes     | yes       | cough                     | 13.90% | 43          | GGO+CP               |                | 5      | 07/06/2020    |        | 8                | moderate |
| 171 | WSA          | F   | 26  | yes   | no      | yes     | yes       | cough, diarrhea           | 12.80% | 15          | NAD                  |                | 1      | 10/06/2020    |        | 6                | mild     |
| 172 | WHD          | M   | 45  | yes   | no      | yes     | yes       | no                        | 13.30% | 44          | UN GGO               |                | 4      | 17/5/2020     |        | 8                | moderate |
| 173 | YHA          | M   | 43  | yes   | no      | yes     | yes       | cough, abd pain, diarrhea | 13.80% | 42          | GGO+CO+HEAL          |                | 5      | 25/5/2020     |        | 8                | moderate |
| 174 | YRA          | M   | 62  | no    | no      | yes     | yes       | cough                     | 13.00% | 46          | GGO+CP               |                | 5      | 15/6/2020     |        | 7                | moderate |
| 175 | AAE          | F   | 49  | yes   | no      | yes     | yes       | cough                     | 9.70%  | 32          | SCATTERED CON        |                | 4      | 11/06/2020    |        | 7                | moderate |
| 176 | KHEG         | M   | 54  | yes   | no      | yes     | yes       | cough                     | 12.50% | 48          | NAD                  |                | 1      | 07/06/2020    |        | 5                | mild     |
| 177 | QESM         | M   | 24  | no    | no      | yes     | yes       | myalgia                   | 15.00% | 32          | NAD                  |                | 1      | 23/5/2020     |        | 5                | mild     |
| 178 | FFA          | F   | 39  | yes   | no      | yes     | yes       | cough                     | 11.80% | 44          | GGO+CON              |                | 5      | 11/06/2020    |        | 6                | moderate |
| 179 | FHA          | F   | 38  | yes   | no      | yes     | yes       | cough, diarrhea           | 13.90% | 38          | SEGMENTAL CON        |                | 3      | 15/5/2020     |        | 6                | moderate |
| 180 | FMA          | F   | 54  | yes   | yes     | yes     | yes       | cough                     | 12.50% | 44          | GGO                  |                | 5      | 18/6/2020     |        | 9                | moderate |
| 181 | FTE          | M   | 60  | no    | yes     | yes     | yes       | no                        | 14.40% | 46          | GGO                  |                | 5      | 08/06/2020    |        | 9                | moderate |
| 182 | FSA          | M   | 67  | yes   | yes     | yes     | yes       | no                        | 13.50% | 44          | GGO+SEGMENTAL CON    |                | 4      | 02/06/2020    |        | 9                | moderate |
| 183 | MES          | M   | 62  | yes   | yes     | yes     | yes       | cough                     | 12.60% | 45          | GGO                  |                | 5      | 16/6/2020     |        | 9                | moderate |
| 184 | MHA          | F   | 60  | yes   | yes     | yes     | yes       | cough                     | 12.70% | 48          | GGO+CP               |                | 5      | 18/5/2020     |        | 8                | moderate |
| 185 | MAE          | M   | 25  | yes   | yes     | yes     | yes       | cough                     | 15.00% | 12          | NAD                  |                | 1      | 26/5/2020     |        | 5                | mild     |
| 186 | MSR          | M   | 28  | yes   | yes     | yes     | yes       | cough                     | 13.50% | 23          | NAD                  |                | 1      | 18/5/2020     |        | 5                | mild     |
| 187 | MSM          | M   | 30  | yes   | yes     | yes     | yes       | cough                     | 13.30% | 38          | GGO                  |                | 5      | 20/6/2020     |        | 5                | moderate |
| 188 | MAE          | M   | 27  | yes   | yes     | yes     | yes       | joint pain                | 14.70% | 33          | GGO                  |                | 4      | 30/5/2020     |        | 10               | moderate |
| 189 | MAE          | M   | 78  | yes   | yes     | yes     | yes       | cough, diarrhea           | 14.00% | 44          | GGO                  |                | 5      | 14/5/2020     |        | 8                | moderate |
| 190 | MAE          | M   | 42  | yes   | yes     | yes     | yes       | cough                     | 13.00% | 44          | GGO                  |                | 5      | 18/6/2020     |        | 8                | moderate |
| 191 | MKE          | M   | 48  | yes   | yes     | yes     | yes       | no                        | 14.10% | 46          | GGO+CP+HEAL          |                | 5      | 03/06/2020    |        | 9                | moderate |
| 192 | MMA          | M   | 26  | yes   | yes     | yes     | yes       | cough                     | 13.50% | 24          | UN SEGMENTAL CON+GGO |                | 3      | 18/6/2020     |        | 8                | moderate |
| 193 | MRL          | M   | 28  | yes   | yes     | yes     | yes       | cough                     | 14.10% | 46          | NAD                  |                | 1      | 05/06/2020    |        | 5                | mild     |

- Data from one of the ivermectin RCTs.

- Each row is a participant in the study

- Each column is a 'variable' (piece of information)

| Initials | Sex | Age | HGB    |
|----------|-----|-----|--------|
| AAE      | F   | 49  | 9.70%  |
| AEG      | M   | 54  | 12.50% |
| OES      | M   | 24  | 15.00% |
| FFA      | F   | 39  | 11.80% |
| FHA      | F   | 38  | 13.90% |
| FMM      | F   | 54  | 12.50% |
| FT       | M   | 60  | 14.40% |
| FMM      | M   | 67  | 13.50% |
| MAN      | M   | 42  | 13.00% |
| MK       | M   | 48  | 14.60% |
| MMA      | M   | 26  | 13.50% |
| AAE      | F   | 49  | 9.70%  |
| KHEG     | M   | 54  | 12.50% |
| OESM     | M   | 24  | 15.00% |
| FFA      | F   | 39  | 11.80% |
| FHA      | F   | 38  | 13.90% |
| FMA      | F   | 54  | 12.50% |
| FTE      | M   | 60  | 14.40% |
| FSA      | M   | 67  | 13.50% |
| MRL      | M   | 28  | 14.10% |

- Here is a snapshot from the data (easier to see)
- Look at this for a minute – can you see any problems?

| Initials | Sex | Age | HGB    |
|----------|-----|-----|--------|
| AAE      | F   | 49  | 9.70%  |
| AEG      | M   | 54  | 12.50% |
| OES      | M   | 24  | 15.00% |
| FFA      | F   | 39  | 11.80% |
| FHA      | F   | 38  | 13.90% |
| FMM      | F   | 54  | 12.50% |
| FT       | M   | 60  | 14.40% |
| FMM      | M   | 67  | 13.50% |
| MAN      | M   | 42  | 13.00% |
| MK       | M   | 48  | 14.60% |
| MMA      | M   | 26  | 13.50% |
| AAE      | F   | 49  | 9.70%  |
| KHEG     | M   | 54  | 12.50% |
| OESM     | M   | 24  | 15.00% |
| FFA      | F   | 39  | 11.80% |
| FHA      | F   | 38  | 13.90% |
| FMA      | F   | 54  | 12.50% |
| FTE      | M   | 60  | 14.40% |
| FSA      | M   | 67  | 13.50% |
| MRL      | M   | 28  | 14.10% |

- There are repeated sequences



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Conditional Formatting Table

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|     | A            | B   | C   | D     | E      | F      | G         | H                         | I           | J          | K                    | L       | M             | N          | O                | P           |
|-----|--------------|-----|-----|-------|--------|--------|-----------|---------------------------|-------------|------------|----------------------|---------|---------------|------------|------------------|-------------|
| 1   | Name initial | Sex | Age | Fever | Fatigu | Dyspno | Sore thro | other symptoms            | HGB (gm/dl) | CRP before | CT description       | CO- RAD | symptoms date | ve PCR     | CRP at discharge | GRADE       |
| 149 | AZM          | F   | 65  | yes   | yes    | no     | no        | no                        | 12.40%      | 44         | UN GGO               |         | 4             | 08/06/2020 |                  | 8 moderate  |
| 150 | AAE          | F   | 49  | yes   | no     | yes    | yes       | cough                     | 9.70%       | 32         | SCATTERED CON        |         | 4             | 11/06/2020 |                  | 8 moderate  |
| 151 | AEG          | M   | 54  | yes   | no     | no     | yes       | cough                     | 12.50%      | 44         | NAD                  |         | 1             | 07/06/2020 |                  | 5 mild      |
| 152 | DES          | M   | 24  | yes   | no     | no     | no        | myalgia                   | 15.00%      | 32         | NAD                  |         | 1             | 23/5/2020  |                  | 5 mild      |
| 153 | FFA          | F   | 39  | yes   | no     | no     | yes       | cough                     | 11.80%      | 44         | GGO+CON              |         | 5             | 11/06/2020 |                  | 8 moderate  |
| 154 | FHA          | F   | 38  | yes   | no     | no     | no        | cough, diarrhea           | 13.30%      | 44         | SEGMENTAL CON        |         | 3             | 15/5/2020  |                  | 10 moderate |
| 155 | FMM          | F   | 54  | yes   | yes    | yes    | yes       | cough                     | 12.50%      | 44         | GGO                  |         | 5             | 18/6/2020  |                  | 12 moderate |
| 156 | FT           | M   | 60  | no    | no     | yes    | no        | no                        | 14.40%      | 5          | GGO                  |         | 5             | 08/06/2020 |                  | 6 moderate  |
| 157 | FMM          | M   | 67  | yes   | no     | no     | yes       | no                        | 13.50%      | 42         | GGO+SEGMENTAL CON    |         | 4             | 02/06/2020 |                  | 6 moderate  |
| 158 | MES          | M   | 62  | yes   | yes    | yes    | no        | cough                     | 12.60%      | 45         | GGO                  |         | 5             | 16/6/2020  |                  | 6 moderate  |
| 159 | MHS          | F   | 60  | yes   | no     | no     | yes       | cough                     | 12.70%      | 46         | GGO+CP               |         | 5             | 18/5/2020  |                  | 8 moderate  |
| 160 | MAE          | M   | 25  | yes   | no     | yes    | yes       | cough                     | 14.60%      | 12         | NAD                  |         | 1             | 26/5/2020  |                  | 5 mild      |
| 161 | MSA          | M   | 28  | yes   | yes    | no     | yes       | cough                     | 13.50%      | 23         | NAD                  |         | 1             | 22/5/2020  |                  | 5 mild      |
| 162 | FSA          | M   | 30  | no    | no     | no     | no        | cough                     | 13.30%      | 48         | GGO                  |         | 5             | 20/6/2020  |                  | 10 moderate |
| 163 | MAE          | M   | 27  | yes   | no     | no     | yes       | joint pain                | 14.70%      | 33         | GGO                  |         | 4             | 30/5/2020  |                  | 12 moderate |
| 164 | MAA          | M   | 68  | no    | yes    | no     | yes       | cough, diarrhea           | 14.00%      | 44         | GGO                  |         | 5             | 14/5/2020  |                  | 10 moderate |
| 165 | MAN          | M   | 42  | yes   | no     | no     | yes       | cough                     | 13.00%      | 42         | GGO                  |         | 5             | 18/6/2020  |                  | 8 moderate  |
| 166 | MK           | M   | 48  | yes   | yes    | no     | yes       | no                        | 14.60%      | 44         | GGO+CP+HEAL          |         | 5             |            | 03/06/2020       | 8 moderate  |
| 167 | MMA          | M   | 26  | yes   | yes    | no     | yes       | cough                     | 13.50%      | 24         | UN SEGMENTAL CON+GGO |         | 3             | 18/5/2020  |                  | 8 moderate  |
| 168 | MMR          | M   | 28  | yes   | yes    | no     | yes       | headache, chest pain      | 14.20%      | 38         | NAD                  |         | 2             | 12/05/2020 |                  | 5 mild      |
| 169 | HAA          | F   | 52  | yes   | no     | yes    | yes       | cough                     | 9.20%       | 43         | CON WITH CAVITATION  |         | 1             | 05/06/2020 |                  | 8 moderate  |
| 170 | WES          | M   | 42  | yes   | no     | yes    | yes       | cough                     | 13.30%      | 43         | GGO+CP               |         | 5             | 07/06/2020 |                  | 8 moderate  |
| 171 | WSA          | F   | 26  | yes   | no     | yes    | yes       | cough, diarrhea           | 12.80%      | 15         | NAD                  |         | 1             | 10/06/2020 |                  | 6 mild      |
| 172 | WHO          | M   | 45  | yes   | no     | yes    | yes       | no                        | 13.30%      | 44         | UN GGO               |         | 4             | 17/5/2020  |                  | 8 moderate  |
| 173 | YHA          | M   | 43  | yes   | no     | yes    | yes       | cough, abd pain, diarrhea | 13.80%      | 42         | GGO+CP+HEAL          |         | 5             | 25/5/2020  |                  | 8 moderate  |
| 174 | YRA          | M   | 62  | no    | no     | yes    | yes       | cough                     | 13.00%      | 46         | GGO+CP               |         | 5             | 15/6/2020  |                  | 7 moderate  |
| 175 | AAE          | F   | 49  | yes   | no     | yes    | yes       | cough                     | 9.70%       | 32         | SCATTERED CON        |         | 4             | 11/06/2020 |                  | 7 moderate  |
| 176 | KHEG         | M   | 54  | yes   | no     | yes    | yes       | cough                     | 12.50%      | 48         | NAD                  |         | 1             | 07/06/2020 |                  | 5 mild      |
| 177 | DESM         | M   | 24  | no    | no     | yes    | yes       | myalgia                   | 15.00%      | 32         | NAD                  |         | 1             | 23/5/2020  |                  | 5 mild      |
| 178 | FFA          | F   | 39  | yes   | no     | yes    | yes       | cough                     | 11.80%      | 44         | GGO+CON              |         | 5             | 11/06/2020 |                  | 6 moderate  |
| 179 | FHA          | F   | 38  | yes   | no     | yes    | yes       | cough, diarrhea           | 13.30%      | 38         | SEGMENTAL CON        |         | 3             | 15/5/2020  |                  | 6 moderate  |
| 180 | FMA          | F   | 54  | yes   | yes    | yes    | yes       | cough                     | 12.50%      | 44         | GGO                  |         | 5             | 18/6/2020  |                  | 9 moderate  |
| 181 | FTE          | M   | 60  | no    | yes    | yes    | yes       | no                        | 14.40%      | 46         | GGO                  |         | 5             | 08/06/2020 |                  | 9 moderate  |
| 182 | FSA          | M   | 67  | yes   | yes    | yes    | yes       | no                        | 13.50%      | 44         | GGO+SEGMENTAL CON    |         | 4             | 02/06/2020 |                  | 9 moderate  |
| 183 | MES          | M   | 62  | yes   | yes    | yes    | yes       | cough                     | 12.60%      | 45         | GGO                  |         | 5             | 16/6/2020  |                  | 9 moderate  |
| 184 | MHA          | F   | 60  | yes   | yes    | yes    | yes       | cough                     | 12.70%      | 48         | GGO+CP               |         | 5             | 18/5/2020  |                  | 8 moderate  |
| 185 | MAE          | M   | 25  | yes   | yes    | yes    | yes       | cough                     | 15.00%      | 12         | NAD                  |         | 1             | 26/5/2020  |                  | 5 mild      |
| 186 | MSR          | M   | 28  | yes   | yes    | yes    | yes       | cough                     | 13.50%      | 23         | NAD                  |         | 1             | 16/5/2020  |                  | 5 mild      |
| 187 | MSM          | M   | 30  | yes   | yes    | yes    | yes       | cough                     | 13.30%      | 38         | GGO                  |         | 5             | 20/6/2020  |                  | 5 moderate  |
| 188 | MAE          | M   | 27  | yes   | yes    | yes    | yes       | joint pain                | 14.70%      | 33         | GGO                  |         | 4             | 30/5/2020  |                  | 10 moderate |
| 189 | MAE          | M   | 78  | yes   | yes    | yes    | yes       | cough, diarrhea           | 14.00%      | 44         | GGO                  |         | 5             | 14/5/2020  |                  | 8 moderate  |
| 190 | MAE          | M   | 42  | yes   | yes    | yes    | yes       | cough                     | 13.00%      | 44         | GGO                  |         | 5             | 18/6/2020  |                  | 8 moderate  |
| 191 | MKE          | M   | 48  | yes   | yes    | yes    | yes       | no                        | 14.10%      | 46         | GGO+CP+HEAL          |         | 5             | 03/06/2020 |                  | 9 moderate  |
| 192 | MMA          | M   | 26  | yes   | yes    | yes    | yes       | cough                     | 13.50%      | 24         | UN SEGMENTAL CON+GGO |         | 3             | 18/6/2020  |                  | 8 moderate  |
| 193 | MPL          | M   | 28  | yes   | yes    | yes    | yes       | cough                     | 14.10%      | 46         | NAD                  |         | 4             | 05/06/2020 |                  | 5 mild      |

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|-----|--------------|-----|-----|-------|--------|--------|------------|---------------------------|---|-------------|------------|----------------------|--------|---------------|------------|------------------|----------|
| 1   | Name initial | Sex | Age | Fever | Fatigu | Dyspne | Sore thro. | other symptoms            |   | HGB (gm/dl) | CRP before | CT description       | CO-RAD | symptoms date | ve PCR     | CRP at discharge | GRADE    |
| 149 | AZM          | F   | 65  | yes   | yes    | no     | no         | no                        |   | 12.40%      | 44         | UN GGO               | 4      |               | 08/06/2020 | 8                | moderate |
| 150 | AAE          | F   | 49  | yes   | no     | yes    | yes        | cough                     |   | 9.70%       | 32         | SCATTERED CON        | 4      |               | 11/06/2020 | 8                | moderate |
| 151 | AEG          | M   | 54  | yes   | no     | no     | yes        | cough                     |   | 12.50%      | 44         | NAD                  | 1      |               | 07/06/2020 | 5                | mild     |
| 152 | DES          | M   | 24  | yes   | no     | no     | no         | myalgia                   |   | 15.00%      | 32         | NAD                  | 1      | 23/5/2020     |            | 5                | mild     |
| 153 | FFA          | F   | 39  | yes   | no     | no     | yes        | cough                     |   | 11.80%      | 44         | GGO+CON              | 5      |               | 11/06/2020 | 8                | moderate |
| 154 | FHA          | F   | 38  | yes   | no     | no     | no         | cough, diarrhea           |   | 13.90%      | 44         | SEGMENTAL CON        | 3      | 15/5/2020     |            | 10               | moderate |
| 155 | FMM          | F   | 54  | yes   | yes    | yes    | yes        | cough                     |   | 12.50%      | 44         | GGO                  | 5      | 18/6/2020     |            | 12               | moderate |
| 156 | FT           | M   | 60  | no    | no     | yes    | no         | no                        |   | 14.40%      | 44         | GGO                  | 5      |               | 08/06/2020 | 6                | moderate |
| 157 | FMM          | M   | 67  | yes   | no     | no     | yes        | no                        |   | 13.50%      | 42         | GGO+SEGMENTAL CON    | 4      |               | 02/06/2020 | 6                | moderate |
| 158 | MES          | M   | 62  | yes   | yes    | yes    | no         | cough                     |   | 12.60%      | 45         | GGO                  | 5      | 16/6/2020     |            | 6                | moderate |
| 159 | MHS          | F   | 60  | yes   | no     | no     | yes        | cough                     |   | 12.70%      | 46         | GGO+CP               | 5      | 18/5/2020     |            | 8                | moderate |
| 160 | MAE          | M   | 25  | yes   | no     | yes    | yes        | cough                     |   | 14.60%      | 12         | NAD                  | 1      | 26/5/2020     |            | 5                | mild     |
| 161 | MSA          | M   | 28  | yes   | yes    | no     | yes        | cough                     |   | 13.50%      | 23         | NAD                  | 1      | 22/5/2020     |            | 5                | mild     |
| 162 | FSA          | M   | 30  | no    | no     | no     | no         | cough                     |   | 13.30%      | 48         | GGO                  | 5      | 20/6/2020     |            | 10               | moderate |
| 163 | MAE          | M   | 27  | yes   | no     | no     | yes        | joint pain                |   | 14.70%      | 33         | GGO                  | 4      | 30/5/2020     |            | 12               | moderate |
| 164 | MAA          | M   | 68  | no    | yes    | no     | yes        | cough, diarrhea           |   | 14.00%      | 44         | GGO                  | 5      | 14/5/2020     |            | 10               | moderate |
| 165 | MAN          | M   | 42  | yes   | no     | no     | yes        | cough                     |   | 13.00%      | 42         | GGO                  | 5      | 16/6/2020     |            | 8                | moderate |
| 166 | MK           | M   | 48  | yes   | yes    | no     | yes        | no                        |   | 14.60%      | 44         | GGO+CP+HEAL          | 5      |               | 03/06/2020 | 8                | moderate |
| 167 | MMA          | M   | 26  | yes   | yes    | no     | yes        | cough                     |   | 13.50%      | 24         | UN SEGMENTAL CON+GGO | 3      | 18/5/2020     |            | 8                | moderate |
| 168 | MMR          | M   | 28  | yes   | yes    | no     | yes        | headache, chest pain      |   | 14.20%      | 38         | NAD                  | 1      |               | 12/05/2020 | 5                | mild     |
| 169 | HAA          | F   | 52  | yes   | no     | yes    | yes        | cough                     |   | 9.20%       | 43         | CON WITH CAVITATION  | 2      |               | 05/06/2020 | 8                | moderate |
| 170 | WES          | M   | 42  | yes   | no     | yes    | yes        | cough                     |   | 13.90%      | 43         | GGO+CP               | 5      |               | 07/06/2020 | 8                | moderate |
| 171 | WSA          | F   | 26  | yes   | no     | yes    | yes        | cough, diarrhea           |   | 12.80%      | 15         | NAD                  | 1      |               | 10/06/2020 | 6                | mild     |
| 172 | WHO          | M   | 45  | yes   | no     | yes    | yes        | no                        |   | 13.30%      | 44         | UN GGO               | 4      | 17/5/2020     |            | 8                | moderate |
| 173 | YHA          | M   | 43  | yes   | no     | yes    | yes        | cough, abd pain, diarrhea |   | 13.80%      | 42         | GGO+CO+HEAL          | 5      | 25/5/2020     |            | 8                | moderate |
| 174 | YRA          | M   | 62  | no    | no     | yes    | yes        | cough                     |   | 13.00%      | 46         | GGO+CP               | 5      | 15/6/2020     |            | 7                | moderate |
| 175 | AAE          | F   | 49  | yes   | no     | yes    | yes        | cough                     |   | 9.70%       | 32         | SCATTERED CON        | 4      |               | 11/06/2020 | 7                | moderate |
| 176 | KHEG         | M   | 54  | yes   | no     | yes    | yes        | cough                     |   | 12.50%      | 48         | NAD                  | 1      |               | 07/06/2020 | 5                | mild     |
| 177 | DESM         | M   | 24  | no    | no     | yes    | yes        | myalgia                   |   | 15.00%      | 32         | NAD                  | 1      | 23/5/2020     |            | 5                | mild     |
| 178 | FFA          | F   | 39  | yes   | no     | yes    | yes        | cough                     |   | 11.80%      | 44         | GGO+CON              | 5      |               | 11/06/2020 | 6                | moderate |
| 179 | FHA          | F   | 38  | yes   | no     | yes    | yes        | cough, diarrhea           |   | 13.90%      | 38         | SEGMENTAL CON        | 3      | 15/5/2020     |            | 6                | moderate |
| 180 | FMA          | F   | 54  | yes   | yes    | yes    | yes        | cough                     |   | 12.50%      | 44         | GGO                  | 5      | 18/6/2020     |            | 9                | moderate |
| 181 | FTE          | M   | 60  | no    | yes    | yes    | yes        | no                        |   | 14.40%      | 46         | GGO                  | 5      |               | 08/06/2020 | 9                | moderate |
| 182 | FSA          | M   | 67  | yes   | yes    | yes    | yes        | no                        |   | 13.50%      | 44         | GGO+SEGMENTAL CON    | 4      |               | 02/06/2020 | 9                | moderate |
| 183 | MES          | M   | 62  | yes   | yes    | yes    | yes        | cough                     |   | 12.60%      | 45         | GGO                  | 5      | 16/6/2020     |            | 9                | moderate |
| 184 | MHA          | F   | 60  | yes   | yes    | yes    | yes        | cough                     |   | 12.70%      | 48         | GGO+CP               | 5      | 18/5/2020     |            | 8                | moderate |
| 185 | MAE          | M   | 25  | yes   | yes    | yes    | yes        | cough                     |   | 15.00%      | 12         | NAD                  | 1      | 26/5/2020     |            | 5                | mild     |
| 186 | MSR          | M   | 28  | yes   | yes    | yes    | yes        | cough                     |   | 13.50%      | 23         | NAD                  | 1      | 18/5/2020     |            | 5                | mild     |
| 187 | MSM          | M   | 30  | yes   | yes    | yes    | yes        | cough                     |   | 13.30%      | 38         | GGO                  | 5      | 20/6/2020     |            | 5                | moderate |
| 188 | MAE          | M   | 27  | yes   | yes    | yes    | yes        | joint pain                |   | 14.70%      | 33         | GGO                  | 4      | 30/5/2020     |            | 10               | moderate |
| 189 | MAE          | M   | 78  | yes   | yes    | yes    | yes        | cough, diarrhea           |   | 14.00%      | 44         | GGO                  | 5      | 14/5/2020     |            | 8                | moderate |
| 190 | MAE          | M   | 42  | yes   | yes    | yes    | yes        | cough                     |   | 13.00%      | 44         | GGO                  | 5      | 18/6/2020     |            | 8                | moderate |
| 191 | MKE          | M   | 48  | yes   | yes    | yes    | yes        | no                        |   | 14.10%      | 46         | GGO+CP+HEAL          | 5      |               | 03/06/2020 | 9                | moderate |
| 192 | MMA          | M   | 26  | yes   | yes    | yes    | yes        | cough                     |   | 13.50%      | 24         | UN SEGMENTAL CON+GGO | 3      | 18/6/2020     |            | 8                | moderate |
| 193 | MFL          | M   | 28  | yes   | yes    | yes    | yes        | cough                     |   | 14.10%      | 46         | NAD                  | 1      |               | 05/06/2020 | 5                | mild     |

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|-----|--------------|-----|-----|-------|--------|--------|------------|---------------------------|---|-------------|-----------|----------------------|---|---------|-----------------------|------------------|-------------|
| 1   | Name initial | Sex | Age | Fever | Fatigu | Dyspne | Sore thro. | other symptoms            |   | HGB (gm/dl) | CRP befor | CT description       |   | CO- RAD | symptoms date+ ve PCR | CRP at discharge | GRADE       |
| 149 | AZM          | F   | 65  | yes   | yes    | no     | no         | no                        |   | 12.40%      | 44        | UN GGO               |   | 4       | 08/06/2020            |                  | 8 moderate  |
| 150 | AAE          | F   | 49  | yes   | no     | yes    | yes        | cough                     |   | 9.70%       | 32        | SCATTERED CON        |   | 4       | 11/06/2020            |                  | 8 moderate  |
| 151 | AEG          | M   | 54  | yes   | no     | no     | yes        | cough                     |   | 12.50%      | 44        | NAD                  |   | 1       | 07/06/2020            |                  | 5 mild      |
| 152 | DES          | M   | 24  | yes   | no     | no     | no         | myalgia                   |   | 15.00%      | 32        | NAD                  |   | 1       | 23/5/2020             |                  | 5 mild      |
| 153 | FFA          | F   | 39  | yes   | no     | no     | yes        | cough                     |   | 11.80%      | 44        | GGO+CON              |   | 5       | 11/06/2020            |                  | 8 moderate  |
| 154 | FHA          | F   | 38  | yes   | no     | no     | no         | cough, diarrhea           |   | 13.90%      | 44        | SEGMENTAL CON        |   | 3       | 15/5/2020             |                  | 10 moderate |
| 155 | FMM          | F   | 54  | yes   | yes    | yes    | yes        | cough                     |   | 12.50%      | 44        | GGO                  |   | 5       | 18/6/2020             |                  | 12 moderate |
| 156 | FT           | M   | 60  | no    | no     | yes    | no         | no                        |   | 14.40%      | 44        | GGO                  |   | 4       | 08/06/2020            |                  | 6 moderate  |
| 157 | FMM          | M   | 67  | yes   | no     | no     | yes        | no                        |   | 13.50%      | 42        | GGO+SEGMENTAL CON    |   | 4       | 02/06/2020            |                  | 6 moderate  |
| 158 | MES          | M   | 62  | yes   | yes    | yes    | no         | cough                     |   | 12.60%      | 45        | GGO                  |   | 5       | 16/6/2020             |                  | 6 moderate  |
| 159 | MHS          | F   | 60  | yes   | no     | no     | yes        | cough                     |   | 12.70%      | 46        | GGO+CP               |   | 5       | 18/5/2020             |                  | 8 moderate  |
| 160 | MAE          | M   | 25  | yes   | no     | yes    | yes        | cough                     |   | 14.60%      | 12        | NAD                  |   | 1       | 26/5/2020             |                  | 5 mild      |
| 161 | MSA          | M   | 28  | yes   | yes    | no     | yes        | cough                     |   | 13.50%      | 23        | NAD                  |   | 1       | 22/5/2020             |                  | 5 mild      |
| 162 | FSA          | M   | 30  | no    | no     | no     | no         | cough                     |   | 13.30%      | 48        | GGO                  |   | 5       | 20/6/2020             |                  | 10 moderate |
| 163 | MAE          | M   | 27  | yes   | no     | no     | yes        | joint pain                |   | 14.70%      | 33        | GGO                  |   | 4       | 30/5/2020             |                  | 12 moderate |
| 164 | MAA          | M   | 68  | no    | yes    | no     | yes        | cough, diarrhea           |   | 14.00%      | 44        | GGO                  |   | 5       | 14/5/2020             |                  | 10 moderate |
| 165 | MAN          | M   | 42  | yes   | no     | no     | yes        | cough                     |   | 13.00%      | 42        | GGO                  |   | 5       | 16/6/2020             |                  | 8 moderate  |
| 166 | MK           | M   | 48  | yes   | yes    | no     | yes        | no                        |   | 14.60%      | 44        | GGO+CP+HEAL          |   | 5       | 03/06/2020            |                  | 8 moderate  |
| 167 | MMA          | M   | 26  | yes   | yes    | no     | yes        | cough                     |   | 13.50%      | 24        | UN SEGMENTAL CON+GGO |   | 3       | 18/5/2020             |                  | 8 moderate  |
| 168 | MMR          | M   | 28  | yes   | yes    | no     | yes        | headache, chest pain      |   | 14.20%      | 38        | NAD                  |   | 1       | 12/05/2020            |                  | 5 mild      |
| 169 | HAA          | F   | 52  | yes   | no     | yes    | yes        | cough                     |   | 9.20%       | 43        | CON WITH CAVITATION  |   | 2       | 05/06/2020            |                  | 8 moderate  |
| 170 | WES          | M   | 42  | yes   | no     | yes    | yes        | cough                     |   | 13.90%      | 43        | GGO+CP               |   | 5       | 07/06/2020            |                  | 8 moderate  |
| 171 | WSA          | F   | 26  | yes   | no     | yes    | yes        | cough, diarrhea           |   | 12.80%      | 15        | NAD                  |   | 1       | 10/06/2020            |                  | 6 mild      |
| 172 | WHO          | M   | 45  | yes   | no     | yes    | yes        | no                        |   | 13.30%      | 44        | UN GGO               |   | 4       | 17/5/2020             |                  | 8 moderate  |
| 173 | YHA          | M   | 43  | yes   | no     | yes    | yes        | cough, abd pain, diarrhea |   | 13.80%      | 42        | GGO+CO+HEAL          |   | 5       | 25/5/2020             |                  | 8 moderate  |
| 174 | YRA          | M   | 62  | no    | no     | yes    | yes        | cough                     |   | 13.00%      | 46        | GGO+CP               |   | 5       | 15/6/2020             |                  | 7 moderate  |
| 175 | AAE          | F   | 49  | yes   | no     | yes    | yes        | cough                     |   | 9.70%       | 32        | SCATTERED CON        |   | 4       | 11/06/2020            |                  | 7 moderate  |
| 176 | KHEG         | M   | 54  | yes   | no     | yes    | yes        | cough                     |   | 12.50%      | 48        | NAD                  |   | 1       | 07/06/2020            |                  | 5 mild      |
| 177 | DESM         | M   | 24  | no    | no     | yes    | yes        | myalgia                   |   | 15.00%      | 32        | NAD                  |   | 1       | 23/5/2020             |                  | 5 mild      |
| 178 | FFA          | F   | 39  | yes   | no     | yes    | yes        | cough                     |   | 11.80%      | 44        | GGO+CON              |   | 6       | 11/06/2020            |                  | 6 moderate  |
| 179 | FHA          | F   | 38  | yes   | no     | yes    | yes        | cough, diarrhea           |   | 13.90%      | 38        | SEGMENTAL CON        |   | 3       | 15/5/2020             |                  | 6 moderate  |
| 180 | FMA          | F   | 54  | yes   | yes    | yes    | yes        | cough                     |   | 12.50%      | 44        | GGO                  |   | 5       | 18/6/2020             |                  | 9 moderate  |
| 181 | FTE          | M   | 60  | no    | yes    | yes    | yes        | no                        |   | 14.40%      | 46        | GGO                  |   | 5       | 08/06/2020            |                  | 9 moderate  |
| 182 | FSA          | M   | 67  | yes   | yes    | yes    | yes        | no                        |   | 13.50%      | 44        | GGO+SEGMENTAL CON    |   | 4       | 02/06/2020            |                  | 9 moderate  |
| 183 | MES          | M   | 62  | yes   | yes    | yes    | yes        | cough                     |   | 12.60%      | 45        | GGO                  |   | 5       | 16/6/2020             |                  | 9 moderate  |
| 184 | MHA          | F   | 60  | yes   | yes    | yes    | yes        | cough                     |   | 12.70%      | 48        | GGO+CP               |   | 5       | 18/5/2020             |                  | 8 moderate  |
| 185 | MAE          | M   | 25  | yes   | yes    | yes    | yes        | cough                     |   | 15.00%      | 12        | NAD                  |   | 1       | 26/5/2020             |                  | 5 mild      |
| 186 | MSR          | M   | 28  | yes   | yes    | yes    | yes        | cough                     |   | 13.50%      | 23        | NAD                  |   | 1       | 16/5/2020             |                  | 5 mild      |
| 187 | MSM          | M   | 30  | yes   | yes    | yes    | yes        | cough                     |   | 13.30%      | 38        | GGO                  |   | 5       | 20/6/2020             |                  | 5 moderate  |
| 188 | MAE          | M   | 27  | yes   | yes    | yes    | yes        | joint pain                |   | 14.70%      | 33        | GGO                  |   | 4       | 30/5/2020             |                  | 10 moderate |
| 189 | MAE          | M   | 78  | yes   | yes    | yes    | yes        | cough, diarrhea           |   | 14.00%      | 44        | GGO                  |   | 5       | 14/5/2020             |                  | 8 moderate  |
| 190 | MAE          | M   | 42  | yes   | yes    | yes    | yes        | cough                     |   | 13.00%      | 44        | GGO                  |   | 5       | 18/6/2020             |                  | 8 moderate  |
| 191 | MKE          | M   | 48  | yes   | yes    | yes    | yes        | no                        |   | 14.10%      | 46        | GGO+CP+HEAL          |   | 5       | 03/06/2020            |                  | 9 moderate  |
| 192 | MMA          | M   | 26  | yes   | yes    | yes    | yes        | cough                     |   | 13.50%      | 24        | UN SEGMENTAL CON+GGO |   | 3       | 18/6/2020             |                  | 8 moderate  |
| 193 | MFL          | M   | 28  | yes   | yes    | yes    | yes        | cough                     |   | 14.10%      | 46        | NAD                  |   | 1       | 05/06/2020            |                  | 5 mild      |

- Blocks of data are repeated

- This is not authentic data

- One possible explanation – it has been fabricated, by copying and pasting blocks of data into a spreadsheet.

- This analysis was done by Nick Brown - [Nick Brown's blog \(steamtraen.blogspot.com\)](https://steamtraen.blogspot.com)

- Similar problems with other ivermectin RCTs!

# Meta-analyses restricted to 'credible' trials

**Hill et al., retracted their systematic review (👍):**

- “The significant effect of ivermectin on survival was dependent on the inclusion of studies with a high risk of bias or potential medical fraud.”
- Risk ratio for death 0.96 (95% CI 0.56 to 1.66, 4 studies) **We don't know if ivermectin helps, harms or does nothing**

**Popp et al., 2022 (Cochrane) excluded seven trials overall**

- Asymptomatic or mild disease: Risk ratio for death 0.77 (95% CI 0.47 to 1.25, 6 trials) **We don't know**
- Moderate to severe disease: Risk ratio for death 0.60 (95% CI 0.14 to 2.51, 3 trials, 1 with no events) **We don't know**

# Systematic reviews: Fake data to patient care pipeline

1

**Attempt to identify all RCTs on the review topic**

- Problematic trials will be included

2

**Critically appraise study methodology, include in meta-analysis**

- Assess risk of bias
- But do not consider authenticity
- Many (not all) fake trials report sound methods

3

**Make conclusions, recommendations, on basis of evidence**

- SRs seen as gold standard
- Included in guidelines
- Influence patient care

# Vitamin K and the Prevention of Fractures

## *Systematic Review and Meta-analysis of Randomized Controlled Trials*

*Sarah Cockayne, MSc; Joy Adamson, PhD; Susan Lanham-New, PhD; Martin J. Shearer, PhD, MRCPATH;  
Simon Gilbody, DPhil; David J. Torgerson, PhD*

## Does tranexamic acid prevent postpartum haemorrhage? A systematic review of randomised controlled trials

K Ker, H Shakur, I Roberts

## Psychological therapies for the management of chronic pain (excluding headache) in adults (Review)

Williams ACDC, Fisher E, Hearn L, Eccleston C

3 out of 5 trials subsequently identified as fake.

26 trials. 8 had identical or similar text, 2 no ethical approval.

3 of 27 trials from one investigator suggested to be implausible.

EDITORIAL

# When beauty is but skin deep: dealing with problematic studies in systematic reviews

Stephanie L Boughton, Jack Wilkinson, Lisa Bero

**Managing potentially problematic studies**

<https://bit.ly/3SsJO9E>

## EDITORIAL

# When beauty is but skin deep: dealing with problematic studies in systematic reviews

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## Managing potentially problematic studies

<https://bit.ly/3SsJO9E>

- Do not include studies until serious concerns about trustworthiness have been resolved.



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## Managing potentially problematic studies

<https://bit.ly/3SsJO9E>

- Do not include studies until serious concerns about trustworthiness have been resolved.
- How do we define ‘trustworthiness’?

## EDITORIAL

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## Managing potentially problematic studies

<https://bit.ly/3SsJO9E>

- Do not include studies until serious concerns about trustworthiness have been resolved.
- How do we define ‘trustworthiness’?
- How can we identify problematic studies?




FUNDED BY

**NIHR** | National Institute for  
Health and Care Research

INveStigating ProblEmatic Clinical Trials in  
Systematic Reviews

**Aim: To develop a tool for identifying problematic randomised controlled trials in the context of health systematic reviews.**

- A two-year project, currently in progress – INSPECT-SR tool **does not yet exist**
- The final tool will guide the reviewer through a series of checks to help them assess trustworthiness of a study
- Which checks to include? Which are useful? Which are feasible?
- Will test the tool in production of new systematic reviews and review updates.
- Need participants for a Delphi study (methods experts and potential users of tool) and people to test the tool while undertaking a systematic review. Contact Jack Wilkinson [jack.wilkinson@manchester.ac.uk](mailto:jack.wilkinson@manchester.ac.uk) or  @jd\_wilko



Long list of checks under consideration, grouped into five domains:

| Domain  | Number of checks |
|---|------------------|
| Inspecting results in the paper                 | 28               |
| Inspecting the research team and their work     | 19               |
| Inspecting conduct, governance and transparency | 22               |
| Inspecting text and publication details         | 7                |
| Inspecting individual participant data          | 41               |
|   | 117              |

## Illustrative checks for problematic studies

### Inspecting results in the paper

*Are the results substantially divergent from others in the meta-analysis?*

### Inspecting conduct, governance and transparency

*Is the recruitment of participants plausible within the stated time frame for the research?*

### Inspecting the research team and their work

*Have other studies by the research team been retracted, or do they have expressions of concern?*

### Inspecting text and publication details

*Is there evidence of copied work, such as duplicated or partially duplicated tables?*

### Inspecting individual participant data

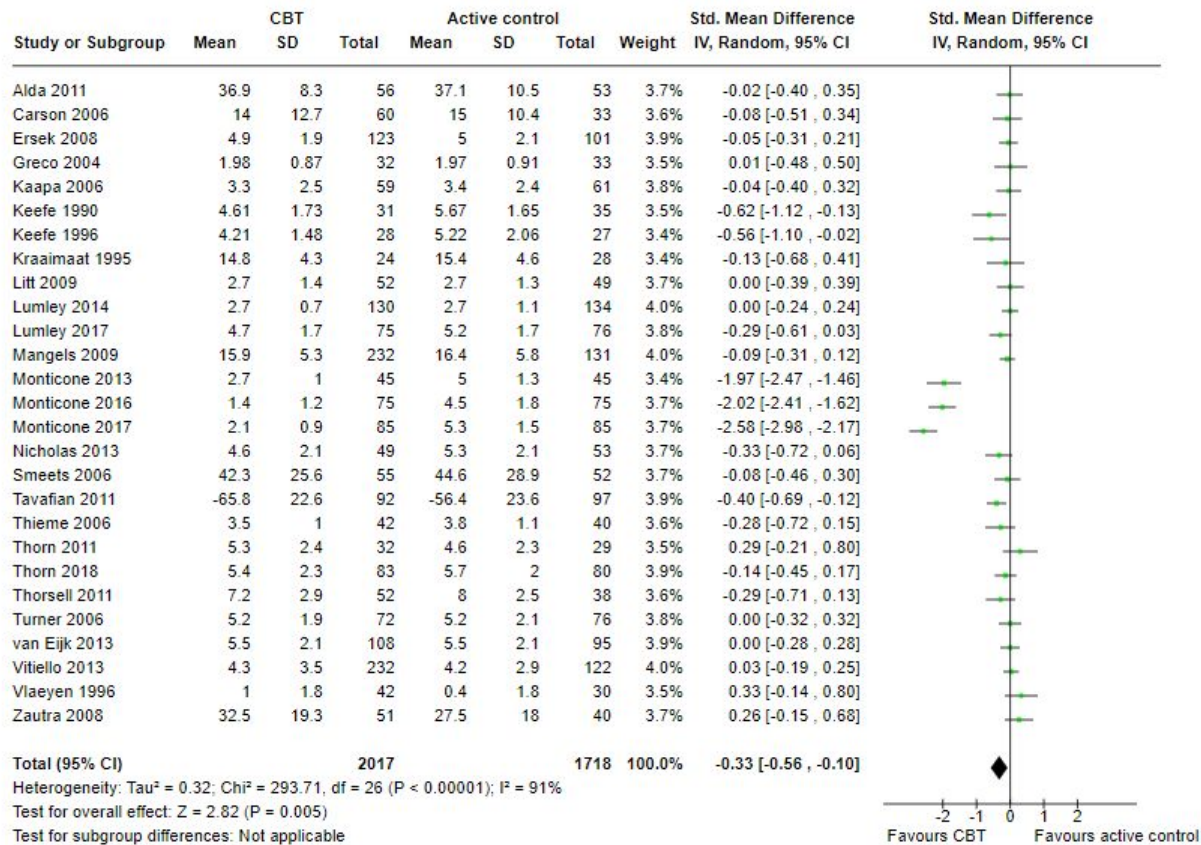
*Does the dataset contain repeated sequences of baseline values?*



- Let's try to identify a few problems in published clinical trials.
- These are all real examples!

# Example 1: results in a meta-analysis

- Sometimes problems may be identified by looking at all of the studies together in a meta-analysis...



- **Psychological therapies for chronic pain**

- Williams, et al. 2020

<https://pubmed.ncbi.nlm.nih.gov/32794606/>

- This is a **forest plot**, showing a meta-analysis.

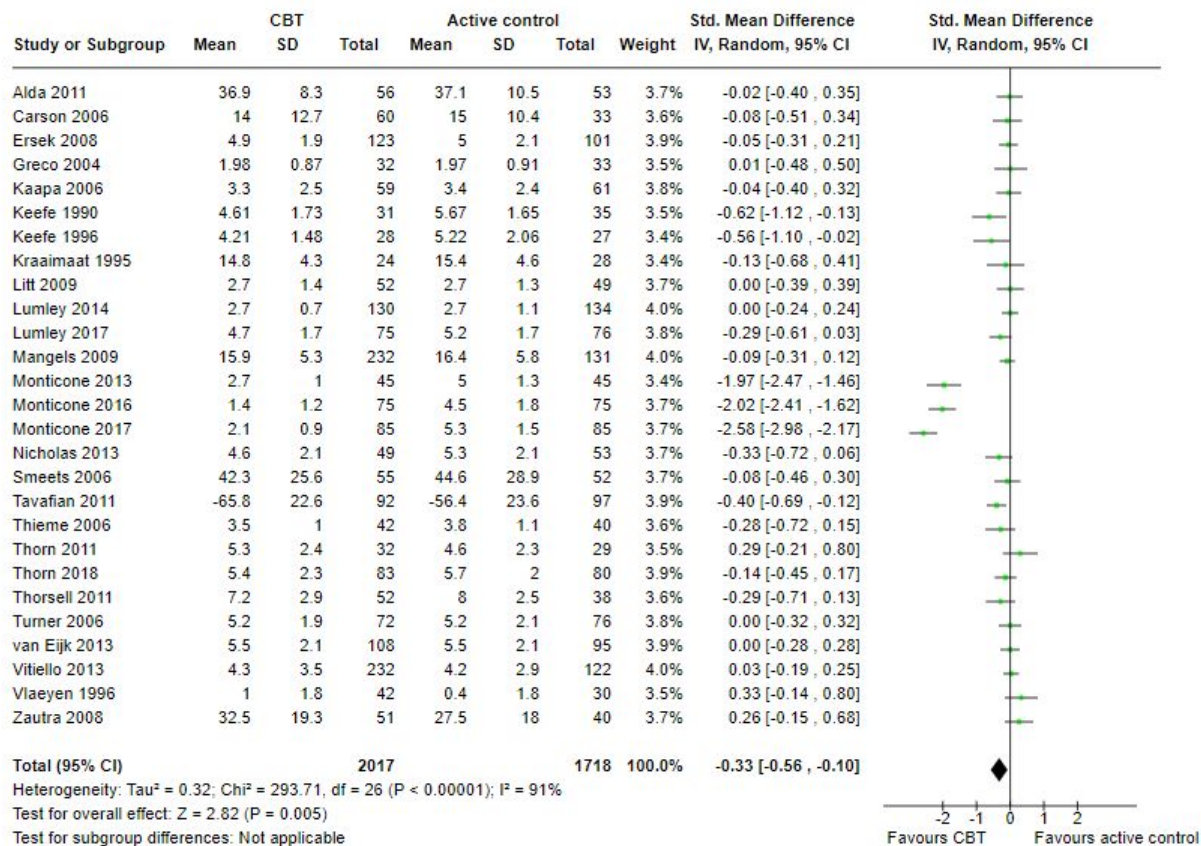
- Each **green dot** is the estimated treatment effect from an RCT

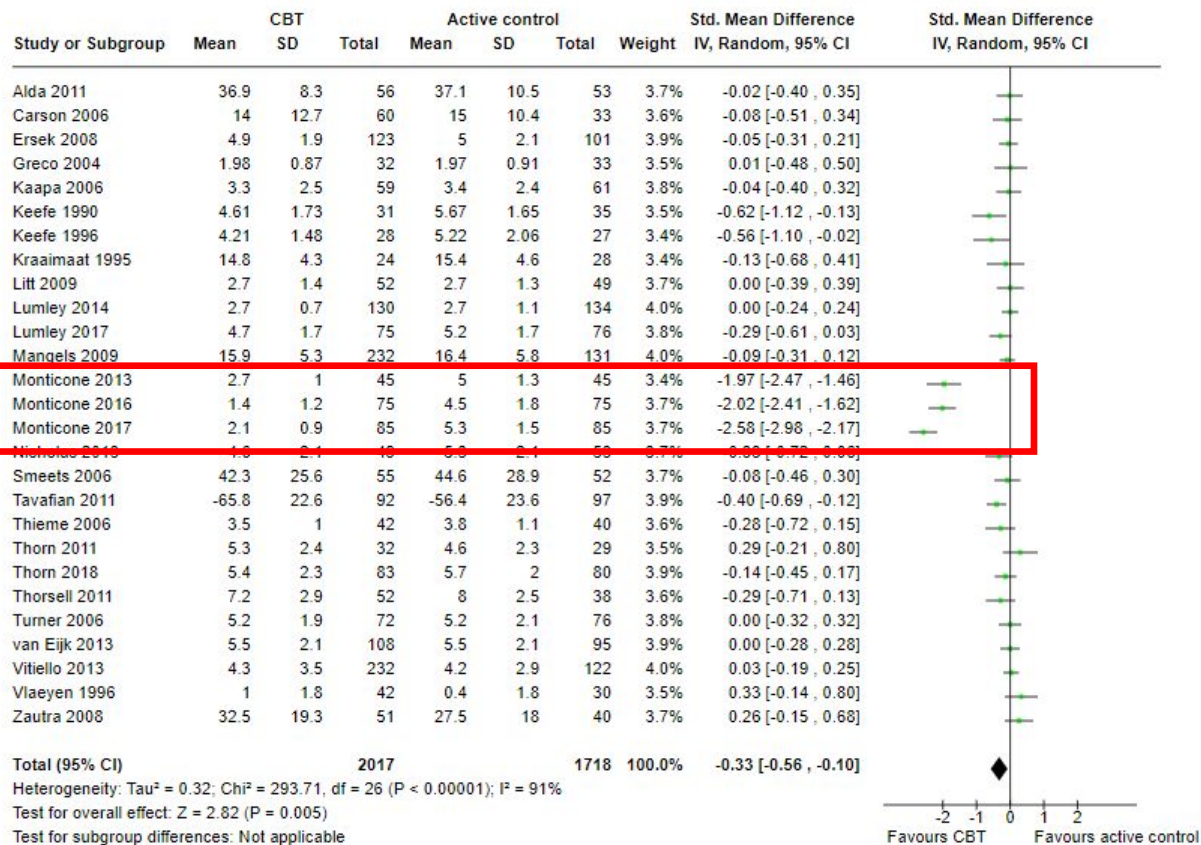
- The line crossing the dot is the 95% confidence interval.

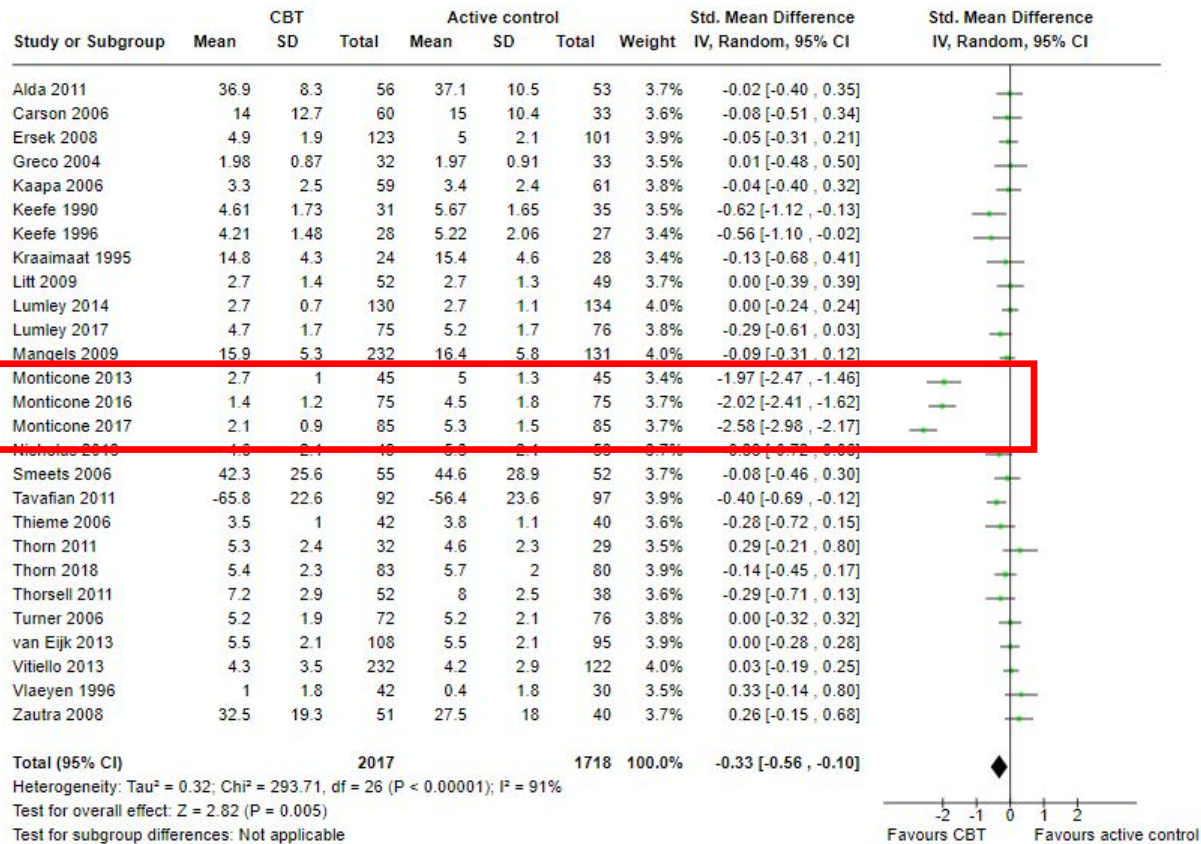
- **Take a look - do you notice anything unusual about any of the studies?**











- Sometimes problems can be found by comparing to other RCTs which have been done on the same topic.
- This is one reason why we think it would be useful to check for fraud at the systematic review stage.

Research Paper

**PAIN**<sup>®</sup>

## **Investigating the veracity of a sample of divergent published trial data in spinal pain**

Neil E. O'Connell<sup>a,\*</sup>, R. Andrew Moore<sup>b</sup>, Gavin Stewart<sup>c</sup>, Emma Fisher<sup>d</sup>, Leslie Hearn<sup>e</sup>, Christopher Eccleston<sup>d</sup>,  
Amanda C de C Williams<sup>f</sup>

- This research team investigated these trials in more detail after noticing this pattern.
- They identified many problems with the studies, and the authors could not provide satisfactory explanations.

## Example 2: Looking at results in a paper

- We may be able to spot unusual features of results presented in a paper
- These may raise doubts about the authenticity of the data

## Example 2: Looking at results in the paper

**Take a look** at this table from an RCT of scleroligation vs band ligation for eradication of gastrooesophageal varices. Do you spot anything unusual?



**TABLE 2. Comparison of the studied groups regarding after-treatment adverse events**

|  | EBL (n = 60) No. (%) | Scleroligation (n = 60) No. (%) | $\chi^2$ | P value |
|--|----------------------|---------------------------------|----------|---------|
| Immediate (early) adverse events         |                      |                                 |          |         |
| Pyrexia (n = 26)                         | 12 (20.0%)           | 14 (23.3%)                      | 0.05     | .82     |
| Pain (n = 10)                            | 2 (3.3%)             | 8 (13.3%)                       | 3.93     | .04     |
| Early repeat bleeding (n = 4)            | 0 (0.0%)             | 4 (6.7%)                        | 2.33     | .12     |
| Late adverse events                      |                      |                                 |          |         |
| Portal hypertensive gastropathy (n = 42) |                      |                                 | 2.10     | .35     |
| Mild                                     | 10 (16.7%)           | 10 (16.7%)                      |          |         |
| Severe                                   | 14 (23.3%)           | 8 (13.3%)                       |          |         |
| Gastric antral vascular ectasia          | 6 (10.0%)            | 12 (20.0%)                      | 1.63     | .20     |
| Ulceration (n = 14)                      | 10 (16.7%)           | 4 (6.7%)                        | 2.02     | .15     |
| Late repeat bleeding (n = 14)            | 10 (16.7%)           | 4 (6.7%)                        | 2.02     | .15     |

## Example 2: Looking at results in the paper

In **groups**, take a look at this table from an RCT of scleroligation vs band ligation for eradication of gastrooesophageal varices. Do you spot anything unusual?

**TABLE 2. Comparison of the studied groups regarding after-treatment adverse events**

|  | EBL (n = 60) No. (%) | Scleroligation (n = 60) No. (%) | $\chi^2$ | P value |
|--|----------------------|---------------------------------|----------|---------|
| Immediate (early) adverse events         |                      |                                 |          |         |
| Pyrexia (n = 26)                         | 12 (20.0%)           | 14 (23.3%)                      | 0.05     | .82     |
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| Late adverse events                      |                      |                                 |          |         |
| Portal hypertensive gastropathy (n = 42) |                      |                                 | 2.10     | .35     |
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| Gastric antral vascular ectasia          | 6 (10.0%)            | 12 (20.0%)                      | 1.63     | .20     |
| Ulceration (n = 14)                      | 10 (16.7%)           | 4 (6.7%)                        | 2.02     | .15     |
| Late repeat bleeding (n = 14)            | 10 (16.7%)           | 4 (6.7%)                        | 2.02     | .15     |

TABLE 1. Demographic, clinical, and endoscopic features of the studied groups

|   | EBL (n = 60)<br>No. (%) | Scleroligation (n = 60)<br>No. (%) | $\chi^2$   | P value |
|---|-------------------------|------------------------------------|------------|---------|
| Sex   |                         |                                    |            |         |
| Male  | 34 (56.7%)              | 44 (73.3%)                         | 3.66       | .055    |
| Female  | 26 (43.3%)              | 16 (26.7%)                         |            |         |
| Hyperbilirubinemia (total bilirubin >1.2 mg/dL) | 30 (50.0%)              | 24 (40.0%)                         | 0.84       | .35     |
| Ascites   | 44 (73.3%)              | 46 (76.7%)                         | 0.04       | .83     |
| Encephalopathy                                  | 24 (40.0%)              | 26 (43.3%)                         | 0.03       | .85     |
| LL edema  | 38 (63.3%)              | 44 (73.3%)                         | 0.96       | .32     |
| HTN   | 6 (10.0%)               | 6 (10.0%)                          | 0.09       | .76     |
| Etiology of liver disease                       |                         |                                    |            |         |
| HCV   | 52 (86.67%)             | 52 (86.67%)                        | FE = 5.33* | .06     |
| HBV   | 4 (6.66%)               | 8 (13.3%)                          |            |         |
| HCV + HBV                                       | 4 (6.66%)               | 0 (0%)                             |            |         |
| Diabetes mellitus                               | 12 (20.0%)              | 24 (40.0%)                         | 4.80       | .02     |
| Child-Pugh class                                |                         |                                    |            |         |
| A   | 8 (13.3%)               | 14 (23.3%)                         | 2.87       | .23     |
| B   | 20 (33.3%)              | 22 (36.7%)                         |            |         |
| C   | 32 (53.3%)              | 24 (40.0%)                         |            |         |
| Size of esophageal varices                      |                         |                                    |            |         |
| Small   | 30 (50.0%)              | 6 (10.0%)                          | 24.78      | < .001  |
| Medium  | 14 (23.3%)              | 34 (56.7%)                         |            |         |
| Large   | 16 (26.7%)              | 20 (33.3%)                         |            |         |
| Size of gastroesophageal varices                |                         |                                    |            |         |
| Small   | 36 (60.0%)              | 4 (6.7%)                           | 44.25      | < .001  |
| Moderate  | 18 (30.0%)              | 24 (40.0%)                         |            |         |
| Large   | 6 (10.0%)               | 32 (53.3%)                         |            |         |
| Gastroesophageal varices 1                      | 49 (81.7%)              | 45 (75.0%)                         | 0.44       | .50     |
| Gastroesophageal varices 2                      | 11 (18.3%)              | 15 (25.0%)                         |            |         |
| High-risk stigmata                              |                         |                                    |            |         |
| Red wale marks                                  | 40 (66.6%)              | 38 (63.3%)                         | 2.13       | .34     |
| Cherry red spots                                | 28 (46.6%)              | 20 (33.3%)                         |            |         |
| Hemocystic spots                                | 38 (63.3%)              | 46 (76.6%)                         |            |         |

- Another table from the same paper.
- All even numbers apart from the values in the red box.
- Very unlikely to occur by chance.
- Just one of many possible problems with studies from this researcher: analysis by Zhou et al., 2023: [OSF Preprints | Concerns about data integrity of 30 randomized clinical trials from one author.](#)

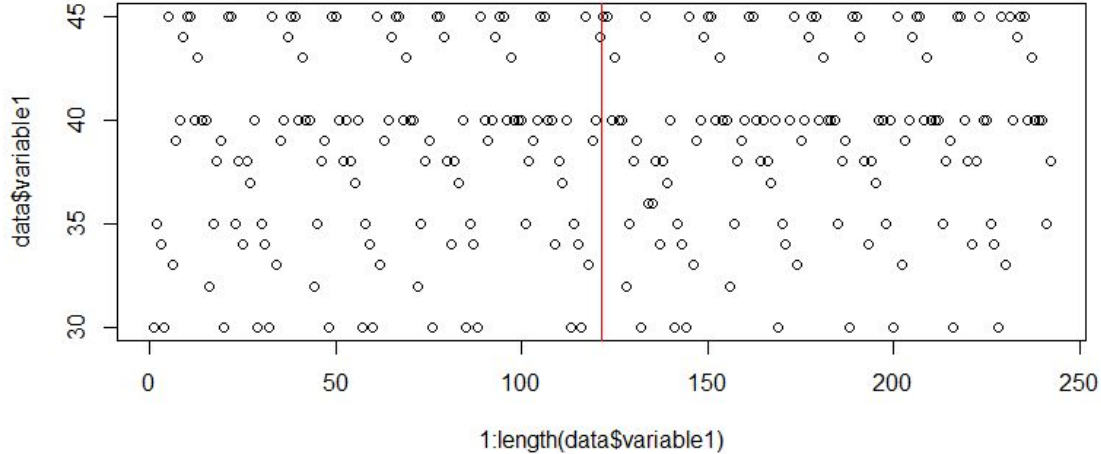


## Example 3: Inspecting the underlying data

- Sometimes we can obtain the underlying dataset (cf: the ivermectin example)
- This increases our chances of detecting problems
- Making simple plots of the data often reveals issues

# Example 3: Inspecting the underlying data

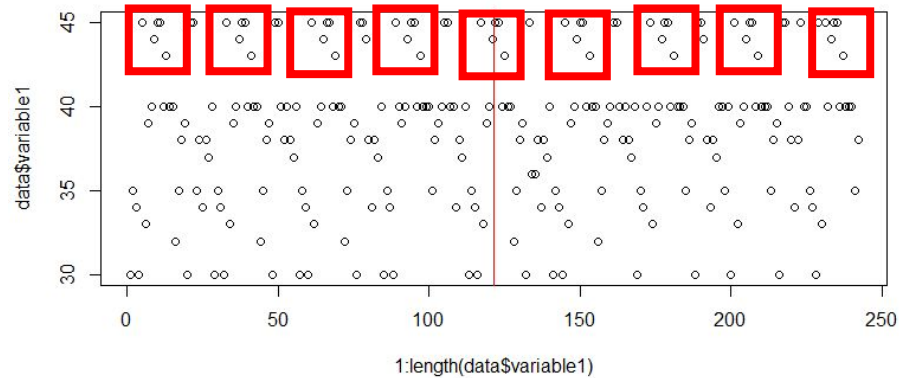
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Take a moment – can you spot any problems?

# Example 3: Inspecting the underlying data

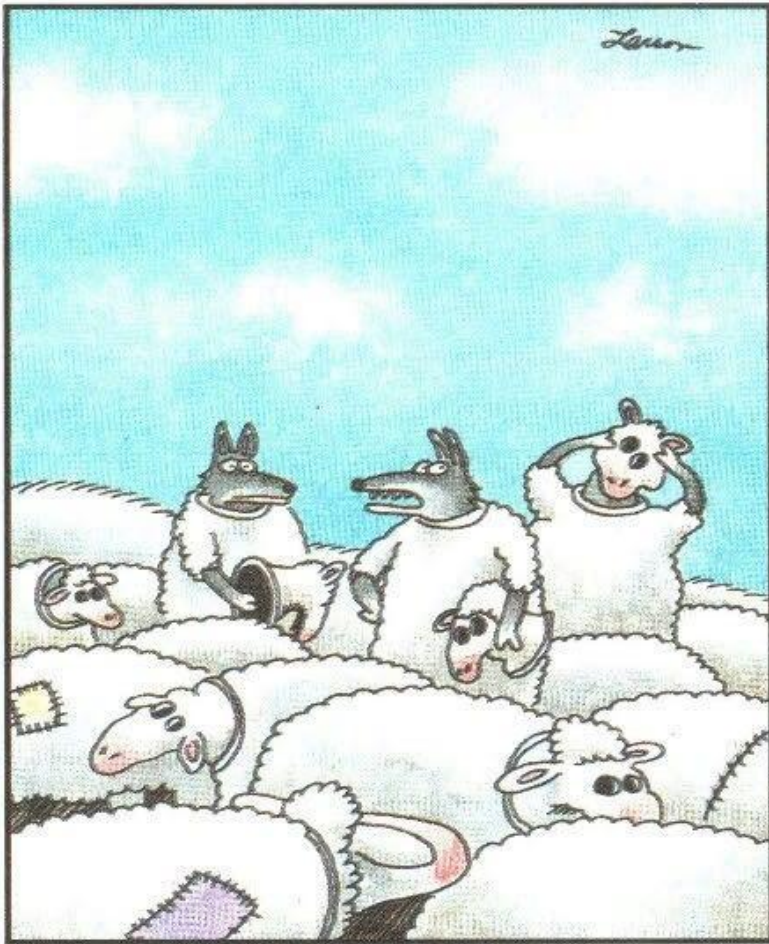
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# Once problems are identified



- Checks may introduce doubts about the authenticity of a study
- Make a holistic assessment of a study – not a single check
- “Could there be an explanation for this?”
- Often, it is difficult to be sure whether problems are due to misconduct, or extremely poor conduct
- Either way, we might have reservations about using the study to inform clinical practice.



“Wait a minute! Isn't anyone here a real sheep?”


- We have done well at asking “is the evidence good?”
- We need to start asking “is the evidence real?”
- Would it have occurred to you to question the authenticity of the evidence you read?
- Hopefully this will become the norm for systematic review authors and for journals.

Source: The Far Side, Gary Larson

# Thanks to expert panel members

---

|                     |                  |                        |                       |                 |
|---------------------|------------------|------------------------|-----------------------|-----------------|
| Elizabeth Loder     | Toby Lasserson   | Kyle Sheldrick         | Andrew Grey           | Susan Garfinkel |
| John Carlisle       | Tianjing Li      | Emily Lam              | David Torgerson       | Andreas Lundh   |
| Karla Soares-Weiser | Neil O' Connell  | Rebecca Jones          | Esmée Bordewijk       | Lyle Gurrin     |
| Rita Redberg        | Lisa Parker      | Darren Dahly           | Nick Brown            | Lene Seidler    |
| Jo Dumville         | Virginia Barbour | Alison Avenell         | Wentao Li             | Kylie Hunter    |
| Mike Clarke         | Ben Mol          | James Heathers         | Richard Stevens       | Pat Dicker      |
| Emma Sydenham       | Barbara Redman   | Gideon Meyerowitz-Katz | Rafael Perera-Salazar |                 |
| Jane Dennis         | Jill Hayden      | Madelon van Wely       | Sarah Lensen          |                 |

- Need people to participate in Delphi (experts in RCTs, data integrity, and potential users of the tool)
- Need people who would be willing to test a tool while undertaking a systematic review (so if you plan to write a review soon, let me know!).
- Please contact me if this sounds like you: [jack.wilkinson@manchester.ac.uk](mailto:jack.wilkinson@manchester.ac.uk) or  @jd\_wilko



Q&A

Trusted evidence.  
Informed decisions.  
Better health.



# Implementation of evidence-based practice: a multidisciplinary perspective

Trusted evidence.  
Informed decisions.  
Better health.





Trusted evidence.  
Informed decisions.  
Better health.

# Finding evidence to inform clinical decisions for busy healthcare professionals

Nia Roberts



# Finding evidence to inform clinical decisions for busy healthcare professionals

Nia Wyn Roberts

Senior Outreach Librarian

Bodleian Health Care Libraries

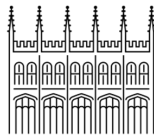
3<sup>rd</sup> September 2023



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LIBRARIES

# Finding evidence quickly

- What's your question?
- What evidence would answer that question?
- Where would you look to find that evidence?



# What's your question?

P = RA, mod-sev @  
presentation

I = Methotrexate – 1<sup>st</sup> line

O = remission, lower  
disease activity, AEs



In patients presenting for the 1<sup>st</sup> time with moderate/severe rheumatoid arthritis, should they be started on methotrexate straight away? Does it slow progression? What about side effects?

# Intervention question: What evidence?

- Evidence reviews
  - Evidence based synopses
  - Systematic reviews
  - Guidelines
- *Primary Research*
  - *RCTs*



# Where to search? Open access vs Subscription

- Open access

- Cochrane Library
- PubMed
- Trip Free

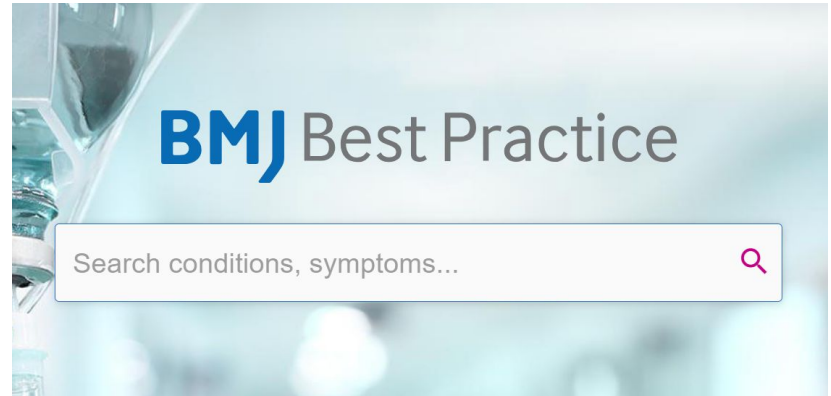
- Subscription

- Cochrane Library
- POC information tools
- Trip Pro

Check NHS OpenAthens or other institutional access

# Where to search? Point of Care information tools

- BMJ Best Practice
- DynaMedex
- UpToDate
- Key search concept
  - Population terms
  - Click through sections



# BMJ Best Practice

Rheumatoid arthritis



Specialties



Calculators



Comorbidities



Patient leaflets



Videos



Case reports



Evidence





## Rheumatoid arthritis

View PDF

OVERVIEW

THEORY

DIAGNOSIS

MANAGEMENT

FOLLOW UP

RESOURCES

Summary

Epidemiology

Approach

Approach

Monitoring

Guidelines

Aetiology

History and exam



Treatment algorithm

Complications

Images and videos

Case history

Investigations

Emerging

Prognosis

References

Differentials

Prevention

Patient leaflets

Criteria

Patient discussions

Evidence

## Treatment algorithm

 moderate-to-severe disease activity at initial presentation: not pregnant or planning pregnancy

### 1ST LINE

conventional synthetic disease-modifying anti-rheumatic drug (DMARD) →

### CONSIDER

biological agent or targeted synthetic DMARD →

### CONSIDER

corticosteroid →

### CONSIDER

non-steroidal anti-inflammatory drug →

ACUTE | moderate-to-severe disease activity at initial presentation: not pregnant or planning pregnancy

### 1ST LINE

## conventional synthetic disease-modifying anti-rheumatic drug (DMARD)

If the patient has moderate-to-severe disease with or without extra-articular manifestations (e.g., pleuritis, interstitial lung disease, pericarditis, inflammatory eye disease) with poor prognostic factors such as rheumatoid factor (RF) positivity and/or anti-cyclic citrullinated peptide (anti-CCP) antibodies, and radiographic evidence of bony erosions at presentation, a more aggressive approach to initial therapy may be needed.

Methotrexate monotherapy is the initial treatment of choice.<sup>[24][51]</sup> Oral administration of methotrexate is preferred for patients initiating methotrexate, despite moderate evidence suggesting superior efficacy of subcutaneous injections, due to the ease of oral administration.

# Where to search? Systematic Reviews

- Cochrane Library
- PubMed
- Trip Free
  
- Key search concept
  - Population terms
  - Intervention terms
  - Systematic review filter




## Advanced Search

Search

Search manager

Medical terms (MeSH)

PICO search

 Save search View saved searches

? Search help

Did you know you can now select fields from Search manager using the **S ▾** button (next to the search box)?

Search manager lets you add unlimited search lines, view results per line and access the MeSH browser using the new **MeSH ▾** button.

Title Abstract Keyword ▾

"rheumatoid arthritis" AND methotrexate

(Word variations have been searched)

+

Search limits

Send to search manager

Run search



Cochrane Reviews  
25

Cochrane Protocols  
1

Trials  
5282

Editorials  
1

Special Collections  
0

More  
▼

### Filter your results

Date i

Publication date

The last 3 months ..... 0

The last 6 months ..... 0

The last 9 months ..... 0

The last year ..... 0

The last 2 years ..... 0

Custom Range:

to

## 25 Cochrane Reviews matching "rheumatoid arthritis" AND methotrexate in Title Abstract Keyword - (Word variations have been searched)

Cochrane Database of Systematic Reviews  
Issue 8 of 12, August 2023

Select all (25)    Export selected citation(s)    Show all previews

Order by

Results per page



1  **Combination therapy for pain management in inflammatory arthritis (rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, other spondyloarthritis)**

Sofia Ramiro, Helga Radner, Désirée van der Heijde, Astrid van Tubergen, Rachele Buchbinder, Daniel Aletaha, Robert BM Landewé

Intervention Review 5 October 2011

Show preview ▼



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Add terms to the query box

**Title**   

**AND** 

Show Index

Query box

**("rheumatoid arthritis"[Title]) AND (methotrexate[Title])** 

**Search** 

Save

Email

Send to

Sort by: Publication date



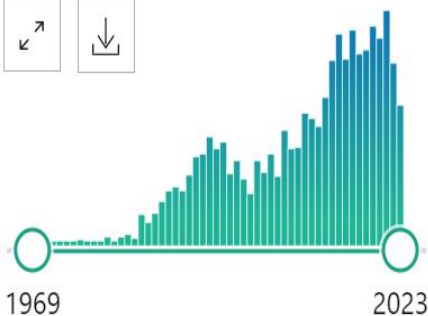
Display options

MY NCBI FILTERS

2,935 results

Page 1 of 294

RESULTS BY YEAR



TEXT AVAILABILITY

1 Dissolving microneedle patch-assisted transdermal delivery of **methotrexate** improve the therapeutic efficacy of **rheumatoid arthritis**.

Cite Zhao W, Zheng L, Yang J, Ma Z, Tao X, Wang Q.  
Drug Deliv. 2023 Dec;30(1):121-132. doi: 10.1080/10717544.2022.2157518.  
Share PMID: 36533887 [Free PMC article](#).

2 Factors influencing prescribing the first add-on disease-modifying antirheumatic drugs in patients initiating **methotrexate** for **rheumatoid arthritis**.

Cite Huang Y, Chatterjee S, Agarwal SK, Chen H, Johnson ML, Aparasu RR.



("rheumatoid arthritis"[Title]) AND (methotrexate[Title])



Search

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Save

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Send to

Sort by

Best match



Display options



MY NCBI FILTERS

36 results



Page

1

of 4

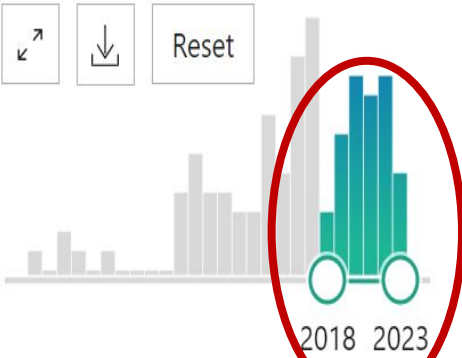


RESULTS BY YEAR

Filters applied: Systematic Review. [Clear all](#)



Reset



Side effects of **methotrexate** therapy for **rheumatoid arthritis**: A systematic review.

1

Cite

Wang W, Zhou H, Liu L.

Share

Eur J Med Chem. 2018 Oct 5;158:502-516. doi: 10.1016/j.ejmech.2018.09.027. Epub 2018 Sep 13.

PMID: 30243154 [Review](#).

# Where to search? Guidelines

- PubMed
- Trip Pro
- Royal Colleges
- Professional organisations
  
- Key search concept
  - Population terms
  - Guidelines filter



## Trip medical database

A smart, fast tool to find high quality clinical research evidence

Search

PICO

Advanced

Recent

"rheumatoid arthritis" AND methotrexate

Search

Search PICO Advanced Recent

"rheumatoid arthritis" AND methotrexate Search

# "rheumatoid arthritis" AND methotrexate

136 results

## Filter Results

- Toggle All Types
- All Secondary Evidence
- Systematic Reviews 622
- Evidence Based Synopses 154
- Guidelines**
  - Aus. & NZ 3
  - Canada 15
  - UK 26
  - USA 29

Order By Quality Show Snippets Oxford University Hospitals NHS Foundation Trust Results page key Export Articles

1 **EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2022 update**

Other - Guidelines 2022 EULAR Trip Score Narrative based Evidence based ?

EULAR recommendations for the management of **rheumatoid arthritis** with synthetic and biological disease-modifying antirheumatic drugs: 2022 update Skip to main contentSubscribe Log In Basket Search Latest content Current issue Archive Authors Podcasts AboutYou are hereHome Online FirstEmail alertsArticleTextArticleinfoCitationToolsShareRapid ResponsesArticlemetricsAlertsPDFRecommendationEULAR recommendations for the management of **rheumatoid arthritis** with synthetic and biological disease-modifying antirheumatic drugs: 2022 update FREEhttp://orcid.org/0000-0002-4302-8877Josef S Smolen1, http://orcid.org/0000-0002-0577-6620Robert B M Landewé2, http://orcid.org/0000-0002-7136-5248Sytske Anne Bergstra3, http://orcid.org/0000-0002-6685-8873Andreas Kerschbaumer1, http://orcid.org/0000-0003-1954



# Finding evidence to inform clinical decisions for busy healthcare professionals

Can't find what you need?

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- All other images are screenshots from the specified databases



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Informed decisions.  
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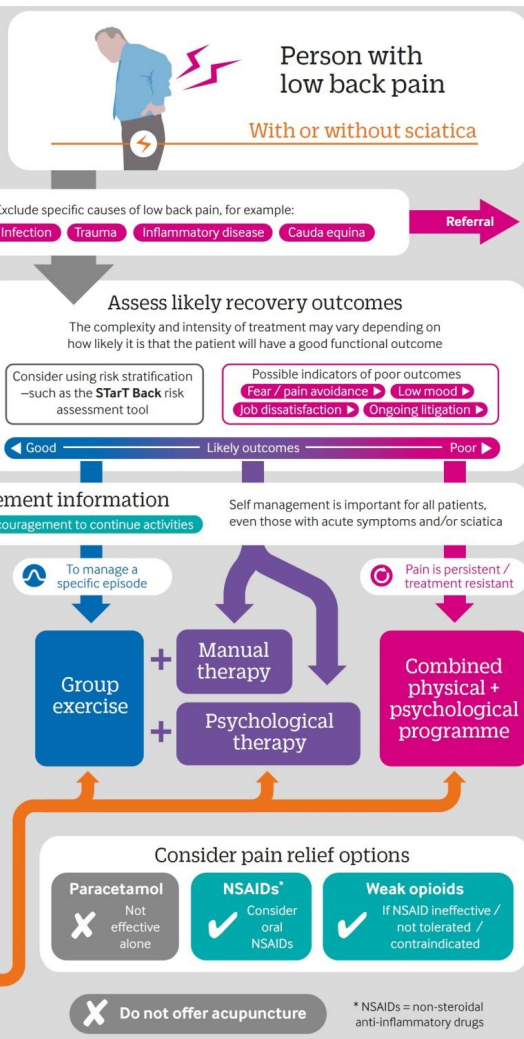
# From clinical guidelines to change in practice

Dr Neil O'Connell

## Visual summary

### Managing low back pain and sciatica

A brief overview of the new NICE guidelines, from the perspective of a patient presenting in primary care.



What have clinical guidelines ever done for us?

From guidelines to practice

Neil O'Connell

Brunel University London





# Me/ Declaration of Interests



**NICE** National Institute for  
Health and Care Excellence





# Why do we need guidelines?

Summarise/ synthesise  
evolving knowledge

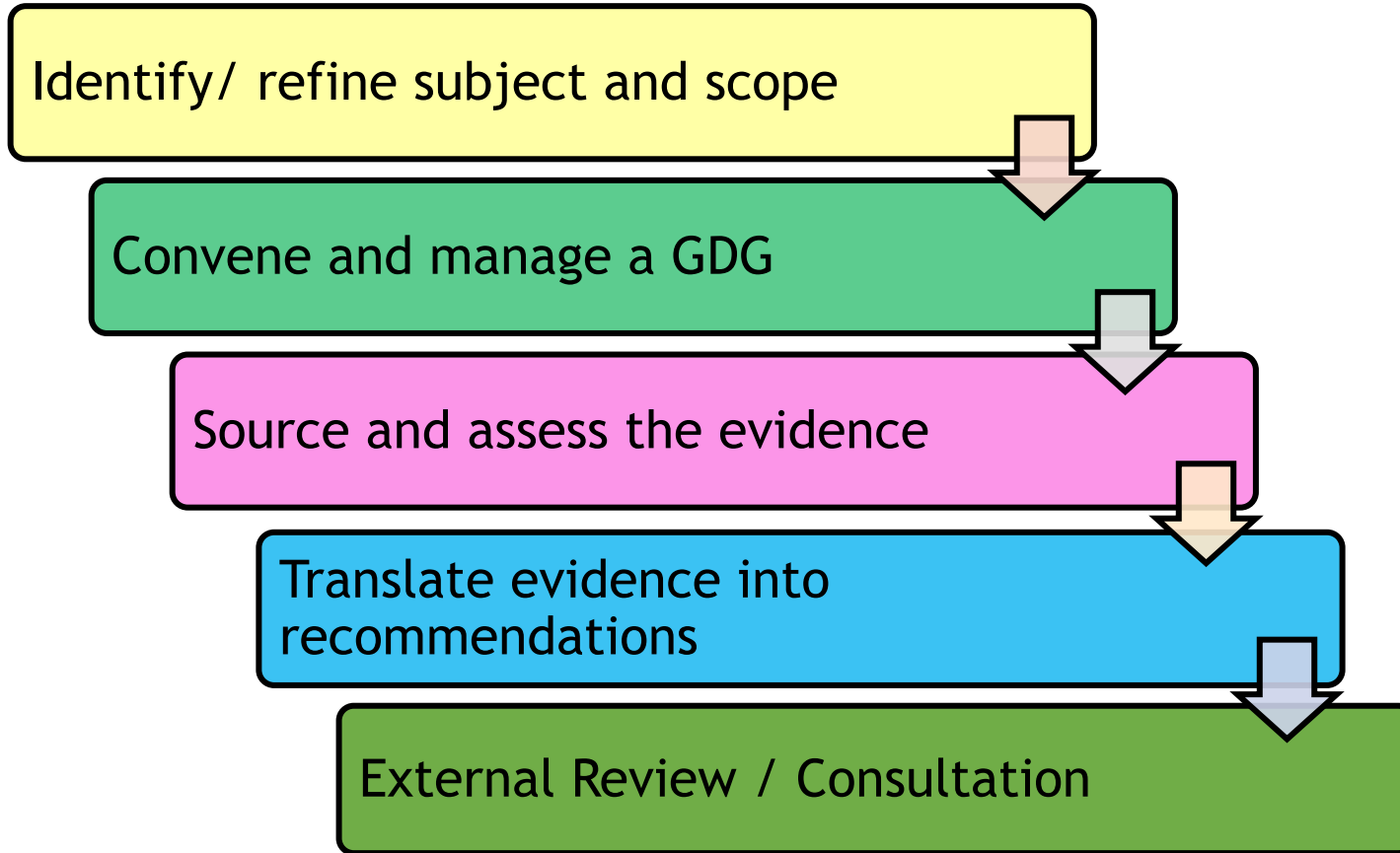
Promote evidence-based  
clinical practice

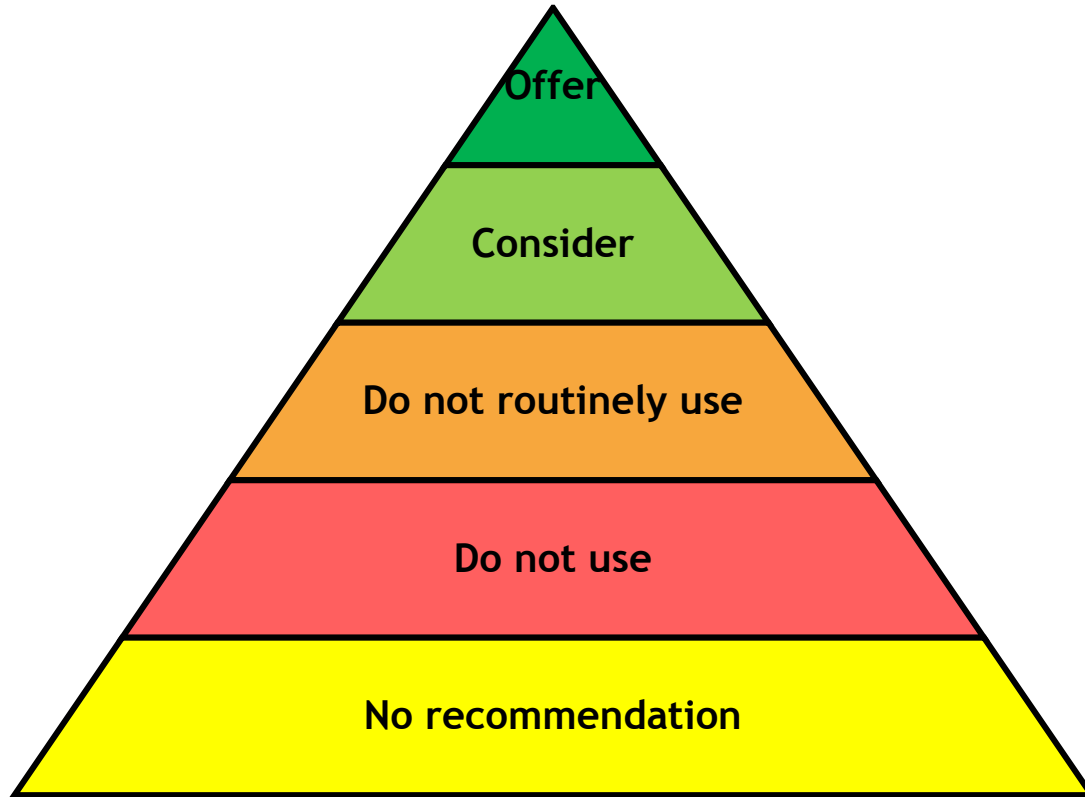
Reduce UNWANTED  
variation in practice

Improve quality and  
efficiency of patient  
care

Satisfy the need for  
transparency and  
accountability

# THE PROCESS





**NICE** National Institute for  
Health and Care Excellence

# Multidisciplinary participation (including people with lived experience) is essential to ensure:



- Proper evaluation and interpretation of specialty-specific evidence
- Relevance to the realities of everyday practice
- Ownership and contribution of all stakeholder groups
- Patient views and preferences are heard
- Balance of interests




## Drivers of the opioid crisis: An appraisal of financial conflicts of interest in clinical practice guideline panels at the peak of opioid prescribing

Sheryl Spithoff<sup>1,2\*</sup>, Pamela Leece<sup>2,3,4</sup>, Frank Sullivan<sup>2,5</sup>, Nav Persaud<sup>2,6</sup>, Peter Belesiotis<sup>6,7</sup>, Liane Steiner<sup>8</sup>

### 13 guidelines on opioid prescribing 2007-2013

43 red flags in total

average 3.3/7 per guideline



| Item on the GPR       | Element known to introduce potential bias   |
|-----------------------|---|
| Sponsor               | Sponsor(s) is a professional society that receives substantial industry funding or sponsor is a proprietary company, or is undeclared or hidden |
| Committee chair (s)   | Committee chair(s) have any financial conflict  |
| Committee members     | Multiple panel members have any financial conflict  |
| Committee stacking    | Any suggestion of committee stacking that would pre-ordain a recommendation regarding a controversial topic                                     |
| Role of methodologist | No or limited involvement of an expert in methodology in the evaluation of evidence   |
| External review       | No external review  |
| Committee composition | No inclusion of non-physician experts/patient representative/ community stakeholders  |

Spithoff 2020 PLoS ONE 15(1): e0227045

# Agree II

<http://www.agreetrust.org/agree-ii/>



AGREE II

Domain 1

Scope and Purpose

Domain 2

Stakeholder  
Involvement

Domain 3

Rigour of  
Development

Domain 4

Clarity of  
Presentation

Domain 5

Applicability

Domain 6

Editorial  
Independence





41  
recommendations,  
7 research  
recommendations

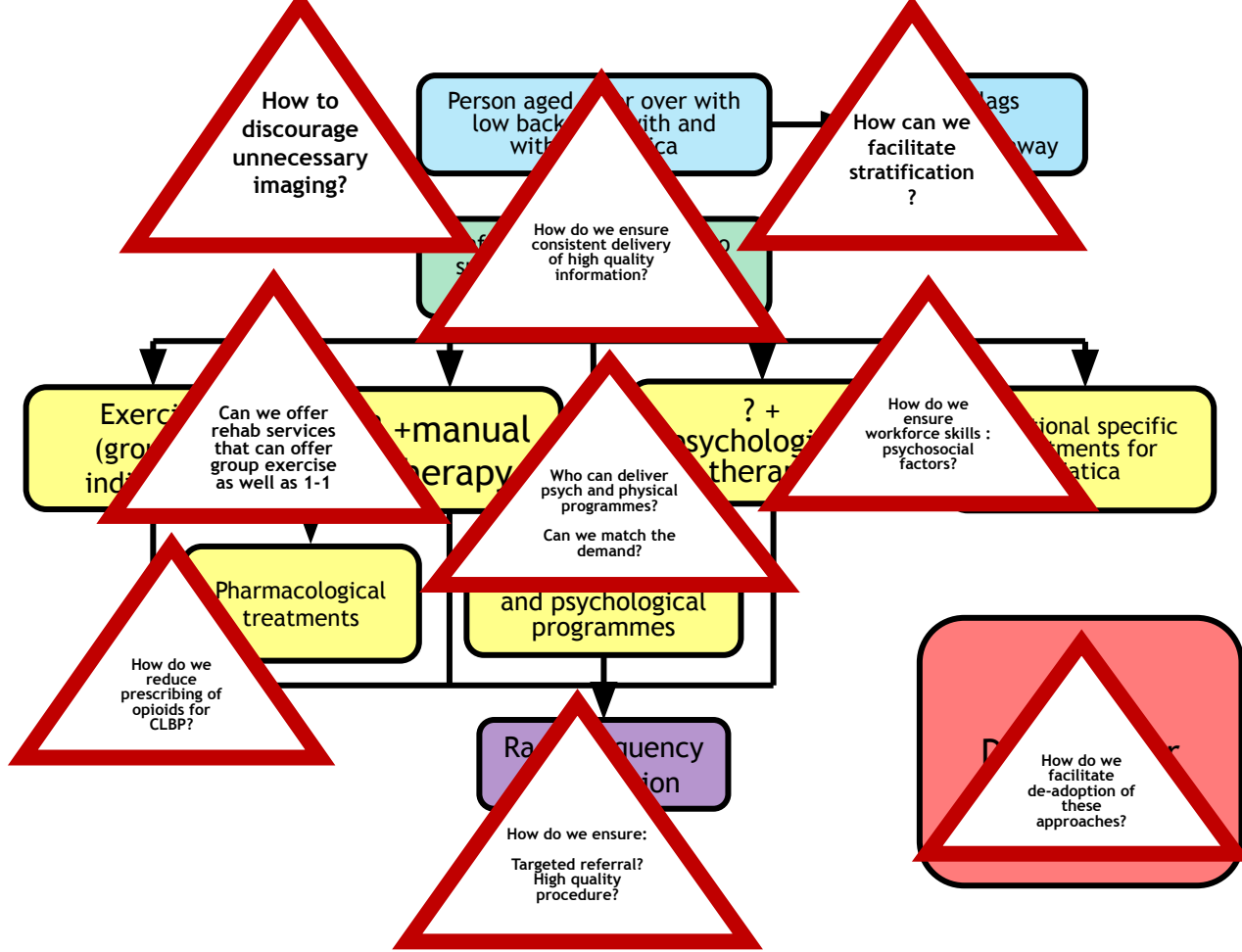
3 years to produce  
the final guideline  
3,600 pages

720 stakeholder  
comments, 297  
internal review  
comments

43,000 records  
screened, 734  
papers reviewed,

23 review  
questions, 22  
Systematic  
reviews

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## **What is usual care for low back pain? A systematic review of health care provided to patients with low back pain in family practice and emergency departments**

Steven J. Kamper<sup>a,b,\*</sup>, Gabrielle Logan<sup>c</sup>, Bethan Copsey<sup>d</sup>, Jacqueline Thompson<sup>c</sup>, Gustavo C Machado<sup>a</sup>, Christina Abdel-Shaheed<sup>a</sup>, Christopher M. Williams<sup>b,e,f</sup>, Christopher G. Maher<sup>a</sup>, Amanda M. Hall<sup>c</sup>

“Large numbers of patients who saw a physician for LBP received care that is inconsistent with evidence-based clinical practice guidelines.

Usual care included overuse of imaging and opioid prescription and underuse of advice and information. Suboptimal care may contribute to the massive burden of the condition worldwide.”

# MIND THE GAP

Advice provided in only 21% of consultations in Australia

56% LBP patients in ED in Italy referred for imaging

High, variable rates of injections for LBP globally

67% LBP patients in primary care in Qatar advised to bed rest

In 2011 spinal fusion had highest aggregate hospital costs of any surgery in USA

54% LBP insured patients in USA referred for imaging

60% LBP in ED in USA prescribed an opioid.  
61% in primary care

54% LBP patients in USA not prescribed exercise

BANG HEAD HERE



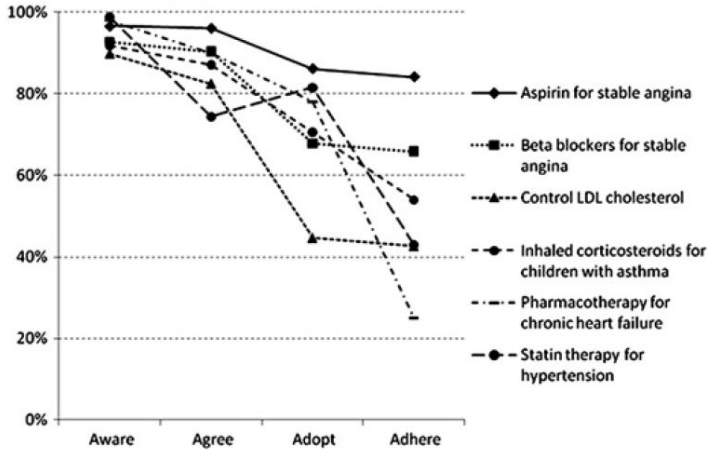
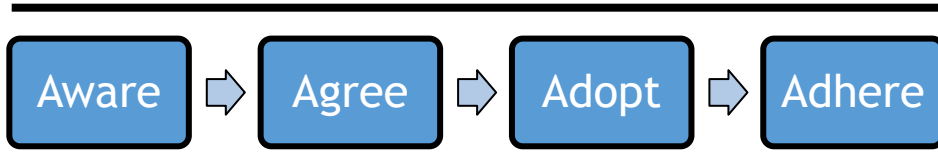


Figure 2 Absolute responder rates for drug recommendations. LDL, low density lipoprotein.

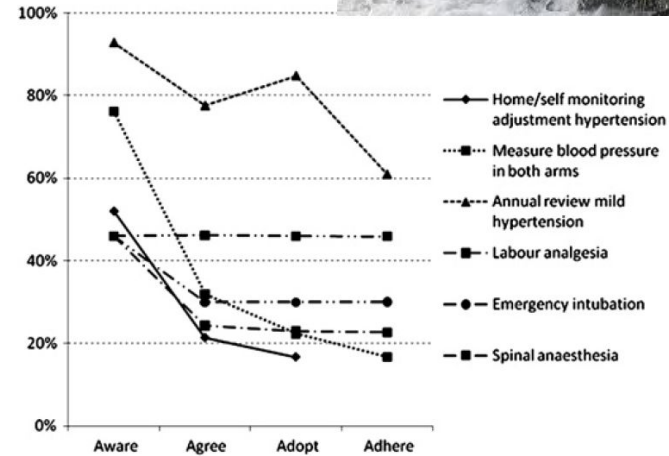


Figure 3 Absolute responder rates for medical management recommendations.

Mickan et al. Postgrad Med J  
2011;87:670e679



**PERSONAL  
FACTORS**

Volume of guidelines  
Lack of knowledge  
Rejection of EBP  
paradigm  
Patient acceptability

**GUIDELINE  
FACTORS**

Feasibility  
Credibility  
Accessibility

**EXTERNAL  
FACTORS**

Local organisation  
Resources  
MDT buy-in





“We judge ourselves by our intentions and others by their behaviour”.

Steven Covey via Jason Silvernail

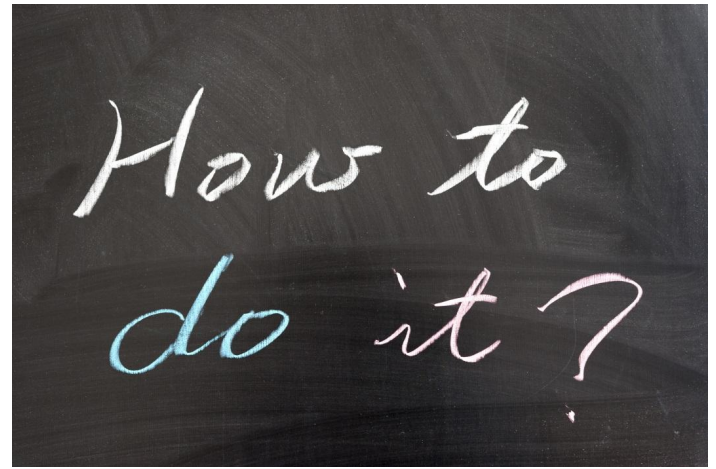
DISSEMINATE

EDUCATE/ TRAIN

OUTREACH/  
OPINION LEADERS

DECISION SUPPORT  
SYSTEMS

MANDATE?



But...evidence?

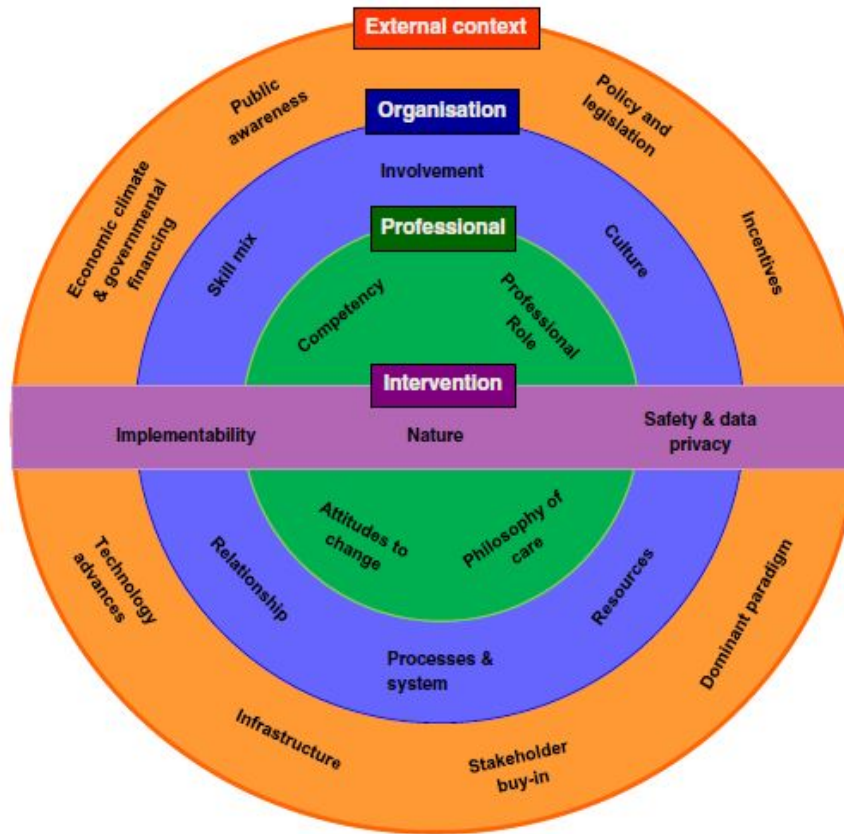
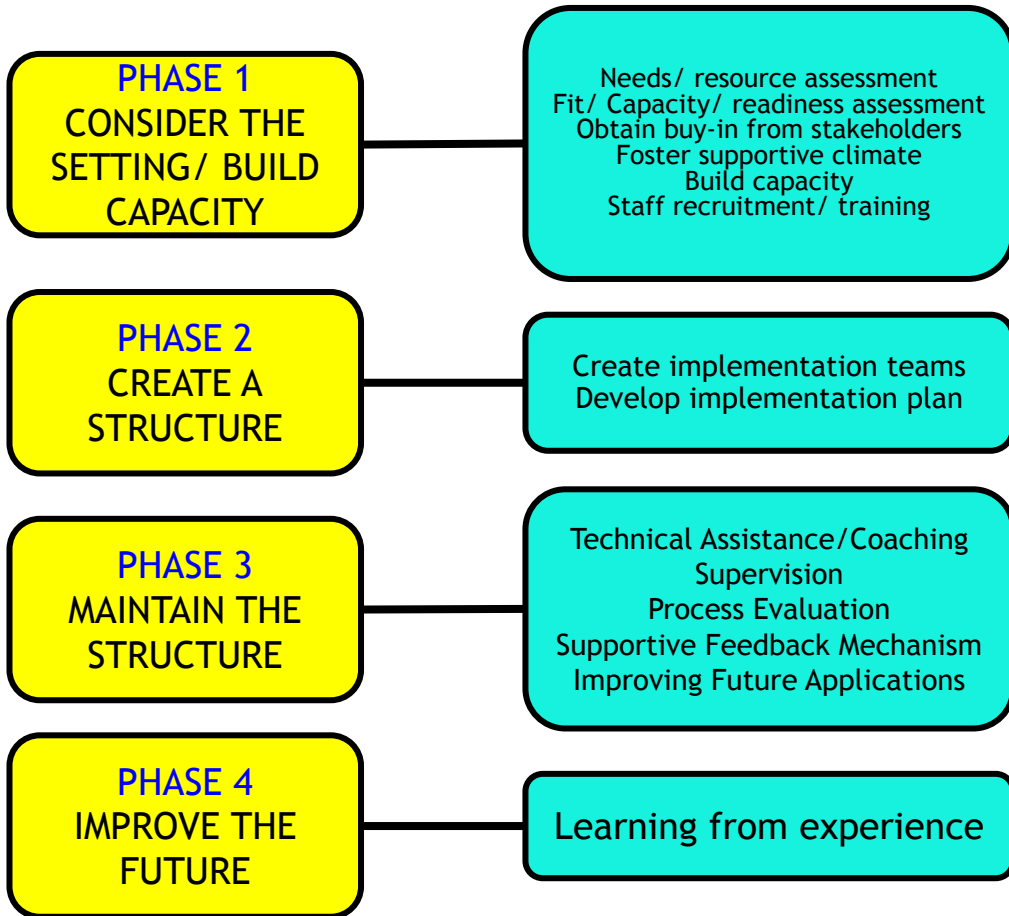


Fig. 2 Conceptual framework describing key elements that influence implementation of change in primary care

Lau R et al. Achieving change in primary care--causes of the evidence to practice gap: systematic reviews of reviews. *Implement Sci.* 2016;11:40.

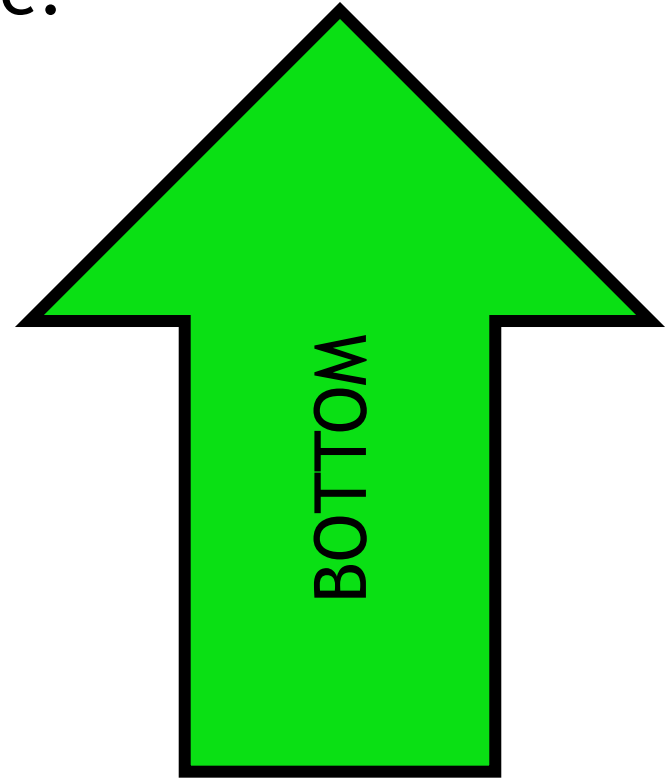
# Quality Implementation Framework



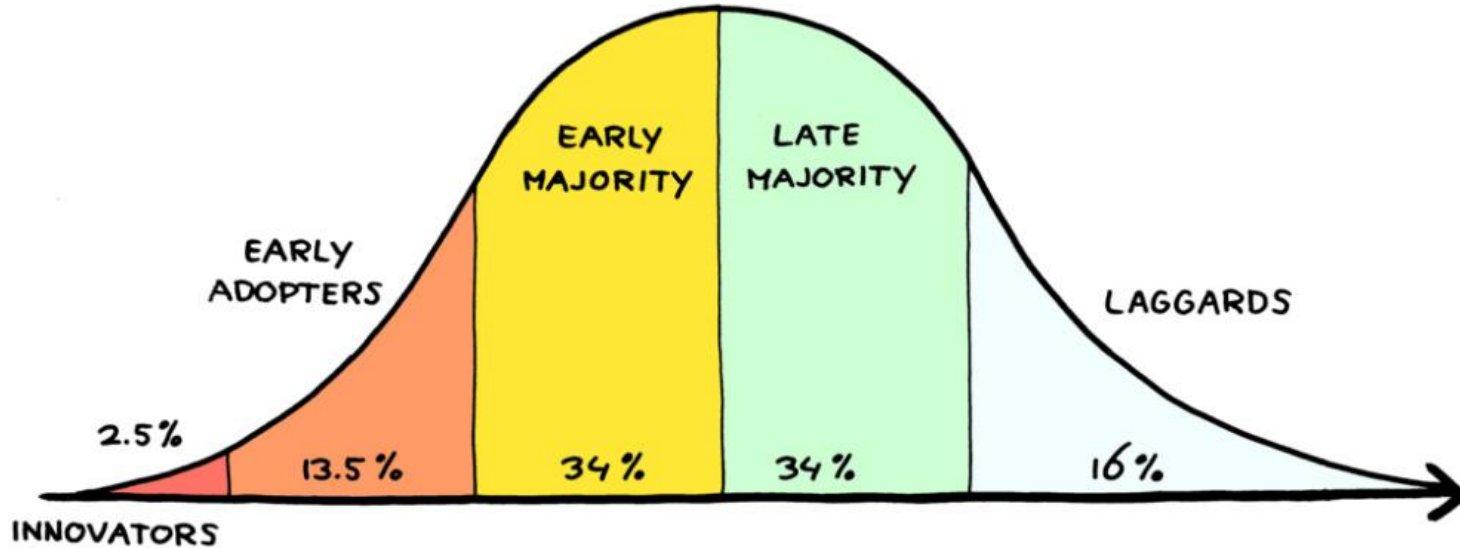
# Who makes the change in practice?

MeReC Bulletin 2011;22(2)

- Adoption ultimately depends on decisions to change made by individual people
- Front-line clinical staff have a greater measure of control and influence over day-to-day decision-making
- Important to consider what needs to be done from a ‘bottom up’ perspective, to support individuals



# Rogers (1962) diffusion of <sup>\*</sup> innovation

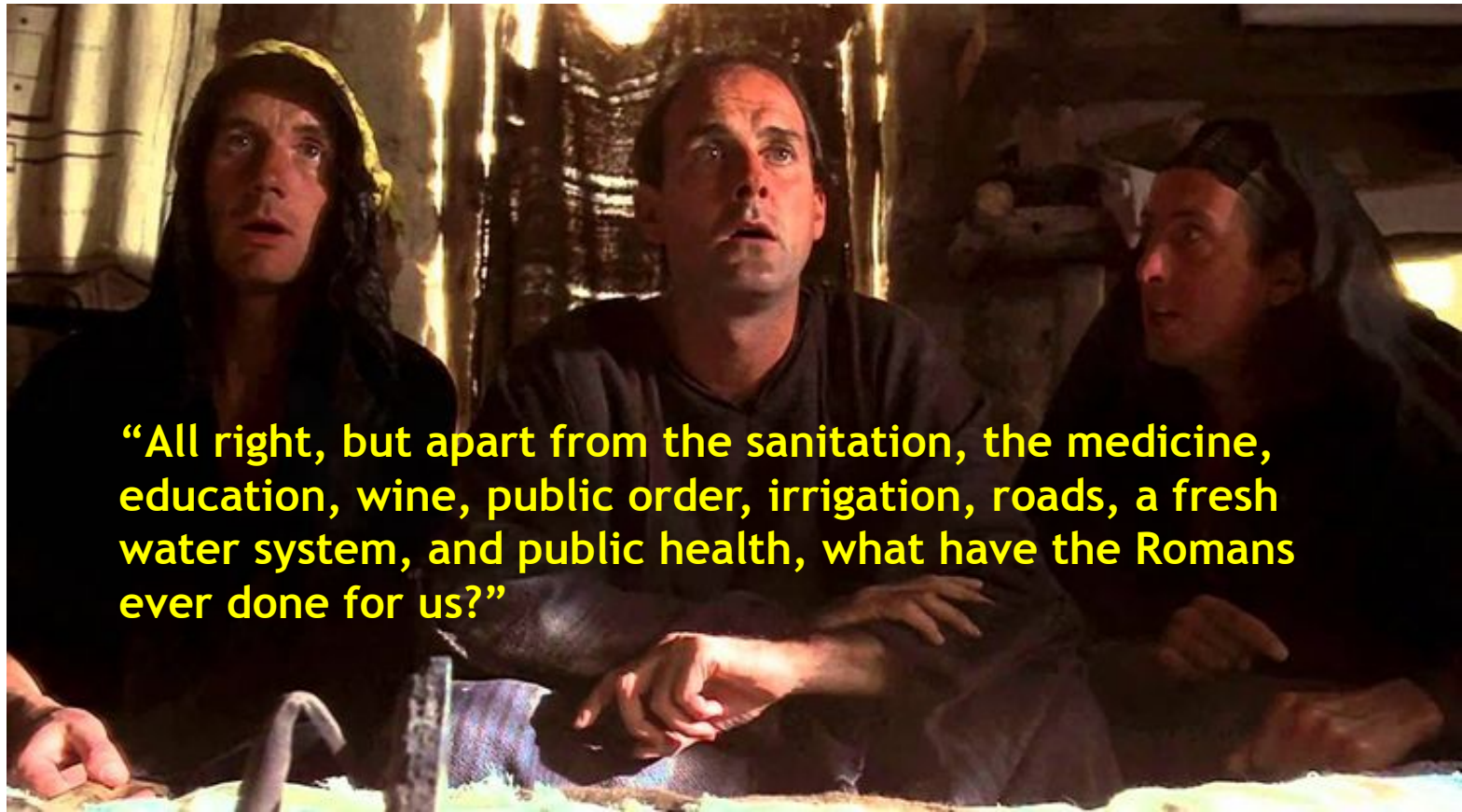


Which are you?

“Everyone in healthcare has two jobs when they come to work; to do their work and to improve it. This is the essence of Quality Improvement (QI).”

*Paul B Batalden*





**“All right, but apart from the sanitation, the medicine, education, wine, public order, irrigation, roads, a fresh water system, and public health, what have the Romans ever done for us?”**





**CULTURE  
SHIFT**



## OFFER

clear targets for  
reducing waste  
and harm

## PROMOTE

the delivery of  
good information  
to patients,  
self-management  
  
and a shift toward  
a less  
interventionist  
culture

## HIGHLIGHT

the considerable  
work yet to be  
done to optimize  
care

# Thanks for Listening!

## [ VIEWPOINT ]

NEIL E. O'CONNELL, PhD<sup>1</sup> • STEPHEN P. WARD, MBBS, FRCA, FFPMRCA<sup>2</sup>

## Low Back Pain: What Have Clinical Guidelines Ever Done for Us?

*J Orthop Sports Phys Ther* 2018;48(2):54-57 doi:10.2599/jospt.2018.06.02

Best Practice & Research Clinical Rheumatology 30 (2016) 968–980



Contents lists available at ScienceDirect

Best Practice & Research Clinical  
Rheumatology

journal homepage: [www.elsevierhealth.com/berh](http://www.elsevierhealth.com/berh)



1

Clinical guidelines for low back pain: A critical review of consensus and inconsistencies across three major guidelines



Neil E. O'Connell, PhD, MSc <sup>a,\*</sup>,  
Chad E. Cook, PhD, PT, MBA Professor <sup>b</sup>,  
Benedict M. Wand, BAppSc, GradDip, MAppSc, PhD <sup>c</sup>,  
Stephen P. Ward, MBBS FRCA FFPMRCA <sup>d</sup>

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[@neiloconnell](https://twitter.com/neiloconnell)





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Informed decisions.  
Better health.

# How to measure the impact of evidence-based practice

Prof Declan Devane



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IRELAND



# How to Measure the Impact of Evidence-Based Practice

Professor Declan Devane  
Professor of Health Research Methodology  
University of Galway, Ireland

**Putting Evidence into Practice, Cochrane Colloquium, London, 2023**

[www.evidencesynthesisireland.ie](http://www.evidencesynthesisireland.ie)

email: [esi@universityofgalway.ie](mailto:esi@universityofgalway.ie)  [@EvidSynIRL](https://twitter.com/EvidSynIRL)

[www.ireland.cochrane.org](http://www.ireland.cochrane.org)

 [@CochraneIreland](https://twitter.com/CochraneIreland) #EvidenceSynthesis



An Bord  
Taighde Sláinte  
Health Research  
Board



OLLSCOIL NA  
GAILLIAMHE  
UNIVERSITY  
OF GALWAY





# Introduction

- Objective of the talk
- Importance of measuring impact
- Scope: from hospitals to general practice



# Why measure impact?

- Institutional accountability
- Quality assurance
- Backbone of patient safety and clinical governance





# What can we measure?

- Clinical outcomes: mortality, morbidity
- Process metrics: efficiency (e.g., treatment times, resource use)
- Patient experience: surveys, feedback



# Tools and frameworks

- Quantitative: statistical models, control groups
- Qualitative: interviews, focus groups
- Combined methods: Often the case







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# Case study



# Case study

- Setting and background
  - Hospital: general hospital, surgical ward
  - Problem: high rates of surgical site infections
  - Duration: 12 months (6 months pre and 6 months post-implementation)



# Methods

- Design: pre-and-post implementation comparison
- Quantitative data: infection rates
- Qualitative data: patient & staff interviews
- Ethical considerations: consent, anonymity



# Implementation

- New guidelines: sterilisation, antibiotics, post-op care
- Staff training: workshops and seminars
- Monitoring: weekly audits



# Results

- Infection rates: relative reduction in SSIs by 30%
- Patient satisfaction: improved by 20%
- Clinically important



# Challenges and limitations

- Methodological challenges: sample size, selection bias
- Resource challenges: funding, time
- Quality of data: verification, cross-reference





# Recommendations

- Prioritise clinically relevant metrics
- Mixed method approach likely
- Multi-disciplinary approach: statisticians, clinicians, patients
- Ongoing assessment: continuous auditing



# Conclusion

- Assessing the impact of evidence-based practice:
- Is important
- Requires an integrated approach combining various metrics, tools, and frameworks
- Isn't just an academic exercise; it's fundamental to the enhancement of healthcare services






RESEARCH ARTICLE

Open Access

# Implementing an initiative to promote evidence-informed practice: part 1 — a description of the Evidence Rounds programme



Aislinn Conway<sup>1,2\*</sup> , Maura Dowling<sup>2</sup>, Áine Binchy<sup>2,3</sup>, Jane Grosvenor<sup>3</sup>, Margaret Coohill<sup>4</sup>, Deirdre Naughton<sup>2,4</sup>, Jean James<sup>2,3</sup> and Declan Devane<sup>1,2</sup>

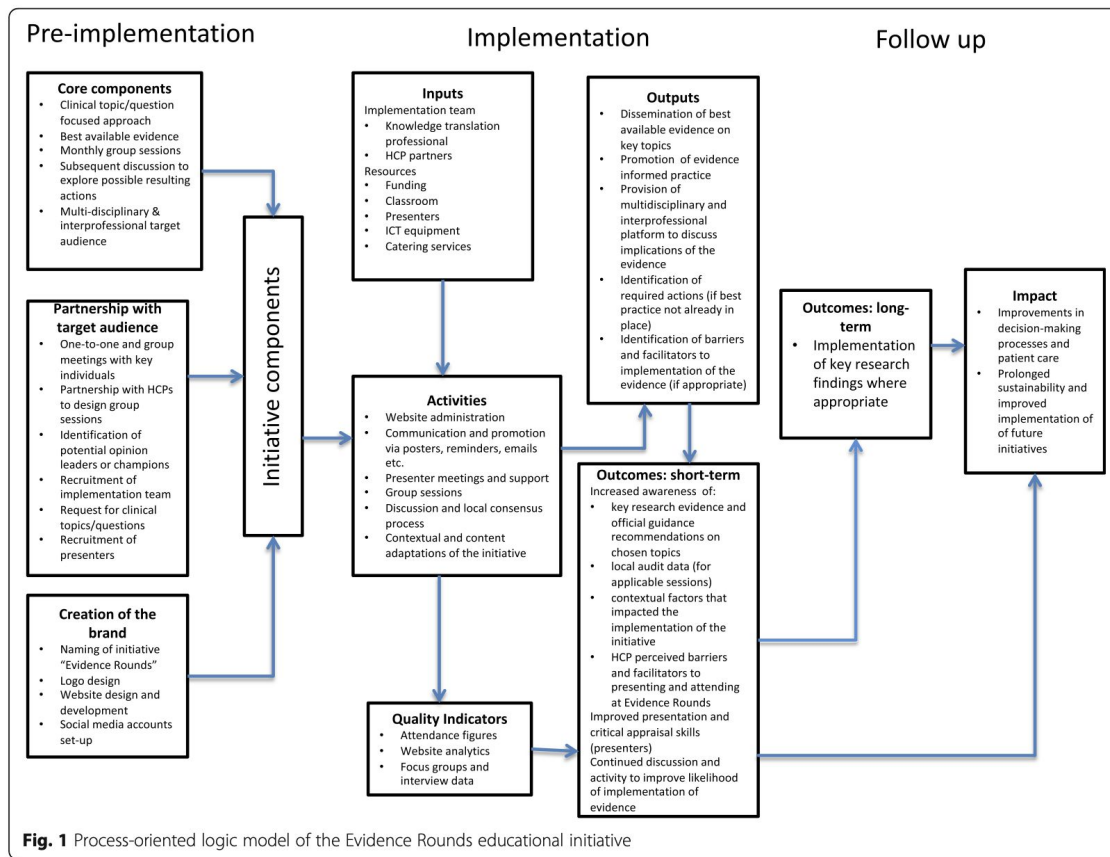
RESEARCH ARTICLE

Open Access



# Implementing an initiative promote evidence-informed practice: part 2—healthcare professionals' perspectives of the evidence rounds programme

Aislinn Conway<sup>1\*</sup> , Maura Dowling<sup>2</sup>  and Declan Devane<sup>1</sup> 



**Fig. 1** Process-oriented logic model of the Evidence Rounds educational initiative



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*Thank you all*



Q&A

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Informed decisions.  
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Cochrane Clinical Answers

### Question:

**What are the effects of low glycemic index (GI) or low glycemic load (GL) diets for people with overweight or obesity?**

Sera Tort, Adarsh Gupta

8 August 2023

<https://doi.org/10.1002/cca.4359>

### Clinical Answer:

For people with overweight and obesity, low GI/GL diets show likely no clear benefits or harms over higher GI/GL diets or over any other diets.



**Thank you for attending**

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Informed decisions.  
Better health.